Southern IFCA Survey Report

Solent Oyster Survey, 2022

1. Introduction

As part of Southern IFCA's management of Bivalve species in the Solent, an annual survey is required to provide data on the population and range of the native oyster (*Ostrea edulis,* Figure 1) within its traditional beds in the Solent.

This survey aims to add to an ongoing time series which feeds directly into management of the native oyster fishery through the provisions of the Solent Dredge Permit Byelaw described in the associated Management Intentions Document (SIFCA, 2021).

Data is collected at sites across the Solent that represent shellfish beds within 6 wider Bivalve Management Areas (BMAs) (Figure 4). The survey is conducted with members of the local fishing industry in order to promote co-management.

Figure 1: Native Oyster (*Ostrea edulis*)

The survey was previously undertaken by CEFAS until 2011, but Southern IFCA took this on in 2014 following a requirement for data to inform local management of the fishery.

2. Methodology

- The survey this year took place over 3 days between the 6th and 8th of July.
- Stations are distributed across the various shellfish beds within each BMA, and the number of tows at each station is reflective of the size of the bed (with the aim to sample a minimum of three stations across any bed).
- Due to a reduced timeframe for sampling compared to previous years, sampling was restricted to the shellfish beds deemed most important to the fishery. Beds were selected in consultation with local fishers.
- The overall number of shellfish beds surveyed was maximised as much as possible by reducing the number of stations within some of the larger shellfish beds (Figure 4).
- Sampling involves the chartering of a local fishing vessel to provide local knowledge to aid in undertaking the sampling.
- The equipment used is a 1.2m ladder dredge, similar to those used within the fishery (Figure 2).

At each station:

- The ladder dredge is towed for 2 minutes with the skipper choosing the direction/speed of the tow depending on local conditions.

Metadata is collected including:

- Start/End Time
- Start/End location
- Depth
- Speed

On completion of the tow the dredge is emptied onto the back deck and the contents sorted and analysed.

Oysters are measured across their widest edge, split into over 70mm (Minimum Conservation Reference Size for native oyster) and under 70mm. The over 70mm oysters are then weighed before all oysters are returned to the fishery.

Figure 2: Ladder dredge used for the survey

As required other commercial bycatch may be measured, and where resource permits, additional data on associated species collected in the dredge is recorded.

3. Results

Across the 6 BMAs in the Solent, 18 shellfish beds were surveyed completing 119 tows. In total, 74 oysters >70mm were caught, measured, weighed and returned. Only 1 tow was completed in Bomb Ketch due to issues with the dredge.

3.1. Catch Per Unit Effort (CPUE)

Catch rates were low throughout the survey, the BMA CPUE was calculated by averaging the kg/m/hr of oysters caught in a BMA over the total amount of tows for that BMA (Table 1).

The Eastern Solent had the highest average CPUE at 4.6 kg/m/hr compared to Langstone Harbour which had the lowest at 1.1kg/m/hr. The average CPUE of each BMA remained below the 5kg/m/hr baseline threshold set in the Management Intentions Document for triggering consideration of management intervention for a BMA.

The shellfish bed with the highest average CPUE was Sturbridge at 8.7 kg/m/hr which is below the CPUE threshold value of 15kg/m/hr set in the Management Intentions Document for triggering consideration of management intervention. Therefore, no shellfish bed reached this threshold value. The oysters at Sturbridge were some of the larger, older and heavier oysters which may have contributed to the greater CPUE value.

Stanswood, Lee-on-the-Solent, Chilling, Calshot and Bomb Ketch all had an average CPUE of 0, returning no oysters >70mm in 25 tows. Calshot and Bomb Ketch were the only stations that did not return any oysters at all.

3.2. Length

Fareham returned the greatest number of oysters caught with 35 however only 23% of these were above 70mm. Due to the tide falling faster than expected an unplanned site was sampled in Fareham further downstream than the predefined site (Figure 4, labelled extra) which revealed 24 oysters <70mm contributing to the overall higher number of oysters for the Fareham bed. These oysters were on average 60mm.

The second highest recorded number of oysters for a bed was at Ryde Middle which returned a total of 21 oysters, 76% of which were >70mm. 6 beds showed 100% of oysters >70mm, however the greatest number of oysters sampled at one of these beds was 3 (see Table 1).

