Isles of Scilly Special Area of Conservation (SAC) Complex Seagrass Survey 2016

Technical Report—March 2017

Prepared for

Natural England

By

Marine Ecological Surveys Limited

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Non-technical Summary

Marine Ecological Surveys Limited (MESL) was commissioned by Natural England to conduct a subtidal monitoring survey of the Isles of Scilly Complex Special Area of Conservation (SAC), specifically looking at the seagrass (*Zostera marina*) beds. The survey was undertaken by MESL between 30th August and 9th September 2016 and sites were accessed by RIB using drop down video techniques at 815 stations to determine the extent and condition of the seagrass. The purpose of this survey was to provide Natural England with an evidence-based assessment of the condition of seagrass as a sub-feature of the SAC.

The study focused on a 12 key sites within the SAC, which include areas which have previously been subject to multiple survey efforts: Broad Ledges (Tresco), Old Grimsby Harbour (Tresco), West Broad Ledges, Higher Town Bay (St Martin's), Little Arthur (Eastern Isles), Bar Point (St Mary's) and St Mary's Harbour as well as some lesser researched regions: Rushy Bay (Bryher), St Martin's (north), Tean, Samson and Tresco East.

The primary finding of the investigation is that when compared to the extents recorded during the aerial survey in 2010, the seagrass beds in 2016 were reduced in size across the SAC. When directly compared by area, an estimated total of 134.8Ha of seagrass was present across the survey area in 2016 compared to 184.1Ha in 2010, demonstrating a net total loss of approximately 49.3Ha in five years. However, this estimate should be taken with some caution as contrasting survey methods were employed during each survey, each with their own associated errors which may have resulted in the under or over representation of seagrass extent. Additionally, the 2016 investigation focussed on 12 isolated sites only, not the entire SAC as was the case in 2010, although the 2010 data have been clipped for the purposes of this study to allow for comparisons of seagrass condition within equivalent regions.

The most extensive seagrass beds were located within the Little Arthur area in the Eastern Isles (49.07Ha) while the smallest extent was at Tresco East (0.04Ha). Additionally, a single site with no seagrass was located in the Samson area. Seagrass was recorded in waters ranging from -3.1-8.6m depth. Turbidity at all stations was low.

The invasive species *Sargassum muticum* was recorded at 60 stations in seven areas across the SAC and was coincident with seagrass at 15 stations. The locations at which *S. muticum* was found in 2016 are similar to those noted in the 2015 dive survey, although the 2016 investigation takes in to account a wider survey area not covered by the annual dive surveys undertaken in the SAC.

Possible evidence of infection from 'wasting' disease was apparent in four of the 12 focus areas. Signs of the disease were recorded in areas with the larger seagrass extents (Broad Ledges, Higher Town Bay, Little Arthur and Bar Point) and spatially were relatively spread across the survey areas.

Signs of human disturbance such as pollution or physical damage were rare within the SAC. The one exception was St Mary's Harbour, where erosion of seagrass in patches resulting from the mooring of leisure boats was apparent. Despite evidence of disturbance in the St Mary's area, the seagrass beds were dense at multiple locations and appeared to be in good condition in areas away from the eroded patches.

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1. Introduction

1.1. Project Description

In August 2016 Natural England commissioned MESL to conduct a subtidal monitoring survey of the seagrass beds within the Isles of Scilly Complex SAC. This project builds upon the annual dive surveys and large-scale investigations of the SAC previously conducted in the area (Munro & Nunny, 1998; Hocking & Tompsett, 2002; Jackson *et al*., 2011; Bull & Kenyon, 2015).

Under the terms of the Habitats Directive (Council of European Communities 1992), the UK is required to regularly report on the condition of its marine SACs. Therefore, information on the distribution and extent of sub-features such as seagrass beds within an SAC is an essential pre-requisite for effective management and the assessment of the condition of a site.

In the current Regulation 33(2) advice, the conservation objective for the Isles of Scilly Complex SAC is:

- Subject to natural change, maintain the **sandbanks which are slightly covered by seawater all the time** in favourable condition, in particular:
    - Eelgrass bed communities
    - Sand and gravel communities
    - Mixed sediment communities

Seagrass (eelgrass) beds, specifically the species *Zostera marina* var. *marina,* were the focus of the project. Using the data collected an initial assessment has been made of the feature condition following the *Common Standards Monitoring guidance for sandbanks* and the Favourable Condition Table in the *Regulation 33 guidance* for this site. As stated by the JNCC (2001), the seagrass beds within the Isles of Scilly Complex SAC provide structural integrity to the submerged sandbanks as well as providing an ongoing measure for the present environmental state across the site and as such are important to monitor.

An evidence-based assessment of the seagrass beds is provided in this report, detailing the condition of the seagrass bed extent, anthropogenic impacts, the presence of invasive species and water clarity in 2016, and where possible draws comparisons to observations made in previous surveys. This report in itself does not act as a condition assessment. Rather, Natural England will incorporate the findings of this study as evidence with other relevant information to produce an overall Condition Assessment for the seagrass beds sub-feature of the Isles of Scilly SAC.

1.2. Site Description

The Isles of Scilly archipelago is located approximately 25 miles off the south-west coast of Cornwall, England, and encompasses a widespread area of shallow, submerged sandbanks which link individual islands. There are five inhabited islands which make up a large part of the land mass, these are: St Mary's, Tresco, St Martin's, St Agnes and Bryher. The area is popular with tourists, particularly in the summer months and there is a well-established but small-scale fishing industry in the Isles of

Scilly. As such, it is important to monitor the effects that anthropogenic activities may have on sensitive species and habitats.

The Isles of Scilly Complex SAC encompasses all of the main islands within the archipelago and the surrounding waters. A unique feature of the SAC is the presence of heavy, granitic sediments which rapidly settle out of the water column between the shallow land masses of the Isles of Scilly (Jackson *et al.,* 2010; Bull & Kenyon, 2015). The heavy sediment particles result in exceptionally clear waters which provide excellent growing conditions for *Z. marina.* Due to the high penetration of sunlight through the water column above the low-lying sandbanks, seagrass is able to photosynthesise more efficiently and later in to the summer season than would otherwise be possible.

The seagrass itself is of high conservation interest as it provides a rich habitat for a diverse community of fauna and algae, as well as delivering structural integrity to the submerged sandbanks and sequestering carbon dioxide. In addition to this, the seagrass beds within the Isles of Scilly Complex SAC are of particular importance as they have previously been identified as some of the most extensive in the UK following the spread of 'wasting' disease (*Labyrinthula zosterae*) which caused a wider national decline of *Z. marina* in the 1930s (Bull & Kenyon, 2015; Jackson *et el.,* 2010). Nonetheless, it is understood that the once vast seagrass meadows which surrounded the Isles of Scilly have decreased in extent in recent years. It has been hypothesised that this may also to attributable to wasting disease which has spread to the Scilly's (Harvey, 1969; Jackson *et al*., 2010), though the seagrass beds are also subject to additional pressures relating to human activities which include but are not limited to the mooring and anchoring of commercial and leisure vessels, pollution, the introduction of invasive and non-native species such as *Sargassum muticum* and naturally occurring pressures such as storm damage.

Previous programmes have been run to monitor seagrass beds within the Isles of Scilly Complex SAC area starting in the 1980s. These include regular dive surveys which have been undertaken annually since 1996. These surveys were initially run by the Coral Cay sub aqua club and more recently by Project Seagrass (Cook, 2002; Cook, 2004a; 2004b; Cook & Foden, 2005; Cook, 2006; Cook & Paver, 2007; Cook et al., 2008; Cook, 2011, Bull & Kenyon, 2014 and Bull & Kenyon, 2015) with the aim of recording information relating to seagrass bed health. Additionally, unpublished dive surveys have been undertaken annually (*Pers comms*., Natural England, 2017) and work by Project Seagrass has looked to monitor the seagrass health in the Southwest in general. To monitor the widespread status of seagrass within the SAC, aerial surveys with an element of ground truthing have been carried out at less regular intervals since 1984 (Irving, 1987; Munro & Nunny, 1998; Hocking & Tompsett, 2002; Jackson *et al.*, 2010) which have looked to map seagrass bed extent based upon acoustic and LiDAR methods followed-up by field verification.

2. Project Aims

The aim of this project was to collect data from specified areas across the Isles of Scilly Complex SAC to produce an informed assessment on the current state of *Zostera marina* seagrass beds. Additionally, the work undertaken by MESL in 2016 aimed to integrate ground-truthed data with GIS

methods to produce a series of accurate seagrass habitat maps to assist in the future monitoring of the site in regard to extent and health of the seagrass.

This project also looked to examine the condition of the sub-feature in relation to data collected in 2010 to allow an assessment of any change in coverage and condition since the last SAC wide survey.

The specific objectives of the 2016 seagrass survey were to record the following:

- Seagrass presence
- Seagrass coverage
- Evidence of wasting disease
- Evidence of direct anthropogenic disturbance
- The presence of *S. muticum*

3. Methodology

3.1. Survey Methods

The survey was undertaken by MESL between 30th August and 9th September 2016 and with some exceptions (outlined below), was conducted in line with the Isles of Scilly Complex SAC Project Plan (MESL, 2016) which was fully approved by Natural England prior to mobilisation.

Seagrass presence data was collected using drop down video techniques at 815 stations spread across 12 pre-designated priority and secondary survey areas (see Table 1, Figure 1). The survey was conducted aboard the '*Matt Lethbridge'* an 8m RIB owned and operated by the Isles of Scilly Inshore Fisheries and Conservation Authority (IFCA) and launched daily from St Mary's Harbour. Coordinates of the individual stations sampled are listed in Appendix 1.

Priority seagrass survey areas were targeted initially, followed by the secondary areas. Each of the 12 areas was defined using natural boundaries between the seagrass beds and GIS polygons supplied by Natural England. Stations were distributed across the survey areas in a grid formation to beyond the edges of previously defined beds. A total of 618 stations were plotted on a 100m grid across the survey areas prior to the commencement of the field work, though a total of 815 stations were successfully surveyed using DDV techniques. Extra stations were added within the areas surveyed in the earliest stages of the field work to capture the furthest extents of the seagrass beds. However, this technique was later replaced by tracing the edge of the beds using GPS which proved more effective and timely. For the purposes of the investigation, the edge of a seagrass bed was considered to be where seagrass represented ≤5% coverage of the camera field of view, in accordance with the OSPAR definition of a seagrass bed.

Table 1. The 12 survey areas and the number of drop down video stations within each area for the Isles of Scilly Complex SAC survey 2016

Designation	Area number	Area name	Number of stations
Priority	1	Broad Ledges, Tresco	198

Designation	Area number	Area name	Number of stations
areas	2	Old Grimsby Harbour, Tresco	7
	3	West Broad Ledges	92
	4	Higher Town Bay, St Martin's	116
	5	Little Arthur, Eastern Isles	140
	6	Bar Point, St Mary's	64
	7	St Mary's Harbour	60
Secondary areas	8	Rushy Bay, Bryher	16
	9	St Martin's (north)	11
	10	Tean	28
	11	Samson	5
	12	Tresco East	78
Total number of stations across all areas			**815**

At each station the camera was lowered to the seabed. A Teledyne Bowtech Surveyor SD camera with a CVIS-044-1890 monitor set-up was used to obtain live footage which enabled the surveyors to make an assessment of the presence and condition of any seagrass present. Lasers and LED lights were attached to the camera housing to allow accurate scale measurements. At each station, the camera was deployed for as long as was necessary to determine all of the required field observations. Initially, stills were collected in addition to video using a Go Pro camera (Hero 4) set to time lapse, though this proved time consuming and challenging so was discontinued following some initial trials. However, due to the high quality of the video collected at each station, the extraction of stills from recorded footage would be possible if required. Initially, water clarity was recorded at each station using a Secchi disk though it quickly became apparent that the seafloor was fully visible from the surface of the water at all stations and as such, depth was recorded from the vessel instruments and taken to be the maximum depth of visibility for the given station. All vessel instruments were regularly monitored by the skipper of the survey vessel to ensure they were operating correctly and were accurate.

In situ records of percentage coverage, water clarity, depth, the presence of *S. muticum*, signs of wasting disease and potential anthropogenic disturbances were recorded at each drop down station and entered into a survey notebook. Seagrass coverage was estimated separately by two experienced field scientists who compared their approximations before agreeing on a final coverage percentage. Coverage was assigned by looking at the anchor points of seagrass in the substrate by the seagrass rather than leaf proportion visible on the monitor at each station and the monitor. It was agreed prior to survey that stills could be extracted from video footage and would be consulted upon the completion of the survey if there was any difficulty estimating coverage though this was not necessary at any of the stations.

Depth was recorded from the RIB echo sounder and recorded as 'below sea level', these were later converted to depth relative to chart datum using Matlab software and the date and time at which

the station was visited. All intertidal drying height values are recorded as negative figures. All coordinates are in WGS 1984 and were recorded using the vessel's GPS system.

While working in the field, it became apparent that using a grid formation was not sufficiently capturing the true external boundaries of the seagrass extent. As such, Natural England granted permission to locate the edge of seagrass beds using a bathyscope and then trace the border with the camera in the water while tracking the course using GPS. This was carried out in addition to the drop down stations where seagrass presence and condition had already been determined. Where seagrass was patchy or sparse, camera drops at additional stations were conducted and continuous footage was recorded. In Area 7 where significant marine traffic was present, additional stations were targeted at the edges of the beds as this approach was deemed to be safer then tracing the seagrass bed border. This may have resulted in a decreased accuracy for the record of seagrass bed extent within this area due to estimations being made based upon a grid format only.

A total of 1.5 stand-by days were required due to poor weather conditions. A daily log of survey activity is presented in Appendix 2 and in the Survey Report (MESL, 2016). The field note pro forma is presented in Appendix 3 and detailed field notes relating to each station are presented in Appendix 4.

3.2. GIS and Methods of Seagrass Area Calculation

In order to delineate and digitise the boundaries of the seagrass beds throughout the Isles of Scilly Complex SAC, a combination of the GPS tracks recorded around the beds in the field and ArcGIS spatial analysis tools were all used.

Firstly, to digitise the boundaries of the seagrass beds, GPS tracks were used where it had been possible to follow the boundaries at the surface using the bathyscope, however this was not possible across all areas and seagrass beds due to visibility.

In the absence of GPS tracks, the latest aerial imagery available (2014) was used in conjunction with the sample point data. Conspicuous features within the imagery that were identified as seagrass by the ground-truthed point data were digitised into polygons using ArcGIS. Where boundaries were not easily defined using the aerial imagery, Thiessen polygons were used, which created boundaries equidistantly between two sample points, the boundaries are mathematically defined by the perpendicular bisectors of the lines between all points. Across all survey areas it has been calculated that the average distance between sample points was 67 meters, therefore in areas where Thiessen polygons have been used the average error can be estimated at +/-33.5 meters. Table 2 shows which method of delineation was used for each area and a brief description on why each method was used.

Table 2. The 12 survey areas and the method of delineation used within each area for the Isles of Scilly Complex SAC survey in 2016.

Designation	Area name	Delineation Method/s Used	Description
Priority areas	1. Broad Ledges, Tresco	Boundary tracked using bathyscope and Thiessen polygons	The majority of the site was tracked with the bathyscope with the exception of the southern section where water depths were too deep. In this section Thiessen polygons were used to establish boundaries.
	2. Old Grimsby Harbour, Tresco	Boundary tracked using bathyscope and Thiessen polygons	Only a small proportion of the site was able to be tracked due to poor visibility, the majority was delineated using Thiessen polygons.
	3. West Broad Ledges	Boundary tracked using bathyscope	Good visibility allowed for the whole boundary to be tracked within this area.
	4. Higher Town Bay, St Martin's	Boundary tracked using bathyscope and Thiessen polygons	The boundary was tracked around the majority of the site however this was not possible in the north eastern corner of the site, and therefore Thiessen polygons were used in this section.
	5. Little Arthur, Eastern Isles	Boundary tracked using bathyscope	Good visibility allowed for the whole boundary to be tracked within this area.
	6. Bar Point, St Mary's	Aerial Imagery and Thiessen polygons	No tracking possible due to poor visibility. Aerial imagery and Thiessen polygons used within this area.
	7. St Mary's Harbour	Aerial Imagery and Thiessen polygons	Due to the high levels of marine traffic the boundary of the seagrass bed was unable to tracked. Mooring scars were also observed however there was no method to accurately map all the scars within the field.
Secondary areas	8. Rushy Bay, Bryher	Thiessen polygons	No tracking due to poor visibility. Small patch delineated using Thiessen polygons between sample points.
	9. St Martin's (north)	Thiessen polygons	No tracking due to poor visibility. Small patch delineated using Thiessen polygons between sample points
	10. Tean	Thiessen polygons	No tracking due to poor visibility. Small discrete patches delineated using Thiessen polygons
	11.Samson	Thiessen polygons	Very limited seagrass record in this area, therefore small patch delineated using Thiessen polygons
	12. Tresco East	Thiessen polygons	Very limited seagrass record in this area, therefore small patch delineated using Thiessen polygons

To identify the dense patches of seagrass (>95% coverage) within the already digitised seagrass boundaries, the spatial analyst tool 'Natural Neighbor' within ArcGIS was used to interpolate between the drop down video sample points. The tool works by finding the closest subset of input samples to a query point and applies weights to them based on proportionate areas to interpolate a value (Sibson, 1981). In this instance the value used as the weighting between sample points was the percentage seagrass cover recorded at each sample location.

Once the Natural Neighbor analysis had been run the resulting raster contours were converted to polylines which provided the basis for producing the final polygons, delineating the dense seagrass areas which contained over 95% coverage of seagrass.

It should be noted that in Area 7 relatively high patchiness was noted, though it was difficult to account for this in the final seagrass bed size calculation for this area due to high levels of marine traffic which prevented a tracing exercise of the exterior boundaries of the beds. The presence of numerous moored boats within the Harbour also precluded the mapping of the mooring scars within the seagrass bed, therefore the total area of the seagrass bed mapped in this area is an overestimation of the actual seagrass bed present.

To compare the 2010 and 2016 seagrass bed coverage across the SAC, the 2010 GIS layers were clipped to the boundaries of the primary and secondary areas examined in 2016. This ensured that only seagrass completely contained within the source layer feature was accounted for when calculating the total seagrass area for 2010. This method allowed for some comparison to be made between the 2010 and 2016 seagrass bed areas despite the differences in survey methods previously adopted.

3.2.1. Navigational Accuracy

High-end navigational systems achieve a horizontal accuracy of 2-4.5m approximately 95% of the time meaning that a degree of error can be assumed within the navigational accuracy and mapping of the seagrass beds. With this assumption, it is possible the seagrass boundaries may be under- or over-estimated by 2-4.5m in any horizontal direction. Therefore, with a more liberal estimate of 5m, it can be assumed that a seagrass bed of 100x100m could equate to 105x105m. As such a potential navigation error of a maximum of 5% should be taken regarding the location and boundary of the seagrass beds.

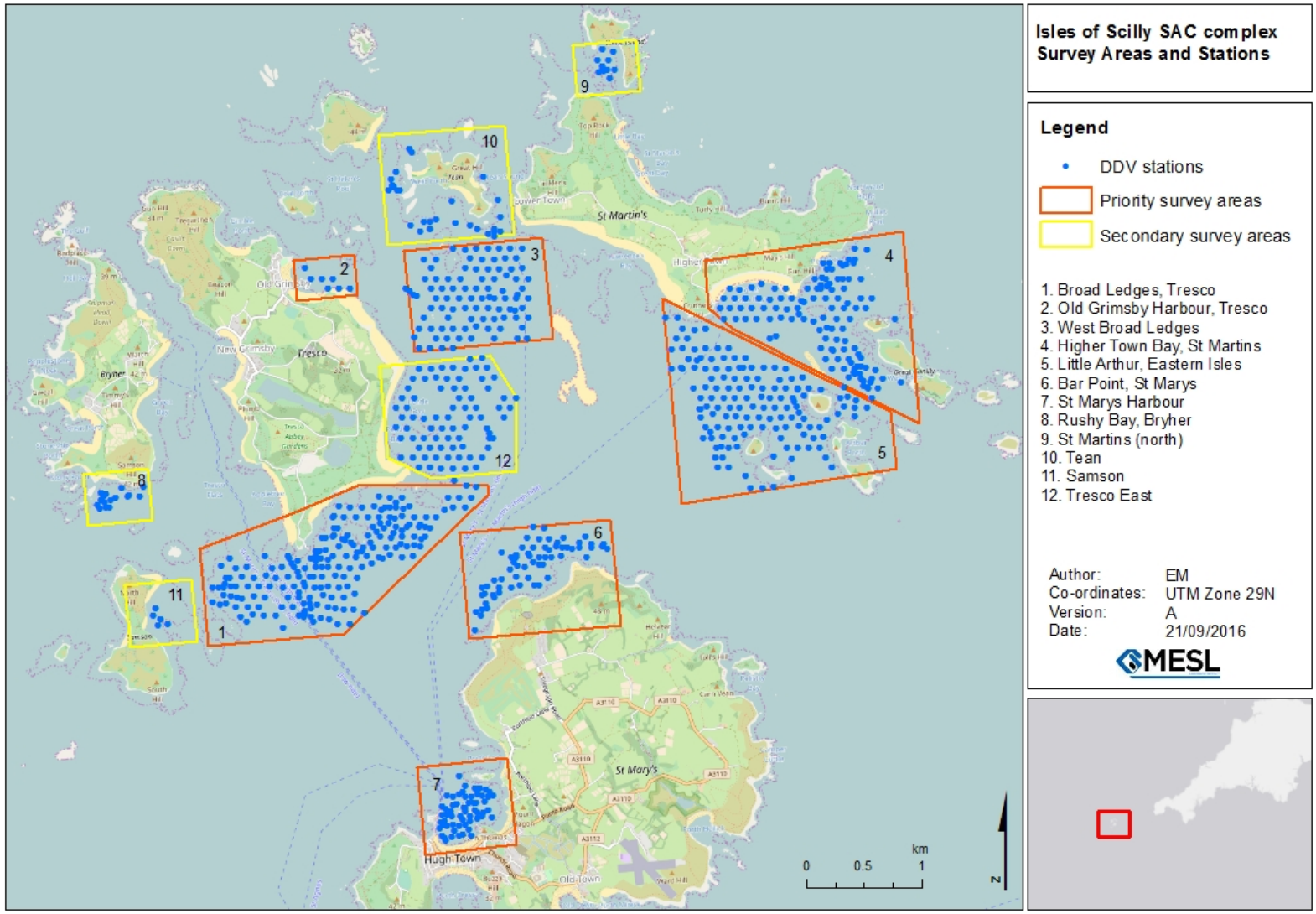

Figure 1. The drop down video (DDV) station locations within the survey areas for the Isles of Scilly seagrass survey 2016.

3.3. Health and Safety

Subtidal camera surveys in tidally dynamic regions are inherently dangerous due to the speed at which conditions may change and the nature of the environment. A complete risk assessment was undertaken for all activities, with methods for minimising the risks identified prior to mobilisation. Due to the potential for unforeseen problems, risk assessments were robust, with a continual assessment of potential dangers and actions taken where necessary by surveyors to reduce risks throughout sampling.

Daily Tool Box talks were given prior to survey operations. This included provisions to ensure that Emergency Response Plans were available, suitable PPE for the task were worn, and that the survey team was fully briefed on the tasks and health and safety issues. Two experienced MESL survey staff were present on the survey vessel to operate the camera alongside a highly-experienced skipper and deckhand. MESL currently has standard risk assessments and SOPs in place for working at sea which are strictly enforced and adhered to, however, these were tailored for the unique risks presented by working in the tidally complex Isles of Scilly region.

All surveyors were equipped with suitable PPE which was worn throughout the survey. Communication between the survey teams and the Designated Person Ashore (DPA) were maintained throughout the survey programme, with messages sent at both the commencement of work and successful completion each day.

4. Results

Section 4 firstly examines the overarching condition of the seagrass beds across all 12 of the survey areas and then outlines the findings relating to each of the key parameters on a detailed area-by-area basis.

4.1. Seagrass Coverage within the SAC

The total area of seagrass bed recorded across the 12 focus sites during the 2016 survey was 134.76Ha and a combined perimeter of 27.59km was determined. It should be noted that there are certain errors associated with this final figure due to the coverage of the site allowed by the methods adopted. Unfortunately, an accurate calculation of such an error has not been possible due to the complex and patchy nature of seagrass though it should be assumed that final calculations may provide an over-estimation of seagrass area as scars and patchiness could not be accounted for. A breakdown of calculated total seagrass area and perimeter per site can be found in Table 3 and a patch by patch breakdown is included in Appendix 5. Patch sizes within the survey areas ranged from 0.02ha (St Mary's Harbour) to 44.33ha (Little Arthur) and seagrass was recorded across a range of depths from 0.5m-11.4m (-3.1m to 8.6m relative to chart datum).

Table 3. The area, perimeter length and percentage contribution to total area of seagrass beds recorded in the 2016 seagrass survey of the Isles of Scilly Complex SAC.

Area	Site	Area (ha)	Perimeter (km)	% contribution
1	Broad Ledges, Tresco	34.80	6.10	25.82
2	Old Grimsby Harbour	0.29	0.27	0.21
3	West Broad Ledges	9.89	2.77	7.34
4	Higher Town Bay	18.29	6.57	13.57
5	Little Arthur	49.07	6.03	36.41
6	Bar Point	12.76	2.77	9.47
7	St Mary's Harbour	8.88	2.13	6.59
8	Rushy Bay (Bryher)	0.26	0.31	0.19
9	St Martin's North	0.05	0.09	0.04
10	Tean	0.44	0.48	0.32
11	Samson	0.00	0.00	0.00
12	Tresco East	0.04	0.08	0.03
Total seagrass		**134.76**	**27.59**	**100.00**

The difference in seagrass bed extent within the SAC between 2010 and 2016 is evident in Table 4 and Figure 2. An overall calculated decrease of 49.29ha of *Z. marina* across the 12 survey areas was determined which represented a loss of 26.8% coverage between 2010 and 2016. It should be noted however that high resolution satellite imagery and LiDAR data was employed to detect seagrass bed extent in 2010, whilst the 2016 survey used primarily drop down video techniques alongside low resolution aerial imagery which may have accounted for a proportion of the observed differences in seagrass coverage. It is likely that due to the difference in techniques used between survey years that an over estimation has been made regarding seagrass bed area in 2016 and therefore the

degree of loss may be an underestimation. Identification of *Z. marina* using LiDAR and aerial techniques may have increased the potential for misidentifying marine algae as seagrass may have led to an over representation of seagrass extent in 2010. However, aerial techniques account for the patchiness of the seagrass beds and are able to accurately calculate areas of erosion which cannot be accounted for in the 2016 data. In contrast to 2010 techniques which undertook selective ground-truthing of aerial imagery, seagrass area in 2016 was calculated using observations of seagrass at all depths, while in 2010 a 5m depth clip was applied when determining the final seagrass bed area (Jackson *et al*., 2010) which may have led to a small under-representation of seagrass coverage in 2010. However, there were only four records of seagrass in depths deeper than 5m (relative to chart datum) in 2016 and as such, this error is likely to be minimal.

To counter differences in spatial coverage of the two surveys (the 2010 array was inclusive of the entire SAC), the 2010 extent data was clipped to reflect the 12 survey areas which were the focus of the 2016 investigation. Though this increases the potential for the direct comparison of seagrass bed extent between the survey years, the field techniques remain different (as do associated errors) and therefore a degree of misestimation of seagrass presence between years remains present. It is highly likely that the seagrass area calculated for Area 7 (St Mary's Harbour) is an overestimation resulting from difficulties in calculating the areas of seagrass erosion resulting from mooring scars. Likewise, the challenges associated with accounting for the full extent of patchiness within the seagrass beds has possibly resulted in an underestimation of the change in seagrass coverage since 2010.

Table 4. The total seagrass coverage (hectares) and differences in extent determined per area during the 2010 and 2016 seagrass surveys within the Isles of Scilly Complex SAC. Highlighted rows represent areas where an increase in seagrass bed extent was calculated. *Likely overestimation.

Area	2010 Total Ha	2016 Total Ha	Total Difference (Ha)	Coverage Difference (%)
1. Broad Ledges	40.6	34.8	-5.8	-14.2
2. Old Grimsby Harbour	2.1	0.3	-1.8	-86.6
3. West Broad Ledges	13.7	9.9	-3.8	-27.7
4. Higher Town Bay	35.9	18.3	-17.6	-49.0
5. Little Arthur	54.3	49.1	-5.2	-9.6
6. Bar Point	12.1	12.8	+0.7	+5.7
7. St Mary's Harbour*	7.3	8.9	+1.5	+20.9
8. Rushy Bay	0.8	0.3	-0.6	-68.7
9. St Martin's	2.1	0.0	-2.1	-97.8
10. Tean	2.3	0.4	-1.9	-81.3
11. Samson	0.7	0.0	-0.7	-100.0
12. Tresco East	12.1	0.0	-12.0	-99.7
Sum	**184.1**	**134.8**	**-49.3**	**-26.8**

4.2. Seagrass distribution

Based upon the 2010 data, there were previously two main concentrations of seagrass beds within the SAC. The first was a band of seagrass which ran from Samson and the southwest of Tresco and reached north towards Tean, and the second was an extended seagrass bed which surrounded the

Eastern Isles (Figure 2). Additionally, isolated patches were recorded around St Mary's and St Martin's. In 2016, the seagrass beds around the Eastern Isles remained similar in terms of overlap with the 2010 location though the area of extent was reduced. However, the long band of seagrass which ran from Samson towards Tean in 2010 was more disjointed in the most recent survey with seagrass beds appearing to be patchier and isolated from one another.

In general, the seagrass bed locations recorded in 2016 demonstrated substantial overlap with those determined by the 2010 survey. Despite this, a reduction in sub-feature size was evident in some areas, particularly in Areas 4 and 12 where seagrass occurrence was substantially reduced when compared to previous coverage. The total recorded seagrass bed area was less in 2016 than it was in 2010 when 184.1Ha of seagrass was recorded in the equivalent survey area (196.5Ha was recorded across the entire SAC).

As was observed in previous years, the most extensive seagrass beds were located in the more sheltered regions of the SAC where they were protected from the northerly winds and wave action is likely to be reduced thus improving growing conditions. The exceptions to this are Area 6 at Bar Point to the north of St Mary's and Area 3 at West Broad Ledges to the south of Tean which is not in the direct vicinity of any islands which may offer protection.

4.3. Seagrass Density

The distribution of the densest seagrass beds can be seen in Figure 3. As would be expected, the densest seagrass beds were observed in the largest patches of seagrass at Broad Ledges and Little Arthur in the Eastern Isles. Dense patches of seagrass with >95% coverage were also observed in West Broad Ledges, Higher Town Bay, Bar Point and St Mary's Harbour. Despite observations of erosion in St Mary's Harbour (Area 7), seagrass coverage of >95% was observed in patches across the recorded extent and 100% coverage was recorded at 20 drop down video stations. There were too few stations where seagrass density was recorded between 0-95% coverage and as such, meaningful density polygons could not be produced at more regular intervals.

4.4. The Presence of *Sargassum muticum*

The invasive species *S. muticum* was observed at a total of 60 DDV stations in seven of the survey areas (Areas 1, 3, 4, 5, 6, 10 and 12) (Figure 4). The highest number of *S. muticum* observations was made in Area 1 (Broad Ledges, Tresco) where the second largest seagrass bed was recorded. Unlike most other survey areas where seagrass was well established, there were no records of *S. muticum* in Area 7, St Mary's Harbour. This may have been attributable to inappropriate substrate for the species and the high volume of marine traffic which may prevent *S. muticum* from establishing due to physical disturbance.

A reduction in seagrass bed extent was observed in all of the areas where *S. muticum* was present with the exception of Area 6 (Bar Point, St Mary's) where an overall increase was calculated. Records of *S. muticum* were more than three times higher in Area 1 than in any other area though seagrass bed losses here were the second lowest observed across the SAC. Area 5 (Little Arthur, Eastern Isles) had the second highest record of *S. muticum* presence though seagrass losses in this area were estimated to be the smallest (-9.6%) of any area (where a calculated increase was not observed). This would suggest a lack of correlation between seagrass bed loss and *S. muticum* within the SAC

though due to the grid size used for this project it is possible that the presence of *S. muticum* has been underestimated.

4.5. The Presence of Signs of Wasting Disease Infection

Signs of infection from wasting disease (leaf lesions and discolouration) were observed at a total of 29 stations within four of the survey areas (Areas 1, 4, 5 and 6) (Figure 5). Infection was limited to the areas in the central regions of the SAC with the greatest number of observations recorded in Area 5 (Little Arthur, Eastern Isles) where signs of the disease were apparent at 14 stations.

There did not appear to be any correlation between where signs of wasting disease were observed and where the most substantial losses of seagrass bed were calculated to occur.

4.6. Anthropogenic Disturbance

Visible evidence of anthropogenic disturbance to the seagrass beds was minimal in all areas except in Area 7 at St Mary's Harbour. Regular erosion of seagrass was observed in St Mary's harbour as a result of 360° mooring line erosion from boats though the internal patchiness of the seagrass bed could not be recorded during the 2016 survey. A high volume of marine traffic was also observed in the vicinity which is likely to cause disturbance on a regular basis by increasing turbidity and causing a heightened risk of seagrass erosion from propellers and mooring lines.

4.7. Water Clarity

Even on overcast days, visibility was good at all DDV stations across the SAC, and light attenuation was low in all 12 survey areas. There did not appear to be any incidences of seagrass burial by sediments even in areas with relatively high marine traffic which may have increased turbidity in the water column.

Tracing seagrass bed border boundaries with a bathyscope was challenging in some survey areas though this was not due to turbidity related water clarity. Rather, this was caused by increased cloud cover which resulted in a reduction of available light with which field scientists could accurately locate the exact border location.

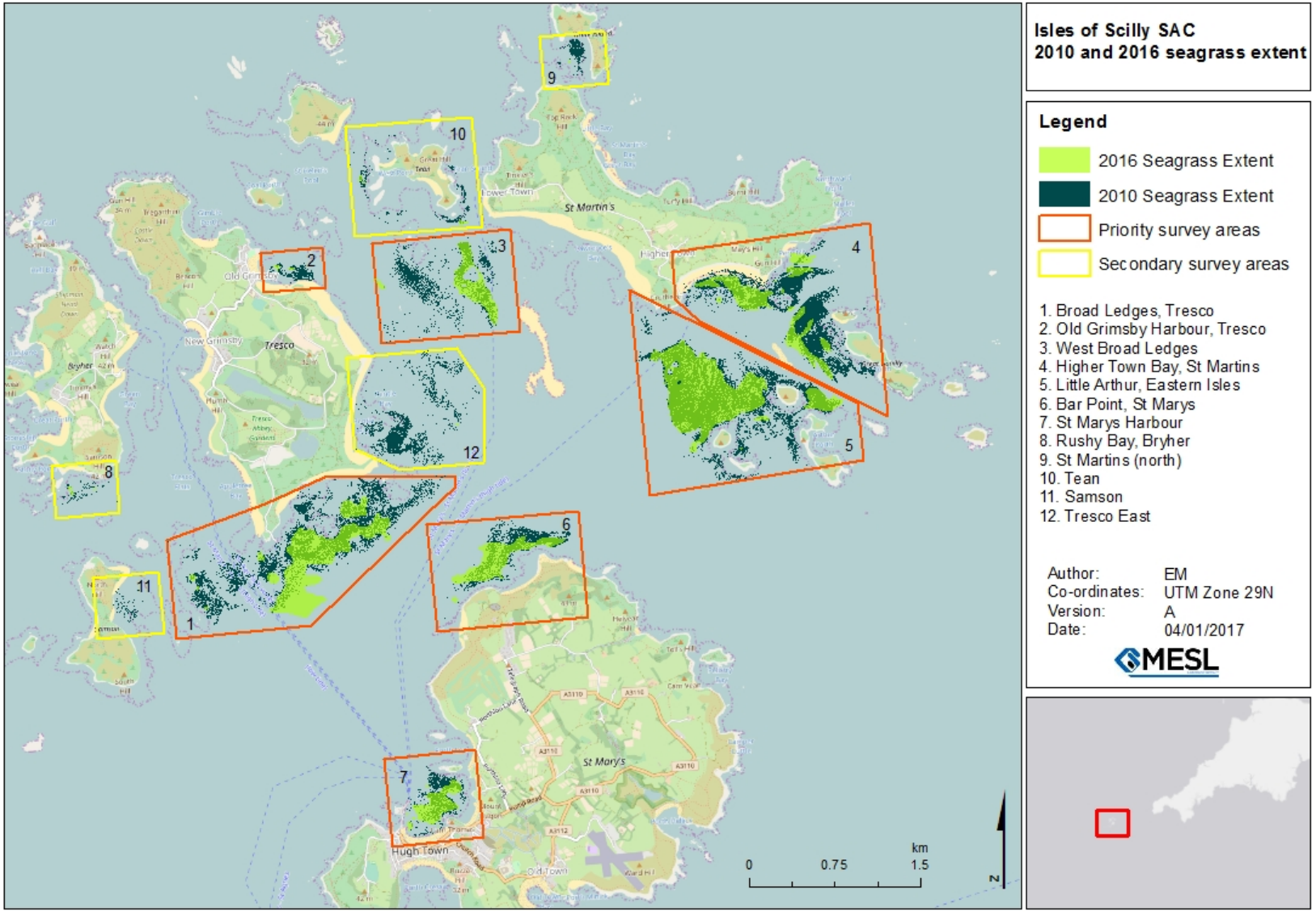

Figure 2. Seagrass bed extent in 2010 (cropped to 2016 survey area boundaries) and 2016 within the Isles of Scilly Complex SAC.

