

Torbay MCZ Seagrass Survey 2017



**Stephanie Davies
Environment Officer
Devon and Severn Inshore Fisheries and Conservation
Authority**

**Research Report
December 2017**



Contents

Contents	2
Introduction	3
Methodology	3
Results.....	4
Overall.....	4
Hope’s Nose.....	6
Thatchers	7
Millstones	8
Torre Abbey.....	9
Paignton	11
Broadsands to Elberry	12
Fishcombe.....	13
Breakwater to Shoalstone.....	14
Mobile Fishing Permit Byelaw.....	15
Discussion	17
Acknowledgements.....	18
References	18
Annex 1 – Mobile Fishing Byelaw (At Sea) Flexible Permit Conditions Annexes (July 2017)	19

Version Control History			
Author	Date	Comment	Version
Stephanie Davies	08/12/2017	Final version	1

Introduction

Torbay Marine Conservation Zone (MCZ) is an inshore site located in the south west of the UK. The site covers an area of coastline in South Devon between Oddicombe Beach and Sharkham Point, covering an area of 19.8 km² or 1980ha. At the coastline, the boundary extends 1km to 2.5km out to sea and encompasses Hope's Nose near Torquay and Berry Head near Brixham. Torbay was designated as a Tranche 1 MCZ on 12th December 2013. Ten habitats and two species were designated as features of this MCZ, including seagrass beds and long snouted seahorse. The Conservation Objective for seagrass beds is to "recover to favourable condition".

From the Conservation Advice for the site the following information has been highlighted "Vulnerability assessment work prior to site designation indicated that bottom trawling (specifically from cuttlefish fishing and scalloping) and recreational anchoring occurred within the site and could damage the seagrass beds (Natural England, 2017). Consequently, the General Management Approach (GMA) for this feature was set as 'recover'. On 1st January 2014, Devon and Severn IFCA introduced a byelaw stopping the use of mobile gear within or close to the seagrass beds. However, recreational anchoring may still be occurring and resulting in damage. This could cause fragmentation of the habitat. As damage may have occurred and continues to occur, a recover target is deemed appropriate."

Devon and Severn IFCA implemented no access areas in Torbay for demersal mobile gear vessels (see Annex 1). In order to ensure that the management in place, through the D&S IFCA Mobile Fishing Permit Byelaw, is appropriate to protect the seagrass beds, all known seagrass beds within Torbay are surveyed biennially.

Objectives:

- Gain a greater understanding of the distribution, spatial extent and condition of seagrass beds throughout the Torbay MCZ.
- GIS mapping on the extent and locations of seagrass beds in Torbay, with the production of charts showing these areas.
- Gather information on the condition and density of the beds
- Inform the management of demersal fishing gear through the D&S IFCA Mobile Fishing Permit Byelaw to ensure the designated beds within the MCZ are fully protected from the possible impacts of towed fishing gear.
- Inform future management of other fishing activities that currently take place within the MCZ.

Methodology

A Bowtech Dive-Cam underwater camera, with integrated LED lamp was towed from the vessel. The camera was housed in a cradle to help weigh it down and fly smoothly through the water column. An umbilical cable ran back from the camera to a surface monitor on board, to allow the footage to be viewed in real time. It was also recorded for future analysis. Transects were carried out across known seagrass beds within the Torbay area. Each transect was approximately 50m apart, and followed the natural path in which the vessel drifted according to the tide and wind. This was done to ensure the vessel would be travelling slow enough to get a clear image.

Along each transect data was recorded either every minute or whenever the substrate or habitat changed, whichever came first. All information was recorded on a standard survey form (Annex 1). Transects continued until the edge of the seagrass bed was found.

The data was then plotted using MapInfo Pro 16.0 GIS software to show the route of each transect, the density of seagrass along each transect, and the extent of each bed. Density

was created using thematic maps with custom ranges from 0-4. Buffers were added to each bed using 50m radius and spherical buffer width distance.

Results

Overall

The area (ha) for seagrass beds, from 2012, 2014 and 2017 in Torbay can be seen in Table 1. A total area of 116 ha of seagrass beds was recorded in Torbay in 2017. This was a 10% increase from the survey in 2014. Breakwater to Shoalstone seagrass bed saw the largest percentage change in extent, whereas Broadsands to Elberry saw the largest change in bed area.

Table 1 – Comparison of seagrass bed areas and change in extent between 2012 and 2017.

Seagrass Bed	2012 Area (ha)	2014 Area (ha)	2017 Area (ha)	Change in bed extent (ha)	%age change in bed extent (%)	2017 Buffer Area (ha)
Hope's Nose	3.721	2.261	2.193	-0.06761	-3%	6.964
Thatchers Rock	0.569	0.042	0.157	0.11467	273%	2.571
Millstones	4.190	2.666	2.502	-0.164	-6%	7.074
Torre Abbey Sands	90.780	72.020	72.730	0.71	1%	104.100
Broadsands to Elberry	44.370	27.897	35.980	8.0834	29%	55.620
Fishcombe	1.462	0.185	0.253	0.0682	37%	1.938
Breakwater to Shoalstone	5.434	0.040	0.500	0.46057	1157%	4.111
Paignton	-	-	1.657	-	-	5.672
Total	150.526	105.110	115.972	9.20523	10%	188.050

Hope's Nose

Surveys of the seagrass near Hope's Nose were carried out on 19th and 20th September 2017. The density and extent can be seen in Figure 1. Two data points from the Community Seagrass Initiative (CSI), taken on 19th August 2017, have been included on the map which shows a new area of seagrass just off Hope's Nose.

Thatchers

The survey for the seagrass near Thatchers was carried out on 18th September 2017. The density and extent can be seen in Figure 3.

Millstones

The seagrass survey for Millstones was carried out on 18th September 2017. The density and extent can be seen in Figure 5.

Torre Abbey

The seagrass surveys for Torre Abbey were carried out 16th, 22nd and 23rd August and 18th and 19th September 2017. The density and extent can be seen in Figure 7. Intertidal

seagrass data from the CSI, recorded on 27th April 2017, is also mapped to extend the bed extent to where the survey vessel cannot access.

Paignton

Seagrass surveys for Paignton were undertaken on 19th September 2017. The density and extent can be seen in Figure 9. This was the first year of records for seagrass in this area, after information was received about the location from the CSI. Data has been included from CSI divers from 12th July and 13th August 2017. The seagrass in Paignton is patchy and this patchiness may extend up to the Torre Abbey seagrass bed (Figure 7) and also down to the Broadsands seagrass bed (Figure 12).

Broadsands to Elberry

Seagrass bed surveys for Boardsands and Elberry were carried out in 2016 and 2017. These surveys were undertaken on 13th, 14th and 15th September 2016, plus 11th, 14th and 16th August and 19th September 2017. The density and extent can be seen in Figure 12. Seagrass density was highest near Elberry Cove.

Fishcombe

The seagrass survey for Fishcombe was carried out on 21st October 2016 and 14th August 2017. The density and extent can be seen in Figure 14.

Breakwater to Shoalstone

Seagrass beds near Brixham Breakwater were surveyed on 7th and 20th September 2017. The density and extent can be seen in Figure 16. Data has been included from CSI divers recorded on 21st June 2017.

St Mary's

The seagrass bed near St Mary's was not surveyed this year. This was due to limited survey window and bad weather.

Hope's Nose

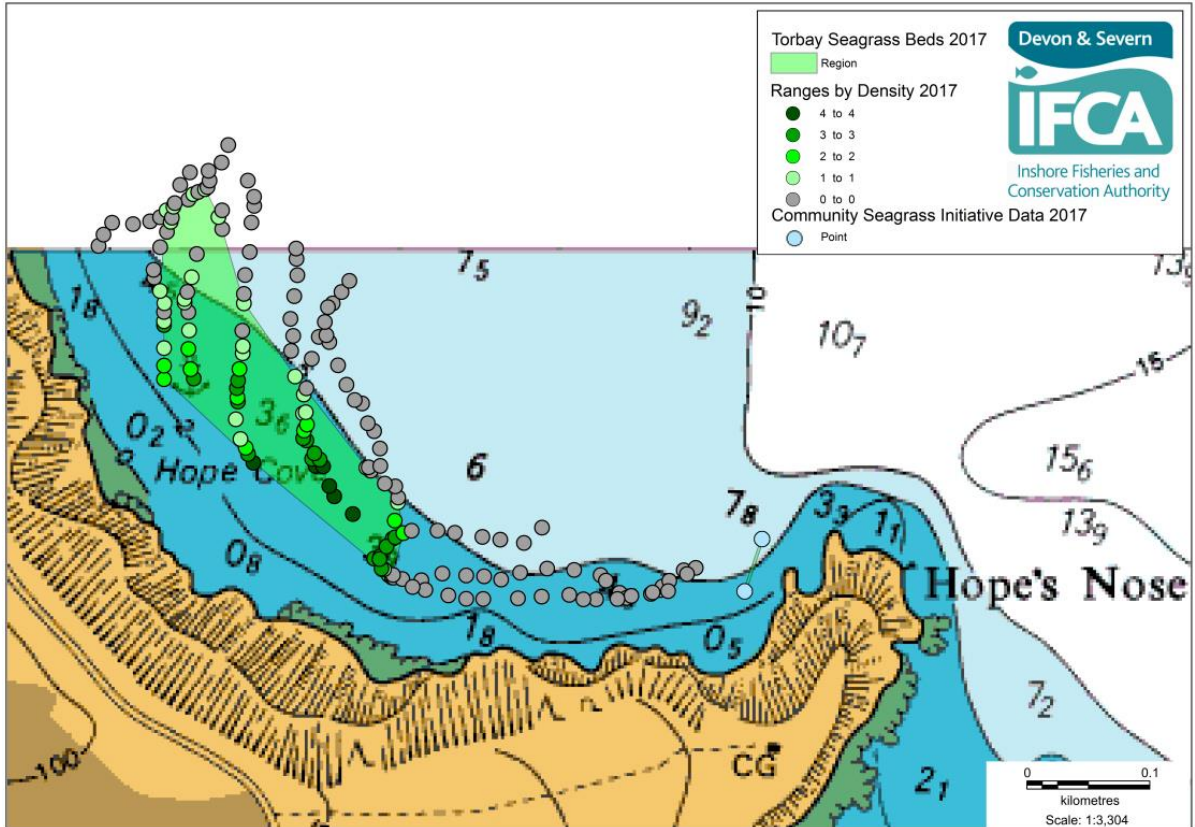


Figure 1 – Hope's Nose seagrass extent and density 2017.