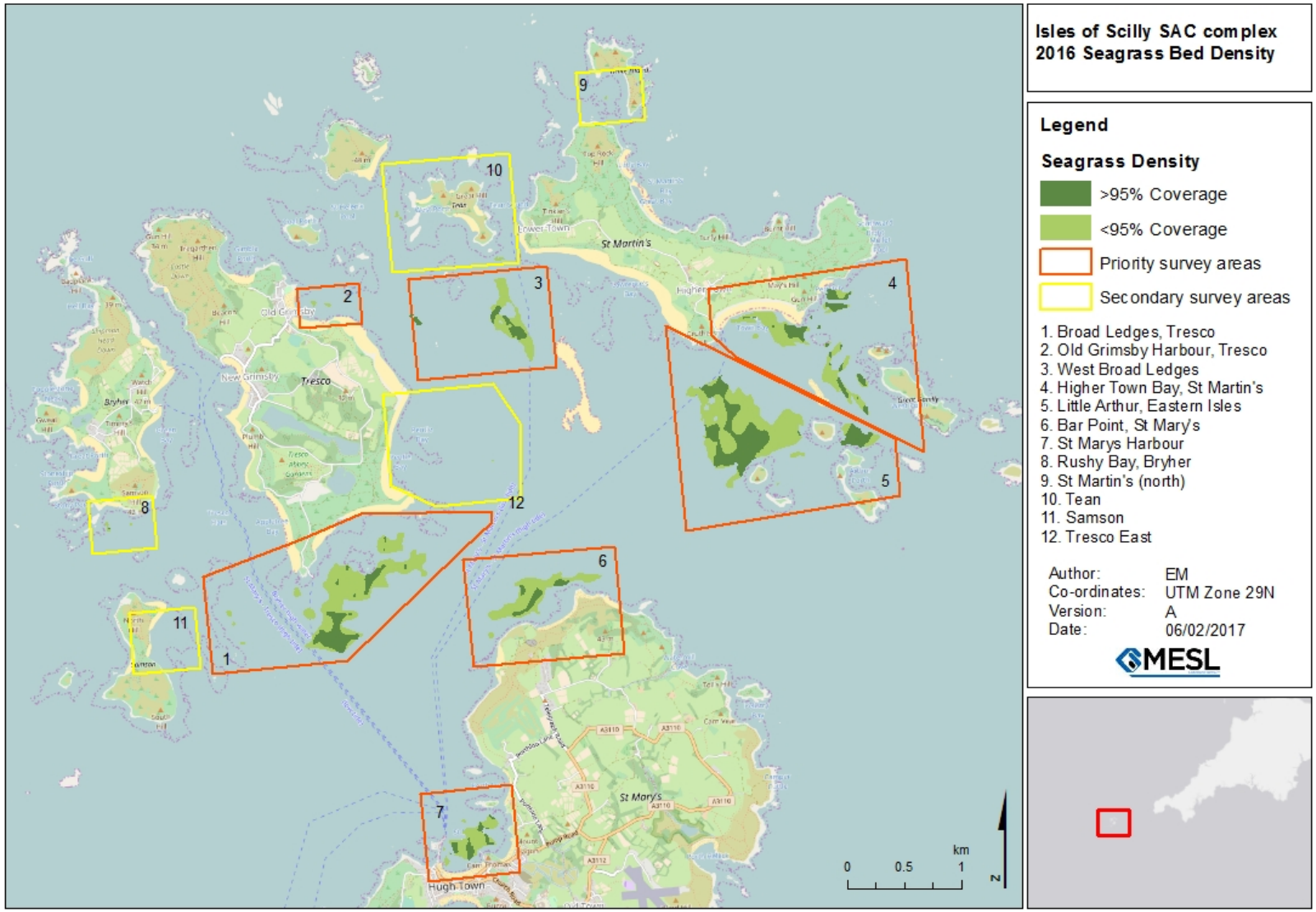

Figure 3. Seagrass bed density in 2016 within the Isles of Scilly Complex SAC.

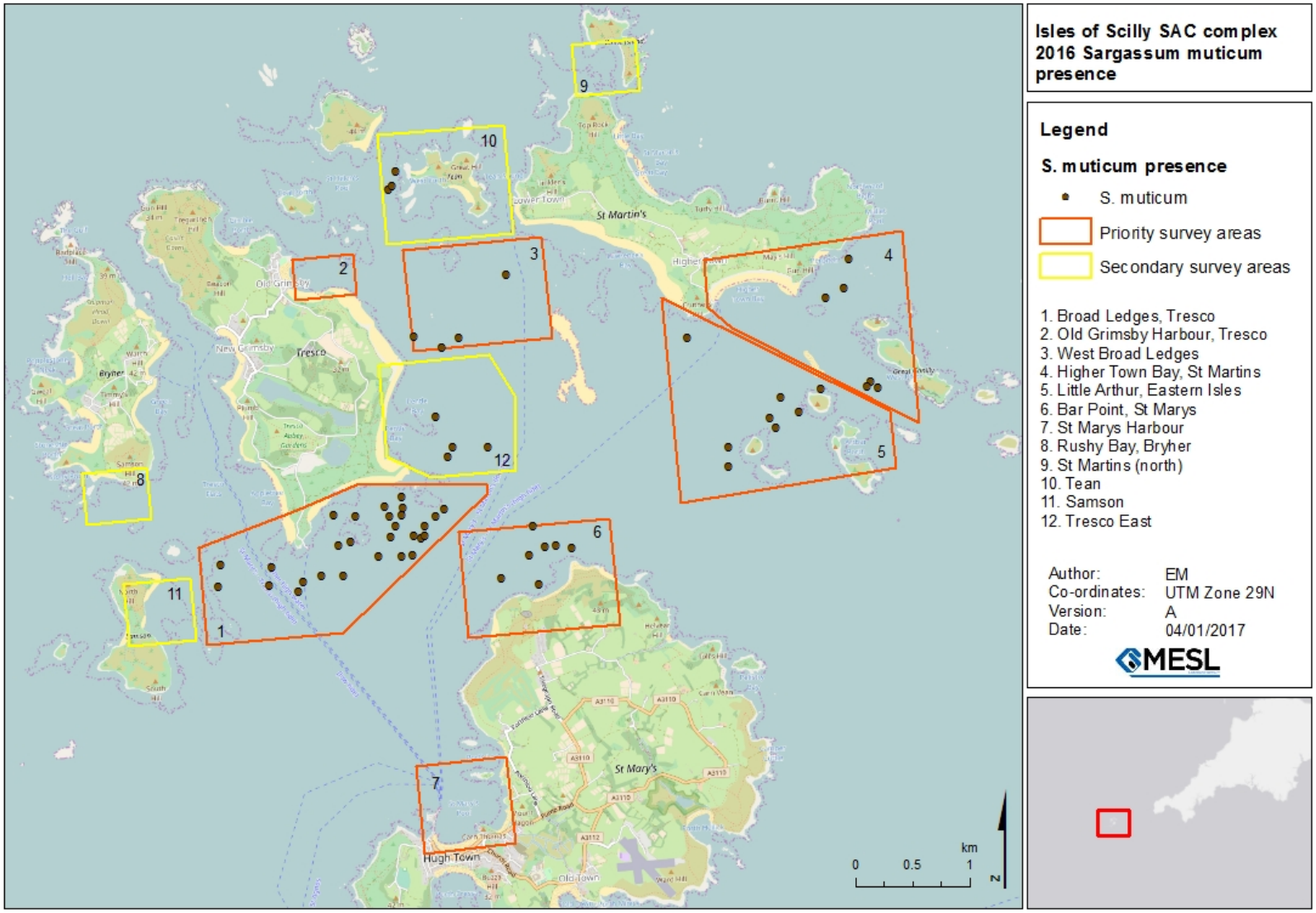

Figure 4. The presence of *Sargassum muticum* across the survey areas in 2016 within the Isles of Scilly Complex SAC.

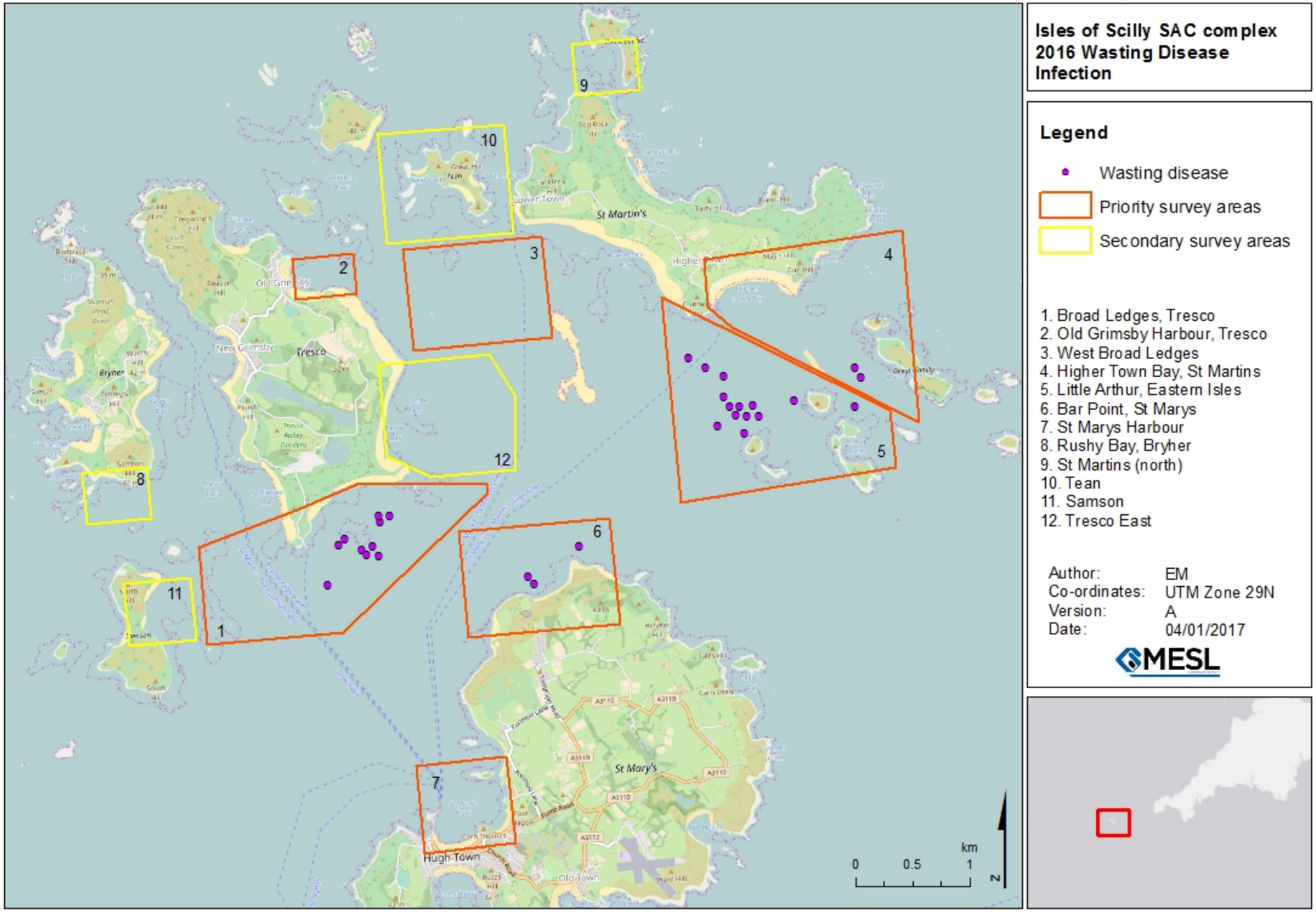

Figure 5. The presence of signs of wasting disease infection across the survey areas in 2016 within the Isles of Scilly Complex SAC.

4.8. Area 1 – Broad Ledges, Tresco

The seagrass beds in Area 1 were situated to the south of Tresco and were relatively wide-spread. The majority of the seagrass was recorded in one large patch in the middle of the Area and several smaller patches were recorded to the north and east of this primary meadow (Figure 6). The distribution of the seagrass in 2016 was broadly similar to that determined in 2010, though the overall extent was reduced by approximately 5.8Ha.

The seagrass beds in Area 1 were the second largest surveyed in terms of coverage. A total of 34.80Ha of seagrass beds were recorded with a collective perimeter of 6.10km. There were eight particularly dense patches of seagrass which with greater than 95% seafloor coverage which were distributed throughout the larger patches.

The water depth of the DDV stations ranged from -3.1 to 6.3m relative to chart datum (all depths given from here on refer to depth relative to chart datum) and the deepest site at which seagrass was present was Station 336 which had a recorded depth of 6.0m relative to chart datum. The shallowest depth at which seagrass was recorded was -0.9m relative to chart datum (submerged in 1.1m of water).

S. muticum was recorded at 28 of the 198 stations in Area 1 (Figure 7). The presence of *S. muticum* appears to be most concentrated in the eastern portion of the area though it is spread throughout and its presence coincided with seagrass occurrence at eight stations.

Evidence of wasting disease was observed at ten stations within the Broad Ledges site, the majority of which were within the largest seagrass bed (Figure 8). Leaves showing evidence of the disease were principally recorded in two clusters with the exception of one record which was isolated from the others, demonstrating the ability of the disease to spread without necessarily infecting the entire seagrass bed. This is in agreement with the findings of Bull & Kenyon (2015) who observed that there were higher than average records of infection at this site during the most recent dive survey.

No evidence of anthropogenic disturbance was recorded in Area 1.

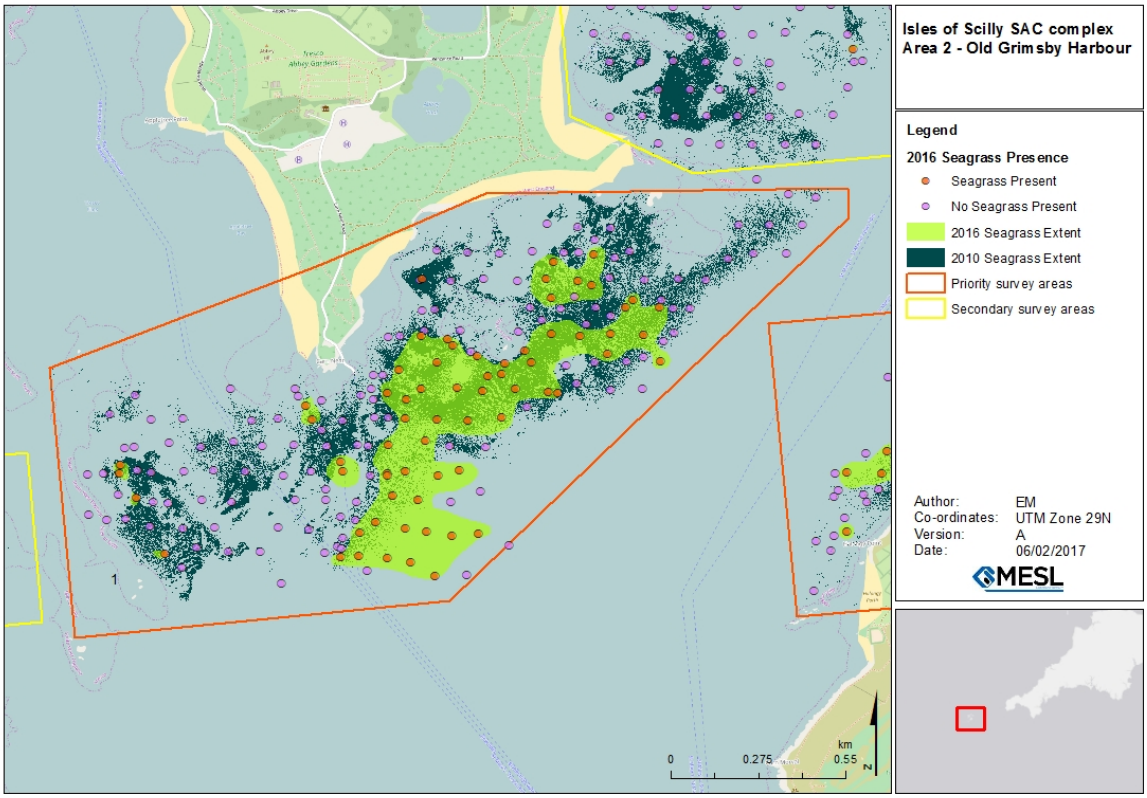

Figure 6. The seagrass extents determined in Area 1 (Broad Ledges, Tresco) during the 2010 and 2016 surveys

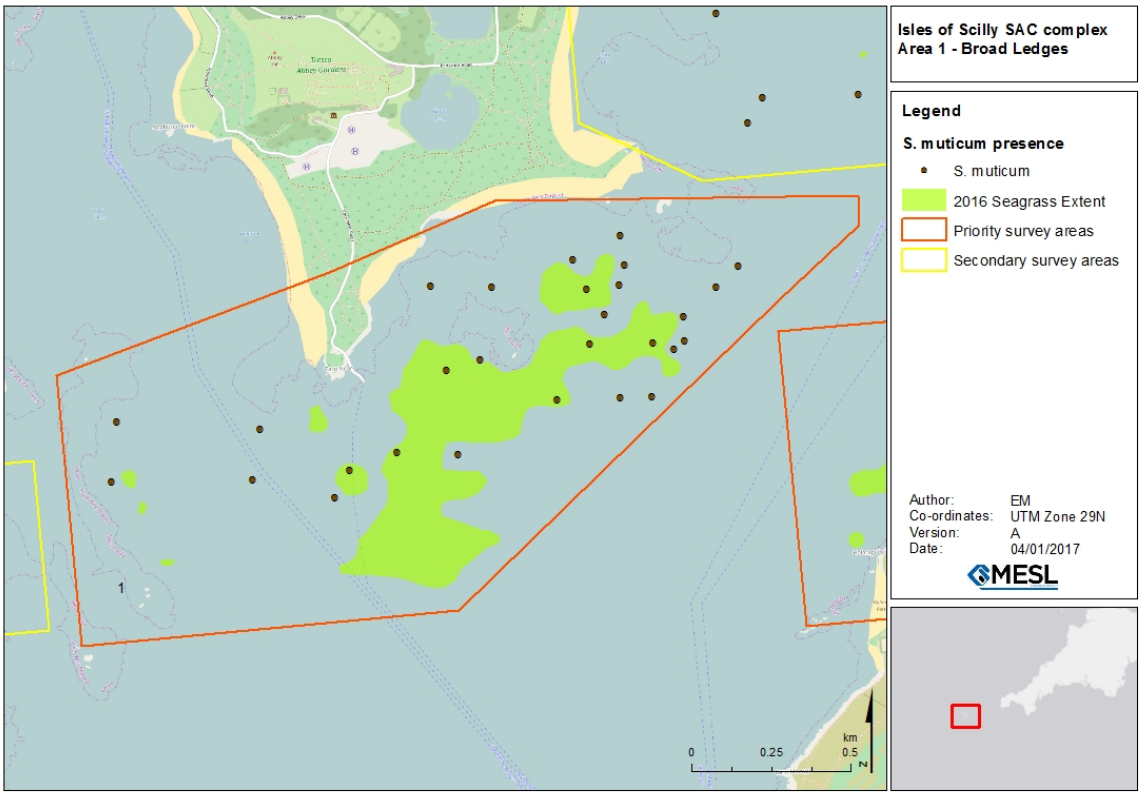

Figure 7. Stations where *S. muticum* was recorded in Area 1 during the 2016 seagrass survey.

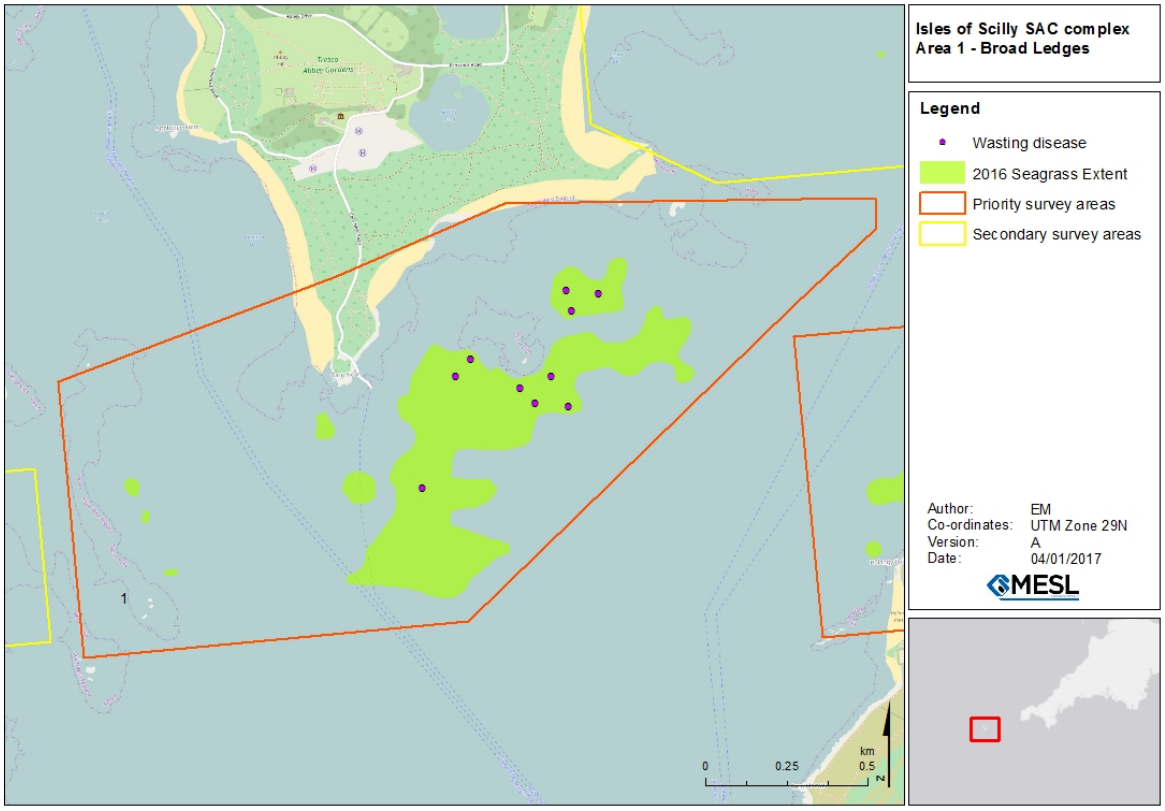

Figure 8. Stations where infection of wasting disease was recorded in Area 1 during the 2016 seagrass survey.

4.9. Area 2 – Old Grimsby Harbour, Tresco

The seagrass patches in Area 2 were small and reduced by 1.8Ha when compared to the extent determined in 2010 though were roughly coincident with the locations previously recorded (Figure 9). Though the reduction is not proportionally the largest observed across all survey areas, it is noteworthy as it represents almost an entire loss of seagrass in the region to the east of Tresco. The seagrass in this area occurred in two small patches at the mouth of Old Grimsby Harbour to the east of Tresco (Figure 2).

The Area 2 beds were the fifth smallest in all of the sites in terms of coverage. A total of 0.29Ha of seagrass was recorded with a collective perimeter of 0.27km. The seagrass present in Area 2 was not especially dense and covered approximately 50% of the seafloor where present.

The water depth at the stations in this survey area ranged from -1 to 2.7m and the deepest site at which seagrass was present was Station 134 which had a recorded depth of -0.1m. It should be noted that some of the seagrass in Area 2 was located by conducting additional transects following the completion of the original grid pattern sampling.

S. muticum was not recorded at any of the DDV stations in Area 2 and no signs of wasting disease were evident within the two small patches. This is in keeping with the 2015 dive survey (Bull & Kenyon, 2015).

There was no evidence of anthropogenic disturbance in Area 2 though it is unlikely that mooring erosion or scars would be visible given the lack of seagrass beds within this area.

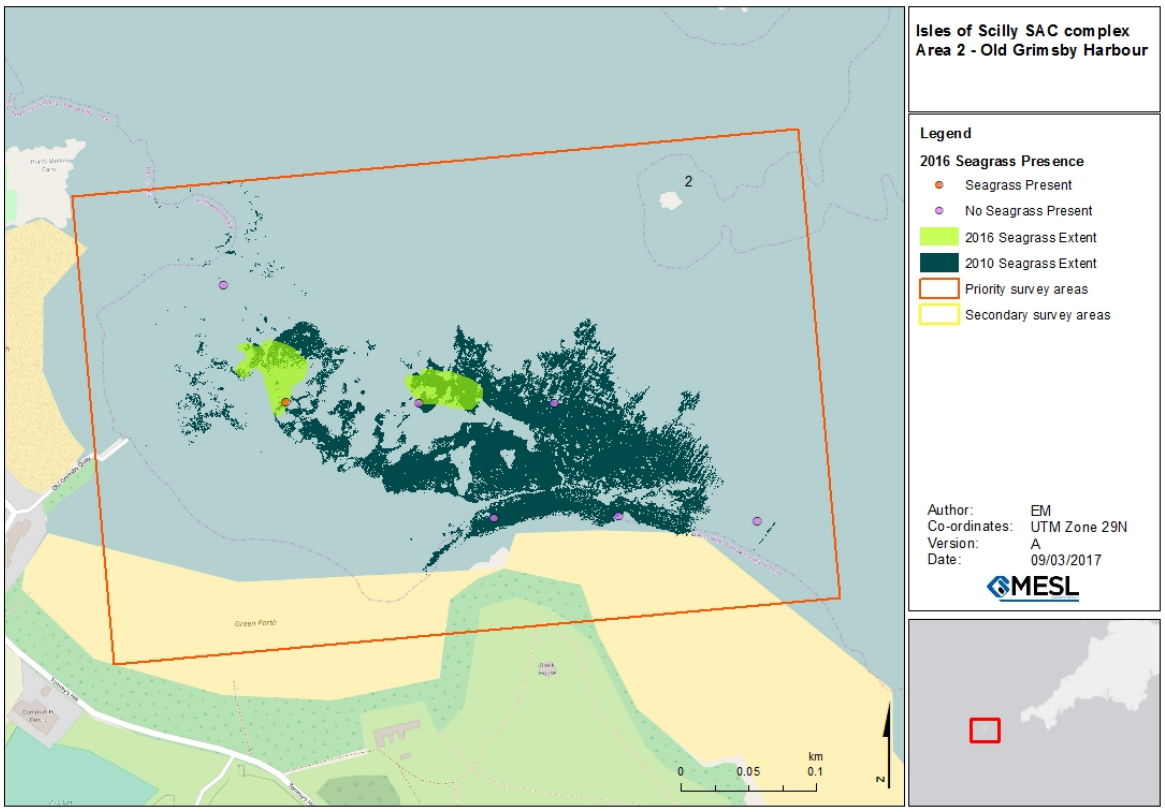

Figure 9. The seagrass extents determined in Area 2 (Old Grimsby Harbour, Tresco) during the 2010 and 2016 surveys.

4.10. Area 3 – West Broad Ledges

The seagrass within the West Broad Ledges site extended across 9.89Ha and the beds had a combined perimeter of 2.77km.

When compared to the extents recorded in 2010, it can be seen that bed has reduced in size by 3.8Ha in 2016. The larger westerly bed previously recorded in 2010 was also not present in 2016 (Figure 10).

The seagrass beds in Area 3 had the fifth largest combined area of all the surveyed sites. The majority of seagrass was observed in one large patch to the east with two small patches at the western border of Area 3.

Water depth at the DDV stations in this site ranged from -1.3 to 4.9m. The deepest site at which seagrass was present was Station 176 which had a recorded depth of 1.9m while the shallowest station was Station 621 at which seagrass was recorded at -1.2m.

S. muticum was recorded at four of the 92 stations in Area 3 (Figure 11). The presence of *S. muticum* was generally more concentrated in the southwest portion of the site though its presence did not coincide with any seagrass.

In agreement with the findings of Bull & Kenyon (2015) no signs of wasting disease were present in this area. There was no evidence of anthropogenic disturbance in Area 3.

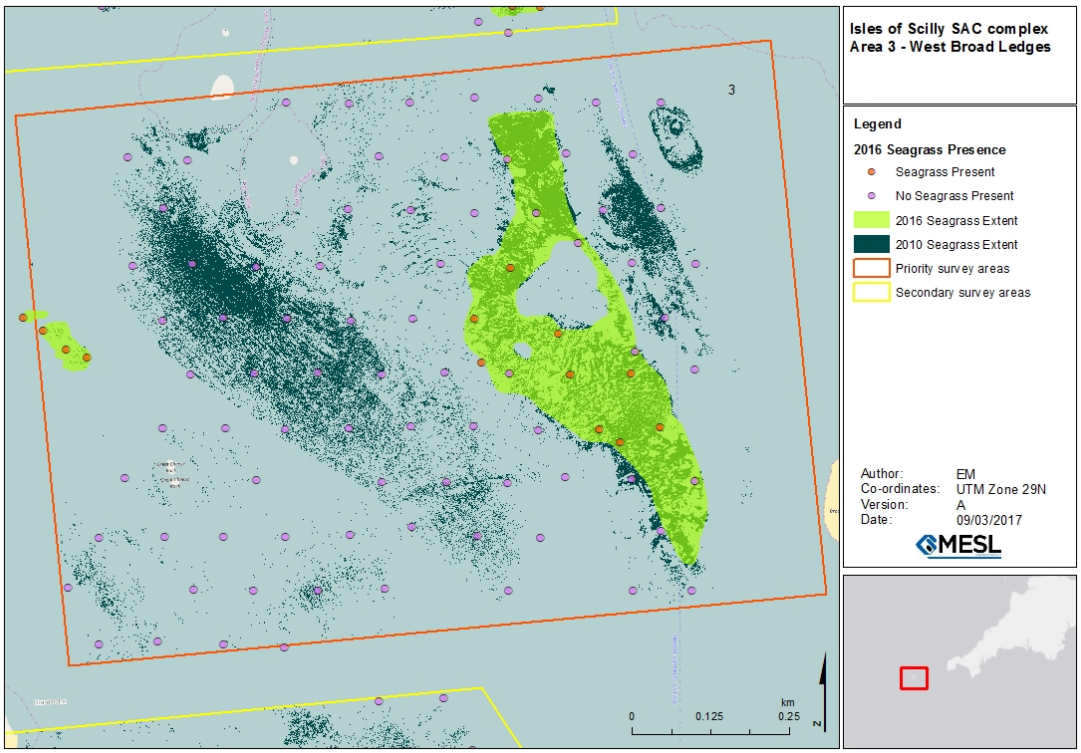

Figure 10. The seagrass extents determined in Area 3 (West Broad Ledges) during the 2010 and 2016 surveys

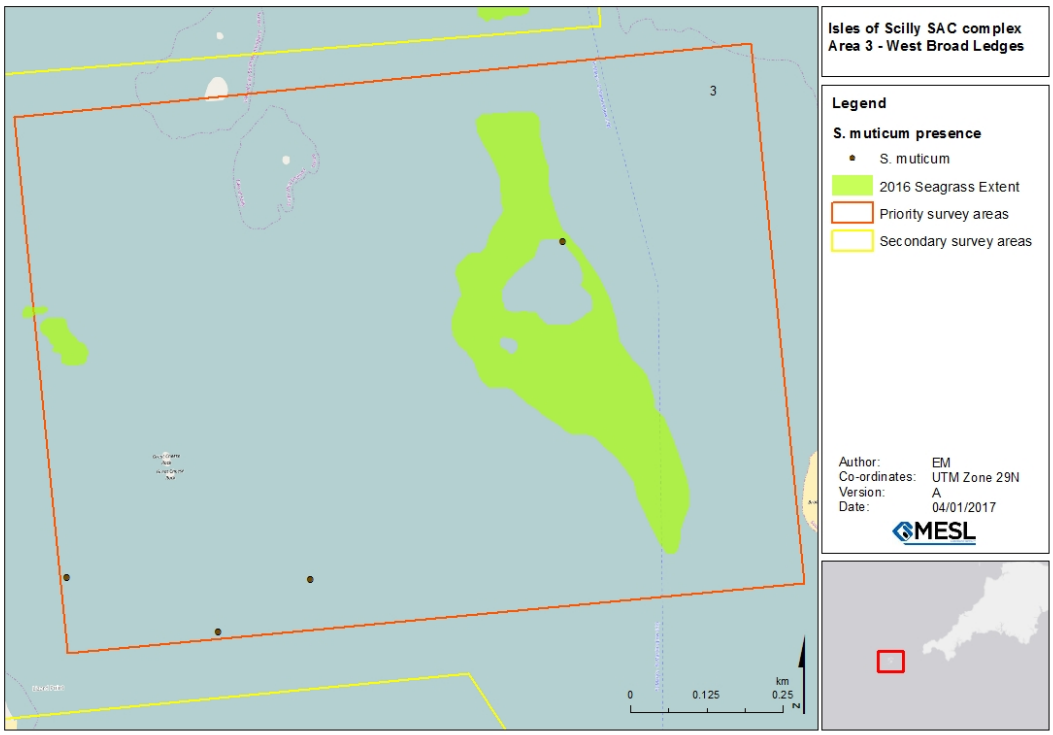

Figure 11. Stations where *S. muticum* was recorded in Area 3 during the 2016 seagrass survey.

4.11. Area 4 – Higher Town Bay, St Martins

The seagrass beds in Area 4 were relatively wide-spread and made up of numerous patches which spread southeast from St Martin's towards Great Ganilly island (Figure 12). The distribution of the seagrass in 2016 was broadly similar to that mapped in 2010, though the extent represents the largest loss in terms of area across all areas when compared to 2010 with a total reduction of 17.6Ha. Data indicates that the second largest and most southerly patch of seagrass in Area 4 has retreated substantially on the eastern side and the beds were generally patchier in the most recent monitoring survey than in previous investigations.

Despite losses in extent, the seagrass beds at Higher Town Bay were the third largest in all of the survey areas and a total of 18.29Ha were recorded with a collective perimeter of 6.57km. Patches of seagrass bed with high density were recorded several times in Area 4 with >95% coverage observed in several patches.

The water depth of the DDV stations ranged from -1.6 to 8.6m and the deepest site at which seagrass was present was Station 262 which had a recorded depth of 3.4m. The shallowest station was Station 292 at which seagrass was recorded at -1.1m.

S. muticum was recorded at six of the 116 stations in Area 4 (Figure 13) and was dispersed across the site, though a small cluster towards the southern edge was apparent. *S. muticum* was not recorded at any stations where seagrass was present though was observed in close proximity of some of the beds.

Two incidences of wasting disease were recorded in the southernmost patch of the seagrass beds at this site (Figure 14) and any damage occurring appeared localised. In accordance with the findings of the 2015 dive survey the Higher Town Bay Area has lower than average incidence of infection.

There was no evidence of anthropogenic disturbance in Area 4.

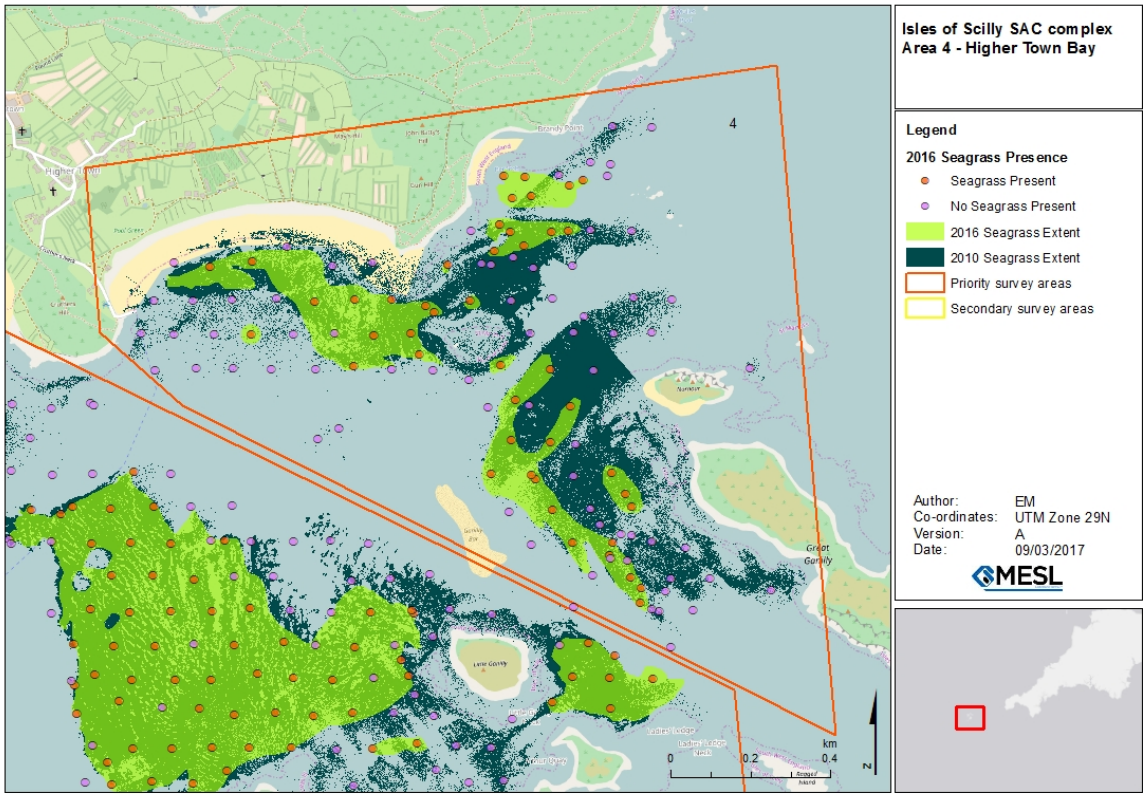

Figure 12. The seagrass extents determined in Area 4 (Higher Town Bay) during the 2010 and 2016 surveys.

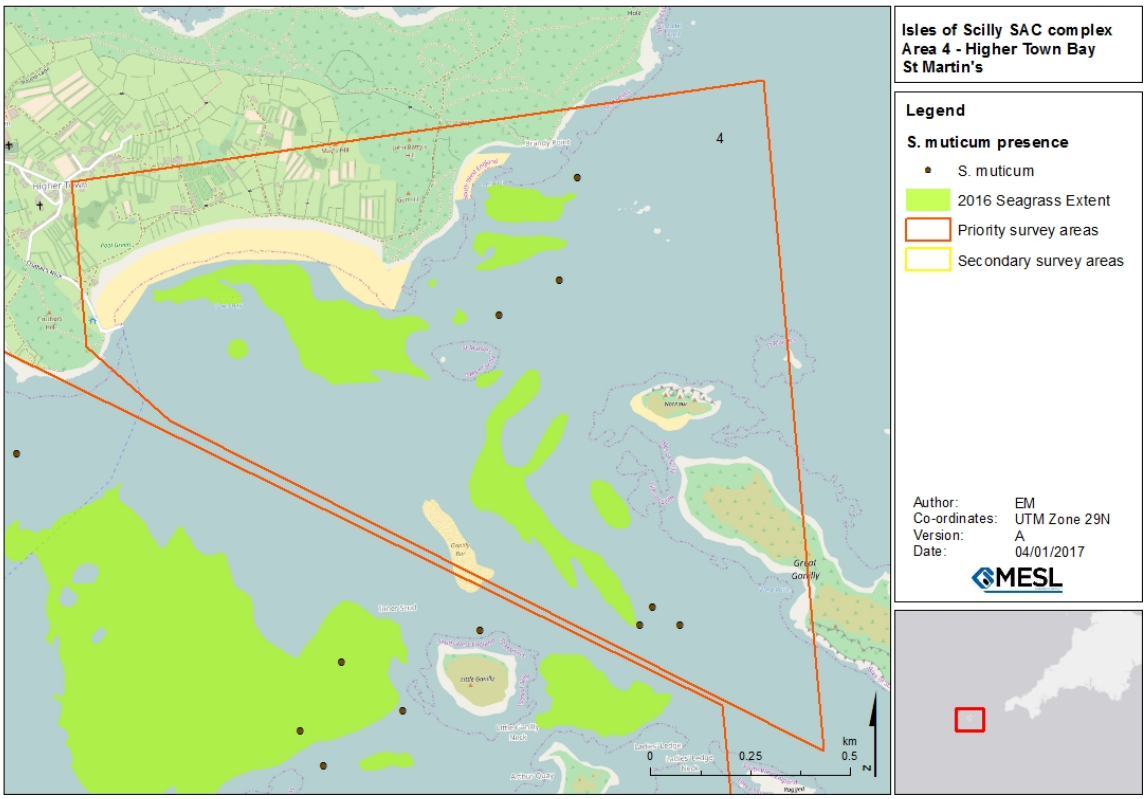

Figure 13. Stations where *S. muticum* was recorded in Area 4 during the 2016 seagrass survey.