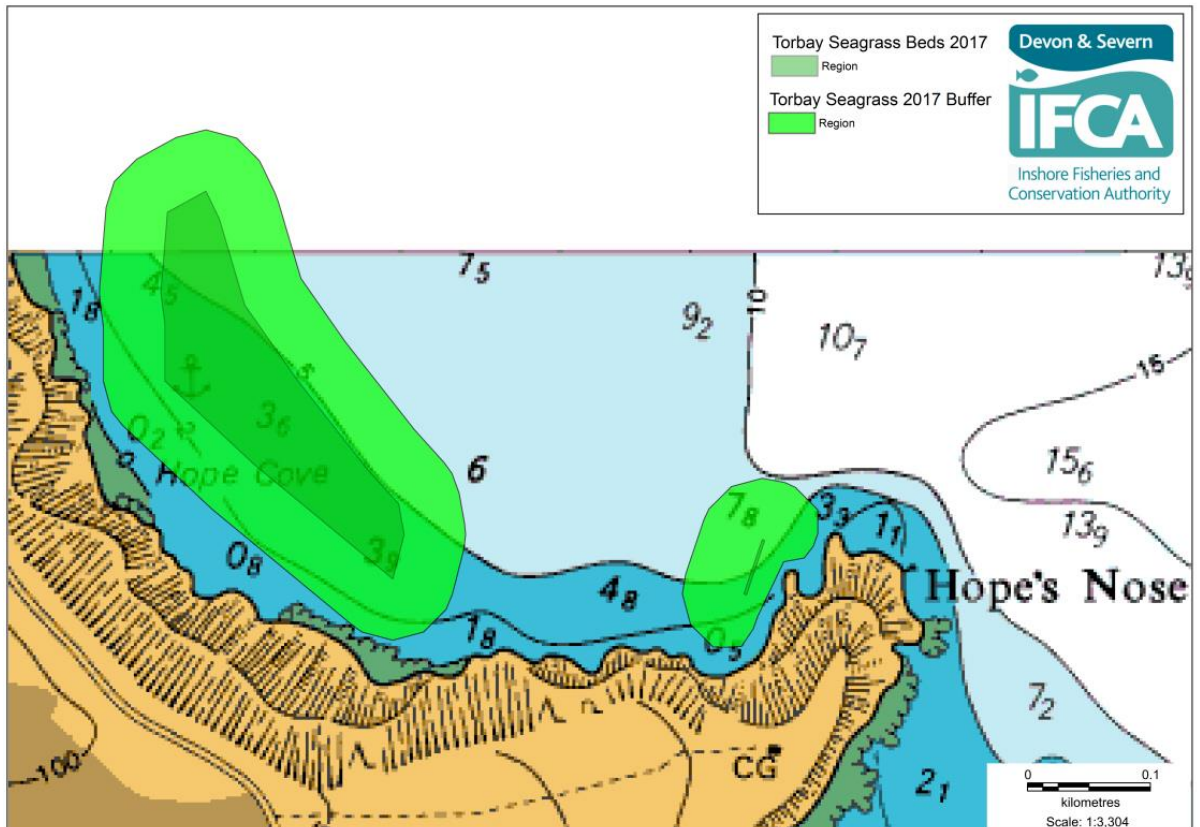


Figure 2 - Hope's Nose seagrass extent and buffer 2017

Thatchers

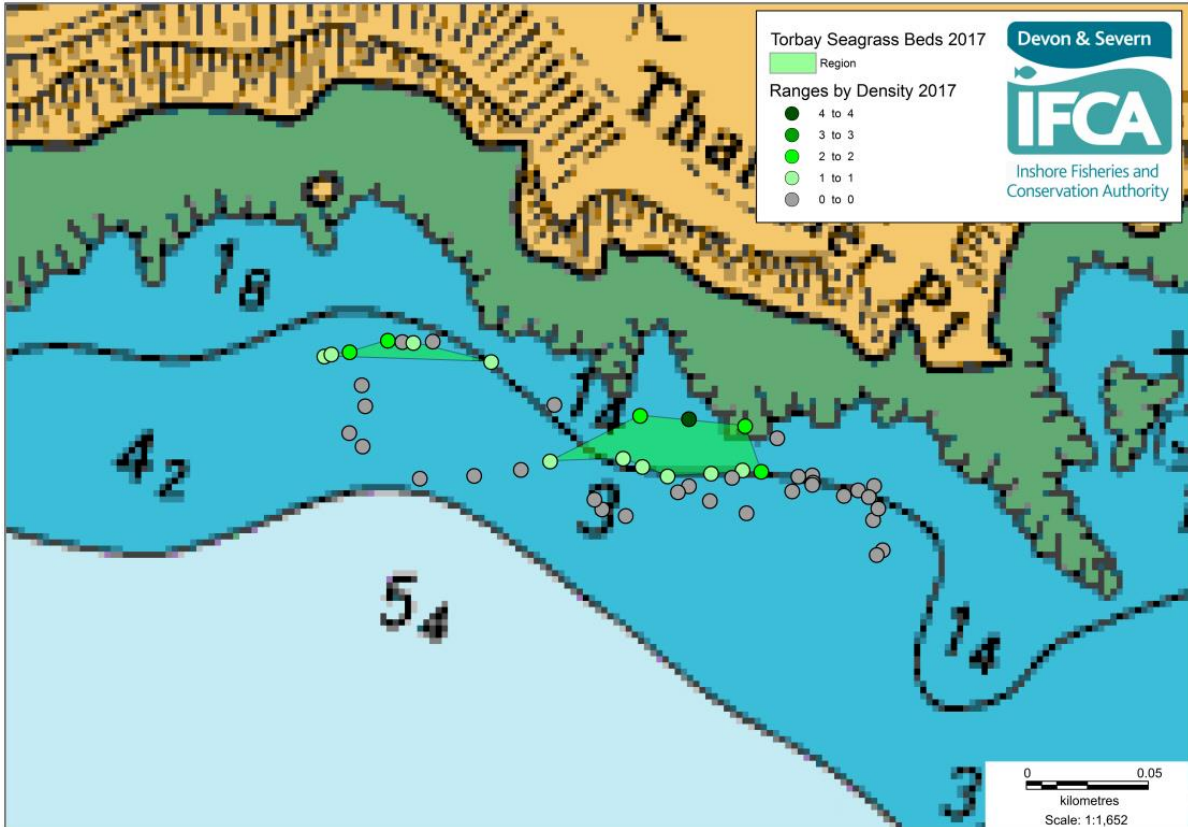


Figure 3 – Thatchers seagrass extent and density 2017.

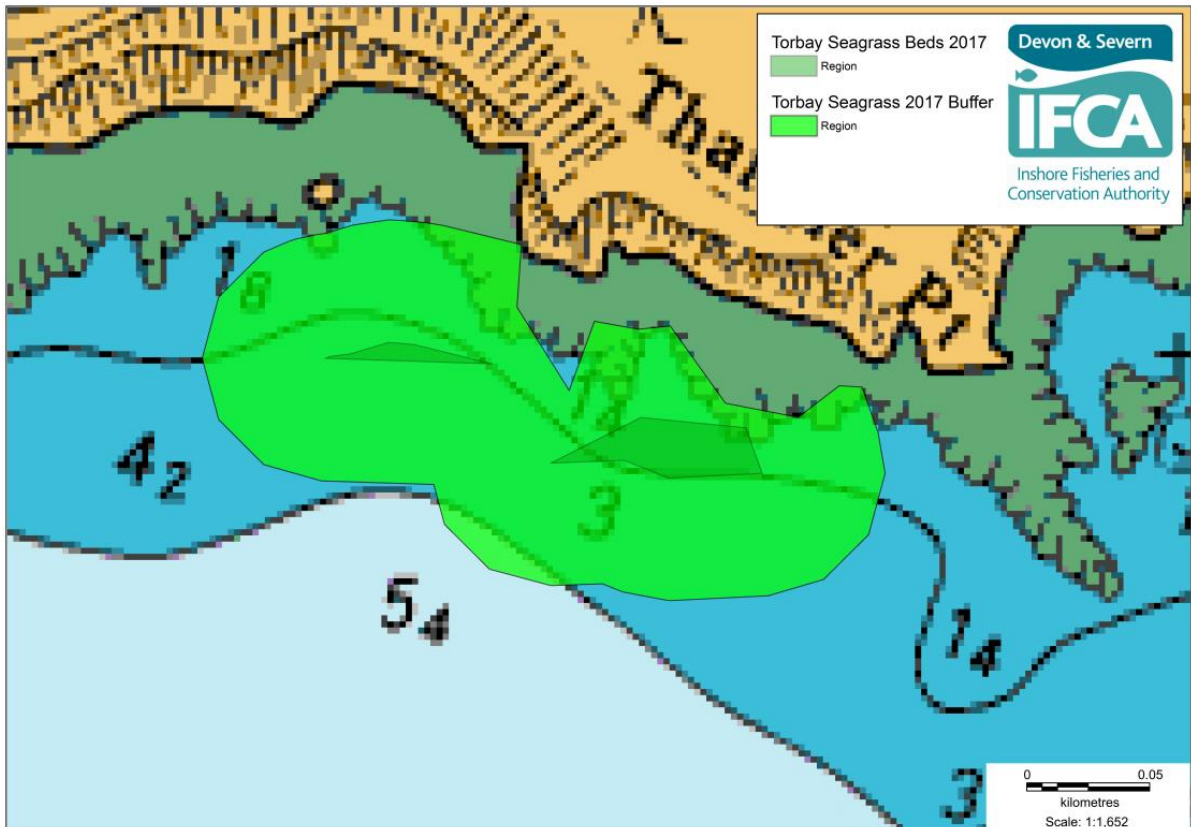


Figure 4 - Thatchers seagrass extent and buffer 2017.