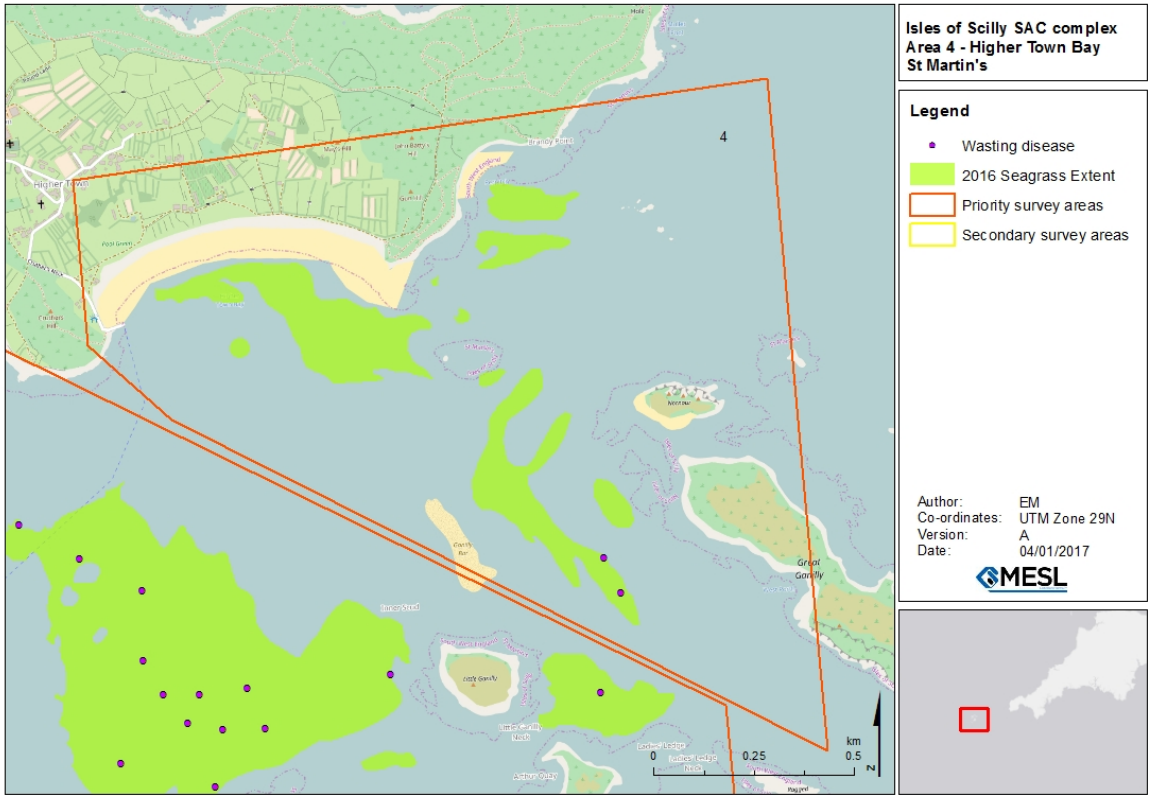

Figure 14. Stations where infection of wasting disease was recorded in Area 4 during the 2016 seagrass survey.

4.12. Area 5 – Little Arthur, Eastern Isles

The seagrass beds in Area 5 were the most extensive of all the beds within the Isles of Scilly Complex SAC. Seagrass in this area covered a total area of 49.07Ha which represented 25.8% of the total seagrass extent recorded across all areas, with a combined perimeter of 6.03km. A substantial proportion of the seagrass was concentrated in one large bed which reflected the distribution observed in 2010 (Figure 15). Though the seagrass beds recorded in Area 5 are similar in location to that of previous years, the overall extent was reduced by 5.2Ha and losses were particularly evident in the area surrounding the island 'Little Ganilly'. Where seagrass previously extended through the channels between the small islands to form an expansive meadow, in 2016 there was no longer continuous seagrass around the island and the beds which are present are more isolated.

The water depth of the DDV stations ranged from -1.-4 to 6.6m and the deepest site at which seagrass was present was Station 318 which had a recorded depth of 4.8m, while the shallowest point was Station 342 at which seagrass was recorded at -0.7m. There were two large patches in this area which were denser than 95% coverage suggesting good condition.

S. muticum was recorded at eight of the 140 stations in Area 5 (Figure 16) and two of these were coincident with seagrass. Records were dispersed across the site though were more common nearer to land masses in the central region of the area.

There were 14 incidences of wasting disease recorded at this site (Figure 17) which were all generally observed toward the central regions of the seagrass beds. The higher occurrence of

wasting disease at Little Arthur is consistent with the findings of Bull & Kenyon (2015) who determined that the area was prone to higher than average records of the disease across the sites they monitored in the SAC. There was no evidence of anthropogenic disturbance in Area 5.

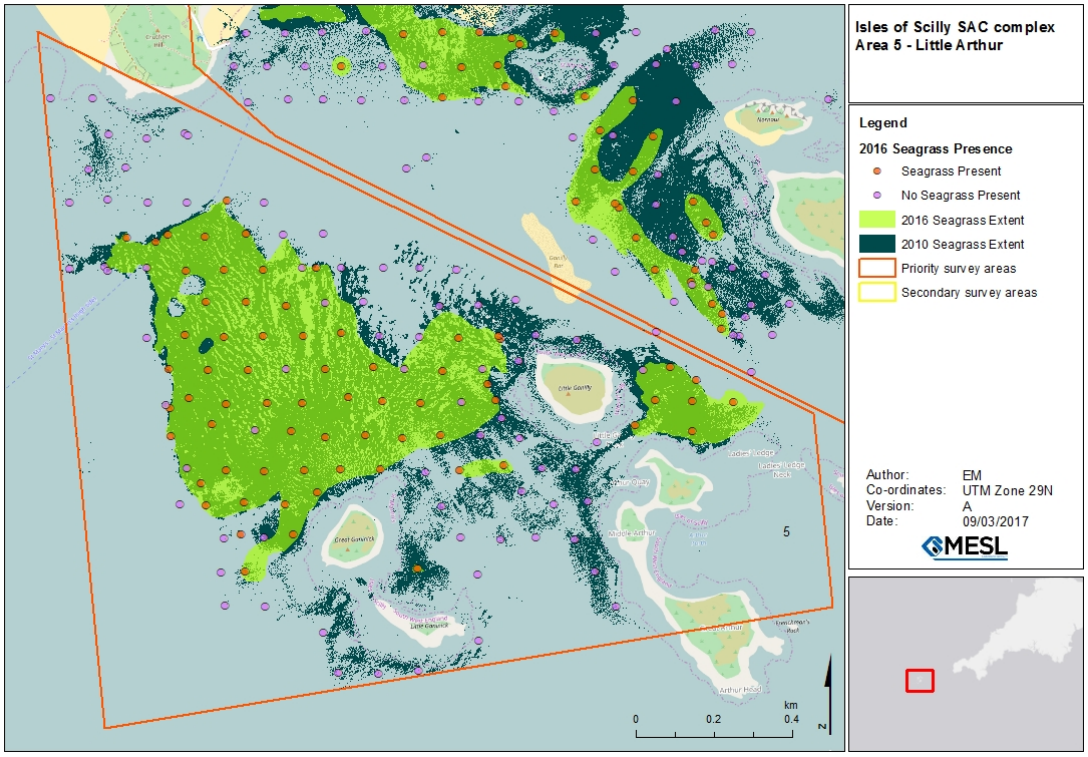

Figure 15. The seagrass extents determined in Area 5 (Little Arthur) during the 2010 and 2016 surveys.

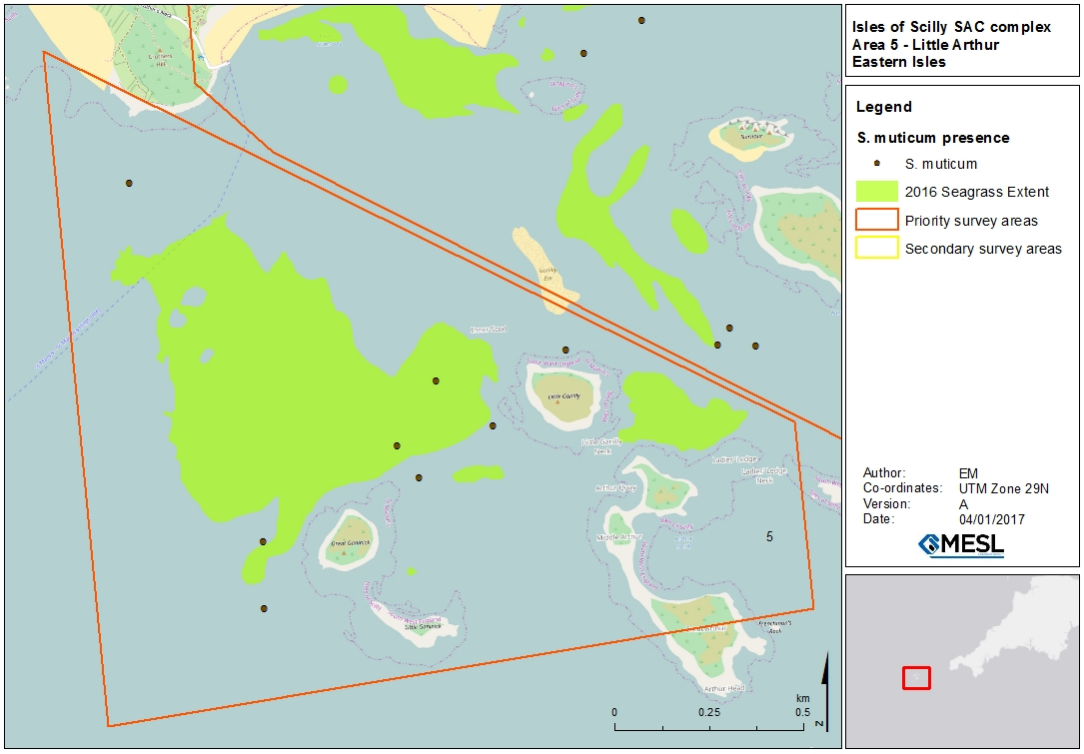

Figure 16. Stations where *S. muticum* was recorded in Area 5 during the 2016 seagrass survey.

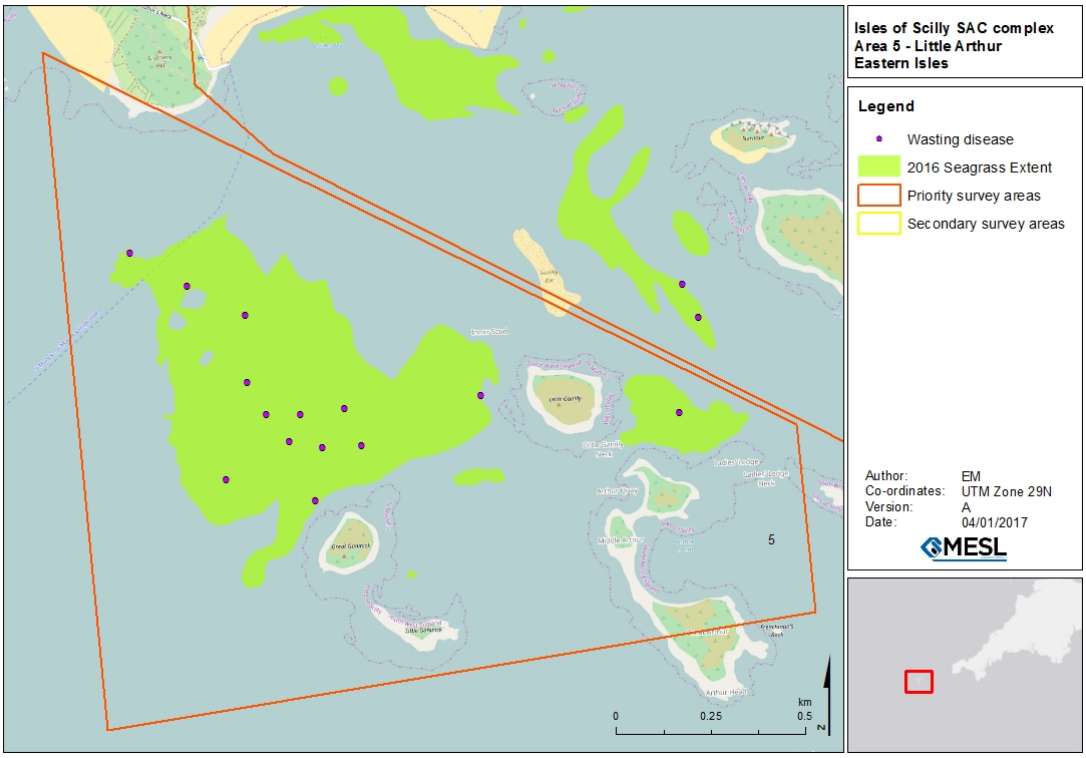

Figure 17. Stations where infection of wasting disease was recorded in Area 5 during the 2016 seagrass survey.

4.13. Area 6 – Bar Point, St Mary's

The seagrass beds in Area 6 were the fourth largest across all of the survey sites with a combined area of 12.76Ha and a total perimeter of 2.77km. The majority of the seagrass at Bar Point, St Mary's was located in a single meadow which covered an area to the north of the island where seagrass beds were previously recorded in 2010. Though the fine scale patchiness of the 2010 data has caused the appearance of a decrease in extent in 2016, the distribution of *Z. marina* at Bar Point was similar to that recorded previously with a slight increase of 0.7Ha observed when compared to 2010 data (Figure 18) and coverage of greater than 95% was observed at several DDV stations.

The water depth at the DDV stations in Area 6 ranged from -0.6 to 4.5m and the deepest site at which seagrass was present was Station 443 which had a recorded depth of 3.7m. The shallowest station was Station 461 at which seagrass was recorded at -0.6m.

S. muticum was recorded at seven of the 64 stations in Area 6 (Figure 19) and four of these were coincident with seagrass. *S. muticum* occurrence was dispersed across the site though was more common toward the central and northern sectors.

Wasting disease was recorded at three stations within the Bar Point area (Figure 20). Each of these were located near to the most landward portions of the seagrass bed though one was separated from the other two records by approximately 515m suggesting that infection may be condition dependant in the area as it did not appear to have spread throughout the meadow.

There was no evidence of anthropogenic disturbance in Area 6.

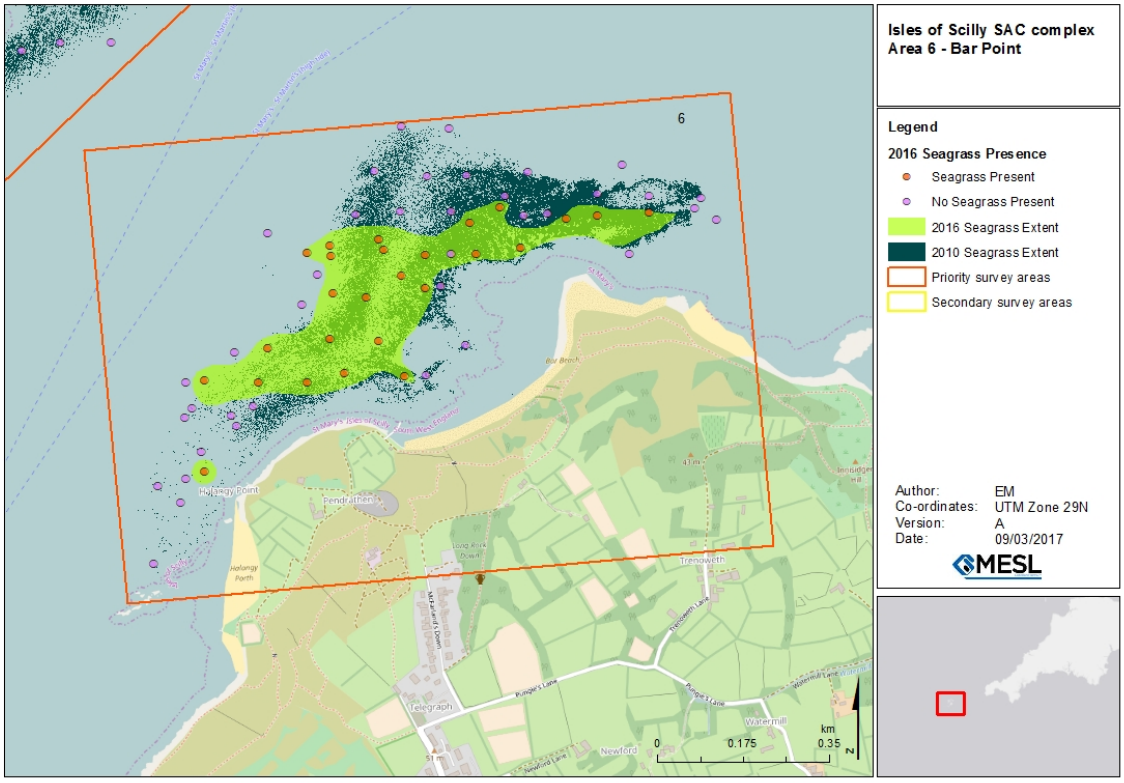

Figure 18. The seagrass extents determined in Area 6 (Bar Point) during the 2010 and 2016 surveys.

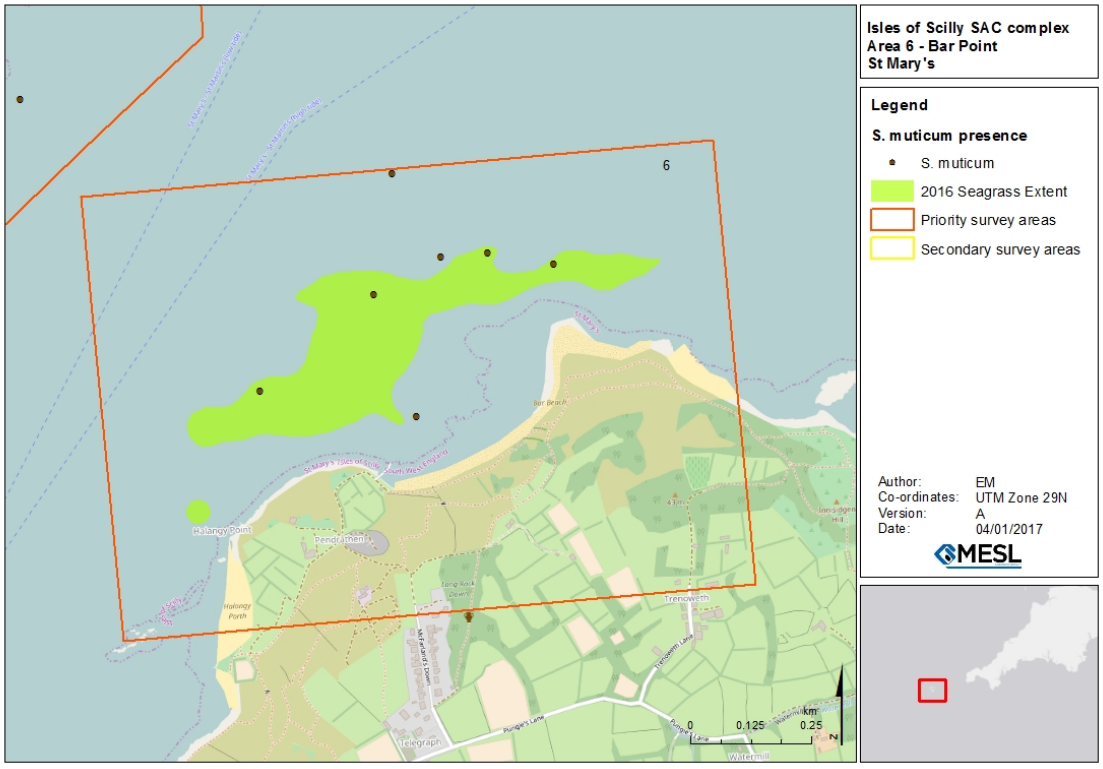

Figure 19. Stations where *S. muticum* was recorded in Area 6 during the 2016 seagrass survey.

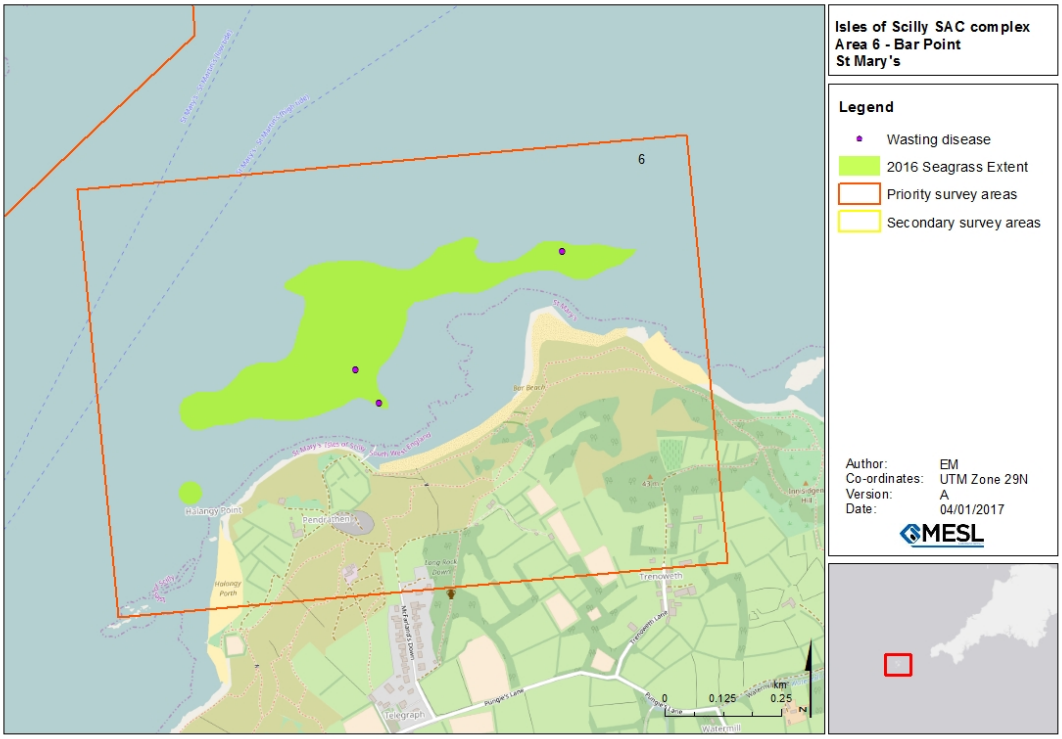

Figure 20. Stations where infection of wasting disease was recorded in Area 6 during the 2016 seagrass survey.

4.14. Area 7 – St Mary's Harbour, St Mary's

The seagrass beds in Area 7 were the sixth largest recorded during the survey and constituted 6.59% of the total meadow area within the Isles of Scilly Complex SAC despite the high level of anthropogenic activity in the area. A combined area of 8.88Ha with a perimeter of 2.13km was determined, situated in the central region of St Mary's Harbour (Figure 21). The distribution of the seagrass was similar to that recorded in 2010 and an overall increase in extent of 1.5Ha was calculated. However, it is likely that this calculation is an over representation of seagrass coverage as exterior border tracing could not be carried out in this area due to marine traffic and loss of seagrass resulting from numerous mooring scars could not be calculated due to the large grid size employed for the survey. As such, the full extent of erosion due to moorings could not be determined. The aerial imagery from the 2010 survey (Jackson *et al.*, 2010) shows that there were very clear mooring scars around each mooring in the harbour which remained present in 2016. When compared to the location of the 2010 seagrass bed, it can be seen that the northernmost reaches of the meadow have retreated to the southeast and some of the nearshore patches are no longer present.

The water depth at the DDV stations ranged from -0.6 to 4m and the deepest site at which seagrass was present was Station 496 with a recorded depth of 2.8m, while the shallowest point was Station 648 at which seagrass was recorded at -0.9m.

S. muticum was not recorded in Area 7 which may be attributable to disturbance by marine traffic preventing it from establishing a mature population. Additionally, there was very little bedrock or cobble recorded in the area, which unlike *Z. marina* is the habitat preference as a substrate for this species.

There was no evidence of wasting disease recorded in Area 7.

Area 7 was the only area where anthropogenic damage to the seagrass was clearly visible. There were patches of the sandy seafloor showing though the *Z. marina* beds where mooring lines had worn through the seagrass. Though none of the drop down stations were located directly above any of the eroded mooring patches, observations of damage were frequently made in the area. Due to high volumes of marine traffic, tracing the exterior extent of the seagrass beds in Area 7 was not possible and the only data available was from the drop down stations alone. Therefore it was not possible to ascertain whether any seagrass bed retreat was attributable to mooring damage.

Despite damage to the sub-feature due to erosion from mooring lines, dense patches of seagrass with greater than 95% coverage were observed at multiple DDV stations in St Mary's Harbour.

Plate 1. Erosion patches within seagrass beds resulting from vessel mooring at St Mary's Harbour during the 2016 survey.

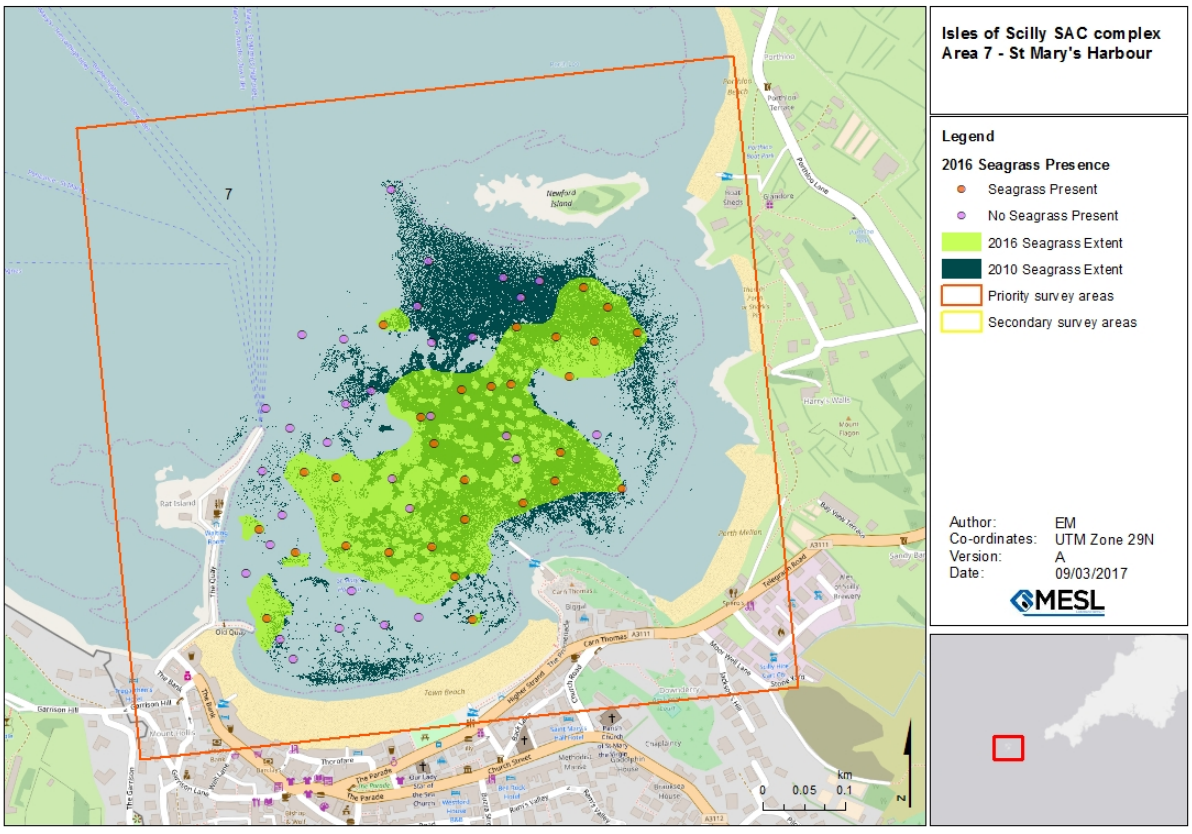

Figure 21. The seagrass extents determined in Area 7 (St Mary's Harbour) during the 2010 and 2016 surveys.

4.15. Area 8 – Rushy Bay, Bryher

The seagrass beds recorded in Area 8 were small, fairly low density coverage and made up of two isolated patches to the south of Bryher. The total area covered by the sub-feature was 0.26Ha with a combined perimeter of 0.31km, representing 0.19% of the total seagrass recorded during the survey. The beds recorded within the Rushy Bay site were located in areas where seagrass was previously recorded in 2010, although data suggests that the extent has diminished by 0.6Ha between the surveys. Where seagrass beds formerly ran parallel along the entire stretch of Rushy Bay, only sporadic patches remain, one to the east and one to the west of the Bay (Figure 22).

The deepest DDV station was 3.7m while the shallowest was -2.3m and the deepest location at which seagrass was present was Station 507 (1.5m). The shallowest was Station 505 (0.2m).

There was no record of *S. muticum* or wasting disease in Area 8 and there were no signs of anthropogenic disturbance though it is unlikely that mooring erosion or scars would be visible given the low coverage of seagrass beds within this area.

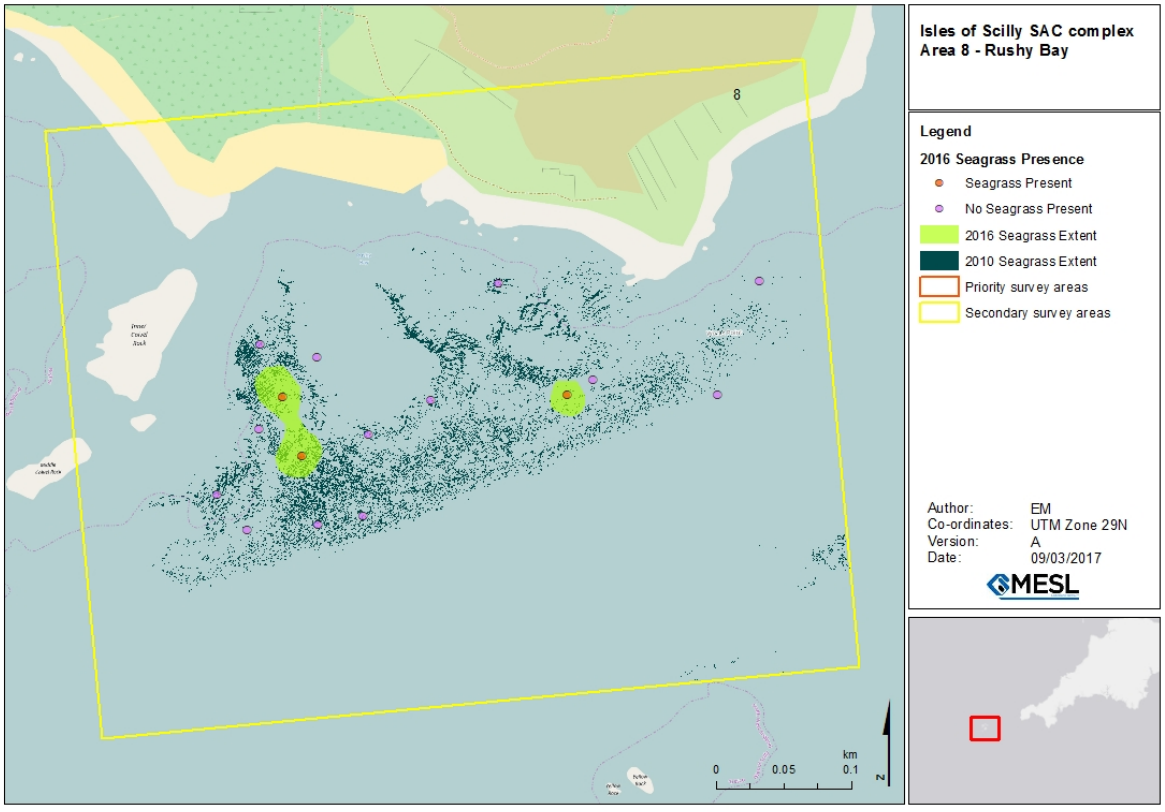

Figure 22. The seagrass extents determined in Area 8 (Rushy Bay) during the 2010 and 2016 surveys.

4.16. Area 9 – St Martin's (north)

There was just one small patch of seagrass in Area 9. The seagrass extent covered the third smallest area recorded during the survey and contributed 0.05% of the total bed area within the SAC. The combined perimeter of the bed in Area 9 was 0.09km. The seagrass patch was located in a channel of water between St Martin's and White Island (Figure 23) and was isolated from any other

occurrence of seagrass within the SAC. When compared to the seagrass coverage of 2010 a loss of 2.1Ha is evident, which given the small size of the meadow recorded in 2010 represents a heavy loss of *Z. marina* in the last six years.

The water depth at the DDV stations ranged from -0.8 to 0.6m and the depth at the single site where seagrass was recorded (Station 512) was 0.5m.

There was no record of *S. muticum* or wasting disease in Area 8 and there were no signs of anthropogenic disturbance seabed disturbance though it is unlikely that mooring erosion or scars would be visible given the lack of seagrass beds within this area.

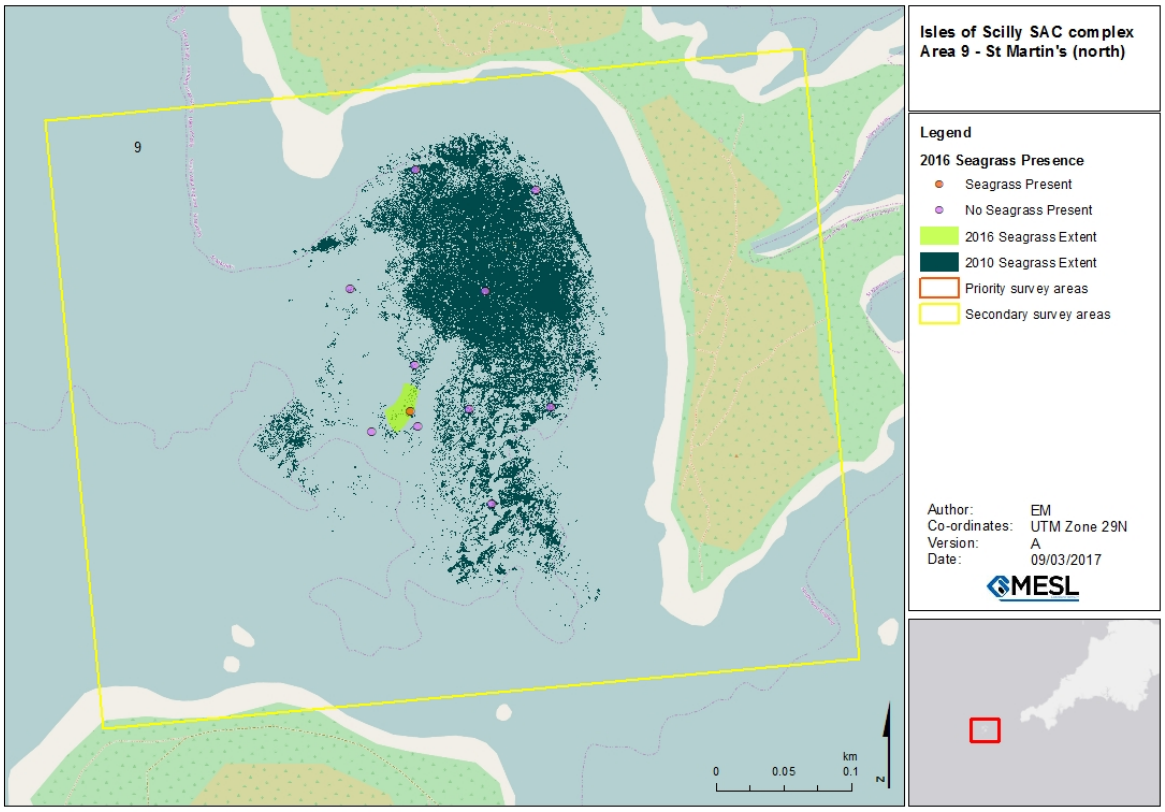

Figure 23. The seagrass extents determined in Area 9 (St Martin's (north)) during the 2010 and 2016 surveys.

4.17. Area 10 – Tean

The seagrass beds in Area 10 were the seventh largest across all of the survey sites with a combined area of 0.44Ha and a total perimeter of 0.48km. The seagrass beds around Tean were patchy and isolated from one another and the extent of the seagrass beds was reduced by 1.91Ha in 2016 when compared to 2010 (Figure 24). The seagrass in the area was made up of three patches: two to the east of Tean and one slightly larger patch to the west. There was no seagrass recorded to the north of the island or adjacent to any of the sheltered bays.

The water depth at the DDV stations ranged from 0.4 to 3.0m and the deepest site at which seagrass was present was 1.2m. The shallowest station was Station 532 at which seagrass was recorded at -0.4m.

There were three records of *S. muticum* in Area 10 of which one occurred within a patch of seagrass (Figure 25). All occurrences of *S. muticum* were localised to the area surrounding the seagrass bed to the west of Tean. No evidence wasting disease or anthropogenic disturbance was recorded in Area 10 though it is unlikely that mooring erosion or scars would be visible given the lack of seagrass beds within this area.

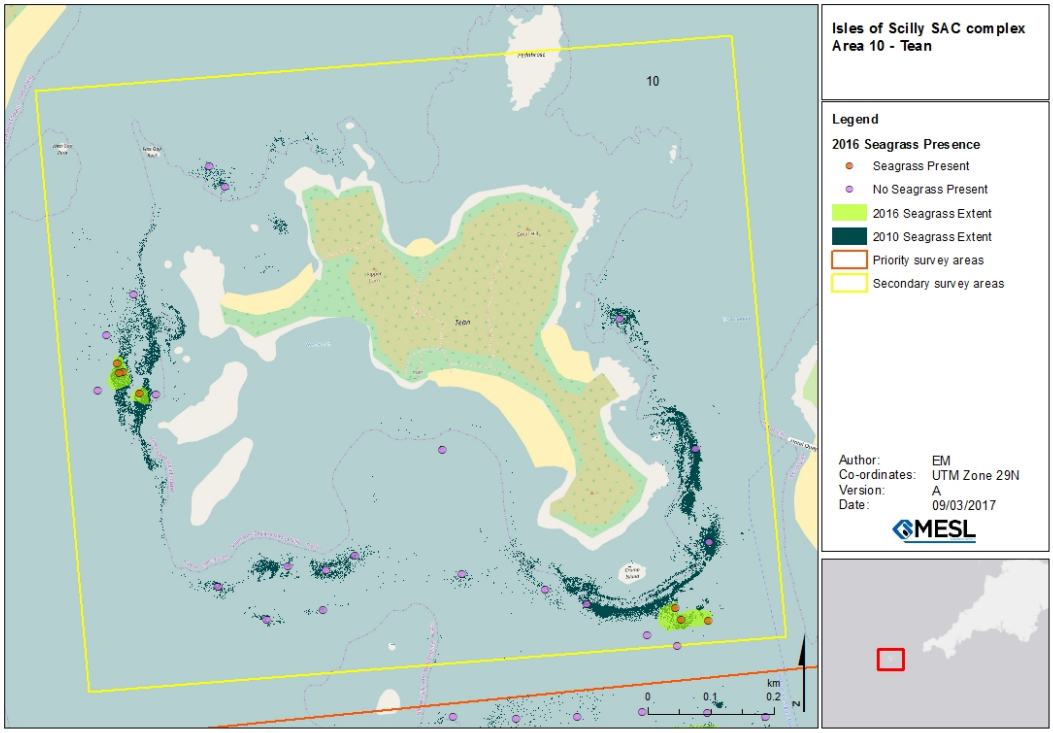

Figure 24. The seagrass extents determined in Area 10 (Tean) during the 2010 and 2016 surveys.

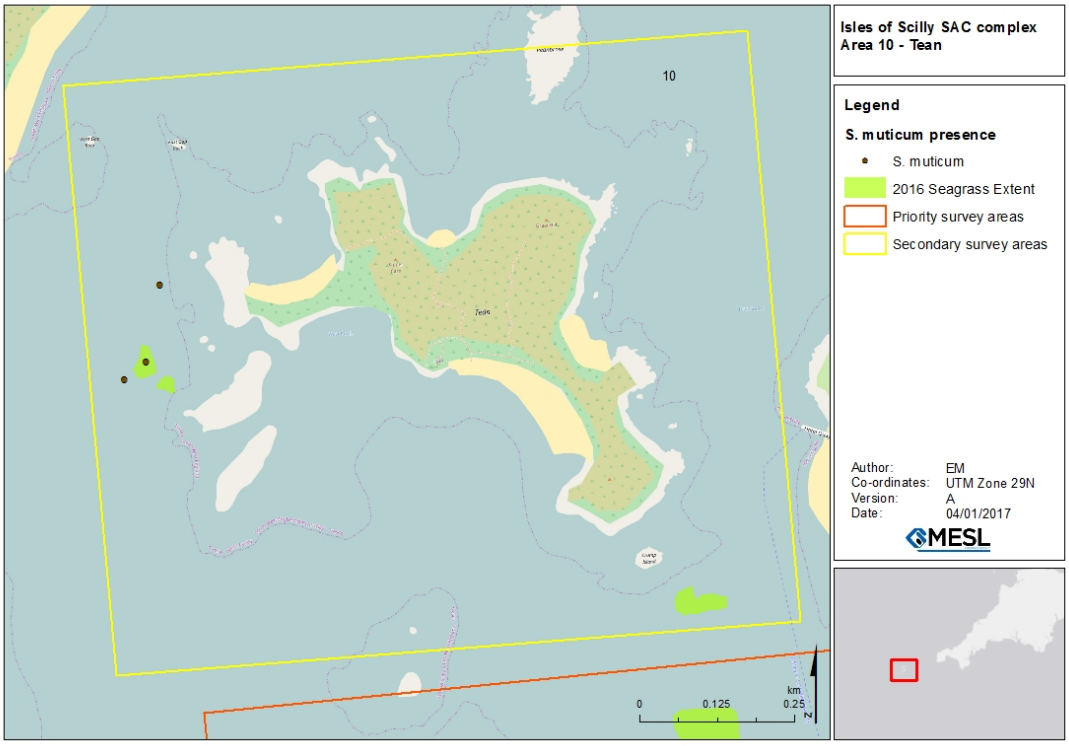

Figure 25. Stations where *S. muticum* was recorded in Area 10 during the 2016 seagrass survey.

4.18. Area 11 – Samson

In contrast to the 2010 survey (Figure 26), there was no seagrass recorded in Area 11 in 2016 signifying a loss of 0.73Ha. Due to the lack of *Z. marina* there were no signs of wasting disease. There were also no records of *S. muticum* or evidence of anthropogenic disturbance in the area though it is unlikely that mooring erosion or scars would be visible given the lack of seagrass beds within this area.

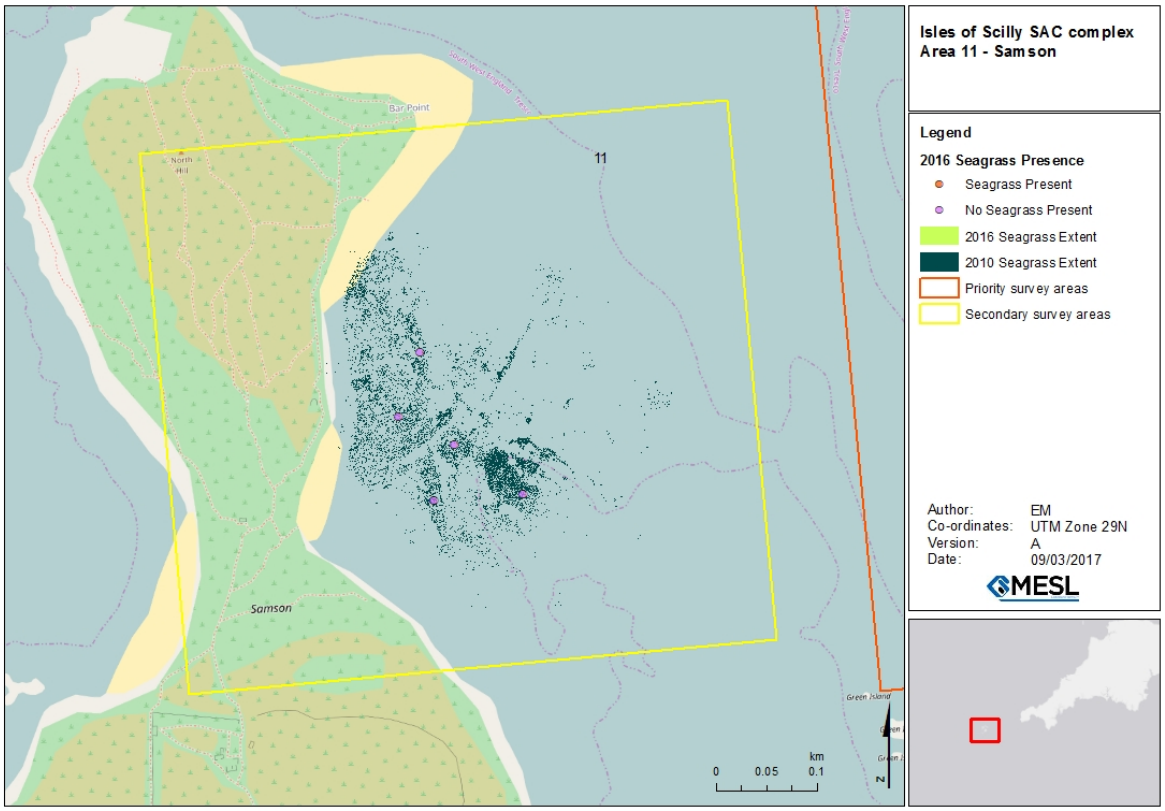

Figure 26. The seagrass extents determined in Area 11 (Samson) during the 2010 and 2016 surveys.

4.19. Area 12 – Tresco East

The seagrass beds in Area 12 were the smallest observed across all of the survey sites with a combined area of 0.04Ha and a total perimeter of 0.08km. In total the beds in this area made a combined contribution of 0.03% to the total seagrass area within the SAC. The seagrass in the Tresco East area was located approximately 900m from the shoreline at the outermost edge of the edge of the 2010 seagrass distribution (Figure 27). Though there is overlap with the approximate location of the seagrass beds recorded in 2010 a total loss of 12.04Ha has occurred at Tresco East over the last six years. This represents the second largest loss of *Z. marina* in any of the survey areas (Table 4) which has resulted in an almost total loss of the sub-feature to the east of Tresco.

The water depth at the DDV stations ranged from -2.5 to 1.7m and the depth at the single site where seagrass was present (Station 832) was 0.5m.

There were four records of *S. muticum* in Area 12 though none of these were observed in the area where seagrass was present. However, two records of *S. muticum* were observed in the central region of a seagrass bed which was present in 2010 but not observed in 2016 (Figure 28).There were no signs of wasting disease infection in the seagrass at the Tresco East site.

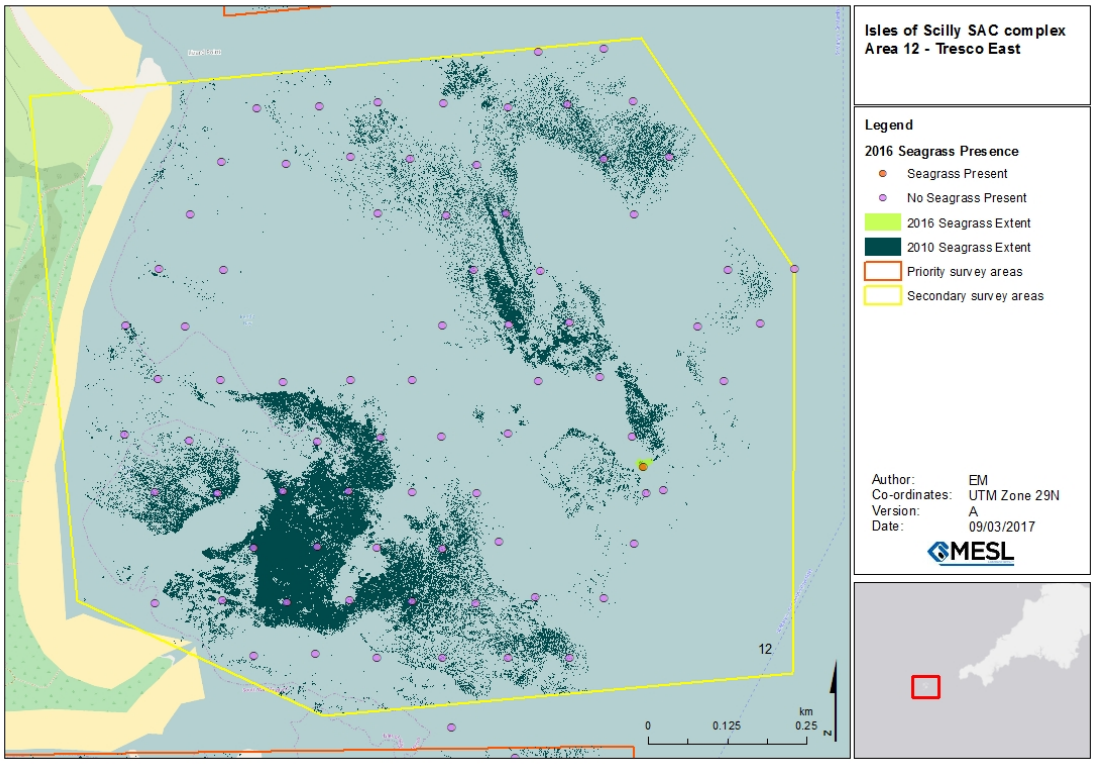

Figure 27. The seagrass extents determined in Area 12 (Tresco East) during the 2010 and 2016 surveys.

Figure 28. Stations where *S. muticum* was recorded in Area 12 during the 2016 seagrass survey.

5. Preliminary Condition Assessment

Information to support a future condition assessment of the seagrass sub-feature of the Isles of Scilly Complex SAC is presented in Table 5, which provides a summary of the seagrass features of the site based on the survey data collected as part of this project. It should be noted that natural temporal variation of seagrass bed extent due to environmental variables such as sunlight and nutrients fluxes should be taken in to account when considering the overall health and extent of the sub-feature between years.

Table 5 references the specific favourable condition targets for the subtidal interest features of the SAC against the current site condition (where baseline datasets exist to make a temporal comparison), contextualising where changes in the distribution and variety of interest features have occurred over time.

Table 5. Table outlining the preliminary condition of the seagrass beds in the Isles of Scilly Complex SAC in reference to the assessment criteria outline in the Marine Monitoring Handbook (JNCC, 2001).

Interest Feature	Sub-feature	Attribute	Target	Comments
Sandbanks which are slightly covered by seawater all the times	Eelgrass bed communities	Extent	No decrease in extent from an established baseline, subject to natural change.	As discussed in Section 4, the total seagrass bed extent within the 12 survey areas was reduced in 2016 when compared to the area determined in 2010. In many cases, seagrass beds have retreated and there was a higher incidence of isolated seagrass patches rather than continuous beds at most sites. The overlap in distribution compared to historical data was high where seagrass was observed. The total recorded extent of seagrass in 2016 was approximately 134.76Ha compared to 184.1Ha in the equivalent area in 2010, an estimated net decrease of 49.29Ha.
		Water clarity	Average light attenuation should not decrease significantly from an established baseline, subject to natural change.	Water clarity was observed to be high at all of the drop-down video stations. Visibility was consistently 100% to the seafloor even in overcast conditions when using the video camera. Turbidity was low at all stations.
		Characterising species: density of *Zostera marina*	Average shoot density should not deviate significantly from an established baseline, subject to natural change.	The scope of this investigation does not account for the shoot density of *Z. marina*. The condition assessment in terms of shoot density was assessed during the annual Isles of Scilly Complex SAC dive surveys (See Bull & Kenyon, 2015).

Interest Feature	Sub-feature	Attribute	Target	Comments
		Non-native species - *Sargassum muticum*	Presence and abundance of *Sargassum* should not increase significantly from an established baseline, subject to natural change.	Previous seagrass surveys in the Isles of Scilly Complex SAC did not formally quantify the presence of *S. muticum* so it was not possible to determine any change in abundance and distribution. However, distribution in 2016 appears to be similar to that noted by Bull & Kenyon in 2015. Consequently it has not been possible to ascertain the direct impacts the presence of *S. muticum* has had on the *Z. marina* condition within the SAC. However, *S. muticum* was not recorded in the Isles of Scilly prior to 1991 and in 2016 was found in 7 of the 12 survey areas and growing amongst seagrass at 15 DDV stations. Therefore, it can be supposed that the presence of *S. muticum* has continued to increase or as a minimum establish a stable presence within the SAC.

6. Discussion

The techniques utilised in this investigation allowed for the collection of data which will consequently provide information to support Natural England's condition assessment for the Isles of Scilly Complex SAC. Throughout the field work and reporting elements of this project, a number of observations were made which were deemed important for consideration when consulting the 2016 seagrass data and in planning future surveys within the SAC.

6.1. Survey Design

Priority and secondary survey areas have not previously been used for seagrass monitoring purposes within the Isles of Scilly Complex SAC. Systematically surveying an area proved to be a successful method and it is recommended that the same areas are targeted in the future to allow more accurate comparisons to be made for seagrass and extent and coverage between years. Maintaining monitoring of the 12 survey areas using similar survey methods in the future would allow the results of the present study to act as a baseline, allowing robust comparisons to be made in the future.

Surveying seagrass beds using drop-down video techniques had significant benefits, though there were some disadvantages relating to the accuracy of the technique when considering total extent calculations. This method did not allow for the fine scale determination of the patchiness of seagrass beds. This was especially true in areas where the exterior bed borders could not be so precisely determined, such as in St Mary's Harbour. A degree of error is associated with the method because of the resolution at which seagrass bed extent can be determined using a 100m grid system. However, quantifying the error has not been possible due to the complexity of the seagrass beds resulting from patchiness.

Using DDV as a survey method guarantees a low risk of misidentification of habitats and species which may occur when using aerial imagery techniques and also allows for the accurate identification of signs of infection, invasive species, pollution and other environmental factors which

may affect the health of the sub-feature. However, it is difficult to account for fine-scale patchiness when conducting drop down video mapping techniques as small patches are not always covered by the station array and likewise, smaller areas of erosion may not be fully accounted for. The tracing of the edge of the seagrass beds proved a successful technique for determining the furthest extents of the sub-feature and accounted for any changes in the furthest reaches of the sub-feature.

The potential for under- or over-estimation of seagrass within the SAC in 2010 due to the methodology is significant for the results of the 2016 survey. If the seagrass beds mapped in 2010 were representative of the occurrence of *Z. marina* meadows, not similar looking habitats, the 2010 outputs can be used as an accurate baseline for 2016 data. Additionally, there were records of seagrass in depths of greater than 5m in the most recent survey and it is possible that this would have also been the case in 2010, though these beds were not represented in the final outputs as the 2010 project did not include data from any areas deeper than 5m. However, there were only four stations in 2016 where seagrass was recorded deeper than 5m relative to chart datum so any error associated with this is likely to be minimal.

Jackson *et al*. (2010) recommended that a possible seagrass bed approximately 2km north of St Mary's Harbour be investigated during the next monitoring survey. However, the scope of this project did not allow for the examination of the suspected site and as such it has not been possible to confirm or rule-out the presence of seagrass in this area. Future surveys may wish to take the potential existence of this seagrass bed in to account and record any observations of additional seagrass patches observed in transit between areas and using local knowledge.

6.2. Drivers of Change within the SAC

To determine the drivers behind the changes in seagrass distribution, further environmental measures could be taken as part of future surveys. Nutrients availability, salinity, temperature, freshwater input and the exposure of site to currents and wind are all influential factors which are likely to be of importance when considering *Z. marina* health. Gathering or incorporating data on these factors may be useful for a management perspective going forward.

6.2.1. The Presence of *Sargassum muticum*

In 2015 the dive survey of the SAC (Bull & Kenyon, 2015) recorded *S. muticum* at Broad Ledges and West Broad Ledges and stated that the distribution had not changed substantially from previous years when dive surveys have been conducted. However, the current investigation revealed *S. muticum* to be present at Broad Ledges, West Broad Ledges, Higher Town Bay, Little Arthur and Bar Point suggesting that *Sargassum* may have spread within the SAC.

The areas where *S. muticum* was recorded were not consistent with the largest losses of seagrass extent when compared to 2010. However, data for *S. muticum* occurrence in 2010 was not available so it has not been possible accurately determine the relationship between *S. muticum* and *Z. marina* within the SAC over the last six years.

It is recommended that monitoring of *S. muticum* should be continued within the SAC to determine the effects the invasive species has on the local seagrass population. Some sources have suggested that *S. muticum* is not generally known to colonise areas of existing seagrass turf and instead demonstrates a preference towards bare substrate, cobble and rock. However, it may take

advantage of any substrate which is left exposed by seagrass die-back or extent retreat (Hocking & Tompsett, 2002) which may be pertinent given the degree of extent reduction apparently observed in the 2016 survey. Contrary to this, annual dive surveys within the Isles of Scilly Complex SAC have regularly recorded *S. muticum* within seagrass beds (Natural England, pers. comm., 2017) which demonstrates its ability to colonise the same substrates as *Z. marina*. *S. muticum* was observed only in bare patches in the 2002 survey of seagrass beds, whereas in 2016 it was coincident with 15 stations where seagrass was recorded as present suggesting an increase of coincidence between the two species. This may be significant for the seagrass beds within the SAC as a heightened presence even at the borders of the seagrass beds may result in the overshadowing and out-competing of seagrass, resulting in dieback.

6.2.2. Wasting Disease

Wasting disease is acknowledged to impact the population dynamics of *Z. marina* by limiting seagrass growth within local populations (Bull *et al*., 2012). As such, monitoring seagrass beds by survey area may be an advantageous technique for monitoring the impacts of the pathogen over time. It is recommended that to capture any spread of wasting disease that samples should be collected from leaves which are presenting signs of infection such as lesions and black spots. This would allow for a definitive confirmation of the presence or absence of infection within seagrass populations. Patchiness which was observed in 2010 continued to be seen on an increased scale in 2016 and where continuous seagrass meadows were once reported within several areas of the Isles of Scilly SAC (Hocking & Tompsett, 2002), isolated patches of seagrass bed are now commonplace. However, it is not known whether isolated populations within the SAC may be more protected against pathogen spread within local populations or more vulnerable to population loss.

The areas with evidence of wasting disease present were not consistent with the largest losses of seagrass extent compared to 2010. However, this may not be truly representative of the coincidence of seagrass loss with wasting disease as signs of infection cannot be detected once seagrass has already been lost.

Additionally, it has been acknowledged that rising temperatures are likely to increase the susceptibility of seagrass to the effects of wasting disease (Bull *et al.,* 2012). Therefore, increasing global temperatures attributable to climate change may be pertinent when regarding the future health of seagrass populations within the Isles of Scilly Complex SAC.

6.2.3. Anthropogenic Impacts

Attributing losses and gains of seagrass to anthropogenic pressures should be done so with caution. It is established that seagrass undergoes relatively short-term changes in extent due to fairly rapid re-colonisation and die-back which is part of a naturally occurring cycle (Jackson *et al.,* 2010). As there were few signs of direct human impacts such as seabed erosion from mooring and visible pollution during the 2016 survey (with the exception of St Mary's Harbour), it is difficult to ascertain the exact cause of the reduction in extent.

It is only possible to detect mooring and anchor scars where seagrass is present and as such it is difficult to quantify whether leisure activity was a driver in areas where the largest losses of seagrass bed have been observed.

It is most likely that there are a number of factors which have resulted in the retreat of seagrass across the SAC and these may include the presence of wasting disease signs of which were observed in four of the twelve surveyed areas. Other factors may include anthropogenic pressures related to the human use of the SAC area. Such uses include mooring and anchoring particularly for St Mary's Harbour which is subject to high levels of marine traffic and year-round mooring. The rocky topography, presence of rocky reefs and shallow overlay of finer sediments within the Isles of Scilly Complex SAC generally precludes fishing activity within areas where seagrass is established.

6.2.4. Natural Drivers for Change

In addition to anthropogenic pressures which may have a negative impact on seagrass extent within the SAC, natural processes also affect the health of *Zostera marina.* Tidal streams in the Isles of Scilly are complex and dynamic, and many of the shallow submerged sandbanks on which *Z. marina* grows are highly exposed to storm damage which is a major driver behind the changing distribution of beds within the SAC both in terms of extent and arrangement (Jackson *et al*., 2010). Seagrass has the ability to recolonise following damage which has historically maintained populations within the SAC following storms, though the introduction of additional pressures may slow the recolonisation process following storm events. In addition to the removal of seagrass by storms, unharmed *Z. marina* may be subject to smothering by suspended sediment following an increase in wave-stress, leading to a decrease in the ability to photosynthesise.

Changes in substrate resulting from current and tidal variances may also have a lasting effect on *Z. marina* populations. Seagrass requires soft sediments in which it can anchor and as such, the removal of sediment would be detrimental to the ability of a population to survive. Furthermore, the sediments surrounding the islands of the Scilly archipelago are generally shallow (Hocking & Tompsett, 2002) meaning that alterations in local water flow may have a significant impact on local seagrass populations.

7. Conclusions

There were some challenges with comparing 2016 survey data with that of 2010 due to the differences in survey techniques. The differences in survey methods may have resulted in a misrepresentation of seagrass extent within the SAC due to variances in resolution. It is recommended that future seagrass surveys use methods consistent with the 2016 investigation so that this study may act as a robust baseline against which future condition assessments may be made accurately.

Though decreased in extent, the seagrass beds in the Isles of Scilly remain extensive. Seagrass beds with a total area of 134.8Ha were mapped across the Isles of Scilly Complex SAC in 2016. *Z. marina* beds were identified in 11 of the 12 survey areas targeted for this investigation, though total loss of seagrass was observed in Area 11 to the east of Samson.

The *Z. marina* seagrass beds within the SAC have decreased in area coverage when compared to that of 2010 with a total loss of 49.29Ha between 2010 and 2016. It remains unclear whether a single driving factor or a combination of natural and anthropogenic influences has resulted in the reduction in seagrass extent. The presence of wasting disease and invasive species (*S.muticum*) and natural processes such as storm damage are potential factors impacting seagrass extent and should be

closely monitored in the near future. It is certain that extents have reduced since 2010 though the scale of reduction is uncertain due to potential errors associated with the techniques used and different methods employed.

Signs of infection from wasting disease (*Labyrinthula* spp.) were present at multiple sites within the SAC and lesions consistent with infection were identified at 29 stations within the survey areas at Broad Ledges, Higher Town Bay, Little Arthur and Bar Point. Comprehensive baseline data for disease prevalence in seagrass within the SAC was not available and no laboratory testing for the pathogen was undertaken and as such it was not possible to assess the rate and effects of infection in recent years. The areas with evidence of wasting disease present were not consistent with the largest losses of seagrass extent compared to 2010.

Though *S. muticum* is not thought to be a significant threat to *Z. marina* due to differences in substrate preference, it was present in seven of the 12 survey areas and was coincident with seagrass at 15 stations within Broad Ledges, Little Arthur, Bar Point and Tean. *S. muticum* was most prolific at Broad Ledges, to the south of Tresco, where it was recorded 28 times. Despite multiple coincidences of *S. muticum* and *Z. marina,* the areas with evidence of wasting disease present were not consistent with the largest losses of seagrass extent compared to 2010.

Anthropogenic disturbance was only observed in Area 7 at St Mary's harbour where patches of seagrass had been eroded due to mooring lines. However, it is possible that other pressures resulting from human activities such as nutrient enrichment and pollution were causing impacts throughout the survey area that were not apparent due to the survey methods adopted.

Using drop down video techniques to determine the presence and extent of seagrass within the SAC proved successful and enabled the accurate identification of the presence of *S. muticum*, infection by wasting disease, anthropogenic damage and environmental observations including turbidity.

8. References

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9. Appendices

1. Individual station coordinates for the Isles of Scilly Seagrass survey 2016.
2. Daily log of survey activity for the 2016 survey.
3. Field note pro forma template for the 2016 survey.
4. Detailed field notes relating to each station for the 2016 survey.
5. Individual seagrass bed dimensions per survey area for the 2016 survey.

Appendix 1. Isles of Scilly SAC Complex Seagrass Survey DDV Station Coordinates

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
1	1	49.933730	-6.339325
1	2	49.933161	-6.334952
1	3	49.934137	-6.340033
1	4	49.934289	-6.338616
1	5	49.934124	-6.337234
1	6	49.934100	-6.335838
1	7	49.934116	-6.332250
1	8	49.933940	-6.333000
1	9	49.933867	-6.331534
1	10	49.933775	-6.330299
1	11	49.934914	-6.340624
1	12	49.934848	-6.339183
1	13	49.934830	-6.337803
1	14	49.934764	-6.335009
1	15	49.934671	-6.333682
1	16	49.934700	-6.332270
1	17	49.934833	-6.330757
1	18	49.934608	-6.329429
1	19	49.935743	-6.341192
1	20	49.935556	-6.339829
1	21	49.935630	-6.338337
1	22	49.935528	-6.337012
1	23	49.935525	-6.334249
1	24	49.935491	-6.332904
1	25	49.935416	-6.331532
1	26	49.935540	-6.329947
1	27	49.935396	-6.328836
1	28	49.936449	-6.343284
1	29	49.936448	-6.341923
1	30	49.936448	-6.340533
1	31	49.936445	-6.339064
1	32	49.936447	-6.337757
1	33	49.936385	-6.336384
1	34	49.936227	-6.334731
1	35	49.936318	-6.333499
1	36	49.936291	-6.332100
1	37	49.936160	-6.330874
1	38	49.936239	-6.329336
1	39	49.936078	-6.327933
1	40	49.937186	-6.341208
1	41	49.937269	-6.339695
1	42	49.937126	-6.338310
1	43	49.937238	-6.336823
1	44	49.937082	-6.335597
1	45	49.937088	-6.334185
1	46	49.937033	-6.332757
1	47	49.937027	-6.331424

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
1	48	49.937010	-6.330050
1	49	49.937065	-6.328405
1	50	49.936898	-6.327374
1	51	49.936849	-6.325776
1	52	49.938162	-6.342242
1	53	49.937953	-6.340432
1	54	49.937947	-6.339034
1	55	49.937820	-6.336017
1	56	49.937855	-6.334872
1	57	49.937800	-6.333357
1	58	49.937741	-6.331997
1	59	49.937791	-6.330628
1	60	49.937724	-6.329275
1	61	49.937678	-6.327888
1	62	49.937603	-6.326548
1	63	49.937650	-6.325064
1	64	49.938658	-6.341079
1	65	49.938740	-6.336882
1	66	49.938679	-6.334064
1	67	49.938449	-6.331212
1	68	49.938455	-6.330018
1	69	49.938549	-6.328534
1	70	49.938536	-6.326969
1	71	49.938438	-6.325840
1	72	49.938471	-6.324398
1	73	49.938350	-6.322962
1	74	49.938535	-6.321687
1	75	49.938335	-6.320210
1	76	49.938334	-6.318795
1	77	49.939340	-6.330620
1	78	49.938282	-6.329217
1	79	49.939301	-6.327773
1	80	49.939420	-6.326020
1	81	49.938904	-6.324990
1	82	49.939184	-6.323641
1	83	49.939121	-6.320849
1	84	49.939118	-6.319486
1	85	49.939086	-6.317970
1	86	49.940071	-6.329893
1	87	49.940069	-6.328445
1	88	49.939748	-6.327087
1	89	49.939980	-6.322727
1	90	49.939889	-6.321475
1	91	49.939910	-6.320132
1	92	49.939862	-6.318682
1	93	49.939877	-6.317313
1	94	49.941684	-6.328328

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
1	95	49.940795	-6.327800
1	96	49.940744	-6.323595
1	97	49.940681	-6.322247
1	98	49.940702	-6.320739
1	99	49.940650	-6.319434
1	100	49.940631	-6.317957
1	101	49.940548	-6.316598
1	102	49.941634	-6.328385
1	103	49.941580	-6.327039
1	104	49.941604	-6.325634
1	105	49.941529	-6.324133
1	106	49.941552	-6.322871
1	107	49.941455	-6.321500
1	108	49.941518	-6.320064
1	109	49.941404	-6.318532
1	110	49.941419	-6.317069
1	111	49.941365	-6.315856
1	112	49.941940	-6.314829
1	113	49.942473	-6.327629
1	114	49.942367	-6.326274
1	115	49.942300	-6.324899
1	116	49.942341	-6.323418
1	117	49.942276	-6.322056
1	118	49.942182	-6.320723
1	119	49.942249	-6.319142
1	120	49.942062	-6.313726
1	121	49.942019	-6.312294
1	122	49.943093	-6.322758
1	123	49.942998	-6.321417
1	124	49.942922	-6.319964
1	125	49.942869	-6.314337
1	126	49.942846	-6.312967
1	127	49.942811	-6.311553
1	128	49.944164	-6.313454
1	129	49.943702	-6.312089
1	130	49.943593	-6.310890
1	700	49.936703	-6.341863
1	701	49.937167	-6.341646
1	702	49.936470	-6.342595
1	703	49.936538	-6.341099
1	704	49.935607	-6.340463
1	705	49.935152	-6.341718
1	706	49.935139	-6.342550
1	707	49.935329	-6.343314
1	708	49.935855	-6.341968
1	709	49.938177	-6.333606
1	710	49.938478	-6.333940

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
1	711	49.938337	-6.332917
1	712	49.937486	-6.332987
1	713	49.936574	-6.332167
1	714	49.935815	-6.332850
1	715	49.934542	-6.331453
1	716	49.934410	-6.332194
1	717	49.933873	-6.332330
1	718	49.934164	-6.332430
1	719	49.934908	-6.331618
1	720	49.936128	-6.330160
1	721	49.936180	-6.330130
1	722	49.936999	-6.330966
1	723	49.937764	-6.329996
1	724	49.938290	-6.330621
1	725	49.938594	-6.330699
1	726	49.938986	-6.330199
1	727	49.939106	-6.329483
1	728	49.940079	-6.329355
1	729	49.940762	-6.328364
1	730	49.940186	-6.328305
1	731	49.939925	-6.327293
1	732	49.940177	-6.326707
1	733	49.939552	-6.326265
1	734	49.938843	-6.325602
1	735	49.939182	-6.324811
1	736	49.939521	-6.323912
1	737	49.940084	-6.324178
1	738	49.940393	-6.323141
1	739	49.940988	-6.322685
1	740	49.940999	-6.321667
1	741	49.942027	-6.322502
1	742	49.942257	-6.321375
1	743	49.942612	-6.320655
1	744	49.942084	-6.319817
1	745	49.941330	-6.320900
1	746	49.940225	-6.321177
1	747	49.940434	-6.320091
1	748	49.940848	-6.319108
1	749	49.940831	-6.317825
1	750	49.940573	-6.317324
1	751	49.939661	-6.317794
1	752	49.939220	-6.318725
1	753	49.939355	-6.320304
1	754	49.939081	-6.322117
1	755	49.938304	-6.322551
1	756	49.937923	-6.323908
1	757	49.936192	-6.326973

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
1	758	49.935597	-6.326105
1	759	49.935309	-6.327423
1	760	49.934498	-6.328499
1	761	49.934339	-6.327422
1	762	49.934374	-6.326242
1	763	49.934035	-6.324937
1	764	49.933638	-6.329281
1	765	49.933237	-6.328235
1	766	49.933219	-6.326827
1	767	49.933461	-6.331176
2	131	49.959561	-6.327999
2	132	49.959547	-6.326713
2	133	49.959479	-6.325291
2	134	49.960382	-6.330100
2	135	49.960344	-6.328726
2	136	49.960314	-6.327328
2	138	49.961179	-6.330693
3	139	49.954620	-6.317199
3	140	49.954626	-6.315881
3	141	49.954556	-6.314424
3	142	49.954477	-6.313074
3	143	49.955447	-6.317829
3	144	49.955353	-6.315049
3	145	49.955310	-6.313713
3	146	49.955279	-6.312274
3	147	49.955264	-6.310802
3	148	49.955174	-6.308066
3	149	49.955116	-6.305289
3	150	49.955086	-6.303994
3	151	49.956140	-6.317114
3	152	49.956119	-6.315645
3	153	49.956098	-6.314333
3	154	49.956060	-6.312966
3	155	49.956056	-6.311533
3	156	49.956138	-6.310158
3	157	49.955973	-6.308704
3	158	49.955915	-6.307312
3	159	49.955962	-6.304630
3	160	49.956982	-6.316495
3	161	49.956886	-6.313568
3	162	49.956793	-6.310770
3	163	49.956767	-6.309339
3	164	49.956726	-6.308004
3	165	49.956772	-6.306711
3	166	49.956709	-6.305227
3	167	49.956647	-6.303844
3	168	49.957686	-6.315600

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
3	169	49.957645	-6.314205
3	170	49.957603	-6.312885
3	171	49.957592	-6.311463
3	172	49.957576	-6.310086
3	173	49.957553	-6.308700
3	174	49.957462	-6.307258
3	175	49.957448	-6.305926
3	176	49.957437	-6.304568
3	177	49.958729	-6.317222
3	178	49.958432	-6.314942
3	179	49.958417	-6.313531
3	180	49.958405	-6.312116
3	181	49.958338	-6.310685
3	182	49.958340	-6.309307
3	183	49.958286	-6.307862
3	184	49.958244	-6.306513
3	185	49.958228	-6.305161
3	186	49.958245	-6.303744
3	187	49.959226	-6.315516
3	188	49.959229	-6.314158
3	189	49.959191	-6.312755
3	190	49.959125	-6.311332
3	191	49.959122	-6.309965
3	192	49.959088	-6.308592
3	193	49.959000	-6.304370
3	194	49.960023	-6.316136
3	195	49.960014	-6.314815
3	196	49.959946	-6.313397
3	197	49.959929	-6.311968
3	198	49.959895	-6.309299
3	199	49.959796	-6.307764
3	200	49.959813	-6.305062
3	201	49.959759	-6.303649
3	202	49.960835	-6.315401
3	203	49.960722	-6.311311
3	204	49.960674	-6.309929
3	205	49.960605	-6.308516
3	206	49.960571	-6.307130
3	207	49.960573	-6.305652
3	208	49.960581	-6.304365
3	209	49.961578	-6.316171
3	210	49.961514	-6.314827
3	211	49.961470	-6.310583
3	212	49.961422	-6.309134
3	213	49.961364	-6.307744
3	214	49.961410	-6.306417
3	215	49.961366	-6.304950

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
3	216	49.962283	-6.312595
3	217	49.962232	-6.311215
3	218	49.962225	-6.309862
3	219	49.962253	-6.308415
3	220	49.962207	-6.306998
3	221	49.962130	-6.305716
3	222	49.962092	-6.304284
3	619	49.958832	-6.306745
3	620	49.960121	-6.306241
3	621	49.957252	-6.305457
3	622	49.958464	-6.308465
3	623	49.958531	-6.305057
3	624	49.958865	-6.317687
3	625	49.959143	-6.318170
3	626	49.959343	-6.318609
4	223	49.949386	-6.262425
4	224	49.950258	-6.263034
4	225	49.950210	-6.261619
4	226	49.950588	-6.258877
4	227	49.951070	-6.265084
4	228	49.950990	-6.263745
4	229	49.950933	-6.262339
4	230	49.950908	-6.260976
4	231	49.951810	-6.267165
4	232	49.951823	-6.265719
4	233	49.951780	-6.264314
4	234	49.951789	-6.262969
4	235	49.951602	-6.261808
4	236	49.952568	-6.267912
4	237	49.952567	-6.266376
4	238	49.952567	-6.265059
4	239	49.952587	-6.263627
4	240	49.953444	-6.268469
4	241	49.953376	-6.267090
4	242	49.953311	-6.265621
4	243	49.953361	-6.264267
4	244	49.954367	-6.274484
4	245	49.954594	-6.273745
4	246	49.954183	-6.267735
4	247	49.954110	-6.266386
4	248	49.954019	-6.265492
4	249	49.954945	-6.268490
4	250	49.954959	-6.267051
4	251	49.954893	-6.265620
4	252	49.956031	-6.280067
4	253	49.956053	-6.278642
4	254	49.956017	-6.277360

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
4	255	49.955966	-6.276024
4	256	49.955944	-6.274467
4	257	49.955965	-6.273122
4	258	49.955859	-6.271831
4	259	49.955809	-6.270387
4	260	49.955565	-6.269137
4	261	49.955873	-6.268000
4	262	49.955732	-6.266287
4	263	49.955688	-6.264775
4	264	49.955593	-6.259329
4	265	49.956874	-6.280515
4	266	49.956836	-6.279354
4	267	49.956801	-6.277962
4	268	49.956777	-6.276670
4	269	49.956741	-6.275198
4	270	49.956731	-6.273747
4	271	49.956654	-6.272386
4	272	49.956675	-6.271091
4	273	49.956575	-6.266953
4	274	49.956562	-6.265433
4	275	49.956494	-6.264011
4	276	49.956480	-6.262703
4	277	49.957612	-6.280039
4	278	49.957578	-6.278663
4	279	49.957570	-6.277308
4	280	49.957556	-6.275742
4	281	49.957467	-6.274430
4	282	49.957471	-6.273029
4	283	49.957446	-6.271710
4	284	49.957275	-6.270563
4	285	49.957353	-6.269000
4	286	49.957329	-6.267548
4	287	49.957323	-6.266113
4	288	49.957297	-6.263284
4	289	49.957206	-6.261967
4	290	49.958444	-6.279261
4	291	49.958322	-6.278025
4	292	49.958401	-6.276562
4	293	49.958711	-6.275307
4	294	49.958243	-6.273734
4	295	49.958283	-6.272347
4	296	49.958173	-6.269709
4	297	49.958133	-6.268205
4	298	49.958043	-6.266762
4	299	49.958063	-6.265385
4	300	49.958929	-6.268854
4	301	49.958857	-6.267518