Millstones

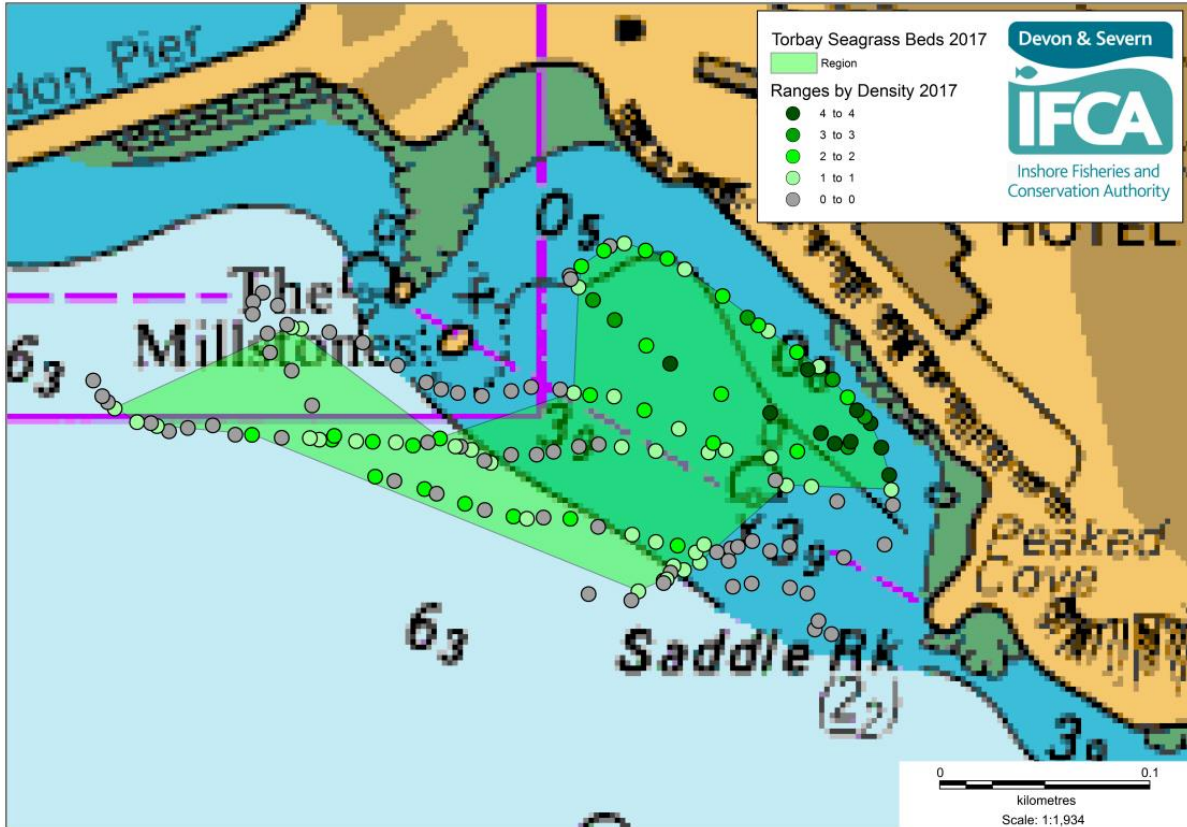


Figure 5 - Millstones seagrass extent and density 2017.

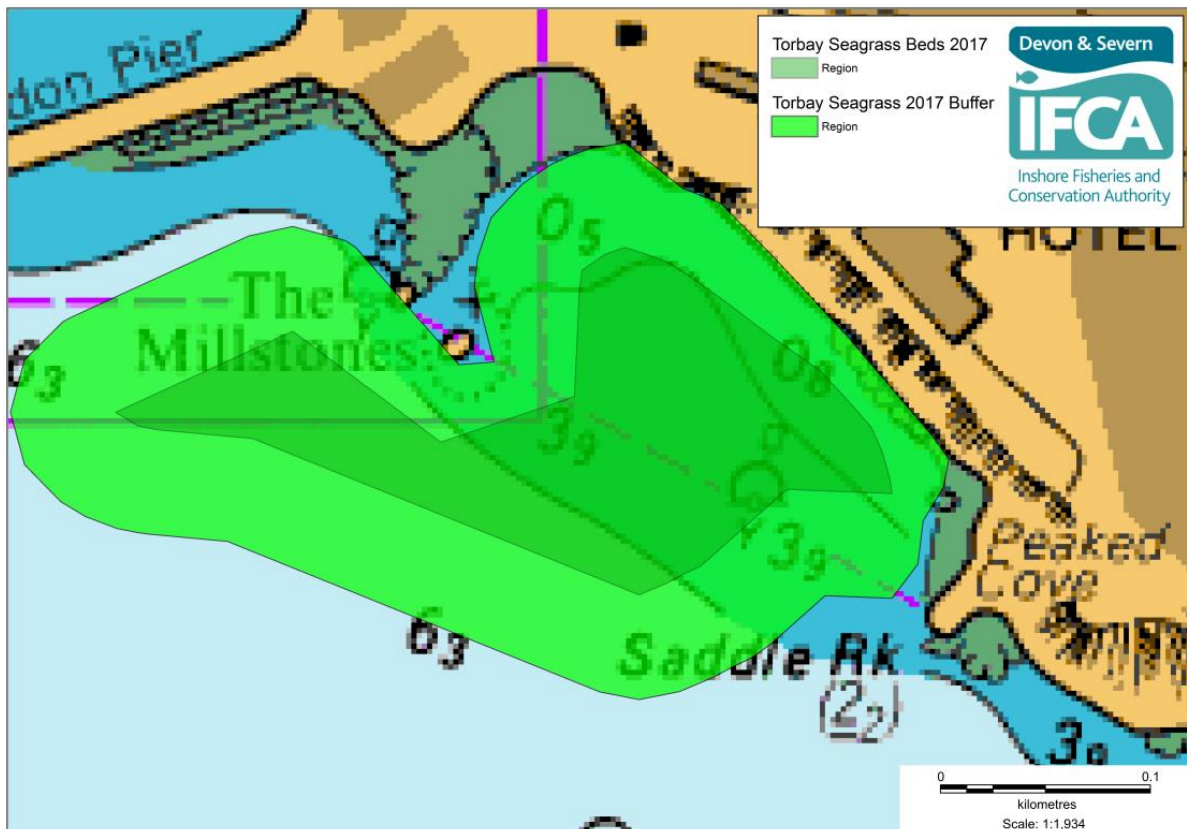


Figure 6 - Millstones seagrass extent and buffer 2017.