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
4	302	49.958832	-6.266085
4	303	49.958841	-6.264712
4	304	49.958787	-6.263273
4	305	49.959664	-6.266715
4	306	49.959855	-6.265400
4	307	49.960359	-6.264620
4	308	49.961150	-6.263789
4	309	49.961095	-6.262430
4	803	49.950214	-6.262794
4	804	49.950406	-6.263435
4	805	49.955088	-6.267539
4	806	49.956897	-6.265023
4	807	49.958850	-6.265465
4	808	49.958535	-6.267056
4	809	49.958301	-6.267431
4	810	49.959038	-6.267881
4	811	49.959614	-6.267386
4	812	49.960123	-6.267665
4	813	49.960081	-6.266941
4	814	49.960121	-6.265731
4	815	49.959969	-6.264907
4	816	49.960295	-6.263935
4	817	49.960037	-6.264055
4	818	49.958449	-6.268095
4	819	49.958179	-6.268549
4	820	49.957122	-6.270273
4	821	49.956171	-6.270842
4	822	49.950648	-6.262556
4	823	49.950743	-6.263391
4	824	49.951374	-6.263848
4	825	49.951428	-6.264431
4	826	49.951503	-6.264472
4	827	49.951979	-6.264023
4	828	49.951949	-6.263667
4	829	49.952202	-6.264759
4	830	49.953272	-6.266946
4	831	49.952870	-6.263838
5	310	49.942785	-6.277582
5	311	49.942729	-6.276161
5	312	49.942761	-6.274709
5	313	49.943736	-6.278052
5	314	49.943401	-6.272521
5	315	49.944421	-6.281537
5	316	49.944371	-6.280110
5	317	49.944087	-6.267557
5	318	49.945204	-6.280784
5	319	49.944925	-6.272466

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
5	320	49.944909	-6.268275
5	321	49.945975	-6.281498
5	322	49.945965	-6.280074
5	323	49.946010	-6.278997
5	324	49.945121	-6.274613
5	325	49.945806	-6.273024
5	326	49.945718	-6.271595
5	327	49.945748	-6.270335
5	328	49.945666	-6.268939
5	329	49.946759	-6.282106
5	330	49.946799	-6.280716
5	331	49.946707	-6.279270
5	332	49.946965	-6.278092
5	333	49.946531	-6.273680
5	334	49.946814	-6.270792
5	335	49.946497	-6.269645
5	336	49.946533	-6.268434
5	337	49.947641	-6.282737
5	338	49.947553	-6.281324
5	339	49.947508	-6.279972
5	340	49.947492	-6.278551
5	341	49.947474	-6.277256
5	342	49.947446	-6.275797
5	343	49.947345	-6.274221
5	344	49.947350	-6.272973
5	345	49.947439	-6.271409
5	346	49.947340	-6.270053
5	347	49.947274	-6.268833
5	348	49.948385	-6.283243
5	349	49.948636	-6.281758
5	350	49.948442	-6.280241
5	351	49.948402	-6.278961
5	352	49.948227	-6.277746
5	353	49.948233	-6.276298
5	354	49.948138	-6.274980
5	355	49.948179	-6.273616
5	356	49.948149	-6.272181
5	357	49.948043	-6.270780
5	358	49.947897	-6.268048
5	359	49.948255	-6.266647
5	360	49.948056	-6.264624
5	361	49.949241	-6.282550
5	362	49.949083	-6.281263
5	363	49.949067	-6.279774
5	364	49.949037	-6.278512
5	365	49.949140	-6.276870
5	366	49.949005	-6.275638

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
5	367	49.948937	-6.274277
5	368	49.948937	-6.272815
5	369	49.948953	-6.271602
5	370	49.948803	-6.265918
5	371	49.948755	-6.264595
5	372	49.948690	-6.263098
5	373	49.949944	-6.283254
5	374	49.949877	-6.281856
5	375	49.949843	-6.280426
5	376	49.949840	-6.279040
5	377	49.949802	-6.277645
5	378	49.949811	-6.275917
5	379	49.949728	-6.274831
5	380	49.949653	-6.273469
5	381	49.949662	-6.272039
5	382	49.949818	-6.270717
5	383	49.949519	-6.266309
5	384	49.949558	-6.265309
5	385	49.950661	-6.284006
5	386	49.950718	-6.282638
5	387	49.950623	-6.281248
5	388	49.950611	-6.279843
5	389	49.950575	-6.278388
5	390	49.950619	-6.277041
5	391	49.950532	-6.275664
5	392	49.950457	-6.274242
5	393	49.950420	-6.272844
5	394	49.950428	-6.271408
5	395	49.950417	-6.270078
5	396	49.950259	-6.268613
5	397	49.950377	-6.265788
5	398	49.951451	-6.281840
5	399	49.951427	-6.280395
5	400	49.951298	-6.278957
5	401	49.951331	-6.277569
5	402	49.951312	-6.276202
5	403	49.951154	-6.273493
5	404	49.951166	-6.272102
5	405	49.951233	-6.270758
5	406	49.952322	-6.286655
5	407	49.952251	-6.285296
5	408	49.952282	-6.283884
5	409	49.952181	-6.282519
5	410	49.952186	-6.281127
5	411	49.952139	-6.279756
5	412	49.952164	-6.278333
5	414	49.952084	-6.275450

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
5	415	49.952064	-6.274153
5	416	49.951977	-6.272843
5	416	49.952121	-6.276947
5	417	49.953002	-6.284572
5	418	49.953041	-6.283111
5	419	49.952951	-6.281794
5	420	49.952981	-6.280291
5	421	49.952933	-6.278988
5	422	49.952926	-6.277551
5	423	49.953856	-6.286587
5	424	49.953898	-6.285222
5	425	49.953782	-6.283787
5	426	49.953766	-6.282372
5	427	49.953764	-6.280941
5	428	49.953698	-6.279637
5	429	49.954609	-6.285867
5	430	49.954620	-6.284509
5	431	49.955392	-6.285076
5	432	49.955261	-6.283725
5	433	49.955348	-6.282357
5	433	49.955317	-6.282268
5	434	49.956268	-6.287106
5	435	49.956239	-6.285615
5	790	49.945199	-6.281652
5	791	49.946058	-6.280874
5	792	49.946815	-6.283030
5	793	49.947266	-6.282237
5	794	49.949110	-6.283382
5	795	49.949030	-6.283259
5	796	49.952349	-6.285390
5	797	49.952874	-6.283551
5	798	49.952149	-6.277858
5	799	49.950349	-6.271360
5	800	49.949331	-6.271849
5	801	49.948525	-6.271405
5	802	49.949241	-6.264409
6	436	49.932433	-6.311623
6	437	49.935254	-6.308611
6	438	49.933536	-6.310799
6	439	49.933843	-6.311423
6	440	49.934082	-6.310071
6	441	49.935089	-6.310596
6	442	49.934902	-6.309119
6	443	49.935755	-6.309976
6	444	49.935688	-6.308454
6	445	49.935653	-6.307073
6	446	49.935793	-6.306011

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
6	447	49.935712	-6.304298
6	448	49.935718	-6.303660
6	449	49.936307	-6.308164
6	450	49.936433	-6.306371
6	451	49.936373	-6.304982
6	452	49.936241	-6.302526
6	453	49.937176	-6.305310
6	454	49.937315	-6.303618
6	455	49.937339	-6.303174
6	456	49.937078	-6.307121
6	457	49.937955	-6.306261
6	458	49.938045	-6.304757
6	459	49.937926	-6.303575
6	460	49.937893	-6.302120
6	461	49.937983	-6.300849
6	462	49.937810	-6.297767
6	463	49.938708	-6.305505
6	464	49.938731	-6.304252
6	465	49.938692	-6.302790
6	466	49.938735	-6.301416
6	467	49.938598	-6.300048
6	468	49.938518	-6.298640
6	469	49.938543	-6.297156
6	470	49.938588	-6.295857
6	471	49.939499	-6.304947
6	472	49.939356	-6.303422
6	473	49.939360	-6.302303
6	474	49.939375	-6.300560
6	475	49.939437	-6.297892
6	476	49.940291	-6.304108
6	477	49.940215	-6.302760
6	768	49.934454	-6.310147
6	769	49.933974	-6.310617
6	770	49.935247	-6.310360
6	771	49.935105	-6.309251
6	772	49.935741	-6.310513
6	773	49.936263	-6.309104
6	774	49.937272	-6.306252
6	775	49.937633	-6.306659
6	776	49.938034	-6.306931
6	777	49.938423	-6.308032
6	778	49.938156	-6.306275
6	779	49.938225	-6.304891
6	780	49.937546	-6.304264
6	781	49.937925	-6.302851
6	782	49.938480	-6.302269
6	783	49.938958	-6.301234

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
6	784	49.938578	-6.300727
6	785	49.938483	-6.299524
6	786	49.938917	-6.298632
6	787	49.938861	-6.297161
6	788	49.938772	-6.295686
6	789	49.938364	-6.295249
7	478	49.916211	-6.316288
7	479	49.916326	-6.314521
7	480	49.916355	-6.313043
7	481	49.917241	-6.316385
7	482	49.917195	-6.315126
7	483	49.917157	-6.313694
7	484	49.918015	-6.315780
7	485	49.917910	-6.314302
7	486	49.917863	-6.313099
7	487	49.917815	-6.311577
7	488	49.917713	-6.310465
7	489	49.919906	-6.310986
7	490	49.918718	-6.316380
7	491	49.918732	-6.315027
7	492	49.918572	-6.313634
7	493	49.918322	-6.312368
7	494	49.918306	-6.310858
7	495	49.919496	-6.315726
7	496	49.919576	-6.314361
7	497	49.919408	-6.312881
7	498	49.919383	-6.311482
7	499	49.919393	-6.310115
7	500	49.920253	-6.313574
7	501	49.921037	-6.314159
7	502	49.920045	-6.312329
7	627	49.918557	-6.313799
7	628	49.917413	-6.316562
7	629	49.919679	-6.310585
7	630	49.919993	-6.311718
7	631	49.919314	-6.310830
7	632	49.919497	-6.312132
7	633	49.919819	-6.312040
7	634	49.918884	-6.312259
7	635	49.918940	-6.311286
7	636	49.918071	-6.312218
7	637	49.917601	-6.312126
7	638	49.917435	-6.313123
7	639	49.917583	-6.314027
7	640	49.917113	-6.314402
7	641	49.916824	-6.313314
7	642	49.916405	-6.313955

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
7	643	49.916716	-6.315047
7	644	49.916315	-6.315285
7	645	49.915993	-6.316070
7	646	49.916448	-6.316500
7	647	49.916936	-6.316810
7	648	49.917151	-6.315964
7	649	49.918322	-6.315370
7	650	49.918498	-6.315995
7	651	49.918042	-6.316472
7	652	49.917562	-6.316163
7	653	49.917941	-6.315239
7	654	49.918872	-6.314601
7	655	49.919439	-6.315030
7	656	49.919765	-6.313775
7	657	49.919363	-6.313563
7	658	49.918848	-6.313095
7	659	49.918873	-6.312601
7	660	49.918133	-6.311472
7	661	49.918268	-6.313588
8	503	49.942972	-6.356651
8	504	49.943038	-6.355443
8	505	49.943850	-6.356230
8	506	49.943790	-6.354710
8	507	49.943794	-6.353298
8	508	49.943762	-6.351756
8	509	49.944555	-6.353967
8	510	49.944507	-6.351281
8	662	49.943454	-6.356057
8	663	49.942990	-6.355914
8	664	49.943577	-6.355367
8	665	49.944106	-6.355866
8	666	49.944201	-6.356446
8	667	49.943639	-6.356486
8	668	49.943214	-6.356942
8	669	49.943890	-6.353032
9	511	49.975235	-6.292909
9	512	49.975866	-6.293720
9	513	49.975866	-6.292261
9	514	49.976694	-6.294290
9	515	49.976652	-6.292892
9	516	49.977470	-6.293567
9	517	49.977307	-6.292343
9	e1	49.975764	-6.293647
9	e2	49.975870	-6.293104
9	e3	49.976173	-6.293657
9	e4	49.975745	-6.294118
10	518	49.964259	-6.317679
10	519	49.963763	-6.316620
10	520	49.963874	-6.315369
10	521	49.964052	-6.310471
10	522	49.963814	-6.309563
10	523	49.963548	-6.307496
10	524	49.964502	-6.316118
10	525	49.964434	-6.315291
10	526	49.964620	-6.314622
10	527	49.964307	-6.312290
10	528	49.964639	-6.306810
10	529	49.965964	-6.307041
10	530	49.966081	-6.312614
10	531	49.967345	-6.319679
10	532	49.967038	-6.319252
10	533	49.967880	-6.319926
10	534	49.967852	-6.308603
10	535	49.968453	-6.319291
10	536	49.970228	-6.317522
10	537	49.969932	-6.317212
10	e1	49.967471	-6.319722
10	e2	49.967345	-6.319586
10	e3	49.967101	-6.320160
10	e4	49.967023	-6.318892
10	e5	49.963339	-6.308256
10	e6	49.963524	-6.306890
10	e7	49.963175	-6.307613
10	e8	49.963716	-6.307605
11	538	49.933687	-6.350157
11	539	49.933711	-6.348928
11	540	49.934433	-6.350598
11	541	49.934171	-6.349839
11	542	49.935010	-6.350270
12	543	49.945269	-6.317732
12	544	49.945268	-6.316381
12	545	49.945184	-6.315019
12	546	49.945143	-6.313586
12	547	49.945112	-6.312162
12	548	49.945088	-6.310807
12	549	49.946060	-6.319839
12	550	49.946070	-6.318374
12	551	49.946011	-6.316962
12	552	49.946006	-6.315571
12	553	49.945964	-6.314207
12	554	49.945898	-6.312823
12	555	49.945958	-6.311501
12	556	49.945908	-6.310016
12	557	49.946802	-6.317634

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
12	558	49.946778	-6.316254
12	559	49.946733	-6.314931
12	560	49.946687	-6.313497
12	561	49.946754	-6.312273
12	562	49.946657	-6.309311
12	563	49.947627	-6.319759
12	564	49.947590	-6.318393
12	565	49.947585	-6.316960
12	566	49.947546	-6.315525
12	567	49.947508	-6.314126
12	568	49.947453	-6.312709
12	569	49.947410	-6.308625
12	570	49.948457	-6.320375
12	571	49.948344	-6.318966
12	572	49.948259	-6.316161
12	573	49.948292	-6.314772
12	574	49.948275	-6.313434
12	575	49.948283	-6.311979
12	576	49.948175	-6.309258
12	577	49.949234	-6.319602
12	578	49.949187	-6.318237
12	579	49.949125	-6.316867
12	580	49.949113	-6.315391
12	581	49.949083	-6.314028
12	582	49.949007	-6.311270
12	583	49.949027	-6.309926
12	584	49.948914	-6.307209
12	585	49.949997	-6.320272
12	586	49.949956	-6.318960
12	587	49.949845	-6.313332
12	588	49.949820	-6.311863
12	589	49.949821	-6.310542
12	590	49.949698	-6.307747
12	591	49.949704	-6.306363
12	592	49.950782	-6.319495
12	593	49.950731	-6.318090
12	594	49.950606	-6.312593
12	595	49.950566	-6.311132
12	596	49.950487	-6.307034
12	597	49.950465	-6.305568
12	598	49.951542	-6.318769
12	599	49.951459	-6.314656
12	600	49.951399	-6.313149
12	601	49.951396	-6.311842
12	602	49.951315	-6.309037
12	603	49.952263	-6.318042
12	604	49.952208	-6.316632

Area	Station	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
12	605	49.952263	-6.315209
12	606	49.952204	-6.313909
12	607	49.952091	-6.312441
12	608	49.952108	-6.309660
12	609	49.952101	-6.308234
12	610	49.953007	-6.317237
12	611	49.952992	-6.315862
12	612	49.953019	-6.314563
12	613	49.952979	-6.313139
12	614	49.952889	-6.311728
12	615	49.952901	-6.310412
12	616	49.952913	-6.308980
12	617	49.953656	-6.311023
12	618	49.953663	-6.309581
12	832	49.947746	-6.309036
12	833	49.947375	-6.308989

Appendix 2. Daily reports for the Isles of Scilly seagrass survey August/September 2016

Isles of Scilly SAC Seagrass Survey 2016	
29th August 2016 – Mobilising	
Tide times	HW: 04:00h (5.0m) LW: 10:25h (1.2m) HW: 16:20h (5.3m) LW: 22:55h (1.0)
Sunrise / Sunset	06:39h / 20:12h
Progress	Mobilising – travel to Isles of Scilly on the Scillionian III

30th August 2016 – First survey day	
Tide times	HW: 04:00h (5.0m) LW: 10:25h (1.2m) HW: 16:20h (5.3m) LW: 22:55h (1.0)
Sunrise / Sunset	06:39h / 20:12h
Progress	Camera and vessel set up, staff inductions etc. 47 stations in Area 1 sampled

31st August 2016 – Day 2	
Tide times	HW: 04:45h (5.3m) LW: 11:10h (1.0m) HW: 17:05h (5.5m) LW: 23:40h (0.8m)
Sunrise / Sunset	06:40h / 20:10h
Progress	83 stations in Area 1 sampled 17 stations in Area 6 sampled

1st September 2016 – Day 3	
Tide times	HW: 05:25h (5.4m) LW: 11:50h (0.9m) HW: 17:45h (5.6m) LW: -
Sunrise / Sunset	06:42h / 20:08h
Progress	25 stations in Area 6 sampled 80 stations in Area 5 sampled

2nd September 2016 – Day 4	
Tide times	HW: 00:15h (0.8m) LW: 06:05h (5.5m) HW: 12:30h (0.8m) LW: 18:20h (5.6m)
Sunrise / Sunset	06:43h / 20:06h
Progress	47 stations in Area 5 sampled 58 stations in Area 4 sampled

3rd September 2016 – Day 5	
Tide times	LW: 00:50h (0.8m) HW: 06:40h (5.5m) LW: 13:05h (0.9m) HW: 15:55h (5.6m)
Sunrise / Sunset	06:45h / 20:04h
Progress	Weather stand-by day

4th September 2016 – Day 6	
Tide times	LW: 01:25h (0.9m) HW: 07:15h (5.4m) LW: 13:35h (1.0m) HW: 19:30h (5.5m)
Sunrise / Sunset	06:46h / 20:02h
Progress	7 stations in Area 2 sampled – Area 2 complete 68 stations in Area 3 sampled 29 stations in Area 4 sampled

5th September 2016 – Day 7	
Tide times	LW: 01:55h (1.0m) HW: 07:45h (5.3m) LW: 14:05h (1.1m) HW: 20:00h (5.3m)
Sunrise / Sunset	06:48h / 19:59h
Progress	24 stations in Area 3 sampled – Area 3 complete 60 stations in Area 7 sampled – Area 7 complete 16 stations in Area 8 sampled – Area 8 complete

6th September 2016 – Day 8	
Tide times	LW: 02:25h (1.2m) HW: 08:20h (5.2m) LW: 14:35h (1.3m) HW: 20:35h (5.1m)
Sunrise / Sunset	06:49h / 19:57h
Progress	68 stations in Area 1 sampled – Area 1 complete 29 stations in Area 4 sampled – Area 4 complete 13 stations in Area 5 sampled – Area 5 complete 22 stations in Area 6 sampled – Area 6 complete

7th September 2016 – Day 9	
Tide times	LW: 02:55h (1.4m) HW: 08:50h (5.0m) LW: 15:10h (1.6m) HW: 21:05h (4.8m)
Sunrise / Sunset	06:51h / 19:55h
Progress	78 stations in Area 12 sampled – Area 12 complete

8th September 2016 – Day 10	
Tide times	LW: 03:30h (1.7m) HW: 09:25h (4.7m) LW: 15:50h (1.8m) HW: 21:45h (4.6m)
Sunrise / Sunset	06:52h / 19:53h
Progress	11 stations in Area 9 sampled – Area 9 complete 28 stations in Area 10 sampled _ Area 10 complete 0.5 weather stand-by day (PM)

9th September 2016 – Day 11	
Tide times	LW: 04:16 (1.5m) HW: 10:10 (4.2m) LW: 16:46 (2.15m) HW: 22:36 (4.05m)
Sunrise / Sunset	06:53h / 19:52h
Progress	5 stations in Area 11 sampled – Area 11 complete Demobilising

Appendix 3. MESL Survey Pro Forma

MESL

Area Number:	Date:	Surveyors:
Station Number:	Time:	
Weather/ sea state:		
Water Depth (m):	Water Clarity (m):	
Latitude (WGS84):	Longitude (WGS84):	
Fix number:		
Sediment description:		
Video footage quality rating (high, medium, low):		
Video ID code:		
Digital image ID codes: 1 2 3		
Seagrass present (Y/N):		
Seagrass coverage (%):		
Sargassum muticum present (Y/N):		
S. muticum coverage (%):		
Signs of wasting disease (Y/N):		
Signs of anthropogenic damage:	Coordinates (WGS84):	
Notes:		

Appendix 4. Isles of Scilly SAC Complex Seagrass Survey Field Notes

Area	Station	Time	Date	Latitude	Longitude	Weather	Water Depth (m)	Depth relative to CD (m)	Walter clarity	Sediment description	Imagery	Seagrass Presence	Seagrass Coverage	*S. muticum* Presence	*S. muticum* Coverage
1	1	11:05	30/08/2016	49.933730	-6.339325	F1, Calm	2.4	0.5	Full	Sand	Stills + Video	N	0	N	0
1	2	11:42	30/08/2016	49.933161	-6.334952	F1, Calm	6.0	3.6	Full	Sand	Stills + Video	N	0	N	0
1	3	11:09	30/08/2016	49.934137	-6.340033	F1, Calm	2.3	0.3	Full	Sand	Stills + Video	Y	100	N	0
1	4	11:16	30/08/2016	49.934289	-6.338616	F1, Calm	3.1	1.1	Full	Sand	Stills + Video	N	0	N	0
1	5	11:25	30/08/2016	49.934124	-6.337234	F1, Calm	3.2	1.0	Full	Sand	Stills + Video	N	0	N	0
1	6	11:32	30/08/2016	49.934100	-6.335838	F1, Calm	5.4	3.1	Full	Sand	Stills + Video	N	0	N	0
1	7	11:48	30/08/2016	49.934116	-6.332250	F1, Calm	6.2	3.7	Full	Sand	Stills + Video	N	0	N	0
1	8	11:55	30/08/2016	49.933940	-6.333000	F1, Calm	4.2	1.6	Full	Sandy Gravel	Stills + Video	N	0	N	0
1	9	12:30	30/08/2016	49.933867	-6.331534	F1, Calm	4.9	1.7	Full	Sand	Stills + Video	Y	100	N	0
1	10	16:48	30/08/2016	49.933775	-6.330299	F1, Calm	9.1	4.3	Full	Sand	Video - No Stills	Y	100	N	0
1	17	13:20	30/08/2016	49.934833	-6.330757	F1, Calm	6.8	2.7	Full	Sand	Stills + Video	Y	100	N	0
1	18	16:42	30/08/2016	49.934608	-6.329429	F1, Calm	9.0	4.1	Full	Sand	Video - No Stills	Y	100	N	0
1	26	13:15	30/08/2016	49.935540	-6.329947	F1, Calm	6.6	2.6	Full	Sand	Stills + Video	Y	10	N	0
1	27	16:34	30/08/2016	49.935396	-6.328836	F1, Calm	7.6	2.7	Full	Sand	Video - No Stills	Y	100	N	0
1	38	13:10	30/08/2016	49.936239	-6.329336	F1, Calm	6.5	2.6	Full	Sand	Stills + Video	Y	100	N	0
1	39	16:25	30/08/2016	49.936078	-6.327933	F1, Calm	7.7	2.7	Full	Sand	Stills + Video	Y	100	N	0
1	49	13:05	30/08/2016	49.937065	-6.328405	F1, Calm	5.5	1.7	Full	Sand	Stills + Video	Y	1	N	0
1	50	16:21	30/08/2016	49.936898	-6.327374	F1, Calm	7.0	2.0	Full	Sand	Stills + Video	N	0	Y	100

1	61	13:01	30/08/2016	49.937678	-6.327888	F1, Calm	5.1	1.3	Full	Sand	Stills + Video	Y	1	N	0
1	62	16:16	30/08/2016	49.937603	-6.326548	F1, Calm	6.1	1.0	Full	Sand	Stills + Video	Y	100	N	0
1	70	12:53	30/08/2016	49.938536	-6.326969	F1, Calm	4.6	1.0	Full	Sand	Stills + Video	Y	1	N	0
1	71	16:12	30/08/2016	49.938438	-6.325840	F1, Calm	5.5	0.4	Full	Sand	Stills + Video	Y	10	N	0
1	77	17:20	30/08/2016	49.939340	-6.330620	F1, Calm	5.0	0.6	Full	Sand	Stills + Video	N	0	N	0
1	78	17:51	30/08/2016	49.938282	-6.329217	F1, Calm	5.4	1.4	Full	Sand	Video - No Stills	Y	50	N	0
1	80	12:46	30/08/2016	49.939420	-6.326020	F1, Calm	4.0	0.5	Full	Sand	Stills + Video	Y	10	N	0
1	81	16:02	30/08/2016	49.938904	-6.324990	F1, Calm	6.3	1.1	Full	Sand	Stills + Video	Y	100	N	0
1	86	17:17	30/08/2016	49.940071	-6.329893	F1, Calm	4.6	0.1	Full	Sand	Stills + Video	N	0	N	0
1	87	17:48	30/08/2016	49.940069	-6.328445	F1, Calm	4.0	0.0	Full	Sand	Stills + Video	Y	100	N	0
1	94	17:13	30/08/2016	49.941684	-6.328328	F1, Calm	3.8	-0.7	Full	Sand	Stills + Video	Y	50	Y	50
1	95	17:44	30/08/2016	49.940795	-6.327800	F1, Calm	3.7	-0.4	Full	Sand	Stills + Video	N	0	N	0
1	96	15:36	30/08/2016	49.940744	-6.323595	F1, Calm	5.0	-0.2	Full	Sand	Stills + Video	N	0	N	0
1	97	15:58	30/08/2016	49.940681	-6.322247	F1, Calm	5.4	0.2	Full	Gravelly Sand	Stills + Video	N	0	N	0
1	102	17:09	30/08/2016	49.941634	-6.328385	F1, Calm	4.3	-0.3	Full	Sand	Stills + Video	N	0	N	0
1	103	17:41	30/08/2016	49.941580	-6.327039	F1, Calm	3.3	-0.8	Full	Sand	Stills + Video	N	0	N	0
1	104	17:38	30/08/2016	49.941604	-6.325634	F1, Calm	3.1	-1.1	Full	Gravelly Sand	Stills + Video	N	0	Y	40
1	105	15:18	30/08/2016	49.941529	-6.324133	F1, Calm	4.6	-0.6	Full	Sand	Stills + Video	N	0	N	0
1	106	15:32	30/08/2016	49.941552	-6.322871	F1, Calm	5.0	-0.2	Full	Sand	Stills + Video	Y	60	N	0

1	107	15:54	30/08/2016	49.941455	-6.321500	F1, Calm	5.6	0.4	Full	Sand	Stills + Video	Y	80	Y	20
1	113	17:06	30/08/2016	49.942473	-6.327629	F1, Calm	3.0	-1.6	Full	Gravelly Sand	Stills + Video	N	0	N	0
1	114	17:32	30/08/2016	49.942367	-6.326274	F1, Calm	3.0	-1.3	Full	Sand	Stills + Video	N	0	N	0
1	115	17:35	30/08/2016	49.942300	-6.324899	F1, Calm	3.2	-1.0	Full	Sand	Stills + Video	N	0	N	0
1	116	15:14	30/08/2016	49.942341	-6.323418	F1, Calm	4.5	-0.7	Full	Sand	Stills + Video	N	0	N	0
1	117	15:26	30/08/2016	49.942276	-6.322056	F1, Calm	4.4	-0.8	Full	Sand	Stills + Video	N	0	Y	100
1	118	15:51	30/08/2016	49.942182	-6.320723	F1, Calm	5.5	0.3	Full	Sand	Stills + Video	Y	100	N	0
1	122	15:07	30/08/2016	49.943093	-6.322758	F1, Calm	4.4	-0.8	Full	Sand	Stills + Video	N	0	N	0
1	123	15:23	30/08/2016	49.942998	-6.321417	F1, Calm	4.6	-0.6	Full	Sand	Stills + Video	N	0	N	0
1	124	15:48	30/08/2016	49.942922	-6.319964	F1, Calm	5.0	-0.2	Full	Sand	Stills + Video	N	0	Y	20
1	11	14:43	31/08/2016	49.934914	-6.340624	F1-2, Sunny	4.9	0.1	Full	Sand	2x Video	N	0	N	0
1	12	14:18	31/08/2016	49.934848	-6.339183	F1-2, Sunny	5.3	0.9	Full	Sand	2x Video	N	0	N	0
1	13	14:15	31/08/2016	49.934830	-6.337803	F1-2, Sunny	5.6	1.2	Full	Sand	2x Video	N	0	N	0
1	14	08:20	31/08/2016	49.934764	-6.335009	F0-1 Calm, Rain	4.9	2.9	Full	Sand	Stills + Video	N	0	N	0
1	15	08:46	31/08/2016	49.934671	-6.333682	F0-1 Calm, Rain	3.4	1.7	Full	Sand	Video - No Stills	N	0	N	0
1	16	08:50	31/08/2016	49.934700	-6.332270	F0-1 Calm, Rain	2.8	1.2	Full	Sand	Video - No Stills	N	0	N	0
1	19	14:46	31/08/2016	49.935743	-6.341192	F1-2, Sunny	4.3	-0.5	Full	Sand	2x Video	Y	80	N	0
1	20	14:41	31/08/2016	49.935556	-6.339829	F1-2, Sunny	5.9	1.1	Full	Sand	2x Video	N	0	N	0

1	21	14:20	31/08/2016	49.935630	-6.338337	F1-2, Sunny	5.2	0.8	Full	Sand	2x Video	N	0	N	0
1	22	14:12	31/08/2016	49.935528	-6.337012	F1-2, Sunny	6.6	2.3	Full	Sand	2x Video	N	0	N	0
1	23	08:18	31/08/2016	49.935525	-6.334249	F0-1 Calm, Rain	4.4	2.4	Full	Sand	Stills + Video	N	0	N	0
1	24	08:42	31/08/2016	49.935491	-6.332904	F0-1 Calm, Rain	3.9	2.2	Full	Sand	Stills + Video	N	0	N	0
1	25	08:59	31/08/2016	49.935416	-6.331532	F0-1 Calm, Rain	2.3	0.8	Full	Sand	Video - No Stills	N	0	N	0
1	28	15:04	31/08/2016	49.936449	-6.343284	F1-2, Sunny	3.9	-1.2	Full	Sand	2x Video	N	0	N	0
1	29	15:02	31/08/2016	49.936448	-6.341923	F1-2, Sunny	4.6	-0.4	Full	Sand	2x Video	Y	70	N	0
1	30	14:48	31/08/2016	49.936448	-6.340533	F1-2, Sunny	5.4	0.5	Full	Sand	2x Video	N	0	N	0
1	31	14:38	31/08/2016	49.936445	-6.339064	F1-2, Sunny	5.4	0.7	Full	Sand	2x Video	N	0	N	0
1	32	14:23	31/08/2016	49.936447	-6.337757	F1-2, Sunny	4.8	0.3	Full	Sand	2x Video	N	0	N	0
1	33	14:08	31/08/2016	49.936385	-6.336384	F1 Calm, Sunny	6.1	1.9	Full	Sand	2x Video	N	0	Y	40
1	34	08:02	31/08/2016	49.936227	-6.334731	F0-1 Calm, Rain	3.8	1.6	Full	Sand	Video - No Stills	N	0	N	0
1	35	08:15	31/08/2016	49.936318	-6.333499	F0-1 Calm, Rain	3.6	1.6	Full	Sand	Stills + Video	N	0	N	0
1	36	08:39	31/08/2016	49.936291	-6.332100	F0-1 Calm, Rain	4.1	2.4	Full	Sand	Stills + Video	Y	5	N	0
1	37	09:04	31/08/2016	49.936160	-6.330874	F0-1 Calm, Rain	2.5	1.0	Full	Sand	Stills + Video	N	0	N	0
1	40	14:59	31/08/2016	49.937186	-6.341208	F1-2, Sunny	4.8	-0.2	Full	Sand	2x Video	N	0	N	0

1	41	14:51	31/08/2016	49.937269	-6.339695	F1-2, Sunny	5.0	0.1	Full	Sand	2x Video	N	0	N	0
1	42	14:36	31/08/2016	49.937126	-6.338310	F1-2, Sunny	5.3	0.6	Full	Sand	2x Video	N	0	N	0
1	43	14:25	31/08/2016	49.937238	-6.336823	F1-2, Sunny	4.7	0.2	Full	Sand	2x Video	N	0	N	0
1	44	07:58	31/08/2016	49.937082	-6.335597	F0-1 Calm, Rain	2.1	-0.2	Full	Sand	Stills + Video	N	0	N	0
1	45	08:07	31/08/2016	49.937088	-6.334185	F0-1 Calm, Rain	2.8	0.6	Full	Sand	Stills + Video	N	0	N	0
1	46	08:13	31/08/2016	49.937033	-6.332757	F0-1 Calm, Rain	3.4	1.3	Full	Sand	Video - No Stills	N	0	N	0
1	47	08:36	31/08/2016	49.937027	-6.331424	F0-1 Calm, Rain	3.4	1.6	Full	Sand	Stills + Video	N	0	N	0
1	48	09:07	31/08/2016	49.937010	-6.330050	F0-1 Calm, Rain	2.7	1.3	Full	Sand	Stills + Video	Y	10	Y	10
1	51	10:24	31/08/2016	49.936849	-6.325776	F1 Calm, Sunny	2.2	1.1	Full	Sand	Stills + Video	N	0	N	0
1	52	15:08	31/08/2016	49.938162	-6.342242	F1-2, Sunny	4.6	-0.5	Full	Sand	2x Video	N	0	Y	20
1	53	14:57	31/08/2016	49.937953	-6.340432	F1-2, Sunny	3.9	-1.1	Full	Sand	2x Video	N	0	N	0
1	54	15:54	31/08/2016	49.937947	-6.339034	F1-2, Sunny	5.0	-0.4	Full	Sand	2x Video	N	0	N	0
1	55	14:29	31/08/2016	49.937820	-6.336017	F1-2, Sunny	4.5	-0.1	Full	Sand	2x Video	N	0	Y	35
1	56	07:55	31/08/2016	49.937855	-6.334872	F0-1 Calm, Rain	2.3	0.0	Full	Sand	Stills + Video	N	0	N	0
1	57	07:46	31/08/2016	49.937800	-6.333357	F0-1 Calm, Rain	3.6	1.1	Full	Sand	Stills + Video	Y	50	N	0

1	58	07:39	31/08/2016	49.937741	-6.331997	F0-1 Calm, Rain	3.9	1.3	Full	Sand	Video - No Stills	N	0	N	0
1	59	08:30	31/08/2016	49.937791	-6.330628	F0-1 Calm, Rain	2.1	0.3	Full	Sand	Stills + Video	N	0	N	0
1	60	09:11	31/08/2016	49.937724	-6.329275	F1 Calm, Sunny	2.3	0.9	Full	Sand	Stills + Video	Y	1	N	0
1	63	10:27	31/08/2016	49.937650	-6.325064	F1 Calm, Sunny	2.2	1.1	Full	Sand	Stills + Video	Y	100	N	0
1	64	15:11	31/08/2016	49.938658	-6.341079	F1-2, Sunny	2.0	-3.1	Full	Sand	2x Video	N	0	N	0
1	65	14:32	31/08/2016	49.938740	-6.336882	F1-2, Sunny	3.7	-0.9	Full	Sand and Cobbles	2x Video	N	0	N	0
1	66	07:51	31/08/2016	49.938679	-6.334064	F0-1 Calm, Rain	2.2	-0.2	Full	Sand	Stills + Video	N	0	N	0
1	67	07:35	31/08/2016	49.938449	-6.331212	F0-1 Calm, Rain	3.6	1.0	Full	Sand	Video - No Stills	N	0	N	0
1	68	08:22	31/08/2016	49.938455	-6.330018	F0-1 Calm, Rain	2.0	0.1	Full	Sand	Stills + Video	Y	100	N	0
1	69	09:16	31/08/2016	49.938549	-6.328534	F1 Calm, Sunny	2.5	1.1	Full	Sand	Stills + Video	Y	100	N	0
1	72	10:32	31/08/2016	49.938471	-6.324398	F1 Calm, Sunny	2.2	1.1	Full	Sand	Video - No Stills	Y	85	N	0
1	73	10:46	31/08/2016	49.938350	-6.322962	F1 Calm, Sunny	1.5	0.3	Full	Cobbles and Sand patches	Stills + Video	Y	5	Y	10
1	74	10:49	31/08/2016	49.938535	-6.321687	F1 Calm, Sunny	1.6	0.4	Full	Rock and Cobbles	Video - No Stills	N	0	N	0
1	75	11:25	31/08/2016	49.938335	-6.320210	F1 Calm, Sunny	2.4	0.9	Full	Sand	2x Video	N	0	Y	20
1	76	11:45	31/08/2016	49.938334	-6.318795	F1 Calm, Sunny	4.0	2.3	Full	Sand	2x Video	N	0	Y	50
1	79	09:18	31/08/2016	49.939301	-6.327773	F1 Calm, Sunny	2.2	0.8	Full	Sand	Stills + Video	Y	50	Y	50

1	82	10:38	31/08/2016	49.939184	-6.323641	F1 Calm, Sunny	1.1	-0.1	Full	Sand	Video - No Stills	Y	100	N	0
1	83	10:55	31/08/2016	49.939121	-6.320849	F1 Calm, Sunny	1.6	0.4	Full	Cobbles and Gravel	Video - No Stills	N	0	N	0
1	84	11:29	31/08/2016	49.939118	-6.319486	F1 Calm, Sunny	3.2	1.7	Full	Gravelly Sand	2x Video	N	0	N	0
1	85	11:47	31/08/2016	49.939086	-6.317970	F1 Calm, Sunny	3.0	1.3	Full	Gravel	2x Video	Y	20	N	0
1	88	09:27	31/08/2016	49.939748	-6.327087	F1 Calm, Sunny	1.7	0.4	Full	Sand	Stills + Video	Y	100	N	0
1	89	10:42	31/08/2016	49.939980	-6.322727	F1 Calm, Sunny	1.3	0.1	Full	Sand	Stills + Video	Y	100	N	0
1	90	10:59	31/08/2016	49.939889	-6.321475	F1 Calm, Sunny	2.7	1.4	Full	Sand	Video - No Stills	Y	50	Y	50
1	91	11:22	31/08/2016	49.939910	-6.320132	F1 Calm, Sunny	2.2	0.8	Full	Sand	2x Video	Y	100	N	0
1	92	11:32	31/08/2016	49.939862	-6.318682	F1 Calm, Sunny	3.2	1.7	Full	Gravelly Sand	2x Video	Y	2	Y	2
1	93	11:49	31/08/2016	49.939877	-6.317313	F1 Calm, Sunny	3.3	1.5	Full	Sand	2x Video	N	0	Y	80
1	98	11:06	31/08/2016	49.940702	-6.320739	F1 Calm, Sunny	2.6	1.3	Full	Sand	Video - No Stills	N	0	Y	100
1	99	11:20	31/08/2016	49.940650	-6.319434	F1 Calm, Sunny	2.0	0.6	Full	Sand	2x Video	Y	10	N	0
1	100	11:35	31/08/2016	49.940631	-6.317957	F1 Calm, Sunny	3.1	1.5	Full	Sand	2x Video	Y	30	N	0
1	101	11:52	31/08/2016	49.940548	-6.316598	F1 Calm, Sunny	4.1	2.3	Full	Sand	2x Video	N	0	N	0
1	108	11:09	31/08/2016	49.941518	-6.320064	F1 Calm, Sunny	1.8	0.5	Full	Sand	2x Video	N	0	Y	40
1	109	11:15	31/08/2016	49.941404	-6.318532	F1 Calm, Sunny	2.3	0.9	Full	Sand	2x Video	N	0	N	0
1	110	11:39	31/08/2016	49.941419	-6.317069	F1 Calm, Sunny	2.7	1.1	Full	Sand	2x Video	N	0	N	0
1	111	11:55	31/08/2016	49.941365	-6.315856	F1 Calm, Sunny	3.5	1.7	Full	Sand	2x Video	N	0	Y	20
1	112	11:57	31/08/2016	49.941940	-6.314829	F1 Calm, Sunny	3.2	1.3	Full	Sand	2x Video	N	0	Y	35

1	119	11:12	31/08/2016	49.942249	-6.319142	F1 Calm, Sunny	1.2	-0.1	Full	Sand	2x Video	N	0	N	0
1	120	12:15	31/08/2016	49.942062	-6.313726	F1 Calm, Sunny	3.8	1.7	Full	Sand	2x Video	N	0	N	0
1	121	12:18	31/08/2016	49.942019	-6.312294	F1 Calm, Sunny	4.0	1.8	Full	Sand	2x Video	N	0	N	0
1	125	12:00	31/08/2016	49.942869	-6.314337	F1 Calm, Sunny	2.3	0.4	Full	Sand	2x Video	N	0	N	0
1	126	12:10	31/08/2016	49.942846	-6.312967	F1 Calm, Sunny	3.0	0.9	Full	Gravelly Sand	2x Video	N	0	N	0
1	127	12:21	31/08/2016	49.942811	-6.311553	F1 Calm, Sunny	3.4	1.2	Full	Sand	2x Video	N	0	N	0
1	128	12:02	31/08/2016	49.944164	-6.313454	F1 Calm, Sunny	1.9	0.0	Full	Sand	2x Video	N	0	N	0
1	129	12:06	31/08/2016	49.943702	-6.312089	F1 Calm, Sunny	1.3	-0.7	Full	Sand	2x Video	N	0	N	0
1	130	12:23	31/08/2016	49.943593	-6.310890	F1 Calm, Sunny	2.8	0.5	Full	Cobbles and Gravel	2x Video	N	0	N	0
1	700	07:34	06/09/2016	49.936703	-6.341863	F2-3 Moderate Sea State, Overcast	4.6	-0.6	Full	Sand	2x Video	Y	50	N	0
1	701	07:36	06/09/2016	49.937167	-6.341646	F2-3 Moderate Sea State, Overcast	4.8	-0.3	Full	Sand	2x Video	N	0	N	0
1	702	07:38	06/09/2016	49.936470	-6.342595	F2-3 Moderate Sea State, Overcast	4.4	-0.7	Full	Sand	2x Video	N	0	Y	50
1	703	07:39	06/09/2016	49.936538	-6.341099	F2-3 Moderate Sea State, Overcast	5.4	0.3	Full	Sand	2x Video	N	0	N	0
1	704	07:43	06/09/2016	49.935607	-6.340463	F2-3 Moderate Sea State, Overcast	5.8	0.7	Full	Sand	2x Video	N	0	N	0

1	705	07:44	06/09/2016	49.935152	-6.341718	F2-3 Moderate Sea State, Overcast	4.7	-0.4	Full	Sand	2x Video	N	0	N	0
1	706	07:45	06/09/2016	49.935139	-6.342550	F2-3 Moderate Sea State, Overcast	2.7	-2.4	Full	Rock	2x Video	N	0	N	0
1	707	07:46	06/09/2016	49.935329	-6.343314	F2-3 Moderate Sea State, Overcast	2.0	-3.1	Full	Rock	2x Video	N	0	N	0
1	708	07:48	06/09/2016	49.935855	-6.341968	F2-3 Moderate Sea State, Overcast	4.5	-0.6	Full	Rock	2x Video	N	0	N	0
1	709	07:57	06/09/2016	49.938177	-6.333606	F2-3 Moderate Sea State, Overcast	5.4	0.3	Full	Sand	2x Video	Y	100	N	0
1	710	07:58	06/09/2016	49.938478	-6.333940	F2-3 Moderate Sea State, Overcast	5.2	0.1	Full	Sand	2x Video	N	0	N	0
1	711	07:59	06/09/2016	49.938337	-6.332917	F2-3 Moderate Sea State, Overcast	5.6	0.5	Full	Sand	2x Video	N	0	N	0
1	712	08:01	06/09/2016	49.937486	-6.332987	F2-3 Moderate Sea State, Overcast	6.2	1.2	Full	Sand	2x Video	N	0	N	0
1	713	08:03	06/09/2016	49.936574	-6.332167	F2-3 Moderate Sea State, Overcast	7.4	2.4	Full	Sand	2x Video	Y	2	Y	10

1	714	08:05	06/09/2016	49.935815	-6.332850	F2-3 Moderate Sea State, Overcast	7.6	2.6	Full	Sand	2x Video	N	0	Y	50
1	715	08:09	06/09/2016	49.934542	-6.331453	F2-3 Moderate Sea State, Overcast	7.6	2.6	Full	Sand	2x Video	Y	100	N	0
1	716	08:12	06/09/2016	49.934410	-6.332194	F2-3 Moderate Sea State, Overcast	6.2	1.2	Full	Sand	2x Video	N	0	N	0
1	717	08:13	06/09/2016	49.933873	-6.332330	F2-3 Moderate Sea State, Overcast	6.8	1.8	Full	Sand	2x Video	Y	50	N	0
1	718	08:15	06/09/2016	49.934164	-6.332430	F2-3 Moderate Sea State, Overcast	6.0	1.0	Full	Sand	2x Video	N	0	N	0
1	719	08:16	06/09/2016	49.934908	-6.331618	F2-3 Moderate Sea State, Overcast	6.0	1.1	Full	Sand	2x Video	N	0	N	0
1	720	08:18	06/09/2016	49.936128	-6.330160	F2-3 Moderate Sea State, Overcast	6.9	2.0	Full	Sand	2x Video	Y	100	N	0
1	721	08:21	06/09/2016	49.936180	-6.330130	F2-3 Moderate Sea State, Overcast	6.7	1.8	Full	Sand	2x Video	Y	100	N	0
1	722	08:23	06/09/2016	49.936999	-6.330966	F2-3 Moderate Sea State, Overcast	6.1	1.2	Full	Sand	2x Video	N	0	N	0

1	723	08:25	06/09/2016	49.937764	-6.329996	F2-3 Moderate Sea State, Overcast	5.5	0.6	Full	Rock	2x Video	N	0	N	0
1	724	08:26	06/09/2016	49.938290	-6.330621	F2-3 Moderate Sea State, Overcast	5.8	0.9	Full	Sand	2x Video	N	0	N	0
1	725	08:28	06/09/2016	49.938594	-6.330699	F2-3 Moderate Sea State, Overcast	5.6	0.8	Full	Rock	2x Video	N	0	N	0
1	726	08:29	06/09/2016	49.938986	-6.330199	F2-3 Moderate Sea State, Overcast	4.9	0.1	Full	Sand	2x Video	N	0	N	0
1	727	08:33	06/09/2016	49.939106	-6.329483	F2-3 Moderate Sea State, Overcast	5.3	0.5	Full	Sand	2x Video	Y	1	N	0
1	728	08:35	06/09/2016	49.940079	-6.329355	F2-3 Moderate Sea State, Overcast	4.8	0.0	Full	Sand	2x Video	N	0	N	0
1	729	08:36	06/09/2016	49.940762	-6.328364	F2-3 Moderate Sea State, Overcast	4.4	-0.4	Full	Rock	2x Video	N	0	N	0
1	730	08:39	06/09/2016	49.940186	-6.328305	F2-3 Moderate Sea State, Overcast	5.1	0.4	Full	Sand	2x Video	N	0	N	0
1	731	08:41	06/09/2016	49.939925	-6.327293	F2-3 Moderate Sea State, Overcast	5.2	0.5	Full	Sand	2x Video	Y	100	N	0

1	732	08:42	06/09/2016	49.940177	-6.326707	F2-3 Moderate Sea State, Overcast	4.6	-0.1	Full	Gravel	2x Video	N	0	N	0
1	733	08:44	06/09/2016	49.939552	-6.326265	F2-3 Moderate Sea State, Overcast	5.1	0.4	Full	Gravel	2x Video	N	0	Y	20
1	734	08:46	06/09/2016	49.938843	-6.325602	F2-3 Moderate Sea State, Overcast	4.5	-0.2	Full	Sand	2x Video	Y	50	N	0
1	735	08:48	06/09/2016	49.939182	-6.324811	F2-3 Moderate Sea State, Overcast	4.4	-0.2	Full	Sand	2x Video	Y	90	N	0
1	736	08:49	06/09/2016	49.939521	-6.323912	F2-3 Moderate Sea State, Overcast	3.9	-0.7	Full	Sand	2x Video	Y	100	N	0
1	737	08:51	06/09/2016	49.940084	-6.324178	F2-3 Moderate Sea State, Overcast	3.7	-0.9	Full	Rock	2x Video	N	0	N	0
1	738	08:52	06/09/2016	49.940393	-6.323141	F2-3 Moderate Sea State, Overcast	4.2	-0.4	Full	Sand	2x Video	N	0	N	0
1	739	08:54	06/09/2016	49.940988	-6.322685	F2-3 Moderate Sea State, Overcast	4.3	-0.3	Full	Sand	2x Video	Y	100	N	0
1	740	08:55	06/09/2016	49.940999	-6.321667	F2-3 Moderate Sea State, Overcast	4.8	0.2	Full	Sand	2x Video	N	0	N	0

1	741	08:57	06/09/2016	49.942027	-6.322502	F2-3 Moderate Sea State, Overcast	3.6	-0.9	Full	Sand	2x Video	Y	100	N	0
1	742	08:59	06/09/2016	49.942257	-6.321375	F2-3 Moderate Sea State, Overcast	4.1	-0.4	Full	Rock	2x Video	N	0	N	0
1	743	09:01	06/09/2016	49.942612	-6.320655	F2-3 Moderate Sea State, Overcast	4.2	-0.3	Full	Rock	2x Video	N	0	N	0
1	744	09:02	06/09/2016	49.942084	-6.319817	F2-3 Moderate Sea State, Overcast	5.0	0.5	Full	Gravel	2x Video	N	0	Y	10
1	745	09:04	06/09/2016	49.941330	-6.320900	F2-3 Moderate Sea State, Overcast	4.7	0.3	Full	Gravel	2x Video	Y	1	N	0
1	746	09:06	06/09/2016	49.940225	-6.321177	F2-3 Moderate Sea State, Overcast	5.9	1.5	Full	Gravel	2x Video	N	0	N	0
1	747	09:08	06/09/2016	49.940434	-6.320091	F2-3 Moderate Sea State, Overcast	5.1	0.7	Full	Gravel	2x Video	N	0	N	0
1	748	09:09	06/09/2016	49.940848	-6.319108	F2-3 Moderate Sea State, Overcast	4.6	0.2	Full	Rock	2x Video	Y	4	N	0
1	749	09:12	06/09/2016	49.940831	-6.317825	F2-3 Moderate Sea State, Overcast	5.3	1.0	Full	Gravel	2x Video	N	0	N	0

1	750	09:13	06/09/2016	49.940573	-6.317324	F2-3 Moderate Sea State, Overcast	5.7	1.4	Full	Cobbles	2x Video	N	0	Y	30
1	751	09:15	06/09/2016	49.939661	-6.317794	F2-3 Moderate Sea State, Overcast	5.8	1.5	Full	Rock	2x Video	N	0	Y	15
1	752	09:17	06/09/2016	49.939220	-6.318725	F2-3 Moderate Sea State, Overcast	6.0	1.7	Full	Gravel	2x Video	N	0	N	0
1	753	09:20	06/09/2016	49.939355	-6.320304	F2-3 Moderate Sea State, Overcast	5.0	0.8	Full	Sand	2x Video	Y	100	N	0
1	754	09:22	06/09/2016	49.939081	-6.322117	F2-3 Moderate Sea State, Overcast	3.3	-0.9	Full	Rock	2x Video	N	0	N	0
1	755	09:23	06/09/2016	49.938304	-6.322551	F2-3 Moderate Sea State, Overcast	4.3	0.1	Full	Sand	2x Video	Y	100	N	0
1	756	09:25	06/09/2016	49.937923	-6.323908	F2-3 Moderate Sea State, Overcast	4.9	0.7	Full	Rock	2x Video	N	0	N	0
1	757	09:34	06/09/2016	49.936192	-6.326973	F2-3 Moderate Sea State, Overcast	6.5	2.5	Full	Sand	2x Video	Y	100	N	0
1	758	09:36	06/09/2016	49.935597	-6.326105	F2-3 Moderate Sea State, Overcast	6.5	2.5	Full	Rock	2x Video	N	0	N	0

1	759	09:38	06/09/2016	49.935309	-6.327423	F2-3 Moderate Sea State, Overcast	6.5	2.5	Full	Rock	2x Video	N	0	N	0
1	760	09:40	06/09/2016	49.934498	-6.328499	F2-3 Moderate Sea State, Overcast	8.8	4.9	Full	Sand	2x Video	Y	100	N	0
1	761	09:41	06/09/2016	49.934339	-6.327422	F2-3 Moderate Sea State, Overcast	9.0	5.1	Full	Sand	2x Video	Y	100	N	0
1	762	09:44	06/09/2016	49.934374	-6.326242	F2-3 Moderate Sea State, Overcast	9.0	5.1	Full	Sand	2x Video	Y	100	N	0
1	763	09:46	06/09/2016	49.934035	-6.324937	F2-3 Moderate Sea State, Overcast	9.6	5.7	Full	Sand	2x Video	N	0	N	0
1	764	09:49	06/09/2016	49.933638	-6.329281	F2-3 Moderate Sea State, Overcast	9.6	5.8	Full	Sand	2x Video	Y	100	N	0
1	765	09:52	06/09/2016	49.933237	-6.328235	F2-3 Moderate Sea State, Overcast	9.8	6.0	Full	Sand	2x Video	Y	100	N	0
1	766	09:57	06/09/2016	49.933219	-6.326827	F2-3 Moderate Sea State, Overcast	10.0	6.3	Full	Sand	2x Video	N	0	N	0
1	767	10:00	06/09/2016	49.933461	-6.331176	F2-3 Moderate Sea State, Overcast	8.7	5.1	Full	Rock	2x Video	N	0	N	0
2	131	10:19	04/09/2016	49.959561	-6.327999	F2, Overcast	1.2	-1.0	Full	Rock	2x Video	N	0	N	0

2	132	10:21	04/09/2016	49.959547	-6.326713	F2, Overcast	1.5	-0.7	Full	Sand	2x Video	N	0	N	0
2	133	10:24	04/09/2016	49.959479	-6.325291	F2, Overcast	3.5	1.4	Full	Gravel	2x Video	N	0	N	0
2	134	10:10	04/09/2016	49.960382	-6.330100	F2, Overcast	2.2	-0.1	Full	Sand	2x Video	Y	50	N	0
2	135	10:13	04/09/2016	49.960344	-6.328726	F2, Overcast	2.2	-0.1	Full	Sand	2x Video	N	0	N	0
2	136	10:15	04/09/2016	49.960314	-6.327328	F2, Overcast	5.0	2.7	Full	Sand	2x Video	N	0	N	0
2	138	10:08	04/09/2016	49.961179	-6.330693	F2, Overcast	2.2	-0.2	Full	Sand	2x Video	N	0	N	0
3	139	11:28	04/09/2016	49.954620	-6.317199	F2, Calm	1.5	0.2	Full	Sand	2x Video	N	0	N	0
3	140	11:32	04/09/2016	49.954626	-6.315881	F2, Calm	0.9	-0.4	Full	Gravel	2x Video	N	0	N	0
3	141	11:38	04/09/2016	49.954556	-6.314424	F2, Calm	1.0	-0.2	Full	Gravel	2x Video	N	0	Y	30
3	142	11:41	04/09/2016	49.954477	-6.313074	F2, Calm	0.9	-0.3	Full	Gravel	2x Video	N	0	N	0
3	143	13:50	04/09/2016	49.955447	-6.317829	F2, Calm	1.9	0.5	Full	Gravel	2x Video	N	0	Y	50
3	144	13:57	04/09/2016	49.955353	-6.315049	F2, Calm	0.8	-0.6	Full	Cobbles	2x Video	N	0	N	0
3	145	14:03	04/09/2016	49.955310	-6.313713	F2, Calm	1.0	-0.5	Full	Gravel	2x Video	N	0	N	0
3	146	14:12	04/09/2016	49.955279	-6.312274	F2, Calm	1.3	-0.3	Full	Gravel	2x Video	N	0	Y	50
3	147	11:48	04/09/2016	49.955264	-6.310802	F2, Calm	1.0	-0.1	Full	Gravel	2x Video	N	0	N	0
3	148	11:54	04/09/2016	49.955174	-6.308066	F2, Calm	1.2	0.1	Full	Coarse Sand	2x Video	N	0	N	0
3	149	12:00	04/09/2016	49.955116	-6.305289	F2, Calm	1.7	0.7	Full	Gravel	2x Video	N	0	N	0
3	150	12:03	04/09/2016	49.955086	-6.303994	F2, Calm	1.3	0.3	Full	Sand	2x Video	N	0	N	0
3	151	13:47	04/09/2016	49.956140	-6.317114	F2, Calm	1.0	-0.3	Full	Gravel	2x Video	N	0	N	0
3	152	13:45	04/09/2016	49.956119	-6.315645	F2, Calm	1.6	0.3	Full	Gravel	2x Video	N	0	N	0
3	153	15:59	04/09/2016	49.956098	-6.314333	F2-3 Sunny	3.0	-0.6	Full	Gravel	2x Video	N	0	N	0
3	154	15:58	04/09/2016	49.956060	-6.312966	F2-3 Sunny	3.2	-0.4	Full	Gravel	2x Video	N	0	N	0
3	155	15:56	04/09/2016	49.956056	-6.311533	F2-3 Sunny	3.0	-0.6	Full	Gravel	2x Video	N	0	N	0
3	156	12:49	04/09/2016	49.956138	-6.310158	F2, Calm	0.6	-0.4	Full	Gravel	2x Video	N	0	N	0
3	157	12:47	04/09/2016	49.955973	-6.308704	F2, Calm	1.0	0.1	Full	Gravel	2x Video	N	0	N	0
3	158	12:41	04/09/2016	49.955915	-6.307312	F2, Calm	1.0	0.1	Full	Sand	2x Video	N	0	N	0
3	159	12:08	04/09/2016	49.955962	-6.304630	F2, Calm	1.3	0.3	Full	Sand	2x Video	N	0	N	0

3	160	13:41	04/09/2016	49.956982	-6.316495	F2, Calm	1.0	-0.3	Full	Gravel	2x Video	N	0	N	0
3	161	16:01	04/09/2016	49.956886	-6.313568	F2-3 Sunny	3.3	-0.4	Full	Gravel	2x Video	N	0	N	0
3	162	15:55	04/09/2016	49.956793	-6.310770	F2-3 Sunny	3.5	-0.1	Full	Gravel	2x Video	N	0	N	0
3	163	12:53	04/09/2016	49.956767	-6.309339	F2, Calm	1.1	0.1	Full	Gravel	2x Video	N	0	N	0
3	164	12:37	04/09/2016	49.956726	-6.308004	F2, Calm	0.8	-0.1	Full	Gravel	2x Video	N	0	N	0
3	165	12:31	04/09/2016	49.956772	-6.306711	F2, Calm	1.2	0.3	Full	Sand	2x Video	N	0	N	0
3	166	12:27	04/09/2016	49.956709	-6.305227	F2, Calm	1.2	0.3	Full	Sand	2x Video	N	0	N	0
3	167	12:12	04/09/2016	49.956647	-6.303844	F2, Calm	1.5	0.5	Full	Sand	2x Video	N	0	N	0
3	168	13:20	04/09/2016	49.957686	-6.315600	F2, Calm	0.5	-0.6	Full	Gravel	2x Video	N	0	N	0
3	169	13:17	04/09/2016	49.957645	-6.314205	F2, Calm	1.0	-0.1	Full	Gravel	2x Video	N	0	N	0
3	170	13:13	04/09/2016	49.957603	-6.312885	F2, Calm	1.4	0.4	Full	Sand	2x Video	N	0	N	0
3	171	13:11	04/09/2016	49.957592	-6.311463	F2, Calm	1.9	0.9	Full	Gravel	2x Video	N	0	N	0
3	172	13:09	04/09/2016	49.957576	-6.310086	F2, Calm	1.4	0.4	Full	Sand	2x Video	N	0	N	0
3	173	13:07	04/09/2016	49.957553	-6.308700	F2, Calm	1.5	0.5	Full	Sand	2x Video	N	0	N	0
3	174	13:05	04/09/2016	49.957462	-6.307258	F2, Calm	1.3	0.3	Full	Sand	2x Video	N	0	N	0
3	175	12:59	04/09/2016	49.957448	-6.305926	F2, Calm	0.9	-0.1	Full	Sand	2x Video	Y	100	N	0
3	176	12:15	04/09/2016	49.957437	-6.304568	F2, Calm	1.9	0.9	Full	Sand	2x Video	Y	100	N	0
3	177	13:33	04/09/2016	49.958729	-6.317222	F2, Calm	0.9	-0.3	Full	Sand	2x Video	Y	100	N	0
3	178	13:24	04/09/2016	49.958432	-6.314942	F2, Calm	1.4	0.3	Full	Sand	2x Video	N	0	N	0
3	179	13:27	04/09/2016	49.958417	-6.313531	F2, Calm	1.2	0.1	Full	Gravel	2x Video	N	0	N	0
3	180	15:51	04/09/2016	49.958405	-6.312116	F2-3 Sunny	4.2	0.7	Full	Gravel	2x Video	N	0	N	0
3	181	15:53	04/09/2016	49.958338	-6.310685	F2-3 Sunny	4.0	0.5	Full	Gravel	2x Video	N	0	N	0
3	185	14:43	04/09/2016	49.958228	-6.305161	F2-3 Sunny	2.0	-0.1	Full	Sand	2x Video	Y	100	N	0
3	186	14:40	04/09/2016	49.958245	-6.303744	F2, Calm	3.5	1.4	Full	Sand	2x Video	N	0	N	0
3	187	15:46	04/09/2016	49.959226	-6.315516	F2-3 Sunny	3.6	0.2	Full	Rock	2x Video	N	0	N	0
3	188	15:48	04/09/2016	49.959229	-6.314158	F2-3 Sunny	4.0	0.6	Full	Gravel	2x Video	N	0	N	0
3	189	15:49	04/09/2016	49.959191	-6.312755	F2-3 Sunny	4.5	1.1	Full	Rock	2x Video	N	0	N	0

3	193	14:46	04/09/2016	49.959000	-6.304370	F2-3 Sunny	2.2	0.0	Full	Sand	2x Video	N	0	N	0
3	194	15:42	04/09/2016	49.960023	-6.316136	F2-3 Sunny	4.8	1.5	Full	Sand	2x Video	N	0	N	0
3	195	15:44	04/09/2016	49.960014	-6.314815	F2-3 Sunny	4.7	1.4	Full	Gravel	2x Video	N	0	N	0
3	200	14:48	04/09/2016	49.959813	-6.305062	F2-3 Sunny	3.0	0.8	Full	Gravel	2x Video	N	0	N	0
3	201	14:51	04/09/2016	49.959759	-6.303649	F2-3 Sunny	5.1	2.8	Full	Gravel	2x Video	N	0	N	0
3	202	15:40	04/09/2016	49.960835	-6.315401	F2-3 Sunny	4.5	1.2	Full	Gravel	2x Video	N	0	N	0
3	206	14:58	04/09/2016	49.960571	-6.307130	F2-3 Sunny	2.5	0.1	Full	Sand	2x Video	N	0	N	0
3	207	14:56	04/09/2016	49.960573	-6.305652	F2-3 Sunny	2.6	0.2	Full	Gravel	2x Video	N	0	N	0
3	208	14:53	04/09/2016	49.960581	-6.304365	F2-3 Sunny	5.8	3.5	Full	Gravel	2x Video	N	0	N	0
3	209	15:38	04/09/2016	49.961578	-6.316171	F2-3 Sunny	4.6	1.4	Full	Gravel	2x Video	N	0	N	0
3	210	15:37	04/09/2016	49.961514	-6.314827	F2-3 Sunny	3.1	-0.1	Full	Gravel	2x Video	N	0	N	0
3	214	15:10	04/09/2016	49.961410	-6.306417	F2-3 Sunny	3.2	0.6	Full	Sand	2x Video	N	0	N	0
3	215	15:12	04/09/2016	49.961366	-6.304950	F2-3 Sunny	7.5	4.8	Full	Gravel	2x Video	N	0	N	0
3	216	15:35	04/09/2016	49.962283	-6.312595	F2-3 Sunny	1.8	-1.3	Full	Gravelly Sand	2x Video	N	0	N	0
3	217	15:33	04/09/2016	49.962232	-6.311215	F2-3 Sunny	2.6	-0.5	Full	Sand	2x Video	N	0	N	0
3	218	15:31	04/09/2016	49.962225	-6.309862	F2-3 Sunny	2.9	-0.2	Full	Sand	2x Video	N	0	N	0
3	219	15:28	04/09/2016	49.962253	-6.308415	F2-3 Sunny	3.2	0.2	Full	Sand	2x Video	N	0	N	0
3	220	15:26	04/09/2016	49.962207	-6.306998	F2-3 Sunny	3.3	0.3	Full	Sand	2x Video	N	0	N	0
3	221	15:18	04/09/2016	49.962130	-6.305716	F2-3 Sunny	7.7	4.9	Full	Sand	2x Video	N	0	N	0

3	222	15:14	04/09/2016	49.962092	-6.304284	F2-3 Sunny	3.7	1.0	Full	Sand	2x Video	N	0	N	0
3	182	08:36	05/09/2016	49.958340	-6.309307	F3, Moderate sea state	4.8	0.3	Full	Sand	2x Video	N	0	N	0
3	183	08:40	05/09/2016	49.958286	-6.307862	F3, Moderate sea state	4.9	0.5	Full	Gravel	2x Video	N	0	N	0
3	184	08:43	05/09/2016	49.958244	-6.306513	F3, Moderate sea state	4.6	0.2	Full	Sand	2x Video	Y	100	N	0
3	190	08:53	05/09/2016	49.959125	-6.311332	F3, Moderate sea state	4.4	0.2	Full	Gravel	2x Video	N	0	N	0
3	191	08:52	05/09/2016	49.959122	-6.309965	F3, Moderate sea state	4.3	0.0	Full	Sand	2x Video	N	0	N	0
3	192	08:49	05/09/2016	49.959088	-6.308592	F3, Moderate sea state	5.1	0.8	Full	Sand	2x Video	Y	100	N	0
3	196	08:55	05/09/2016	49.959946	-6.313397	F3, Moderate sea state	4.6	0.4	Full	Gravel	2x Video	N	0	N	0
3	197	08:58	05/09/2016	49.959929	-6.311968	F3, Moderate sea state	4.4	0.2	Full	Gravel	2x Video	N	0	N	0
3	198	09:00	05/09/2016	49.959895	-6.309299	F3, Moderate sea state	4.4	0.3	Full	Gravel	2x Video	N	0	N	0
3	199	09:02	05/09/2016	49.959796	-6.307764	F3, Moderate sea state	4.1	0.0	Full	Sand	2x Video	Y	100	N	0
3	203	09:08	05/09/2016	49.960722	-6.311311	F3, Moderate sea state	4.0	0.0	Full	Gravel	2x Video	N	0	N	0
3	204	09:06	05/09/2016	49.960674	-6.309929	F3, Moderate sea state	4.3	0.3	Full	Gravel	2x Video	N	0	N	0

3	205	09:04	05/09/2016	49.960605	-6.308516	F3, Moderate sea state	4.5	0.4	Full	Sand	2x Video	N	0	N	0
3	211	09:09	05/09/2016	49.961470	-6.310583	F3, Moderate sea state	3.7	-0.3	Full	Gravel	2x Video	N	0	N	0
3	212	09:12	05/09/2016	49.961422	-6.309134	F3, Moderate sea state	4.4	0.5	Full	Sand	2x Video	N	0	N	0
3	213	09:14	05/09/2016	49.961364	-6.307744	F3, Moderate sea state	4.0	0.1	Full	Sand	2x Video	N	0	N	0
3	619	09:18	05/09/2016	49.958832	-6.306745	F3, Moderate sea state	3.2	-0.6	Full	Sand	2x Video	Y	100	N	0
3	620	09:21	05/09/2016	49.960121	-6.306241	F3, Moderate sea state	3.0	-0.8	Full	Rock	2x Video	N	0	Y	50
3	621	10:43	05/09/2016	49.957252	-6.305457	F3, Moderate sea state	1.2	-1.2	Full	Sand	2x Video	Y	100	N	0
3	622	10:51	05/09/2016	49.958464	-6.308465	F3, Moderate sea state	2.7	0.4	Full	Sand	2x Video	Y	100	N	0
3	623	11:05	05/09/2016	49.958531	-6.305057	F3, Moderate sea state	2.1	0.0	Full	Rock	2x Video	N	0	N	0
3	624	11:24	05/09/2016	49.958865	-6.317687	F3, Moderate sea state	1.8	0.0	Full	Sand	2x Video	Y	100	N	0
3	625	11:26	05/09/2016	49.959143	-6.318170	F3, Moderate sea state	1.8	0.0	Full	Sand	2x Video	Y	100	N	0
3	626	11:27	05/09/2016	49.959343	-6.318609	F3, Moderate sea state	1.7	-0.1	Full	Sand	2x Video	Y	100	N	0
4	252	14:23	02/09/2016	49.956031	-6.280067	F2-3 Sunny	2.6	-0.5	Full	Sand	2x Video	N	0	N	0

4	253	14:25	02/09/2016	49.956053	-6.278642	F2-3 Sunny	2.5	-0.6	Full	Sand	2x Video	N	0	N	0
4	254	14:28	02/09/2016	49.956017	-6.277360	F2-3 Sunny	2.8	-0.4	Full	Sand	2x Video	N	0	N	0
4	255	14:30	02/09/2016	49.955966	-6.276024	F2-3 Sunny	3.0	-0.2	Full	Sand	2x Video	N	0	N	0
4	256	14:32	02/09/2016	49.955944	-6.274467	F2-3 Sunny	3.0	-0.3	Full	Sand	2x Video	N	0	N	0
4	257	14:34	02/09/2016	49.955965	-6.273122	F2-3 Sunny	3.4	0.1	Full	Sand	2x Video	Y	1	N	0
4	258	11:54	02/09/2016	49.955859	-6.271831	F3, Moderate sea state, Cloudy	1.0	0.1	Full	Sand	2x Video	N	0	N	0
4	259	11:51	02/09/2016	49.955809	-6.270387	F3, Moderate sea state, Cloudy	1.1	0.2	Full	Sand	2x Video	N	0	N	0
4	260	11:47	02/09/2016	49.955565	-6.269137	F3, Moderate sea state, Cloudy	2.1	1.2	Full	Sand	2x Video	N	0	N	0
4	261	11:45	02/09/2016	49.955873	-6.268000	F3, Moderate sea state, Cloudy	2.4	1.5	Full	Sand	2x Video	Y	100	N	0
4	262	11:42	02/09/2016	49.955732	-6.266287	F3, Moderate sea state, Cloudy	4.3	3.4	Full	Gravel	2x Video	Y	100	N	0
4	263	11:37	02/09/2016	49.955688	-6.264775	F3, Moderate sea state, Cloudy	3.5	2.6	Full	Rock	2x Video	N	0	N	0
4	264	12:25	02/09/2016	49.955593	-6.259329	F3, Moderate sea state, Cloudy	2.8	1.7	Full	Gravel	2x Video	N	0	N	0

4	265	14:56	02/09/2016	49.956874	-6.280515	F2-3 Sunny	3.1	-0.7	Full	Sand	2x Video	N	0	N	0
4	266	14:54	02/09/2016	49.956836	-6.279354	F2-3 Sunny	3.7	0.0	Full	Sand	2x Video	N	0	N	0
4	267	14:51	02/09/2016	49.956801	-6.277962	F2-3 Sunny	3.4	-0.3	Full	Sand	2x Video	N	0	N	0
4	268	14:49	02/09/2016	49.956777	-6.276670	F2-3 Sunny	3.4	-0.2	Full	Sand	2x Video	Y	5	N	0
4	269	14:46	02/09/2016	49.956741	-6.275198	F2-3 Sunny	3.3	-0.3	Full	Sand	2x Video	N	0	N	0
4	270	14:44	02/09/2016	49.956731	-6.273747	F2-3 Sunny	3.1	-0.4	Full	Sand	2x Video	N	0	N	0
4	271	14:40	02/09/2016	49.956654	-6.272386	F2-3 Sunny	2.8	-0.6	Full	Sand	2x Video	Y	100	N	0
4	272	14:38	02/09/2016	49.956675	-6.271091	F2-3 Sunny	3.2	-0.2	Full	Sand	2x Video	Y	100	N	0
4	273	12:02	02/09/2016	49.956575	-6.266953	F3, Moderate sea state, Cloudy	3.1	2.2	Full	Sand	2x Video	N	0	N	0
4	274	12:04	02/09/2016	49.956562	-6.265433	F3, Moderate sea state, Cloudy	4.7	3.7	Full	Rock	2x Video	N	0	N	0
4	275	12:06	02/09/2016	49.956494	-6.264011	F3, Moderate sea state, Cloudy	5.4	4.4	Full	Rock	2x Video	N	0	N	0
4	276	12:08	02/09/2016	49.956480	-6.262703	F3, Moderate sea state, Cloudy	7.5	6.5	Full	Sand	2x Video	N	0	N	0
4	277	14:58	02/09/2016	49.957612	-6.280039	F2-3 Sunny	3.0	-0.8	Full	Sand	2x Video	N	0	N	0
4	278	15:00	02/09/2016	49.957578	-6.278663	F2-3 Sunny	3.4	-0.5	Full	Sand	2x Video	N	0	N	0
4	279	15:03	02/09/2016	49.957570	-6.277308	F2-3 Sunny	3.6	-0.3	Full	Sand	2x Video	N	0	N	0

4	280	15:06	02/09/2016	49.957556	-6.275742	F2-3 Sunny	3.8	-0.2	Full	Sand	2x Video	N	0	N	0
4	281	15:08	02/09/2016	49.957467	-6.274430	F2-3 Sunny	3.0	-1.0	Full	Sand	2x Video	Y	100	N	0
4	282	15:10	02/09/2016	49.957471	-6.273029	F2-3 Sunny	3.9	-0.2	Full	Sand	2x Video	Y	100	N	0
4	283	15:12	02/09/2016	49.957446	-6.271710	F2-3 Sunny	3.2	-0.9	Full	Sand	2x Video	Y	100	N	0
4	284	12:44	02/09/2016	49.957275	-6.270563	F3, Moderate sea state, Cloudy	1.2	-0.1	Full	Gravel	2x Video	Y	100	N	0
4	285	12:36	02/09/2016	49.957353	-6.269000	F3, Moderate sea state, Cloudy	1.4	0.2	Full	Sand	2x Video	Y	100	N	0
4	286	12:34	02/09/2016	49.957329	-6.267548	F3, Moderate sea state, Cloudy	2.4	1.2	Full	Rock	2x Video	N	0	Y	100
4	287	12:31	02/09/2016	49.957323	-6.266113	F3, Moderate sea state, Cloudy	3.3	2.1	Full	Sand	2x Video	N	0	N	0
4	288	12:21	02/09/2016	49.957297	-6.263284	F3, Moderate sea state, Cloudy	7.7	6.6	Full	Sand	2x Video	N	0	N	0
4	289	12:11	02/09/2016	49.957206	-6.261967	F3, Moderate sea state, Cloudy	9.6	8.6	Full	Sand	2x Video	N	0	N	0
4	290	15:31	02/09/2016	49.958444	-6.279261	F2-3 Sunny	3.4	-1.1	Full	Sand	2x Video	N	0	N	0
4	291	15:29	02/09/2016	49.958322	-6.278025	F2-3 Sunny	3.8	-0.7	Full	Sand	2x Video	Y	100	N	0
4	292	15:25	02/09/2016	49.958401	-6.276562	F2-3 Sunny	3.3	-1.1	Full	Sand	2x Video	Y	100	N	0

4	293	15:22	02/09/2016	49.958711	-6.275307	F2-3 Sunny	3.6	-0.7	Full	Sand	2x Video	N	0	N	0
4	294	15:18	02/09/2016	49.958243	-6.273734	F2-3 Sunny	3.4	-0.8	Full	Coarse Sand	2x Video	N	0	N	0
4	295	15:15	02/09/2016	49.958283	-6.272347	F2-3 Sunny	2.6	-1.6	Full	Rock	2x Video	N	0	N	0
4	296	15:50	02/09/2016	49.958173	-6.269709	F2-3 Sunny	5.4	0.6	Full	Sand	2x Video	Y	100	N	0
4	297	15:55	02/09/2016	49.958133	-6.268205	F2-3 Sunny	6.5	1.6	Full	Rock	2x Video	N	0	N	0
4	298	15:57	02/09/2016	49.958043	-6.266762	F2-3 Sunny	7.9	3.0	Full	Rock	2x Video	N	0	N	0
4	299	16:00	02/09/2016	49.958063	-6.265385	F2-3 Sunny	7.2	2.2	Full	Rock	2x Video	N	0	Y	45
4	300	16:18	02/09/2016	49.958929	-6.268854	F3-4, Moderate Sea State	5.5	0.3	Full	Rock	2x Video	N	0	N	0
4	301	16:16	02/09/2016	49.958857	-6.267518	F3-4, Moderate Sea State	6.0	0.8	Full	Sand	2x Video	Y	100	N	0
4	302	16:14	02/09/2016	49.958832	-6.266085	F3-4, Moderate Sea State	5.8	0.6	Full	Sand	2x Video	Y	100	N	0
4	303	16:11	02/09/2016	49.958841	-6.264712	F3-4, Moderate Sea State	7.9	2.8	Full	Rock	2x Video	N	0	N	0
4	304	16:08	02/09/2016	49.958787	-6.263273	F2-3 Sunny	7.5	2.4	Full	Sand	2x Video	N	0	N	0
4	305	16:22	02/09/2016	49.959664	-6.266715	F3-4, Moderate Sea State	5.6	0.3	Full	Sand	2x Video	Y	100	N	0
4	306	16:25	02/09/2016	49.959855	-6.265400	F3-4, Moderate Sea State	6.6	1.3	Full	Sand	2x Video	Y	100	N	0
4	307	16:27	02/09/2016	49.960359	-6.264620	F3-4, Moderate Sea State	7.9	2.6	Full	Rock	2x Video	N	0	Y	70