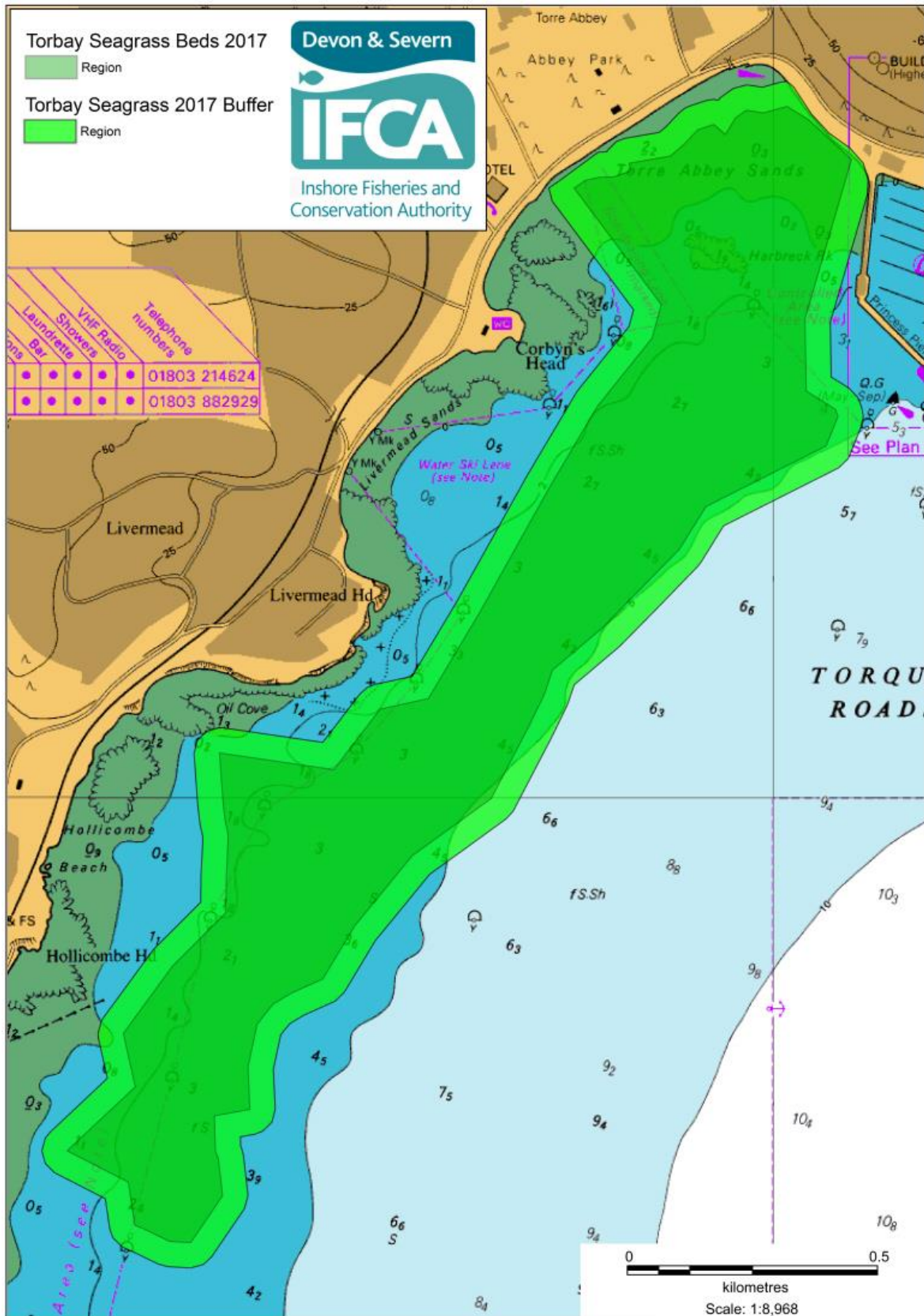


Figure 8 - Torre Abbey seagrass extent and buffer 2017.

Paignton

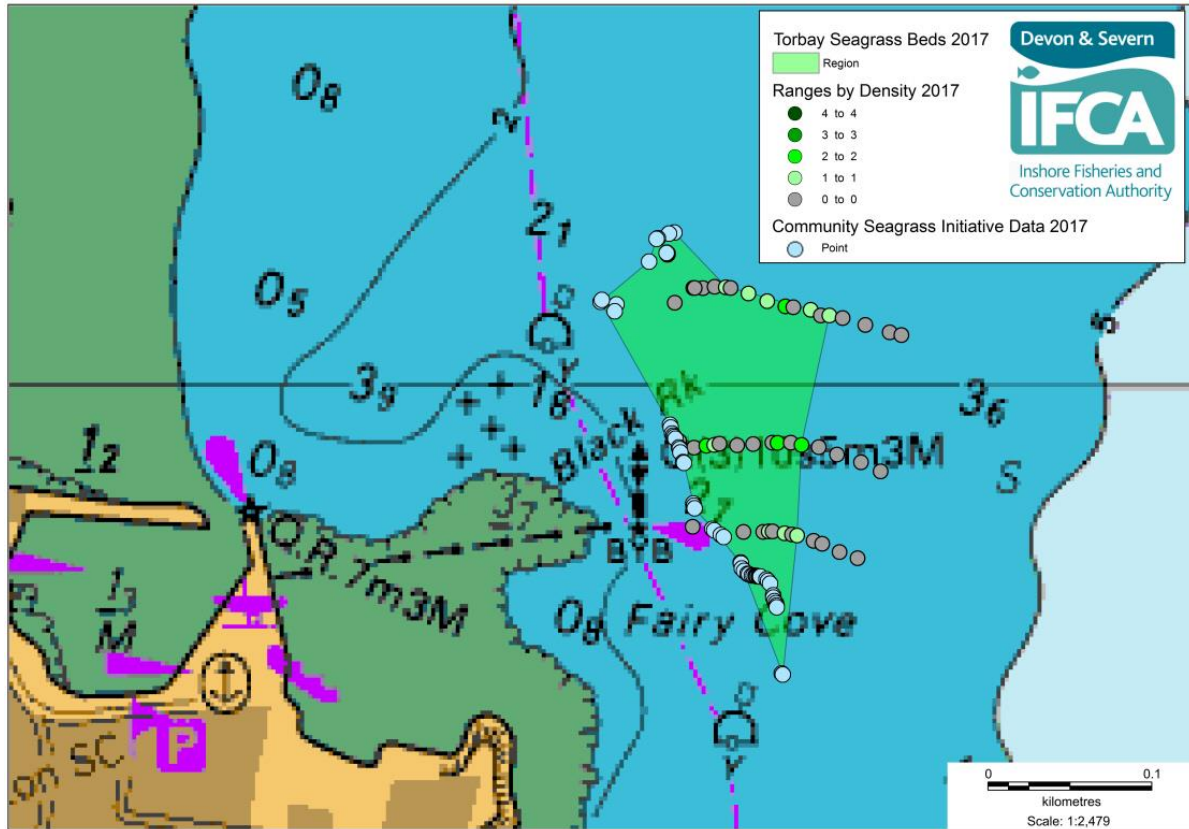


Figure 9 - Paignton seagrass extent and density 2017.

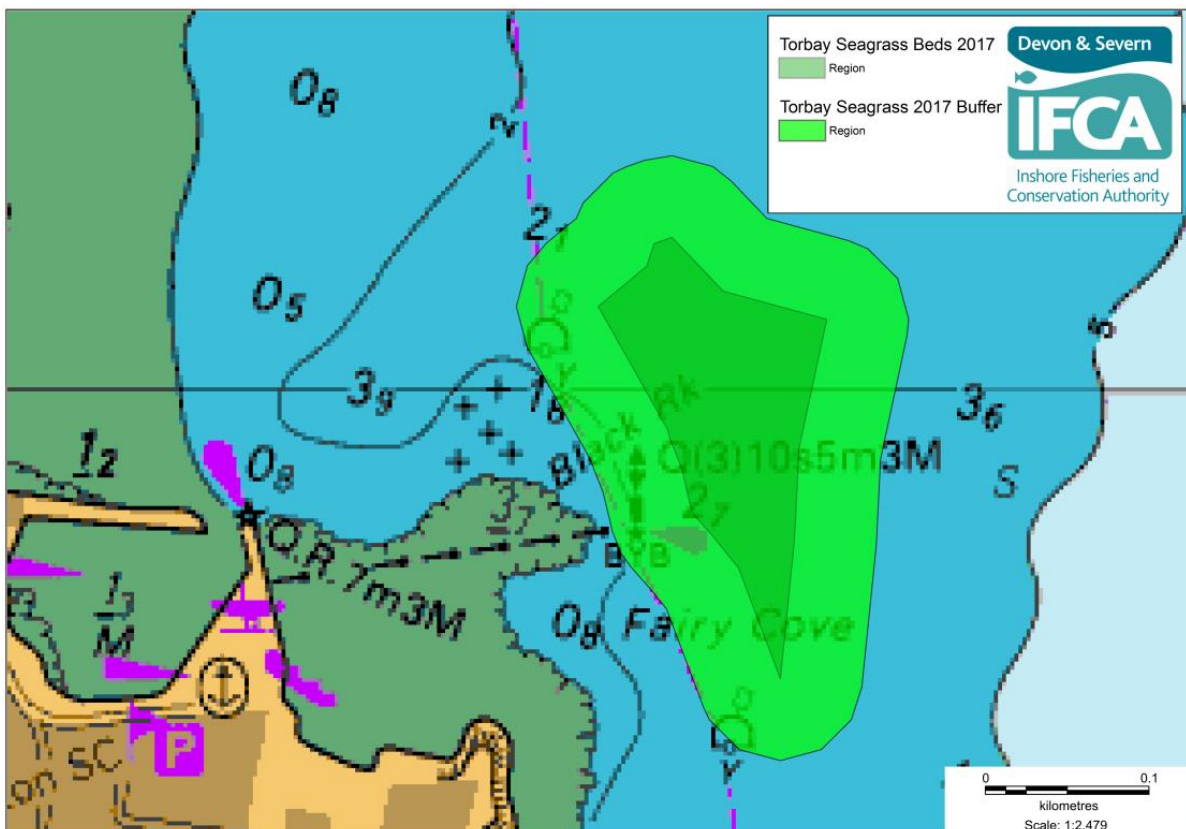


Figure 10 - Figure 11 - Paignton seagrass extent and buffer 2017.

Broadsands to Elberry

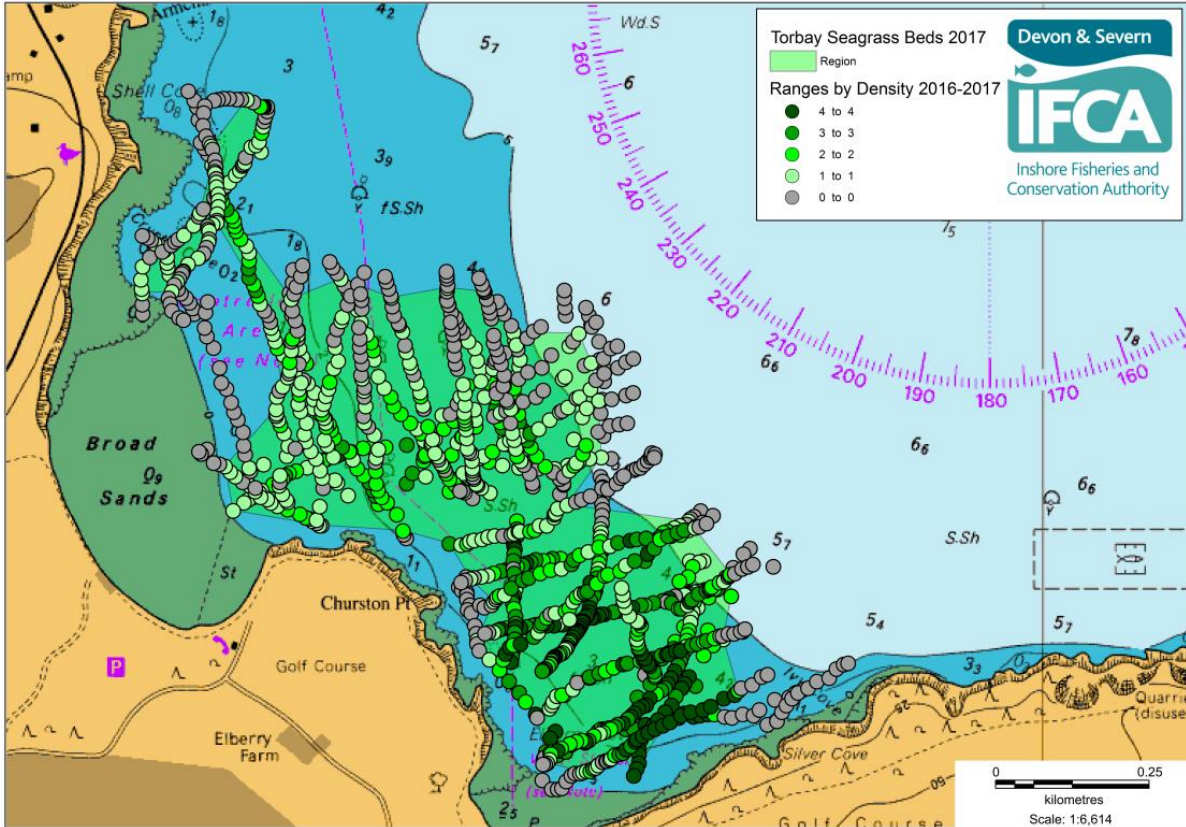


Figure 12 - Broadsands to Elberry seagrass extent and density 2017.

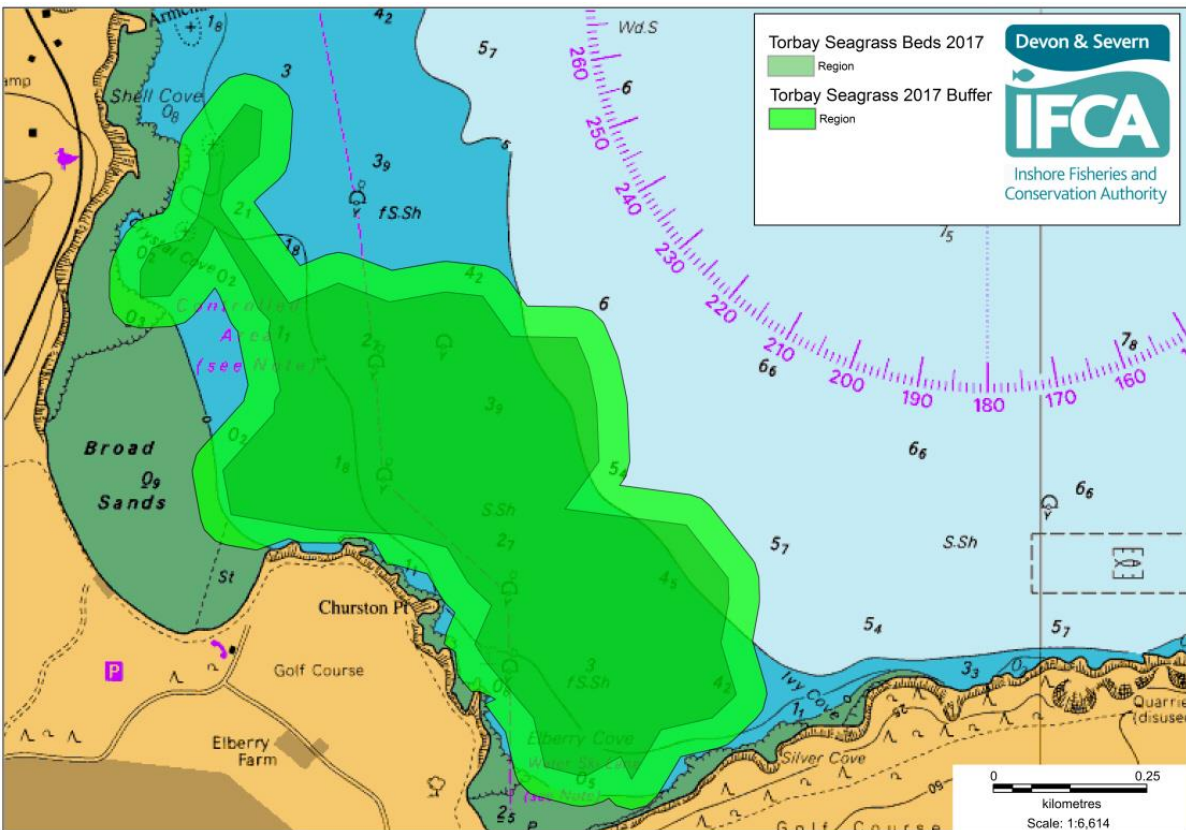


Figure 13 - Broadsands to Elberry seagrass extent and buffer 2017.

Fishcombe

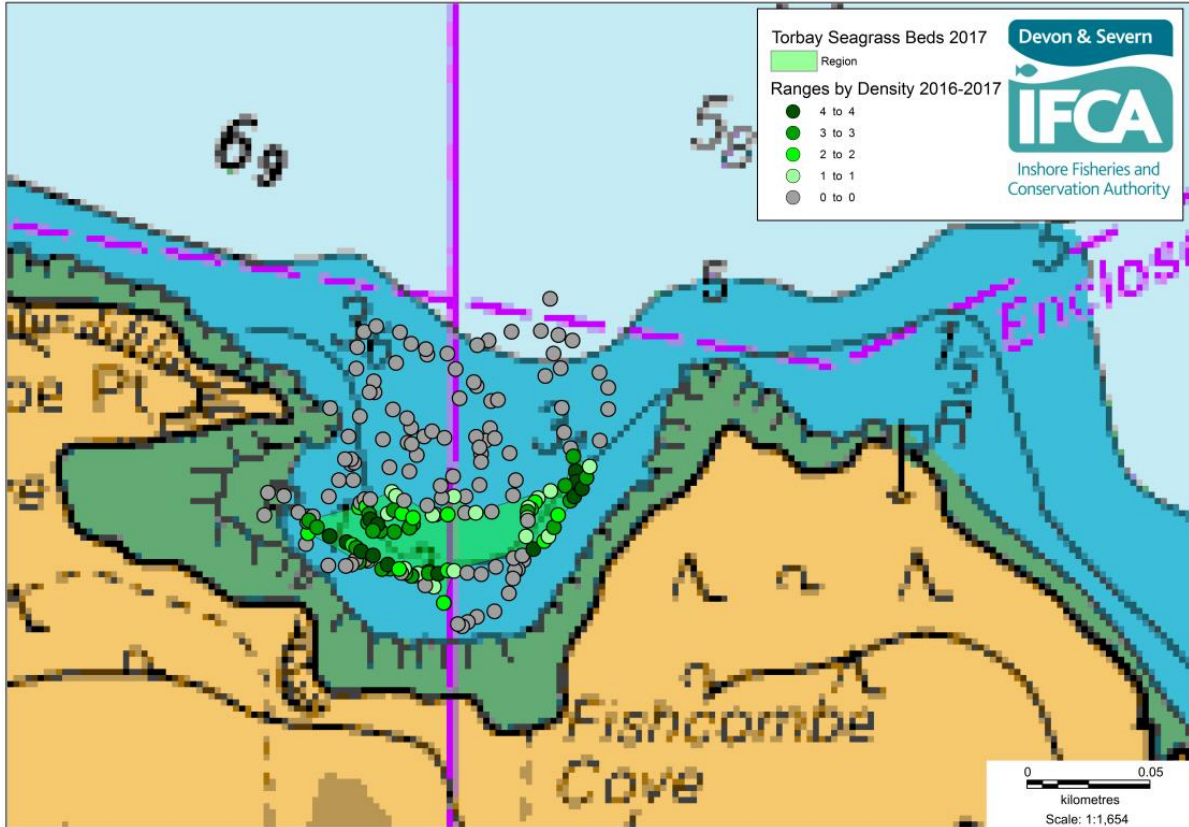


Figure 14 - Fishcombe seagrass extent and density 2017.