4	308	16:30	02/09/2016	49.961150	-6.263789	F3-4, Moderate Sea State	7.4	2.0	Full	Rock	2x Video	N	0	N	0
4	309	16:32	02/09/2016	49.961095	-6.262430	F3-4, Moderate Sea State	11.4	6.0	Full	Rock	2x Video	N	0	N	0
4	223	07:02	04/09/2016	49.949386	-6.262425	F3 Moderate Sea State, Overcast	7.9	2.6	Full	Sand	2x Video	N	0	N	0
4	224	07:09	04/09/2016	49.950258	-6.263034	F3 Moderate Sea State, Overcast	8.0	2.8	Full	Rock	2x Video	N	0	Y	100
4	225	07:06	04/09/2016	49.950210	-6.261619	F3 Moderate Sea State, Overcast	9.1	3.8	Full	Rock	2x Video	N	0	Y	100
4	226	07:15	04/09/2016	49.950588	-6.258877	F3 Moderate Sea State, Overcast	8.3	3.1	Full	Rock	2x Video	N	0	N	0
4	227	07:27	04/09/2016	49.951070	-6.265084	F3 Moderate Sea State, Overcast	6.4	1.3	Full	Sand	2x Video	N	0	N	0
4	228	07:24	04/09/2016	49.950990	-6.263745	F3 Moderate Sea State, Overcast	7.0	1.9	Full	Sand	2x Video	Y	100	N	0
4	229	07:22	04/09/2016	49.950933	-6.262339	F3 Moderate Sea State, Overcast	6.8	1.7	Full	Rock	2x Video	N	0	N	0
4	230	07:13	04/09/2016	49.950908	-6.260976	F3 Moderate Sea State, Overcast	8.5	3.3	Full	Rock	2x Video	N	0	N	0

4	231	07:32	04/09/2016	49.951810	-6.267165	F3 Moderate Sea State, Overcast	3.6	-1.4	Full	Sand	2x Video	N	0	N	0
4	232	07:34	04/09/2016	49.951823	-6.265719	F3 Moderate Sea State, Overcast	6.5	1.5	Full	Sand	2x Video	Y	100	N	0
4	233	07:38	04/09/2016	49.951780	-6.264314	F3 Moderate Sea State, Overcast	6.8	1.9	Full	Sand	2x Video	Y	100	N	0
4	234	07:55	04/09/2016	49.951789	-6.262969	F3 Moderate Sea State, Overcast	6.4	1.7	Full	Rock	2x Video	N	0	N	0
4	235	07:57	04/09/2016	49.951602	-6.261808	F3 Moderate Sea State, Overcast	6.2	1.5	Full	Rock	2x Video	N	0	N	0
4	236	08:19	04/09/2016	49.952568	-6.267912	F3 Moderate Sea State, Overcast	4.7	0.4	Full	Sand	2x Video	N	0	N	0
4	237	08:09	04/09/2016	49.952567	-6.266376	F3 Moderate Sea State, Overcast	5.0	0.5	Full	Sand	2x Video	Y	100	N	0
4	238	08:07	04/09/2016	49.952567	-6.265059	F3 Moderate Sea State, Overcast	5.0	0.5	Full	Gravel and Cobbles	2x Video	N	0	N	0
4	239	08:02	04/09/2016	49.952587	-6.263627	F3 Moderate Sea State, Overcast	5.4	0.8	Full	Sand	2x Video	Y	100	N	0

4	240	08:30	04/09/2016	49.953444	-6.268469	F3 Moderate Sea State, Overcast	5.6	1.5	Full	Sand	2x Video	Y	30	N	0
4	241	08:33	04/09/2016	49.953376	-6.267090	F3 Moderate Sea State, Overcast	4.7	0.6	Full	Sand	2x Video	Y	5	N	0
4	242	08:36	04/09/2016	49.953311	-6.265621	F3 Moderate Sea State, Overcast	5.4	1.4	Full	Sand	2x Video	N	0	N	0
4	243	08:38	04/09/2016	49.953361	-6.264267	F3 Moderate Sea State, Overcast	4.0	0.0	Full	Sand	2x Video	Y	100	N	0
4	244	09:22	04/09/2016	49.954367	-6.274484	F3 Moderate Sea State, Overcast	3.4	0.2	Full	Sand	2x Video	N	0	N	0
4	245	09:20	04/09/2016	49.954594	-6.273745	F3 Moderate Sea State, Overcast	3.3	0.1	Full	Sand	2x Video	N	0	N	0
4	246	08:56	04/09/2016	49.954183	-6.267735	F3 Moderate Sea State, Overcast	6.1	2.4	Full	Sand	2x Video	Y	100	N	0
4	247	08:46	04/09/2016	49.954110	-6.266386	F3 Moderate Sea State, Overcast	5.8	1.9	Full	Sand	2x Video	Y	100	N	0
4	248	08:41	04/09/2016	49.954019	-6.265492	F3 Moderate Sea State, Overcast	4.7	0.8	Full	RocK	2x Video	N	0	N	0

4	249	09:15	04/09/2016	49.954945	-6.268490	F3 Moderate Sea State, Overcast	4.5	1.2	Full	Sand	2x Video	N	0	N	0
4	250	09:10	04/09/2016	49.954959	-6.267051	F3 Moderate Sea State, Overcast	5.9	2.5	Full	Rock	2x Video	N	0	N	0
4	251	09:04	04/09/2016	49.954893	-6.265620	F3 Moderate Sea State, Overcast	5.9	2.4	Full	Sand	2x Video	Y	90	N	0
4	803	14:30	06/09/2016	49.950214	-6.262794	F1-2 Calm, Sunny	4.3	2.8	Full	Rock	2x Video	N	0	N	0
4	804	14:38	06/09/2016	49.950406	-6.263435	F1-2 Calm, Sunny	2.6	1.1	Full	Sand	2x Video	Y	100	N	0
4	805	14:50	06/09/2016	49.955088	-6.267539	F1-2 Calm, Sunny	1.0	-0.6	Full	Sand	2x Video	Y	100	N	0
4	806	14:55	06/09/2016	49.956897	-6.265023	F1-2 Calm, Sunny	5.9	4.3	Full	Gravel	2x Video	N	0	N	0
4	807	15:14	06/09/2016	49.958850	-6.265465	F1-2 Calm, Sunny	2.3	0.5	Full	Sand	2x Video	Y	100	N	0
4	808	15:16	06/09/2016	49.958535	-6.267056	F1-2 Calm, Sunny	3.8	1.9	Full	Sand	2x Video	Y	100	N	0
4	809	15:17	06/09/2016	49.958301	-6.267431	F1-2 Calm, Sunny	3.7	1.8	Full	Rock	2x Video	N	0	N	0
4	810	15:19	06/09/2016	49.959038	-6.267881	F1-2 Calm, Sunny	2.6	0.7	Full	Sand	2x Video	Y	100	N	0
4	811	15:21	06/09/2016	49.959614	-6.267386	F1-2 Calm, Sunny	2.8	0.9	Full	Sand	2x Video	Y	100	N	0

4	812	15:23	06/09/2016	49.960123	-6.267665	F1-2 Calm, Sunny	1.8	-0.1	Full	Sand	2x Video	Y	100	N	0
4	813	15:24	06/09/2016	49.960081	-6.266941	F1-2 Calm, Sunny	1.4	-0.5	Full	Sand	2x Video	Y	100	N	0
4	814	15:26	06/09/2016	49.960121	-6.265731	F1-2 Calm, Sunny	3.4	1.4	Full	Rock	2x Video	N	0	N	0
4	815	15:28	06/09/2016	49.959969	-6.264907	F1-2 Calm, Sunny	4.1	2.1	Full	Sand	2x Video	Y	100	N	0
4	816	15:29	06/09/2016	49.960295	-6.263935	F1-2 Calm, Sunny	4.5	2.5	Full	Rock	2x Video	N	0	N	0
4	817	15:31	06/09/2016	49.960037	-6.264055	F1-2 Calm, Sunny	4.1	2.1	Full	Rock	2x Video	N	0	N	0
4	818	15:36	06/09/2016	49.958449	-6.268095	F1-2 Calm, Sunny	3.6	1.5	Full	Sand	2x Video	Y	50	N	0
4	819	15:38	06/09/2016	49.958179	-6.268549	F1-2 Calm, Sunny	3.5	1.4	Full	Rock	2x Video	N	0	N	0
4	820	15:42	06/09/2016	49.957122	-6.270273	F1-2 Calm, Sunny	2.2	0.0	Full	Sand	2x Video	Y	50	N	0
4	821	15:44	06/09/2016	49.956171	-6.270842	F1-2 Calm, Sunny	2.2	0.0	Full	Sand	2x Video	Y	100	N	0
4	822	16:17	06/09/2016	49.950648	-6.262556	F1-2 Calm, Sunny	5.6	2.9	Full	Rock	2x Video	N	0	Y	100
4	823	16:19	06/09/2016	49.950743	-6.263391	F1-2 Calm, Sunny	4.3	1.6	Full	Sand	2x Video	Y	100	N	0
4	824	16:21	06/09/2016	49.951374	-6.263848	F1-2 Calm, Sunny	4.1	1.3	Full	Rock	2x Video	N	0	N	0

4	825	16:22	06/09/2016	49.951428	-6.264431	F1-2 Calm, Sunny	3.9	1.1	Full	Gravel	2x Video	N	0	N	0
4	826	16:23	06/09/2016	49.951503	-6.264472	F1-2 Calm, Sunny	3.8	1.0	Full	Sand	2x Video	Y	100	N	0
4	827	16:25	06/09/2016	49.951979	-6.264023	F1-2 Calm, Sunny	4.3	1.5	Full	Rock	2x Video	N	0	N	0
4	828	16:29	06/09/2016	49.951949	-6.263667	F1-2 Calm, Sunny	4.7	1.8	Full	Rock	2x Video	N	0	N	0
4	829	16:33	06/09/2016	49.952202	-6.264759	F1-2 Calm, Sunny	4.5	1.5	Full	Rock	2x Video	N	0	N	0
4	830	16:37	06/09/2016	49.953272	-6.266946	F1-2 Calm, Sunny	3.2	0.2	Full	Sand	2x Video	Y	100	N	0
4	831	16:41	06/09/2016	49.952870	-6.263838	F1-2 Calm, Sunny	4.1	1.0	Full	Sand	2x Video	Y	100	N	0
5	310	09:24	01/09/2016	49.942785	-6.277582	F1 Calm, Sunny	4.1	2.6	Full	Rock	2x Video	N	0	N	0
5	311	09:21	01/09/2016	49.942729	-6.276161	F1 Calm, Sunny	5.3	3.7	Full	Rock	2x Video	N	0	N	0
5	312	09:16	01/09/2016	49.942761	-6.274709	F1 Calm, Sunny	4.2	2.6	Full	Rock	2x Video	N	0	N	0
5	313	12:54	01/09/2016	49.943736	-6.278052	F1-2 Calm, Sunny	5.4	3.3	Full	Rock	2x Video	N	0	N	0
5	314	09:30	01/09/2016	49.943401	-6.272521	F1 Calm, Sunny	4.8	3.3	Full	Rock	2x Video	N	0	N	0
5	315	11:40	01/09/2016	49.944421	-6.281537	F1 Calm, Sunny	7.7	6.6	Full	Rock	2x Video	N	0	N	0
5	316	11:35	01/09/2016	49.944371	-6.280110	F1 Calm, Sunny	3.9	2.8	Full	Rock	2x Video	N	0	Y	5
5	317	09:37	01/09/2016	49.944087	-6.267557	F1 Calm, Sunny	2.1	0.7	Full	Rock	2x Video	N	0	N	0

5	318	11:33	01/09/2016	49.945204	-6.280784	F1 Calm, Sunny	5.9	4.8	Full	Sand	2x Video	Y	10	N	0
5	319	09:34	01/09/2016	49.944925	-6.272466	F1 Calm, Sunny	4.6	3.2	Full	Rock	2x Video	N	0	N	0
5	320	09:40	01/09/2016	49.944909	-6.268275	F1 Calm, Sunny	3.2	1.8	Full	Rock	2x Video	N	0	N	0
5	321	11:30	01/09/2016	49.945975	-6.281498	F1 Calm, Sunny	5.2	4.1	Full	Coarse Sand	2x Video	N	0	N	0
5	322	11:25	01/09/2016	49.945965	-6.280074	F1 Calm, Sunny	4.2	3.2	Full	Sand	2x Video	N	0	Y	90
5	323	11:22	01/09/2016	49.946010	-6.278997	F1 Calm, Sunny	3.0	2.0	Full	Sand	2x Video	Y	100	N	0
5	324	10:10	01/09/2016	49.945121	-6.274613	F1 Calm, Sunny	3.2	2.1	Full	Rock	2x Video	Y	5	N	0
5	325	10:04	01/09/2016	49.945806	-6.273024	F1 Calm, Sunny	4.2	3.0	Full	Rock	2x Video	N	0	N	0
5	326	09:57	01/09/2016	49.945718	-6.271595	F1 Calm, Sunny	3.6	2.4	Full	Rock	2x Video	N	0	N	0
5	327	09:52	01/09/2016	49.945748	-6.270335	F1 Calm, Sunny	4.5	3.3	Full	Rock	2x Video	N	0	N	0
5	328	09:43	01/09/2016	49.945666	-6.268939	F1 Calm, Sunny	2.7	1.4	Full	Rock	2x Video	N	0	N	0
5	329	10:45	01/09/2016	49.946759	-6.282106	F1 Calm, Sunny	4.0	3.0	Full	Sand	2x Video	Y	100	N	0
5	330	11:16	01/09/2016	49.946799	-6.280716	F1 Calm, Sunny	3.6	2.6	Full	Sand	2x Video	Y	100	N	0
5	331	11:20	01/09/2016	49.946707	-6.279270	F1 Calm, Sunny	3.3	2.3	Full	Sand	2x Video	Y	100	N	0
5	332	10:32	01/09/2016	49.946965	-6.278092	F1 Calm, Sunny	1.8	0.8	Full	Sand	2x Video	Y	100	N	0
5	333	10:20	01/09/2016	49.946531	-6.273680	F1 Calm, Sunny	2.2	1.2	Full	Rock	2x Video	N	0	N	0
5	334	13:33	01/09/2016	49.946814	-6.270792	F1-2 Calm, Sunny	4.7	1.9	Full	Rock	2x Video	N	0	N	0
5	335	09:48	01/09/2016	49.946497	-6.269645	F1 Calm, Sunny	3.6	2.3	Full	Rock	2x Video	N	0	N	0
5	336	09:45	01/09/2016	49.946533	-6.268434	F1 Calm, Sunny	3.2	1.9	Full	Rock	2x Video	N	0	N	0

5	337	10:42	01/09/2016	49.947641	-6.282737	F1 Calm, Sunny	3.2	2.2	Full	Sand	2x Video	N	0	N	0
5	338	10:40	01/09/2016	49.947553	-6.281324	F1 Calm, Sunny	3.7	2.7	Full	Sand	2x Video	Y	100	N	0
5	339	10:37	01/09/2016	49.947508	-6.279972	F1 Calm, Sunny	2.6	1.6	Full	Sand	2x Video	Y	100	N	0
5	340	10:34	01/09/2016	49.947492	-6.278551	F1 Calm, Sunny	2.2	1.2	Full	Sand	2x Video	Y	60	N	0
5	341	10:29	01/09/2016	49.947474	-6.277256	F1 Calm, Sunny	1.8	0.8	Full	Sand	2x Video	Y	100	N	0
5	342	13:20	01/09/2016	49.947446	-6.275797	F1-2 Calm, Sunny	1.8	-0.7	Full	Coarse Sand	2x Video	Y	5	N	0
5	343	13:24	01/09/2016	49.947345	-6.274221	F1-2 Calm, Sunny	3.5	0.9	Full	Coarse Sand	2x Video	N	0	Y	5
5	344	13:28	01/09/2016	49.947350	-6.272973	F1-2 Calm, Sunny	4.2	1.5	Full	Coarse Sand	2x Video	Y	2	N	0
5	345	13:30	01/09/2016	49.947439	-6.271409	F1-2 Calm, Sunny	4.4	1.7	Full	Coarse Sand	2x Video	Y	20	N	0
5	346	13:37	01/09/2016	49.947340	-6.270053	F1-2 Calm, Sunny	4.6	1.7	Full	Rock	2x Video	N	0	N	0
5	347	13:40	01/09/2016	49.947274	-6.268833	F1-2 Calm, Sunny	4.9	2.0	Full	Rock	2x Video	N	0	N	0
5	348	13:01	01/09/2016	49.948385	-6.283243	F1-2 Calm, Sunny	4.8	2.6	Full	Sand	2x Video	Y	20	N	0
5	349	13:05	01/09/2016	49.948636	-6.281758	F1-2 Calm, Sunny	4.9	2.7	Full	Sand	2x Video	Y	100	N	0
5	350	13:08	01/09/2016	49.948442	-6.280241	F1-2 Calm, Sunny	4.5	2.2	Full	Sand	2x Video	N	0	N	0

5	351	13:11	01/09/2016	49.948402	-6.278961	F1-2 Calm, Sunny	4.1	1.7	Full	Sand	2x Video	Y	100	N	0
5	352	13:14	01/09/2016	49.948227	-6.277746	F1-2 Calm, Sunny	3.2	0.8	Full	Sand	2x Video	Y	100	N	0
5	353	13:16	01/09/2016	49.948233	-6.276298	F1-2 Calm, Sunny	2.1	-0.4	Full	Sand	2x Video	Y	100	N	0
5	354	13:18	01/09/2016	49.948138	-6.274980	F1-2 Calm, Sunny	2.5	0.0	Full	Sand	2x Video	Y	50	Y	15
5	355	14:45	01/09/2016	49.948179	-6.273616	F2 Calm, Overcast	5.6	1.3	Full	Sand	2x Video	Y	50	N	0
5	356	14:42	01/09/2016	49.948149	-6.272181	F2 Calm, Overcast	5.2	1.0	Full	Rock	2x Video	N	0	N	0
5	357	14:38	01/09/2016	49.948043	-6.270780	F2 Calm, Overcast	6.1	2.0	Full	Cobbles	2x Video	N	0	N	0
5	358	13:41	01/09/2016	49.947897	-6.268048	F1-2 Calm, Sunny	2.2	-0.8	Full	Rock	2x Video	N	0	N	0
5	359	13:44	01/09/2016	49.948255	-6.266647	F1-2 Calm, Sunny	3.1	0.1	Full	Sand	2x Video	Y	100	N	0
5	360	13:47	01/09/2016	49.948056	-6.264624	F1-2 Calm, Sunny	3.4	0.3	Full	Sand	2x Video	Y	100	N	0
5	361	15:19	01/09/2016	49.949241	-6.282550	F2 Calm, Overcast	6.2	1.3	Full	Sand	2x Video	Y	100	N	0
5	362	15:17	01/09/2016	49.949083	-6.281263	F2 Calm, Overcast	6.6	1.8	Full	Sand	2x Video	Y	60	N	0
5	363	15:14	01/09/2016	49.949067	-6.279774	F2 Calm, Overcast	5.9	1.1	Full	Sand	2x Video	Y	100	N	0
5	364	15:12	01/09/2016	49.949037	-6.278512	F2 Calm, Overcast	5.9	1.1	Full	Sand	2x Video	Y	100	N	0
5	365	15:07	01/09/2016	49.949140	-6.276870	F2 Calm, Overcast	4.5	-0.2	Full	Sand	2x Video	Y	90	N	0
5	366	15:04	01/09/2016	49.949005	-6.275638	F2 Calm, Overcast	4.2	-0.4	Full	Sand	2x Video	Y	100	N	0

5	367	15:00	01/09/2016	49.948937	-6.274277	F2 Calm, Overcast	5.8	1.3	Full	Sand	2x Video	Y	2	N	0
5	368	14:55	01/09/2016	49.948937	-6.272815	F2 Calm, Overcast	5.8	1.3	Full	Rock	2x Video	N	0	N	0
5	369	14:34	01/09/2016	49.948953	-6.271602	F2 Calm, Overcast	4.6	0.5	Full	Sand	2x Video	Y	100	N	0
5	370	13:45	01/09/2016	49.948803	-6.265918	F1-2 Calm, Sunny	3.0	0.0	Full	Sand	2x Video	Y	100	N	0
5	371	13:55	01/09/2016	49.948755	-6.264595	F1-2 Calm, Sunny	3.8	0.5	Full	Sand	2x Video	Y	100	N	0
5	372	13:50	01/09/2016	49.948690	-6.263098	F1-2 Calm, Sunny	4.4	1.3	Full	Sand	2x Video	Y	100	N	0
5	373	15:23	01/09/2016	49.949944	-6.283254	F2 Calm, Overcast	5.9	1.0	Full	Sand	2x Video	Y	100	N	0
5	374	15:25	01/09/2016	49.949877	-6.281856	F2 Calm, Overcast	6.0	1.0	Full	Sand	2x Video	Y	100	N	0
5	375	15:27	01/09/2016	49.949843	-6.280426	F2 Calm, Overcast	6.1	1.1	Full	Sand	2x Video	Y	100	N	0
5	376	15:29	01/09/2016	49.949840	-6.279040	F2 Calm, Overcast	6.0	1.0	Full	Sand	2x Video	N	0	N	0
5	377	15:32	01/09/2016	49.949802	-6.277645	F2 Calm, Overcast	6.1	1.0	Full	Sand	2x Video	Y	100	N	0
5	378	15:36	01/09/2016	49.949811	-6.275917	F2 Calm, Overcast	5.3	0.2	Full	Sand	2x Video	Y	60	N	0
5	379	15:38	01/09/2016	49.949728	-6.274831	F2 Calm, Overcast	5.3	0.2	Full	Sand	2x Video	N	0	N	0
5	380	15:40	01/09/2016	49.949653	-6.273469	F2 Calm, Overcast	6.4	1.2	Full	Sand	2x Video	Y	5	Y	10
5	381	15:42	01/09/2016	49.949662	-6.272039	F2 Calm, Overcast	6.2	1.0	Full	Sand	2x Video	N	0	N	0
5	382	14:30	01/09/2016	49.949818	-6.270717	F2 Calm, Overcast	4.0	0.0	Full	Cobbles	2x Video	N	0	N	0
5	383	14:09	01/09/2016	49.949519	-6.266309	F1-2 Calm, Sunny	3.9	0.4	Full	Sand	2x Video	N	0	N	0

5	384	13:58	01/09/2016	49.949558	-6.265309	F1-2 Calm, Sunny	4.1	0.8	Full	Sand	2x Video	Y	100	N	0
5	394	14:28	01/09/2016	49.950428	-6.271408	F2 Calm, Overcast	3.9	0.0	Full	Sand	2x Video	Y	80	N	0
5	395	14:22	01/09/2016	49.950417	-6.270078	F2 Calm, Overcast	2.8	-1.0	Full	Rock	2x Video	N	0	N	0
5	396	14:19	01/09/2016	49.950259	-6.268613	F1-2 Calm, Sunny	2.7	-1.1	Full	Rock	2x Video	N	0	Y	100
5	397	14:13	01/09/2016	49.950377	-6.265788	F1-2 Calm, Sunny	4.5	0.9	Full	Sand	2x Video	N	0	N	0
5	405	14:25	01/09/2016	49.951233	-6.270758	F2 Calm, Overcast	3.3	-0.6	Full	Sand	2x Video	N	0	N	0
5	385	07:42	02/09/2016	49.950661	-6.284006	F3-4, Moderate Sea State	5.5	1.7	Full	Sand	2x Video	N	0	N	0
5	386	07:41	02/09/2016	49.950718	-6.282638	F3-4, Moderate Sea State	4.9	1.1	Full	Sand	2x Video	Y	1	N	0
5	387	07:38	02/09/2016	49.950623	-6.281248	F3-4, Moderate Sea State	5.1	1.2	Full	Sand	2x Video	Y	20	N	0
5	388	07:37	02/09/2016	49.950611	-6.279843	F3-4, Moderate Sea State	4.6	0.7	Full	Sand	2x Video	Y	100	N	0
5	389	07:34	02/09/2016	49.950575	-6.278388	F3-4, Moderate Sea State	4.8	0.9	Full	Sand	2x Video	Y	30	N	0
5	390	07:32	02/09/2016	49.950619	-6.277041	F3-4, Moderate Sea State	4.5	0.5	Full	Sand	2x Video	Y	40	N	0
5	391	07:29	02/09/2016	49.950532	-6.275664	F3-4, Moderate Sea State	4.3	0.3	Full	Sand	2x Video	N	0	N	0
5	392	07:27	02/09/2016	49.950457	-6.274242	F3-4, Moderate Sea State	4.5	0.4	Full	Sand	2x Video	N	0	N	0

5	393	07:24	02/09/2016	49.950420	-6.272844	F3-4, Moderate Sea State	3.9	-0.2	Full	Sand	2x Video	Y	100	N	0
5	398	07:46	02/09/2016	49.951451	-6.281840	F3-4, Moderate Sea State	4.4	0.7	Full	Sand	2x Video	Y	10	N	0
5	399	07:48	02/09/2016	49.951427	-6.280395	F3-4, Moderate Sea State	4.1	0.4	Full	Sand	2x Video	Y	100	N	0
5	400	07:50	02/09/2016	49.951298	-6.278957	F3-4, Moderate Sea State	4.3	0.6	Full	Sand	2x Video	Y	100	N	0
5	401	07:53	02/09/2016	49.951331	-6.277569	F3-4, Moderate Sea State	4.1	0.5	Full	Sand	2x Video	N	0	N	0
5	402	07:57	02/09/2016	49.951312	-6.276202	F3-4, Moderate Sea State	3.9	0.4	Full	Sand	2x Video	N	0	N	0
5	403	08:09	02/09/2016	49.951154	-6.273493	F3-4, Moderate Sea State	4.6	1.3	Full	Sand	2x Video	N	0	N	0
5	404	08:12	02/09/2016	49.951166	-6.272102	F3-4, Moderate Sea State	3.3	0.1	Full	Sand	2x Video	N	0	N	0
5	406	08:41	02/09/2016	49.952322	-6.286655	F3-4, Moderate Sea State	3.1	0.4	Full	Sand	2x Video	N	0	N	0
5	407	08:39	02/09/2016	49.952251	-6.285296	F3-4, Moderate Sea State	3.9	1.2	Full	Sand	2x Video	N	0	N	0
5	408	08:37	02/09/2016	49.952282	-6.283884	F3-4, Moderate Sea State	3.9	1.1	Full	Sand	2x Video	N	0	N	0
5	409	08:34	02/09/2016	49.952181	-6.282519	F3-4, Moderate Sea State	3.1	0.3	Full	Sand	2x Video	Y	100	N	0
5	410	08:32	02/09/2016	49.952186	-6.281127	F3-4, Moderate Sea State	3.5	0.6	Full	Sand	2x Video	Y	80	N	0

5	411	08:30	02/09/2016	49.952139	-6.279756	F3-4, Moderate Sea State	4.0	1.1	Full	Sand	2x Video	Y	35	N	0
5	412	08:28	02/09/2016	49.952164	-6.278333	F3-4, Moderate Sea State	3.5	0.5	Full	Sand	2x Video	N	0	N	0
5	414	08:23	02/09/2016	49.952084	-6.275450	F3-4, Moderate Sea State	3.5	0.5	Full	Sand	2x Video	N	0	N	0
5	415	08:17	02/09/2016	49.952064	-6.274153	F3-4, Moderate Sea State	3.1	-0.1	Full	Sand	2x Video	N	0	N	0
5	416	08:15	02/09/2016	49.951977	-6.272843	F3-4, Moderate Sea State	3.0	-0.2	Full	Sand	2x Video	N	0	N	0
5	416	08:26	02/09/2016	49.952121	-6.276947	F3-4, Moderate Sea State	3.4	0.4	Full	Sand	2x Video	N	0	N	0
5	417	10:40	02/09/2016	49.953002	-6.284572	F3-4, Moderate Sea State	1.6	0.5	Full	Sand	2x Video	Y	2	N	0
5	418	10:43	02/09/2016	49.953041	-6.283111	F3-4, Moderate Sea State	1.2	0.2	Full	Sand	2x Video	Y	100	N	0
5	419	10:51	02/09/2016	49.952951	-6.281794	F3-4, Moderate Sea State	1.8	0.8	Full	Sand	2x Video	Y	100	N	0
5	420	10:57	02/09/2016	49.952981	-6.280291	F3-4, Moderate Sea State	1.8	0.8	Full	Sand	2x Video	Y	100	N	0
5	421	10:59	02/09/2016	49.952933	-6.278988	F3-4, Moderate Sea State	1.5	0.6	Full	Sand	2x Video	N	0	N	0
5	422	11:02	02/09/2016	49.952926	-6.277551	F3-4, Moderate Sea State	1.2	0.3	Full	Sand	2x Video	N	0	N	0
5	423	10:16	02/09/2016	49.953856	-6.286587	F3-4, Moderate Sea State	1.1	-0.2	Full	Sand	2x Video	N	0	N	0

5	424	10:19	02/09/2016	49.953898	-6.285222	F3-4, Moderate Sea State	1.2	-0.1	Full	Sand	2x Video	N	0	N	0
5	425	10:22	02/09/2016	49.953782	-6.283787	F3-4, Moderate Sea State	1.1	-0.1	Full	Sand	2x Video	N	0	N	0
5	426	10:27	02/09/2016	49.953766	-6.282372	F3-4, Moderate Sea State	1.1	-0.1	Full	Sand	2x Video	N	0	N	0
5	427	10:31	02/09/2016	49.953764	-6.280941	F3-4, Moderate Sea State	0.9	-0.2	Full	Sand	2x Video	Y	100	N	0
5	428	10:35	02/09/2016	49.953698	-6.279637	F3-4, Moderate Sea State	1.3	0.2	Full	Sand	2x Video	N	0	N	0
5	429	09:56	02/09/2016	49.954609	-6.285867	F3-4, Moderate Sea State	1.7	0.2	Full	Sand	2x Video	N	0	N	0
5	430	09:59	02/09/2016	49.954620	-6.284509	F3-4, Moderate Sea State	1.8	0.3	Full	Sand	2x Video	N	0	Y	10
5	431	10:02	02/09/2016	49.955392	-6.285076	F3-4, Moderate Sea State	1.4	0.0	Full	Sand	2x Video	N	0	N	0
5	432	10:05	02/09/2016	49.955261	-6.283725	F3-4, Moderate Sea State	1.2	-0.2	Full	Sand	2x Video	N	0	N	0
5	433	10:08	02/09/2016	49.955348	-6.282357	F3-4, Moderate Sea State	0.8	-0.6	Full	Sand	2x Video	N	0	N	0
5	433	14:21	02/09/2016	49.955317	-6.282268	F2-3 Sunny	2.0	-1.0	Full	Sand	2x Video	N	0	N	0
5	434	14:16	02/09/2016	49.956268	-6.287106	F2-3 Sunny	1.5	-1.4	Full	Sand	2x Video	N	0	N	0
5	435	14:18	02/09/2016	49.956239	-6.285615	F2-3 Sunny	2.0	-1.0	Full	Sand	2x Video	N	0	N	0
5	790	11:29	06/09/2016	49.945199	-6.281652	F1-2 Calm, Sunny	8.0	5.7	Full	Sand	2x Video	N	0	N	0

5	791	11:31	06/09/2016	49.946058	-6.280874	F1-2 Calm, Sunny	6.3	4.0	Full	Gravel	2x Video	Y	1	N	0
5	792	11:33	06/09/2016	49.946815	-6.283030	F1-2 Calm, Sunny	6.2	3.9	Full	Sand	2x Video	N	0	N	0
5	793	11:36	06/09/2016	49.947266	-6.282237	F1-2 Calm, Sunny	5.1	2.9	Full	Sand	2x Video	Y	100	N	0
5	794	11:42	06/09/2016	49.949110	-6.283382	F1-2 Calm, Sunny	4.2	2.1	Full	Rock	2x Video	N	0	N	0
5	795	11:43	06/09/2016	49.949030	-6.283259	F1-2 Calm, Sunny	3.7	1.6	Full	Sand	2x Video	Y	100	N	0
5	796	11:53	06/09/2016	49.952349	-6.285390	F1-2 Calm, Sunny	3.0	1.0	Full	Rock	2x Video	N	0	N	0
5	797	12:02	06/09/2016	49.952874	-6.283551	F1-2 Calm, Sunny	2.6	0.7	Full	Sand	2x Video	Y	100	N	0
5	798	12:13	06/09/2016	49.952149	-6.277858	F1-2 Calm, Sunny	1.9	0.1	Full	Sand	2x Video	Y	100	N	0
5	799	12:24	06/09/2016	49.950349	-6.271360	F1-2 Calm, Sunny	1.8	0.1	Full	Sand	2x Video	Y	100	N	0
5	800	12:29	06/09/2016	49.949331	-6.271849	F1-2 Calm, Sunny	2.6	0.9	Full	Sand	2x Video	Y	100	N	0
5	801	12:33	06/09/2016	49.948525	-6.271405	F1-2 Calm, Sunny	3.5	1.9	Full	Rock	2x Video	N	0	Y	45
5	802	13:16	06/09/2016	49.949241	-6.264409	F1-2 Calm, Sunny	2.6	1.2	Full	Sand	2x Video	Y	100	N	0
6	436	16:55	31/08/2016	49.932433	-6.311623	F1 Calm, Sunny	6.1	0.8	Full	Cobbles	2x Video	N	0	N	0

6	438	16:51	31/08/2016	49.933536	-6.310799	F1 Calm, Sunny	8.3	3.0	Full	Sand	2x Video	N	0	N	0
6	439	16:49	31/08/2016	49.933843	-6.311423	F1 Calm, Sunny	6.7	1.4	Full	Gravel	2x Video	N	0	N	0
6	440	16:46	31/08/2016	49.934082	-6.310071	F1 Calm, Sunny	7.4	2.0	Full	Rock	2x Video	Y	15	N	0
6	441	16:42	31/08/2016	49.935089	-6.310596	F1 Calm, Sunny	9.6	4.2	Full	Sand	2x Video	N	0	N	0
6	442	16:38	31/08/2016	49.934902	-6.309119	F1 Calm, Sunny	6.7	1.3	Full	Rock	2x Video	N	0	N	0
6	443	16:35	31/08/2016	49.935755	-6.309976	F1 Calm, Sunny	9.1	3.7	Full	Gravel	2x Video	Y	10	N	0
6	444	16:31	31/08/2016	49.935688	-6.308454	F1 Calm, Sunny	7.2	1.8	Full	Gravel	2x Video	Y	1	N	0
6	445	16:27	31/08/2016	49.935653	-6.307073	F1 Calm, Sunny	6.4	1.0	Full	Gravel	2x Video	Y	100	N	0
6	446	16:20	31/08/2016	49.935793	-6.306011	F1 Calm, Sunny	5.9	0.5	Full	Sand	2x Video	Y	100	N	0
6	447	16:17	31/08/2016	49.935712	-6.304298	F1 Calm, Sunny	5.4	-0.1	Full	Sand	2x Video	Y	3	N	0
6	450	16:23	31/08/2016	49.936433	-6.306371	F1 Calm, Sunny	7.0	1.6	Full	Sand	2x Video	Y	15	N	0
6	451	16:14	31/08/2016	49.936373	-6.304982	F1 Calm, Sunny	5.4	-0.1	Full	Sand	2x Video	Y	100	N	0
6	453	16:11	31/08/2016	49.937176	-6.305310	F1 Calm, Sunny	6.9	1.4	Full	Sand	2x Video	Y	60	N	0
6	454	15:54	31/08/2016	49.937315	-6.303618	F1 Calm, Sunny	5.8	0.4	Full	Sand	2x Video	Y	100	N	0
6	457	16:08	31/08/2016	49.937955	-6.306261	F1 Calm, Sunny	6.9	1.4	Full	Sand	2x Video	Y	100	N	0
6	458	16:04	31/08/2016	49.938045	-6.304757	F1 Calm, Sunny	6.4	0.9	Full	Sand	2x Video	Y	20	Y	20
6	437	07:02	01/09/2016	49.935254	-6.308611	F1 Calm	4.6	0.8	Full	Rock	2x Video	N	0	N	0
6	448	07:21	01/09/2016	49.935718	-6.303660	F1 Calm	2.7	-0.8	Full	Gravel	2x Video	N	0	Y	20
6	449	07:05	01/09/2016	49.936307	-6.308164	F1 Calm	6.1	2.3	Full	Sand	2x Video	Y	60	Y	25
6	452	07:25	01/09/2016	49.936241	-6.302526	F1 Calm	2.5	-0.9	Full	Cobbles	2x Video	N	0	N	0
6	455	07:29	01/09/2016	49.937339	-6.303174	F1 Calm	3.4	0.0	Full	Rock	2x Video	N	0	N	0
6	456	07:10	01/09/2016	49.937078	-6.307121	F1 Calm	5.4	1.7	Full	Rock	2x Video	N	0	N	0