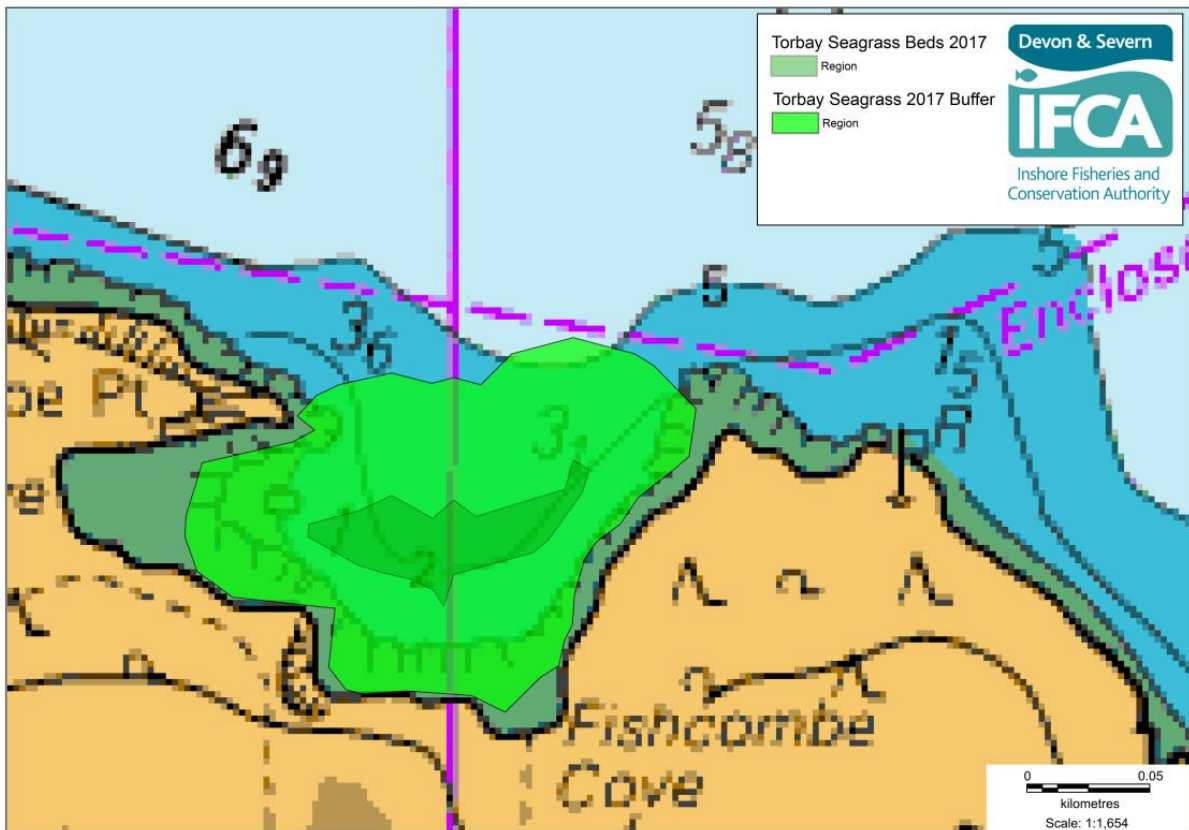


Figure 15 - Fishcombe seagrass extent and buffer 2017.

Breakwater to Shoalstone

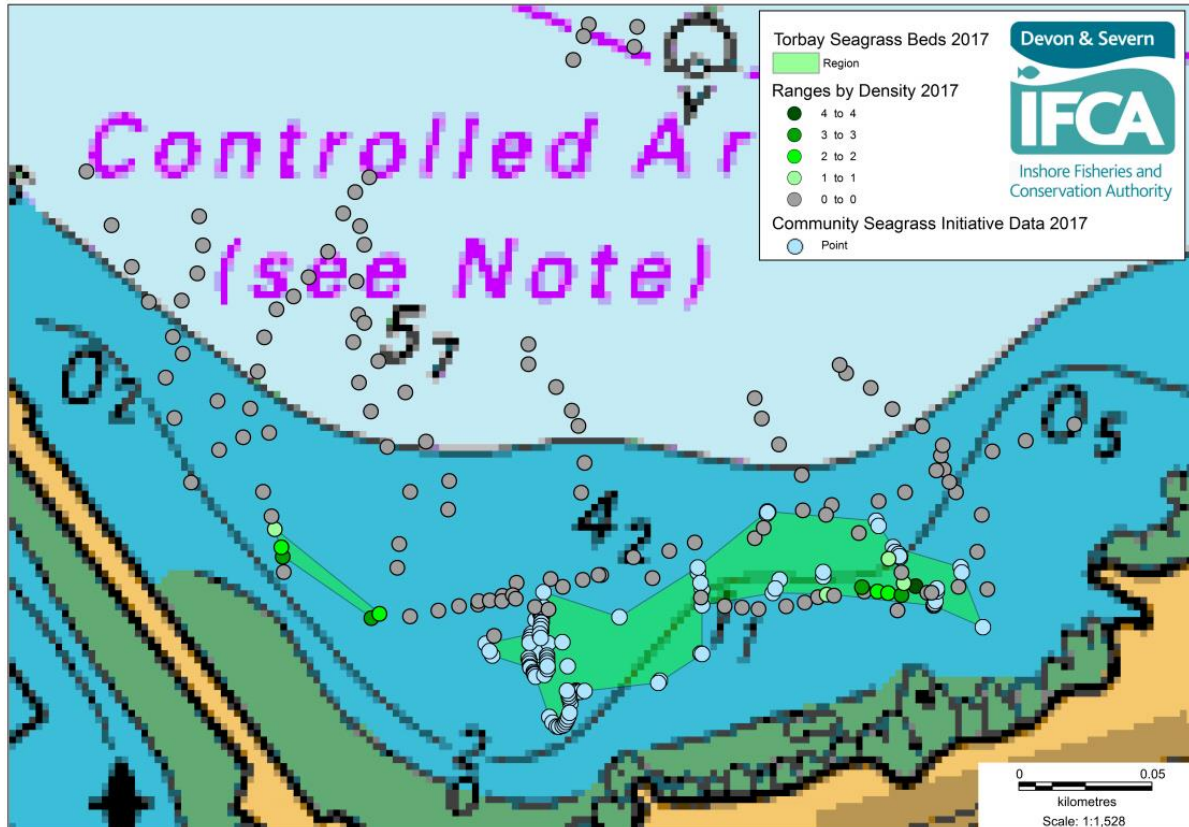


Figure 16 – Breakwater to Shoalstone seagrass extent and density 2017.

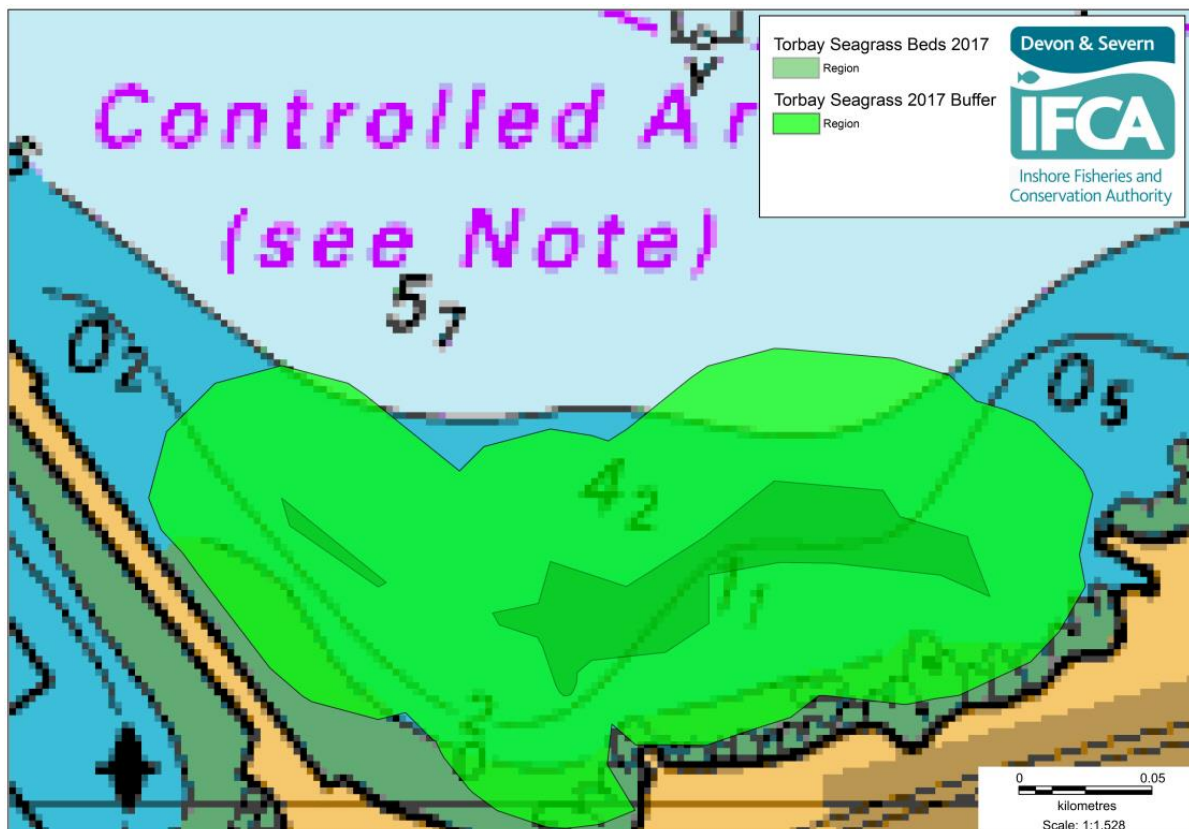


Figure 17 – Breakwater to Shoalstone seagrass extent and density 2017.

Mobile Fishing Permit Byelaw

The results of the seagrass bed survey can be seen overlaid with the Mobile Fishing Permit Byelaw (Annex 1, under Byelaw Annex 3b) in Figure 18. A small proportion of the Torre Abbey seagrass bed (0.918 ha) and buffer (3.906 ha) does not fall under the current closed areas (Figure 19). This is a total area of 4.824 ha, including buffer. Demersal trawls have access to this area from 1st April to 30th June inclusive.

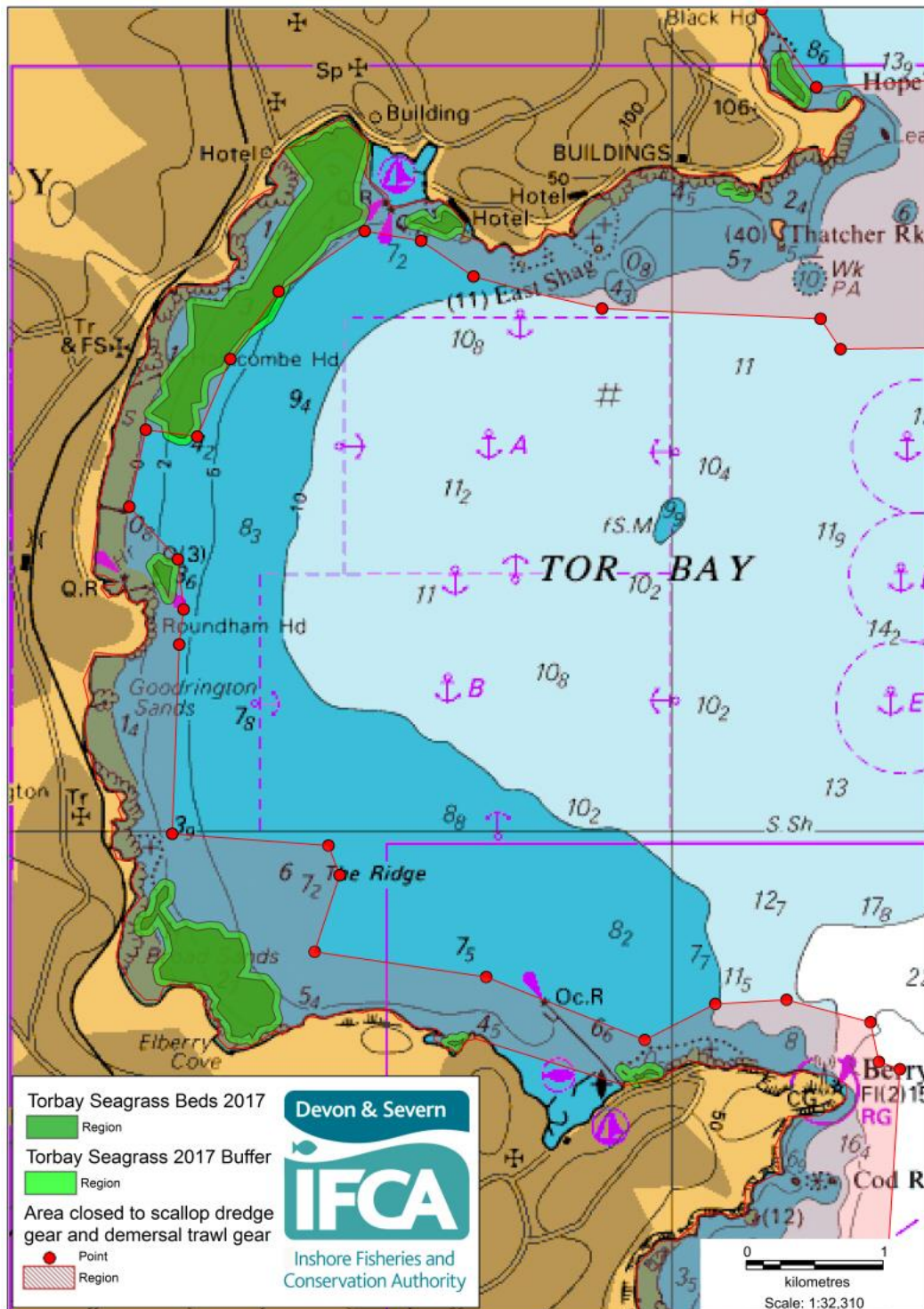


Figure 18 – Torbay seagrass beds 2017 and area closed under Mobile Fishing Permit Byelaw (Annex 3b).

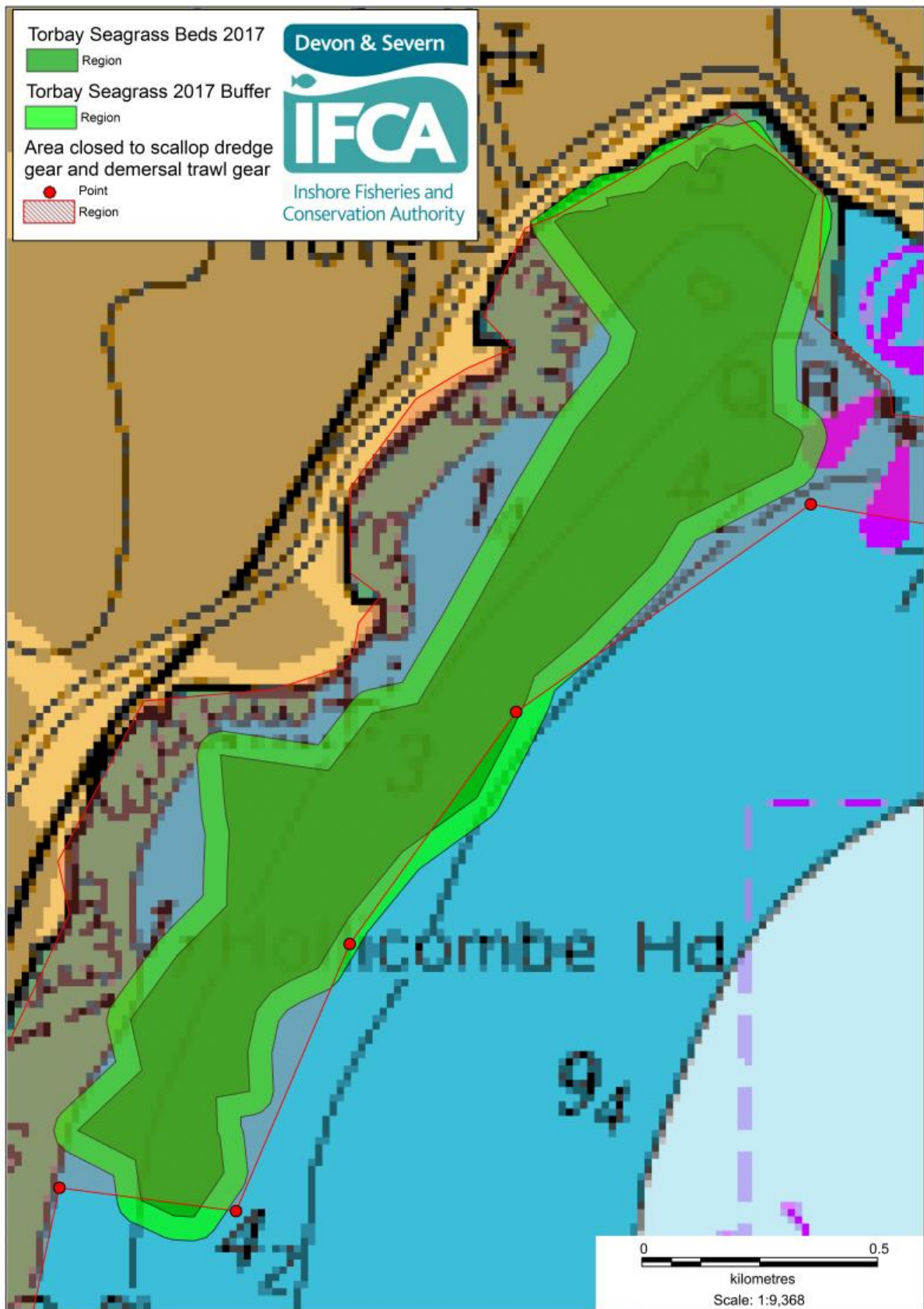


Figure 19 – Torre Abbey seagrass bed 2017 and area closed under Mobile Fishing Permit Byelaw (Annex 3b).

Discussion

The seagrass survey was meant to be carried out in 2016, however due to unforeseen circumstances of vessel issues the survey was delayed until 2017. Data from both years have been included in the analysis.

The area of seagrass beds has increased since 2014, by a total of 10%. The largest increase, by 29%, in area (8 ha) was from Broadsands to Elberry seagrass bed. The two separate beds recorded in 2014 merged in the middle of Broadsands. Further surveys should be carried out to see if the bed extends either side. The seagrass nearest Elberry Cove had the highest density of all the seagrass beds in Torbay.

A new bed near Paignton Harbour was recorded which has helped increased the overall area. It is believed this patchy bed connects those of Broadsands and Torre Abbey, with patches of seagrass seen near Saltern Cove and north Goodrington beach in front of Roundham Head (R. Cole 2017, Pers. Comm.) and this whole area from Preston Beach to Broadsands needs to be surveyed further.

The Torre Abbey seagrass bed has not changed significantly in terms of area. However, it has mostly likely increased compared to 2014 as the seagrass extends further inshore but the vessel did not reach these areas this year. Additionally, the bed has extended further south and the seagrass most likely extends further than what is mapped. This has meant a small proportion of seagrass, 0.918 ha, (4.824 ha total including buffer) is now outside of the closed area which demersal trawls have access to for three months of the year. A review of the Mobile Fishing Permit Byelaw Annex 3b may need to be undertaken to protect the seagrass between April to June. However, this is a small area on the extremity of the bed and equates to 0.79% of the seagrass located within the bay (0.916 ha out of a total area of 115.972ha). It is recommended that the extent of the seagrass in this area needs further monitoring and the bed should be resurveyed in 2018.

Hope's Nose seagrass bed decreased slightly, by 3%, but this may be due to the vessel not surveying as close inshore as it did in 2014. The two points recorded by CSI were not able to be studied further as they were too shallow at the time of surveying.