6	459	07:32	01/09/2016	49.937926	-6.303575	F1 Calm	4.1	0.8	Full	Sand	2x Video	Y	15	N	0
6	460	08:02	01/09/2016	49.937893	-6.302120	F1 Calm	3.0	0.2	Full	Sand	2x Video	Y	100	N	0
6	461	08:05	01/09/2016	49.937983	-6.300849	F1 Calm	2.1	-0.6	Full	Sand	2x Video	Y	100	N	0
6	462	08:34	01/09/2016	49.937810	-6.297767	F1 Calm	1.6	-0.7	Full	Sand	2x Video	N	0	N	0
6	463	07:40	01/09/2016	49.938708	-6.305505	F1 Calm	4.4	1.2	Full	Rock	2x Video	N	0	N	0
6	464	07:43	01/09/2016	49.938731	-6.304252	F1 Calm	4.0	0.9	Full	Rock	2x Video	N	0	N	0
6	465	08:00	01/09/2016	49.938692	-6.302790	F1 Calm	3.8	1.0	Full	Rock	2x Video	N	0	Y	90
6	466	08:07	01/09/2016	49.938735	-6.301416	F1 Calm	4.2	1.5	Full	Sand	2x Video	Y	60	Y	40
6	467	08:24	01/09/2016	49.938598	-6.300048	F1 Calm	3.3	0.9	Full	Rock	2x Video	N	0	N	0
6	468	08:30	01/09/2016	49.938518	-6.298640	F1 Calm	3.0	0.7	Full	Sand	2x Video	Y	100	N	0
6	469	08:38	01/09/2016	49.938543	-6.297156	F1 Calm	3.2	1.0	Full	Sand	2x Video	Y	100	N	0
6	470	08:41	01/09/2016	49.938588	-6.295857	F1 Calm	5.5	3.4	Full	Sand	2x Video	N	0	N	0
6	471	07:48	01/09/2016	49.939499	-6.304947	F1 Calm	4.8	1.8	Full	Gravel	2x Video	N	0	N	0
6	472	07:54	01/09/2016	49.939356	-6.303422	F1 Calm	4.0	1.1	Full	Coarse Sand	2x Video	N	0	N	0
6	473	08:12	01/09/2016	49.939360	-6.302303	F1 Calm	4.0	1.4	Full	Gravel	2x Video	N	0	N	0
6	474	08:22	01/09/2016	49.939375	-6.300560	F1 Calm	4.0	1.5	Full	Rock	2x Video	N	0	N	0
6	475	08:27	01/09/2016	49.939437	-6.297892	F1 Calm	3.9	1.5	Full	Sand	2x Video	N	0	N	0
6	476	07:52	01/09/2016	49.940291	-6.304108	F1 Calm	4.6	1.6	Full	Coarse Sand	2x Video	N	0	Y	50
6	477	08:18	01/09/2016	49.940215	-6.302760	F1 Calm	4.3	1.8	Full	Gravel	2x Video	N	0	N	0
6	768	10:24	06/09/2016	49.934454	-6.310147	F1-2 Calm	6.1	2.8	Full	Cobbles	2x Video	N	0	N	0
6	769	10:26	06/09/2016	49.933974	-6.310617	F1-2 Calm	5.8	2.6	Full	Cobbles	2x Video	N	0	N	0
6	770	10:28	06/09/2016	49.935247	-6.310360	F1-2 Calm	6.8	3.6	Full	Gravel	2x Video	N	0	N	0
6	771	10:31	06/09/2016	49.935105	-6.309251	F1-2 Calm	5.5	2.3	Full	Cobbles	2x Video	N	0	N	0
6	772	10:33	06/09/2016	49.935741	-6.310513	F1-2 Calm	7.1	4.0	Full	Gravel	2x Video	N	0	N	0
6	773	10:34	06/09/2016	49.936263	-6.309104	F1-2 Calm	6.0	2.9	Full	Gravel	2x Video	N	0	N	0
6	774	10:39	06/09/2016	49.937272	-6.306252	F1-2 Calm	4.4	1.4	Full	Sand	2x Video	Y	100	N	0
6	775	10:41	06/09/2016	49.937633	-6.306659	F1-2 Calm	4.4	1.4	Full	Gravel	2x Video	N	0	N	0
6	776	10:42	06/09/2016	49.938034	-6.306931	F1-2 Calm	4.0	1.0	Full	Sand	2x Video	Y	100	N	0
6	777	10:44	06/09/2016	49.938423	-6.308032	F1-2 Calm	4.9	1.9	Full	Rock	2x Video	N	0	N	0
6	778	10:47	06/09/2016	49.938156	-6.306275	F1-2 Calm	4.3	1.4	Full	Sand	2x Video	Y	50	N	0
6	779	10:49	06/09/2016	49.938225	-6.304891	F1-2 Calm	3.9	1.0	Full	Sand	2x Video	Y	100	N	0
6	780	10:51	06/09/2016	49.937546	-6.304264	F1-2 Calm	3.5	0.6	Full	Sand	2x Video	Y	100	N	0
6	781	10:53	06/09/2016	49.937925	-6.302851	F1-2 Calm	2.8	0.0	Full	Gravel	2x Video	N	0	N	0

6	782	10:55	06/09/2016	49.938480	-6.302269	F1-2 Calm	3.6	0.8	Full	Gravel	2x Video	Y	50	N	0
6	783	10:57	06/09/2016	49.938958	-6.301234	F1-2 Calm	4.1	1.3	Full	Rock	2x Video	N	0	N	0
6	784	10:58	06/09/2016	49.938578	-6.300727	F1-2 Calm	4.0	1.3	Full	Rock	2x Video	N	0	N	0
6	785	11:00	06/09/2016	49.938483	-6.299524	F1-2 Calm	3.3	0.6	Full	Sand	2x Video	Y	85	Y	15
6	786	11:02	06/09/2016	49.938917	-6.298632	F1-2 Calm	3.9	1.2	Full	Gravel	2x Video	N	0	N	0
6	787	11:04	06/09/2016	49.938861	-6.297161	F1-2 Calm	4.1	1.4	Full	Rock	2x Video	N	0	N	0
6	788	11:06	06/09/2016	49.938772	-6.295686	F1-2 Calm	6.3	3.7	Full	Sand	2x Video	N	0	N	0
6	789	11:08	06/09/2016	49.938364	-6.295249	F1-2 Calm	7.1	4.5	Full	Gravel	2x Video	N	0	N	0
7	478	14:24	05/09/2016	49.916211	-6.316288	F1 Calm, Sunny	1.0	-0.5	Full	Sand	2x Video	N	0	N	0
7	479	14:19	05/09/2016	49.916326	-6.314521	F1 Calm, Sunny	1.4	0.0	Full	Sand	2x Video	N	0	N	0
7	480	14:13	05/09/2016	49.916355	-6.313043	F1 Calm, Sunny	0.7	-0.7	Full	Sand	1x Video, No GoPro	Y	10	N	0
7	481	13:05	05/09/2016	49.917241	-6.316385	F1 Calm, Sunny	0.5	-0.6	Full	Sand	2x Video	N	0	N	0
7	482	14:07	05/09/2016	49.917195	-6.315126	F1 Calm, Sunny	1.2	-0.1	Full	Sand	2x Video	Y	100	N	0
7	483	14:10	05/09/2016	49.917157	-6.313694	F1 Calm, Sunny	1.9	0.5	Full	Sand	2x Video	Y	100	N	0
7	484	13:02	05/09/2016	49.918015	-6.315780	F1 Calm, Sunny	1.6	0.5	Full	Sand	2x Video	Y	100	N	0
7	485	12:58	05/09/2016	49.917910	-6.314302	F1 Calm, Sunny	2.6	1.5	Full	Sand	2x Video	N	0	N	0
7	486	12:56	05/09/2016	49.917863	-6.313099	F1 Calm, Sunny	2.3	1.2	Full	Sand	2x Video	Y	40	N	0
7	487	12:53	05/09/2016	49.917815	-6.311577	F1 Calm, Sunny	2.2	1.1	Full	Sand	2x Video	Y	100	N	0
7	488	12:50	05/09/2016	49.917713	-6.310465	F1 Calm, Sunny	0.8	-0.3	Full	Sand	2x Video	Y	100	N	0
7	489	12:04	05/09/2016	49.919906	-6.310986	F1 Calm, Sunny	1.8	0.4	Full	Sand	2x Video	Y	100	N	0
7	490	12:22	05/09/2016	49.918718	-6.316380	F1 Calm, Sunny	4.1	2.8	Full	Rock	2x Video	N	0	N	0
7	491	12:28	05/09/2016	49.918732	-6.315027	F1 Calm, Sunny	4.9	3.7	Full	Sand	2x Video	N	0	N	0
7	492	12:33	05/09/2016	49.918572	-6.313634	F1 Calm, Sunny	3.4	2.2	Full	Sand	2x Video	N	0	N	0

7	493	12:45	05/09/2016	49.918322	-6.312368	F1 Calm, Sunny	2.8	1.7	Full	Sand	2x Video	N	0	N	0
7	494	12:47	05/09/2016	49.918306	-6.310858	F1 Calm, Sunny	1.9	0.8	Full	Sand	2x Video	N	0	N	0
7	495	12:19	05/09/2016	49.919496	-6.315726	F1 Calm, Sunny	5.3	4.0	Full	Sand	2x Video	N	0	N	0
7	496	12:16	05/09/2016	49.919576	-6.314361	F1 Calm, Sunny	4.1	2.8	Full	Sand	2x Video	Y	5	N	0
7	497	12:13	05/09/2016	49.919408	-6.312881	F1 Calm, Sunny	3.7	2.4	Full	Rock	2x Video	N	0	N	0
7	498	12:10	05/09/2016	49.919383	-6.311482	F1 Calm, Sunny	3.0	1.7	Full	Sand	2x Video	Y	20	N	0
7	499	12:07	05/09/2016	49.919393	-6.310115	F1 Calm, Sunny	1.9	0.5	Full	Sand	2x Video	Y	60	N	0
7	500	12:01	05/09/2016	49.920253	-6.313574	F1 Calm, Sunny	3.7	2.3	Full	Rock	2x Video	N	0	N	0
7	501	11:58	05/09/2016	49.921037	-6.314159	F1 Calm, Sunny	2.5	1.1	Full	Rock	2x Video	N	0	N	0
7	502	12:03	05/09/2016	49.920045	-6.312329	F1 Calm, Sunny	2.3	0.9	Full	Rock	2x Video	N	0	N	0
7	627	12:34	05/09/2016	49.918557	-6.313799	F1 Calm, Sunny	3.4	2.2	Full	Sand	2x Video	Y	100	N	0
7	628	13:08	05/09/2016	49.917413	-6.316562	F1 Calm, Sunny	0.6	-0.5	Full	Sand	2x Video	Y	100	N	0
7	629	14:35	05/09/2016	49.919679	-6.310585	F1 Calm, Sunny	2.3	0.7	Full	Sand	2x Video	Y	100	N	0
7	630	14:37	05/09/2016	49.919993	-6.311718	F1 Calm, Sunny	2.7	1.1	Full	Gravel	2x Video	N	0	N	0
7	631	14:40	05/09/2016	49.919314	-6.310830	F1 Calm, Sunny	3.3	1.6	Full	Sand	2x Video	Y	2	N	0
7	632	14:44	05/09/2016	49.919497	-6.312132	F1 Calm, Sunny	3.5	1.8	Full	Sand	2x Video	Y	100	N	0
7	633	14:46	05/09/2016	49.919819	-6.312040	F1 Calm, Sunny	3.0	1.2	Full	Rock	2x Video	N	0	N	0
7	634	14:48	05/09/2016	49.918884	-6.312259	F1 Calm, Sunny	3.6	1.8	Full	Sand	2x Video	Y	100	N	0
7	635	14:50	05/09/2016	49.918940	-6.311286	F1 Calm, Sunny	3.2	1.4	Full	Sand	2x Video	Y	100	N	0

7	636	14:52	05/09/2016	49.918071	-6.312218	F1 Calm, Sunny	3.3	1.5	Full	Sand	2x Video	N	0	N	0
7	637	14:54	05/09/2016	49.917601	-6.312126	F1 Calm, Sunny	2.7	0.8	Full	Sand	2x Video	Y	0	N	0
7	638	14:56	05/09/2016	49.917435	-6.313123	F1 Calm, Sunny	3.0	1.1	Full	Sand	2x Video	Y	100	N	0
7	639	14:58	05/09/2016	49.917583	-6.314027	F1 Calm, Sunny	3.0	1.1	Full	Sand	2x Video	N	100	N	0
7	640	14:59	05/09/2016	49.917113	-6.314402	F1 Calm, Sunny	1.9	0.0	Full	Sand	2x Video	Y	0	N	0
7	641	15:02	05/09/2016	49.916824	-6.313314	F1 Calm, Sunny	1.6	-0.4	Full	Sand	2x Video	Y	100	N	0
7	642	15:04	05/09/2016	49.916405	-6.313955	F1 Calm, Sunny	1.5	-0.5	Full	Sand	2x Video	N	100	N	0
7	643	15:06	05/09/2016	49.916716	-6.315047	F1 Calm, Sunny	1.8	-0.2	Full	Sand	2x Video	N	0	N	0
7	644	15:08	05/09/2016	49.916315	-6.315285	F1 Calm, Sunny	2.0	-0.1	Full	Sand	2x Video	N	0	N	0
7	645	15:09	05/09/2016	49.915993	-6.316070	F1 Calm, Sunny	1.6	-0.5	Full	Sand	2x Video	N	0	N	0
7	646	15:11	05/09/2016	49.916448	-6.316500	F1 Calm, Sunny	1.3	-0.8	Full	Sand	2x Video	Y	100	N	0
7	647	15:12	05/09/2016	49.916936	-6.316810	F1 Calm, Sunny	1.5	-0.6	Full	Sand	2x Video	N	0	N	0
7	648	15:14	05/09/2016	49.917151	-6.315964	F1 Calm, Sunny	1.3	-0.9	Full	Sand	2x Video	Y	100	N	0
7	649	15:16	05/09/2016	49.918322	-6.315370	F1 Calm, Sunny	3.4	1.2	Full	Sand	2x Video	N	0	N	0
7	650	15:18	05/09/2016	49.918498	-6.315995	F1 Calm, Sunny	3.4	1.2	Full	Gravel	2x Video	N	0	N	0
7	651	15:20	05/09/2016	49.918042	-6.316472	F1 Calm, Sunny	3.5	1.2	Full	Cobbles	2x Video	N	0	N	0
7	652	15:21	05/09/2016	49.917562	-6.316163	F1 Calm, Sunny	2.1	-0.2	Full	Sand	2x Video	N	0	N	0
7	653	15:23	05/09/2016	49.917941	-6.315239	F1 Calm, Sunny	3.4	1.1	Full	Sand	2x Video	Y	100	N	0
7	654	15:28	05/09/2016	49.918872	-6.314601	F1 Calm, Sunny	5.9	3.5	Full	Sand	2x Video	N	0	N	0

7	655	15:31	05/09/2016	49.919439	-6.315030	F1 Calm, Sunny	6.3	3.8	Full	Sand	2x Video	N	0	N	0
7	656	15:32	05/09/2016	49.919765	-6.313775	F1 Calm, Sunny	5.1	2.6	Full	Rock	2x Video	N	0	N	0
7	657	15:34	05/09/2016	49.919363	-6.313563	F1 Calm, Sunny	5.4	2.9	Full	Sand	2x Video	N	0	N	0
7	658	15:36	05/09/2016	49.918848	-6.313095	F1 Calm, Sunny	4.2	1.7	Full	Gravel	2x Video	Y	1	N	0
7	659	15:37	05/09/2016	49.918873	-6.312601	F1 Calm, Sunny	4.0	1.4	Full	Sand	2x Video	Y	100	N	0
7	660	15:43	05/09/2016	49.918133	-6.311472	F1 Calm, Sunny	3.5	0.8	Full	Sand	2x Video	Y	100	N	0
7	661	15:46	05/09/2016	49.918268	-6.313588	F1 Calm, Sunny	4.7	2.0	Full	Sand	2x Video	Y	100	N	0
8	503	16:57	05/09/2016	49.942972	-6.356651	F2 Calm, Foggy	4.8	0.7	Full	Rock	2x Video	N	0	N	0
8	504	17:01	05/09/2016	49.943038	-6.355443	F2 Calm, Foggy	7.8	3.7	Full	Sand	2x Video	N	0	N	0
8	505	16:55	05/09/2016	49.943850	-6.356230	F2 Calm, Foggy	4.2	0.2	Full	Sand	2x Video	Y	100	N	0
8	506	16:52	05/09/2016	49.943790	-6.354710	F2 Calm, Foggy	5.6	1.6	Full	Rock	2x Video	N	0	N	0
8	507	16:47	05/09/2016	49.943794	-6.353298	F2 Calm, Foggy	5.4	1.5	Full	Rock	2x Video	Y	2	N	0
8	508	16:43	05/09/2016	49.943762	-6.351756	F2 Calm, Foggy	5.9	2.1	Full	Gravel	2x Video	N	0	N	0
8	509	16:49	05/09/2016	49.944555	-6.353967	F2 Calm, Foggy	3.0	-0.9	Full	Sand	2x Video	N	0	N	0
8	510	16:39	05/09/2016	49.944507	-6.351281	F2 Calm, Foggy	4.3	0.6	Full	Rock	2x Video	N	0	N	0
8	662	17:04	05/09/2016	49.943454	-6.356057	F2 Calm, Foggy	5.7	1.5	Full	Sand	2x Video	Y	100	N	0
8	663	17:06	05/09/2016	49.942990	-6.355914	F2 Calm, Foggy	7.7	3.5	Full	Rock	2x Video	N	0	N	0
8	664	17:07	05/09/2016	49.943577	-6.355367	F2 Calm, Foggy	5.8	1.6	Full	Rock	2x Video	N	0	N	0
8	665	17:09	05/09/2016	49.944106	-6.355866	F2 Calm, Foggy	3.5	-0.8	Full	Rock	2x Video	N	0	N	0

8	666	17:10	05/09/2016	49.944201	-6.356446	F2 Calm, Foggy	4.4	0.1	Full	Gravel	2x Video	N	0	N	0
8	667	17:12	05/09/2016	49.943639	-6.356486	F2 Calm, Foggy	5.9	1.6	Full	Gravel	2x Video	N	0	N	0
8	668	17:13	05/09/2016	49.943214	-6.356942	F2 Calm, Foggy	2.0	-2.3	Full	Rock	2x Video	N	0	N	0
8	669	17:17	05/09/2016	49.943890	-6.353032	F2 Calm, Foggy	6.0	1.6	Full	Rock	2x Video	N	0	N	0
9	511	10:19	08/09/2016	49.975235	-6.292909	F5 Rough, Sunny	4.4	0.3	Full	Rock	2x Video	N	0	N	0
9	512	10:12	08/09/2016	49.975866	-6.293720	F5 Rough, Sunny	4.7	0.5	Full	Gravel	2x Video	Y	10	N	0
9	513	10:16	08/09/2016	49.975866	-6.292261	F5 Rough, Sunny	4.1	0.0	Full	Rock	2x Video	N	0	N	0
9	514	10:09	08/09/2016	49.976694	-6.294290	F5 Rough, Sunny	4.4	0.2	Full	Gravel	2x Video	N	0	N	0
9	515	10:07	08/09/2016	49.976652	-6.292892	F5 Rough, Sunny	4.2	0.0	Full	Gravel	2x Video	N	0	N	0
9	516	10:04	08/09/2016	49.977470	-6.293567	F5 Rough, Sunny	3.4	-0.8	Full	Rock	2x Video	N	0	N	0
9	517	09:55	08/09/2016	49.977307	-6.292343	F5 Rough, Sunny	3.7	-0.6	Full	Sand	2x Video	N	0	N	0
9	e1	10:20	08/09/2016	49.975764	-6.293647	F5 Rough, Sunny	4.1	0.0	Full	Rock	2x Video	N	0	N	0
9	e2	10:22	08/09/2016	49.975870	-6.293104	F5 Rough, Sunny	4.6	0.5	Full	Gravel	2x Video	N	0	N	0
9	e3	10:23	08/09/2016	49.976173	-6.293657	F5 Rough, Sunny	4.4	0.3	Full	Rock	2x Video	N	0	N	0
9	e4	10:25	08/09/2016	49.975745	-6.294118	F5 Rough, Sunny	4.6	0.6	Full	Rock	2x Video	N	0	N	0
10	518	07:22	08/09/2016	49.964259	-6.317679	F4-5 Choppy, Sunny	4.3	-0.1	Full	Rock	2x Video	N	0	N	0
10	519	07:23	08/09/2016	49.963763	-6.316620	F4-5 Choppy, Sunny	5.3	0.9	Full	Rock	2x Video	N	0	N	0
10	520	07:25	08/09/2016	49.963874	-6.315369	F4-5 Choppy, Sunny	5.0	0.6	Full	Rock	2x Video	N	0	N	0

10	521	08:47	08/09/2016	49.964052	-6.310471	F4-5 Choppy, Sunny	5.5	0.8	Full	Gravelly Sand	2x Video	N	0	N	0
10	522	08:43	08/09/2016	49.963814	-6.309563	F4-5 Choppy, Sunny	4.2	-0.5	Full	Gravel	2x Video	N	0	N	0
10	523	08:40	08/09/2016	49.963548	-6.307496	F4-5 Choppy, Sunny	5.1	0.4	Full	Sand	2x Video	Y	45	N	0
10	524	07:28	08/09/2016	49.964502	-6.316118	F4-5 Choppy, Sunny	4.6	0.2	Full	Rock	2x Video	N	0	N	0
10	525	07:25	08/09/2016	49.964434	-6.315291	F4-5 Choppy, Sunny	4.1	-0.3	Full	Rock	2x Video	N	0	N	0
10	526	07:35	08/09/2016	49.964620	-6.314622	F4-5 Choppy, Sunny	4.1	-0.4	Full	Rock	2x Video	N	0	N	0
10	527	08:53	08/09/2016	49.964307	-6.312290	F4-5 Choppy, Sunny	5.3	0.7	Full	Gravel	2x Video	N	0	N	0
10	528	08:36	08/09/2016	49.964639	-6.306810	F4-5 Choppy, Sunny	6.6	1.9	Full	Gravel	2x Video	N	0	N	0
10	529	08:33	08/09/2016	49.965964	-6.307041	F4-5 Choppy, Sunny	7.3	2.6	Full	Rock	2x Video	N	0	N	0
10	530	07:37	08/09/2016	49.966081	-6.312614	F4-5 Choppy, Sunny	3.6	-0.9	Full	Rock	2x Video	N	0	N	0
10	531	07:48	08/09/2016	49.967345	-6.319679	F4-5 Choppy, Sunny	5.4	0.9	Full	Sand	2x Video	Y	95	Y	5
10	532	07:43	08/09/2016	49.967038	-6.319252	F4-5 Choppy, Sunny	4.1	-0.4	Full	Sand	2x Video	Y	100	N	0
10	533	07:51	08/09/2016	49.967880	-6.319926	F4-5 Choppy, Sunny	4.6	0.1	Full	Gravel	2x Video	N	0	N	0

10	534	08:29	08/09/2016	49.967852	-6.308603	F4-5 Choppy, Sunny	5.5	0.8	Full	Gravel	2x Video	N	0	N	0
10	535	07:53	08/09/2016	49.968453	-6.319291	F4-5 Choppy, Sunny	7.6	3.0	Full	Rock	2x Video	N	0	Y	20
10	536	08:09	08/09/2016	49.970228	-6.317522	F4-5 Choppy, Sunny	6.9	2.3	Full	Rock	2x Video	N	0	N	0
10	537	08:12	08/09/2016	49.969932	-6.317212	F4-5 Choppy, Sunny	5.2	0.6	Full	Rock	2x Video	N	0	N	0
10	e1	07:58	08/09/2016	49.967471	-6.319722	F4-5 Choppy, Sunny	5.1	0.5	Full	Sand	2x Video	Y	90	N	0
10	e2	07:59	08/09/2016	49.967345	-6.319586	F4-5 Choppy, Sunny	4.2	-0.4	Full	Sand	2x Video	Y	20	N	0
10	e3	08:01	08/09/2016	49.967101	-6.320160	F4-5 Choppy, Sunny	6.0	1.4	Full	Gravelly Sand	2x Video	N	0	Y	25
10	e4	08:05	08/09/2016	49.967023	-6.318892	F4-5 Choppy, Sunny	3.8	-0.8	Full	Gravel	2x Video	N	0	N	0
10	e5	08:57	08/09/2016	49.963339	-6.308256	F4-5 Choppy, Sunny	5.9	1.3	Full	Gravel	2x Video	N	0	N	0
10	e6	08:59	08/09/2016	49.963524	-6.306890	F4-5 Choppy, Sunny	5.8	1.2	Full	Gravelly Sand	2x Video	Y	15	N	0
10	e7	09:01	08/09/2016	49.963175	-6.307613	F4-5 Choppy, Sunny	5.7	1.1	Full	Gravel	2x Video	N	0	N	0
10	e8	09:04	08/09/2016	49.963716	-6.307605	F4-5 Choppy, Sunny	5.2	0.6	Full	Gravelly Sand	2x Video	Y	20	N	0
11	538	07:23	09/09/2016	49.933687	-6.350157	F4 Choppy, Overcast	2.4	-1.4	Full	Rock	2x Video	N	0	N	0

11	539	07:25	09/09/2016	49.933711	-6.348928	F4 Choppy, Overcast	2.9	-0.9	Full	Gravel	2x Video	N	0	N	0
11	540	07:18	09/09/2016	49.934433	-6.350598	F4 Choppy, Overcast	1.4	-2.3	Full	Rock	2x Video	N	0	N	0
11	541	07:21	09/09/2016	49.934171	-6.349839	F4 Choppy, Overcast	2.2	-1.6	Full	Rock	2x Video	N	0	N	0
11	542	07:15	09/09/2016	49.935010	-6.350270	F4 Choppy, Overcast	1.1	-2.6	Full	Rock	2x Video	N	0	N	0
12	543	08:52	07/09/2016	49.945269	-6.317732	F4-5 Choppy, Sunny	4.4	-0.3	Full	Sand	2x Video	N	0	N	0
12	544	08:57	07/09/2016	49.945268	-6.316381	F4-5 Choppy, Sunny	4.0	-0.7	Full	Sand	2x Video	N	0	N	0
12	545	09:00	07/09/2016	49.945184	-6.315019	F4-5 Choppy, Sunny	4.8	0.1	Full	Sand	2x Video	N	0	N	0
12	546	09:36	07/09/2016	49.945143	-6.313586	F4-5 Choppy, Sunny	4.8	0.5	Full	Sand	2x Video	N	0	N	0
12	547	09:39	07/09/2016	49.945112	-6.312162	F4-5 Choppy, Sunny	5.1	0.8	Full	Sand	2x Video	N	0	N	0
12	548	13:42	07/09/2016	49.945088	-6.310807	F2-3, Sunny	2.3	0.6	Full	Rock	2x Video	N	0	N	0
12	549	08:02	07/09/2016	49.946060	-6.319839	F4-5 Choppy, Sunny	3.5	-1.4	Full	Sand	1x Video, No GoPro	N	0	N	0
12	550	08:50	07/09/2016	49.946070	-6.318374	F4-5 Choppy, Sunny	4.0	-0.7	Full	Sand	2x Video	N	0	N	0
12	551	09:04	07/09/2016	49.946011	-6.316962	F4-5 Choppy, Sunny	4.3	-0.3	Full	Sand	2x Video	N	0	N	0

12	552	09:11	07/09/2016	49.946006	-6.315571	F4-5 Choppy, Sunny	4.9	0.3	Full	Sand	2x Video	N	0	N	0
12	553	09:35	07/09/2016	49.945964	-6.314207	F4-5 Choppy, Sunny	4.9	0.6	Full	Sand	2x Video	N	0	Y	75
12	554	09:42	07/09/2016	49.945898	-6.312823	F4-5 Choppy, Sunny	5.2	0.9	Full	Gravelly Sand	2x Video	N	0	N	0
12	555	13:44	07/09/2016	49.945958	-6.311501	F2-3, Sunny	2.5	0.8	Full	Sand	2x Video	N	0	N	0
12	556	13:53	07/09/2016	49.945908	-6.310016	F2-3, Sunny	2.8	1.2	Full	Gravel	2x Video	N	0	N	0
12	557	09:06	07/09/2016	49.946802	-6.317634	F4-5 Choppy, Sunny	4.2	-0.4	Full	Rock	2x Video	N	0	N	0
12	558	09:13	07/09/2016	49.946778	-6.316254	F4-5 Choppy, Sunny	4.8	0.2	Full	Gravelly Sand	2x Video	N	0	N	0
12	559	09:31	07/09/2016	49.946733	-6.314931	F4-5 Choppy, Sunny	2.8	-1.6	Full	Sand	2x Video	N	0	N	0
12	560	09:45	07/09/2016	49.946687	-6.313497	F4-5 Choppy, Sunny	5.0	0.8	Full	Sand	2x Video	N	0	Y	20
12	561	13:50	07/09/2016	49.946754	-6.312273	F2-3, Sunny	3.2	1.6	Full	Sand	2x Video	N	0	N	0
12	562	13:55	07/09/2016	49.946657	-6.309311	F2-3, Sunny	2.8	1.2	Full	Sand	2x Video	N	0	Y	40
12	563	08:04	07/09/2016	49.947627	-6.319759	F4-5 Choppy, Sunny	3.9	-1.0	Full	Gravel	1x Video, No GoPro	N	0	N	0
12	564	08:46	07/09/2016	49.947590	-6.318393	F4-5 Choppy, Sunny	4.4	-0.4	Full	Coarse Sand	2x Video	N	0	N	0
12	565	09:15	07/09/2016	49.947585	-6.316960	F4-5 Choppy, Sunny	3.5	-1.0	Full	Rock	2x Video	N	0	N	0

12	566	09:28	07/09/2016	49.947546	-6.315525	F4-5 Choppy, Sunny	4.4	0.0	Full	Coarse Sand	2x Video	N	0	N	0
12	567	09:48	07/09/2016	49.947508	-6.314126	F4-5 Choppy, Sunny	4.4	0.2	Full	Sand	2x Video	N	0	N	0
12	568	10:25	07/09/2016	49.947453	-6.312709	F4-5 Choppy, Sunny	4.4	0.7	Full	Sand	2x Video	N	0	N	0
12	569	13:58	07/09/2016	49.947410	-6.308625	F2-3, Sunny	2.4	0.8	Full	Gravelly Sand	2x Video	N	0	N	0
12	570	08:08	07/09/2016	49.948457	-6.320375	F4-5 Choppy, Sunny	3.9	-1.0	Full	Gravelly Sand	1x Video, No GoPro	N	0	N	0
12	571	08:40	07/09/2016	49.948344	-6.318966	F4-5 Choppy, Sunny	3.8	-1.0	Full	Cobbles	2x Video	N	0	N	0
12	572	09:24	07/09/2016	49.948259	-6.316161	F4-5 Choppy, Sunny	1.9	-2.5	Full	Rock	2x Video	N	0	N	0
12	573	09:51	07/09/2016	49.948292	-6.314772	F4-5 Choppy, Sunny	4.2	0.1	Full	Coarse Sand	2x Video	N	0	N	0
12	574	10:01	07/09/2016	49.948275	-6.313434	F4-5 Choppy, Sunny	4.1	0.1	Full	Sand	2x Video	N	0	N	0
12	575	14:27	07/09/2016	49.948283	-6.311979	F2-3, Sunny	1.7	0.1	Full	Sand	2x Video	N	0	N	0
12	576	14:17	07/09/2016	49.948175	-6.309258	F2-3, Sunny	1.8	0.2	Full	Sand	2x Video	N	0	N	0
12	577	08:38	07/09/2016	49.949234	-6.319602	F4-5 Choppy, Sunny	3.5	-1.3	Full	Coarse Sand	2x Video	N	0	N	0
12	578	08:43	07/09/2016	49.949187	-6.318237	F4-5 Choppy, Sunny	3.1	-1.7	Full	Sand	2x Video	N	0	N	0
12	579	09:19	07/09/2016	49.949125	-6.316867	F4-5 Choppy, Sunny	3.4	-1.1	Full	Sand	2x Video	N	0	N	0

12	580	09:55	07/09/2016	49.949113	-6.315391	F4-5 Choppy, Sunny	3.6	-0.5	Full	Coarse Sand	2x Video	N	0	Y	25
12	581	09:57	07/09/2016	49.949083	-6.314028	F4-5 Choppy, Sunny	3.7	-0.4	Full	Sand	2x Video	N	0	N	0
12	582	14:24	07/09/2016	49.949007	-6.311270	F2-3, Sunny	1.4	-0.2	Full	Sand	2x Video	N	0	N	0
12	583	14:19	07/09/2016	49.949027	-6.309926	F2-3, Sunny	2.1	0.5	Full	Sand	2x Video	N	0	N	0
12	584	16:35	07/09/2016	49.948914	-6.307209	F2-3, Sunny	2.6	0.1	Full	Gravel	2x Video	N	0	N	0
12	585	08:11	07/09/2016	49.949997	-6.320272	F4-5 Choppy, Sunny	3.8	-1.1	Full	Gravelly Sand	1x Video, No GoPro	N	0	N	0
12	586	08:35	07/09/2016	49.949956	-6.318960	F4-5 Choppy, Sunny	3.8	-1.0	Full	Coarse Sand	2x Video	N	0	N	0
12	587	14:34	07/09/2016	49.949845	-6.313332	F2-3, Sunny	1.8	0.2	Full	Sand	2x Video	N	0	N	0
12	588	14:30	07/09/2016	49.949820	-6.311863	F2-3, Sunny	2.4	0.8	Full	Sand	2x Video	N	0	N	0
12	589	14:22	07/09/2016	49.949821	-6.310542	F2-3, Sunny	2.7	1.1	Full	Sand	2x Video	N	0	N	0
12	590	15:32	07/09/2016	49.949698	-6.307747	F2-3, Sunny	2.9	1.0	Full	Sand	2x Video	N	0	N	0
12	591	15:38	07/09/2016	49.949704	-6.306363	F2-3, Sunny	2.1	0.2	Full	Sand	2x Video	N	0	N	0
12	592	08:16	07/09/2016	49.950782	-6.319495	F4-5 Choppy, Sunny	3.7	-1.2	Full	Coarse Sand	1x Video, No GoPro	N	0	N	0
12	593	08:32	07/09/2016	49.950731	-6.318090	F4-5 Choppy, Sunny	4.2	-0.6	Full	Sand	2x Video	N	0	N	0
12	594	14:31	07/09/2016	49.950606	-6.312593	F2-3, Sunny	2.6	1.0	Full	Sand	2x Video	N	0	N	0
12	595	15:01	07/09/2016	49.950566	-6.311132	F2-3, Sunny	2.5	0.8	Full	Sand	2x Video	N	0	N	0

12	596	15:29	07/09/2016	49.950487	-6.307034	F2-3, Sunny	2.8	1.0	Full	Sand	2x Video	N	0	N	0
12	597	15:41	07/09/2016	49.950465	-6.305568	F2-3, Sunny	2.7	0.8	Full	Sand	2x Video	N	0	N	0
12	598	08:18	07/09/2016	49.951542	-6.318769	F4-5 Choppy, Sunny	4.4	-0.5	Full	Coarse Sand	2x Video	N	0	N	0
12	599	14:44	07/09/2016	49.951459	-6.314656	F2-3, Sunny	1.9	0.3	Full	Gravel	2x Video	N	0	N	0
12	600	14:37	07/09/2016	49.951399	-6.313149	F2-3, Sunny	2.3	0.7	Full	Coarse Sand	2x Video	N	0	N	0
12	601	14:59	07/09/2016	49.951396	-6.311842	F2-3, Sunny	3.4	1.7	Full	Sand	2x Video	N	0	N	0
12	602	15:16	07/09/2016	49.951315	-6.309037	F2-3, Sunny	2.5	0.7	Full	Sand	2x Video	N	0	N	0
12	603	08:21	07/09/2016	49.952263	-6.318042	F4-5 Choppy, Sunny	4.3	-0.6	Full	Coarse Sand	2x Video	N	0	N	0
12	604	08:29	07/09/2016	49.952208	-6.316632	F4-5 Choppy, Sunny	4.4	-0.5	Full	Coarse Sand	2x Video	N	0	N	0
12	605	14:46	07/09/2016	49.952263	-6.315209	F2-3, Sunny	1.5	-0.1	Full	Gravel	2x Video	N	0	N	0
12	606	14:48	07/09/2016	49.952204	-6.313909	F2-3, Sunny	2.1	0.5	Full	Gravel	2x Video	N	0	N	0
12	607	14:57	07/09/2016	49.952091	-6.312441	F2-3, Sunny	2.4	0.7	Full	Coarse Sand	2x Video	N	0	N	0
12	608	15:13	07/09/2016	49.952108	-6.309660	F2-3, Sunny	2.6	0.9	Full	Coarse Sand	2x Video	N	0	N	0
12	609	15:18	07/09/2016	49.952101	-6.308234	F2-3, Sunny	2.9	1.1	Full	Sand	2x Video	N	0	N	0
12	610	08:23	07/09/2016	49.953007	-6.317237	F4-5 Choppy, Sunny	4.9	0.0	Full	Sand	2x Video	N	0	N	0
12	611	08:28	07/09/2016	49.952992	-6.315862	F4-5 Choppy, Sunny	4.8	-0.1	Full	Sand	2x Video	N	0	N	0
12	612	14:50	07/09/2016	49.953019	-6.314563	F2-3, Sunny	2.2	0.6	Full	Gravel	2x Video	N	0	N	0

12	613	14:53	07/09/2016	49.952979	-6.313139	F2-3, Sunny	1.8	0.1	Full	Coarse Sand	2x Video	N	0	N	0
12	614	15:05	07/09/2016	49.952889	-6.311728	F2-3, Sunny	2.0	0.3	Full	Sand	2x Video	N	0	N	0
12	615	15:09	07/09/2016	49.952901	-6.310412	F2-3, Sunny	2.4	0.7	Full	Sand	2x Video	N	0	N	0
12	616	15:20	07/09/2016	49.952913	-6.308980	F2-3, Sunny	2.3	0.5	Full	Sand	2x Video	N	0	N	0
12	617	15:07	07/09/2016	49.953656	-6.311023	F2-3, Sunny	2.1	0.4	Full	Coarse Sand	2x Video	N	0	N	0
12	618	15:24	07/09/2016	49.953663	-6.309581	F2-3, Sunny	2.4	0.6	Full	Sand	2x Video	N	0	N	0
12	832	14:08	07/09/2016	49.947746	-6.309036	F2-3, Sunny	2.1	0.5	Full	Sand	2x Video	Y	70	N	0
12	833	14:11	07/09/2016	49.947375	-6.308989	F2-3, Sunny	1.9	0.3	Full	Rock	2x Video	N	0	N	0

Appendix 5. Seagrass bed size breakdown for the Isles of Scilly SAC seagrass survey 2016

Area	Site	Area (km^2)	Area (Ha)	Perimeter (m)
1	Broad Ledges, Tresco	0.00	0.08	111.28
1	Broad Ledges, Tresco	0.00	0.08	118.40
1	Broad Ledges, Tresco	0.00	0.21	169.70
1	Broad Ledges, Tresco	0.00	0.38	253.31
1	Broad Ledges, Tresco	0.01	0.81	324.82
1	Broad Ledges, Tresco	0.03	3.01	776.48
1	Broad Ledges, Tresco	0.30	30.22	4349.76
2	Old Grimsby Harbour	0.00	0.13	147.27
2	Old Grimsby Harbour	0.00	0.16	119.71
3	West Broad Ledges	0.00	0.06	105.91
3	West Broad Ledges	0.00	0.35	257.75
3	West Broad Ledges	0.09	9.48	2402.42
4	Higher Town Bay	0.00	0.03	77.70
4	Higher Town Bay	0.00	0.10	124.60
4	Higher Town Bay	0.00	0.19	180.02
4	Higher Town Bay	0.00	0.20	157.06
4	Higher Town Bay	0.01	0.76	346.73
4	Higher Town Bay	0.01	1.28	681.94
4	Higher Town Bay	0.02	1.52	589.13
4	Higher Town Bay	0.06	6.07	2327.50
4	Higher Town Bay	0.08	8.15	2087.67
5	Little Arthur	0.00	0.04	81.12
5	Little Arthur	0.00	0.46	319.81
5	Little Arthur	0.04	4.25	1013.82
5	Little Arthur	0.44	44.33	4610.59
6	Bar Point	0.00	0.20	157.06
6	Bar Point	0.13	12.57	2613.41
7	St Mary's Harbour	0.00	0.02	48.71
7	St Mary's Harbour	0.00	0.05	96.69
7	St Mary's Harbour	0.00	0.06	103.00
7	St Mary's Harbour	0.00	0.28	241.75
7	St Mary's Harbour	0.01	0.84	11.12
7	St Mary's Harbour	0.08	7.64	1629.92
8	Rushy Bay (Bryher)	0.00	0.05	84.75
8	Rushy Bay (Bryher)	0.00	0.20	221.74
9	St Martin's North	0.00	0.05	92.90
10	Tean	0.00	0.06	91.56
10	Tean	0.00	0.13	147.55
10	Tean	0.00	0.25	239.50
12	Tresco East	0.00	0.04	80.55