The extent of the Breakwater to Shoalstone seagrass bed has increased from 0.04 ha to 0.5 ha, with seagrass now extending from Breakwater Beach to Lady Bird Cove.

There are limitations with the survey data, the vessel could not reach shallow areas and so the full extent of seagrass is not recorded for each bed. The 50m buffer included around each bed should take this into account, alongside the inclusion of intertidal data from CSI. The transects were determined by which way the vessel was drifting at that time and so not all transects could be 50m apart.

It is recommended that the full survey is repeated in 2019, including suggested extended survey areas, to continue monitoring the extent and density of the seagrass beds in Torbay. The Torre Abbey Sands bed will be resurveyed in 2018.

Acknowledgements

Devon and Severn IFCA would like to thank Rachel Cole and the volunteers of the Community Seagrass Initiative for sharing their data and valuable knowledge with us.

References

Devon and Severn IFCA Mobile Fishing Permit Byelaw. www.devonandsevernifca.gov.uk

Natural England (2017) Conservation Advice for Torbay MCZ. Available at:
<https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UKMCZ0019&SiteNameDisplay=Torbay+MCZ> [Accessed 02/10/2017].

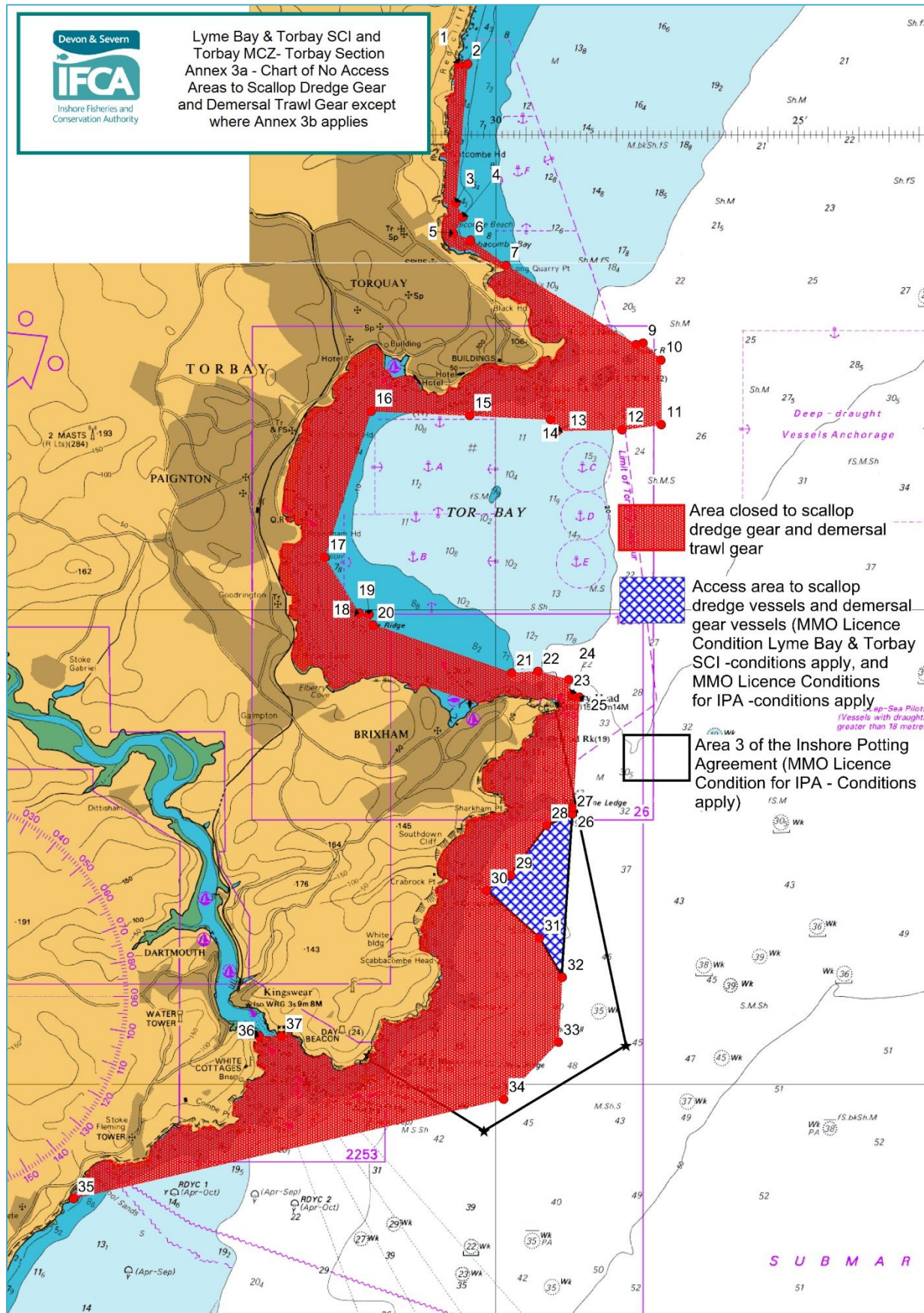
Annex 3a Lyme Bay and Torbay SCI & Torbay MCZ –Torbay Section
No Access Area to Scallop Dredge Gear and Demersal Trawl Gear except
where Annex 3b applies

No access to the areas outlined by the following points, the landward boundary follows Mean High Water.

Point Number		Latitude		Longitude	
1	50°	30.733	N	003°	30.612 W
2	50°	30.733	N	003°	30.467 W
3	50°	29.267	N	003°	30.659 W
4	50°	29.120	N	003°	30.541 W
5	50°	28.950	N	003°	30.700 W
6	50°	28.878	N	003°	30.420 W
7	50°	28.612	N	003°	29.832 W
8	50°	27.775	N	003°	27.685 W
9	50°	27.792	N	003°	27.568 W
10	50°	27.615	N	003°	27.270 W
11	50°	26.933	N	003°	27.267 W
12	50°	26.882	N	003°	27.911 W
13	50°	26.871	N	003°	28.979 W
14	50°	26.989	N	003°	29.100 W
15	50°	27.030	N	003°	30.432 W
16	50°	27.075	N	003°	32.062 W
17	50°	25.538	N	003°	32.827 W
18	50°	24.949	N	003°	32.258 W
19	50°	24.938	N	003°	32.098 W
20	50°	24.831	N	003°	32.035 W
21	50°	24.321	N	003°	29.741 W
22	50°	24.338	N	003°	29.307 W
23	50°	24.250	N	003°	28.796 W
24	50°	24.096	N	003°	28.745 W
25	50°	24.067	N	003°	28.613 W
26	50°	22.902	N	003°	28.727 W
27	50°	22.836	N	003°	28.740 W
28	50°	22.713	N	003°	29.163 W
29	50°	22.187	N	003°	29.752 W
30	50°	22.031	N	003°	30.160 W
31	50°	21.531	N	003°	29.279 W
32	50°	21.118	N	003°	28.898 W
33	50°	20.433	N	003°	28.967 W
34	50°	19.833	N	003°	29.867 W
35	50°	18.783	N	003°	36.983 W
36	50°	20.497	N	003°	33.549 W
37	50°	20.493	N	003°	33.914 W

Annex 3a Lyme Bay and Torbay SCI & Torbay MCZ - Torbay Section Chart showing No Access Areas for Scallop Dredge Gear and Demersal Trawl Gear except where Annex 3b applies

No access to the areas outlined by the following points, the landward boundary between 1 and 37; and 35 and 36 follows Mean High Water.



Annex 3b Lyme Bay and Torbay SCI & Torbay MCZ –Torbay Section
Notwithstanding the prohibition in Annex 3a – Demersal Trawl Gear is allowed
in Access Areas A, B and C from 1st April to 30th June inclusive

	Point Number	Latitude			Longitude		
Area A	1	50°	28.612'	N	003°	29.832'	W
	2	50°	28.347'	N	003°	29.755'	W
	3	50°	28.194'	N	003°	29.459'	W
	4	50°	27.891'	N	003°	29.125'	W
	5	50°	27.920'	N	003°	28.353'	W
	6	50°	27.731'	N	003°	27.963'	W
	7	50°	27.792'	N	003°	27.568'	W
Area B	8	50°	27.030'	N	003°	30.432'	W
	9	50°	27.154'	N	003°	31.214'	W
	10	50°	27.293'	N	003°	31.533'	W
	11	50°	27.331'	N	003°	31.878'	W
	12	50°	27.111'	N	003°	32.411'	W
	13	50°	26.833'	N	003°	32.695'	W
	14	50°	26.554'	N	003°	32.886'	W
	15	50°	26.557'	N	003°	33.210'	W
	16	50°	26.257'	N	003°	33.311'	W
	17	50°	26.053'	N	003°	33.015'	W
	18	50°	25.858'	N	003°	32.980'	W
	19	50°	25.721'	N	003°	33.007'	W
	20	50°	24.984'	N	003°	33.050'	W
	21	50°	24.946'	N	003°	32.250'	W
	22	50°	25.537'	N	003°	32.827'	W
	23	50°	27.075'	N	003°	32.062'	W
Area C	24	50°	24.828'	N	003°	32.027'	W
	25	50°	24.525'	N	003°	32.183'	W
	26	50°	24.418'	N	003°	31.268'	W
	27	50°	24.416'	N	003°	31.082'	W
	28	50°	24.181'	N	003°	30.171'	W
	29	50°	24.321'	N	003°	29.741'	W

Annex 3b Lyme Bay and Torbay SCI & Torbay MCZ –Torbay Section Access Areas A, B and C for demersal trawl gear from 1st April to 30th June Inclusive