Table 1: Results summary for the Solent native oyster survey split into Bivalve Management Area (BMA) and shellfish bed. Average CPUE values are recorded in kg/m/hr (kg per metre of dredge per hour) of oysters over 70mm.

Area 1: Western Solent				
Shellfish Bed	No. Tows	Total No. Oysters	% >70mm	Average CPUE
Lepe	5	2	100	4.5
Stanswood	7	1	0	0
BMA	**12**	**3**	**66.6**	**1.9**

Area 2: Northern Solent				
Shellfish Bed	No. Tows	Total No. Oysters	% >70mm	Average CPUE
Calshot	3	0	0	0
Browndown	4	3	67	2
Bramble	8	6	33	2.9
Lee-on-the-Solent	8	1	100	0
Chilling	6	8	0	0
North Channel	9	6	50	5.3
Thorn Knoll	5	2	100	3.25
BMA	**43**	**26**	**34.6**	**2.2**

Area 3: Eastern Solent				
Shellfish Bed	No. Tows	Total No. Oysters	% >70mm	Average CPUE
Osbourne Bay	4	1	100	2.7
Ryde Middle	11	21	76	5.9
Sturbridge	3	3	100	8.7
Spit Sands	6	5	40	1.9
BMA	**24**	**30**	**73.3**	**4.6**

Area 4: Southampton Water				
Shellfish Bed	No. Tows	Total No. Oysters	% >70mm	Average CPUE
Hamble	11	13	31	1.2
BMA	**11**	**13**	**31**	**1.2**

Area 5: Portsmouth Harbour				
Shellfish Bed	No. Tows	Total No. Oysters	% >70mm	Average CPUE
Fareham	5	35	23	3.2
Bomb Ketch	1	0	0	0
Portchester	6	1	100	0.5
BMA	**12**	**36**	**25**	**1.5**

Area 6: Langstone Harbour				
Shellfish Bed	No. Tows	Total No. Oysters	% >70mm	Average CPUE
Langstone	14	12	83	1.1
BMA	**14**	**12**	**83**	**1.1**

3.2.1. Limitations

Saddle Oysters *(Anomia sp.)* are present around the UK coasts (Neal, 2004) however, due to unfamiliarity with this species some were counted as Native oyster spat which has distorted the analysis of <70mm oyster counts and in particular the quantification of the presence of native oyster spat. However, from observation during the survey there was a limited presence of both saddle oysters and/or native oyster spat.

4. Timeseries Data

- Figure 3 provides the average CPUE of each shellfish bed for 2017-2022 (no data was collected for 2020 due to COVID restrictions).
- The general pattern of data is inconsistent between survey years but since 2018 no shellfish bed has reached the threshold CPUE value of 15kg/m/hr. The only two instances of an average CPUE of 15kg/m/hr being reached is at Sturbridge in 2017 and Ryde Middle in 2018.
- Ryde Middle previously showed higher CPUE than most beds, however following fishing effort after the 2018 survey it does not appear to have recovered to previous levels. Despite a slight decline in 2022 compared to 2021, the CPUE appears to be remaining at a similar level since 2019.
- Compared to the survey in 2021, Lepe, Thorn Knoll, Sturbridge, Portchester and Fareham showed an increase in average CPUE in 2022 (Figure 3).
- CPUE for Lepe increased from 1.5kg/m/hr to 4.5kg/m/hr and Thorn Knoll increased from 0.5kg/m/hr to 3.3kg/m/hr.
- Despite there being an increase in CPUE for Portchester and Fareham in 2022 by 0.5kg/m/hr and 0.9kg/m/hr respectively compared to 2021, the level remains below that seen in 2017-19.
- For Bramble, North Channel, Ryde Middle, Osbourne Bay, Spit Sands and Langstone the average CPUE has decreased in 2022 compared to 2021 but CPUE for 2022 is still at or above that seen in earlier survey years (2017 or 2018)
- The greatest decrease was seen in North Channel which has decreased by 8kg/m/hr in 2022 compared to the 2021 survey.
- For Bramble and Ryde Middle the 2022 average CPUE is the lowest to date.

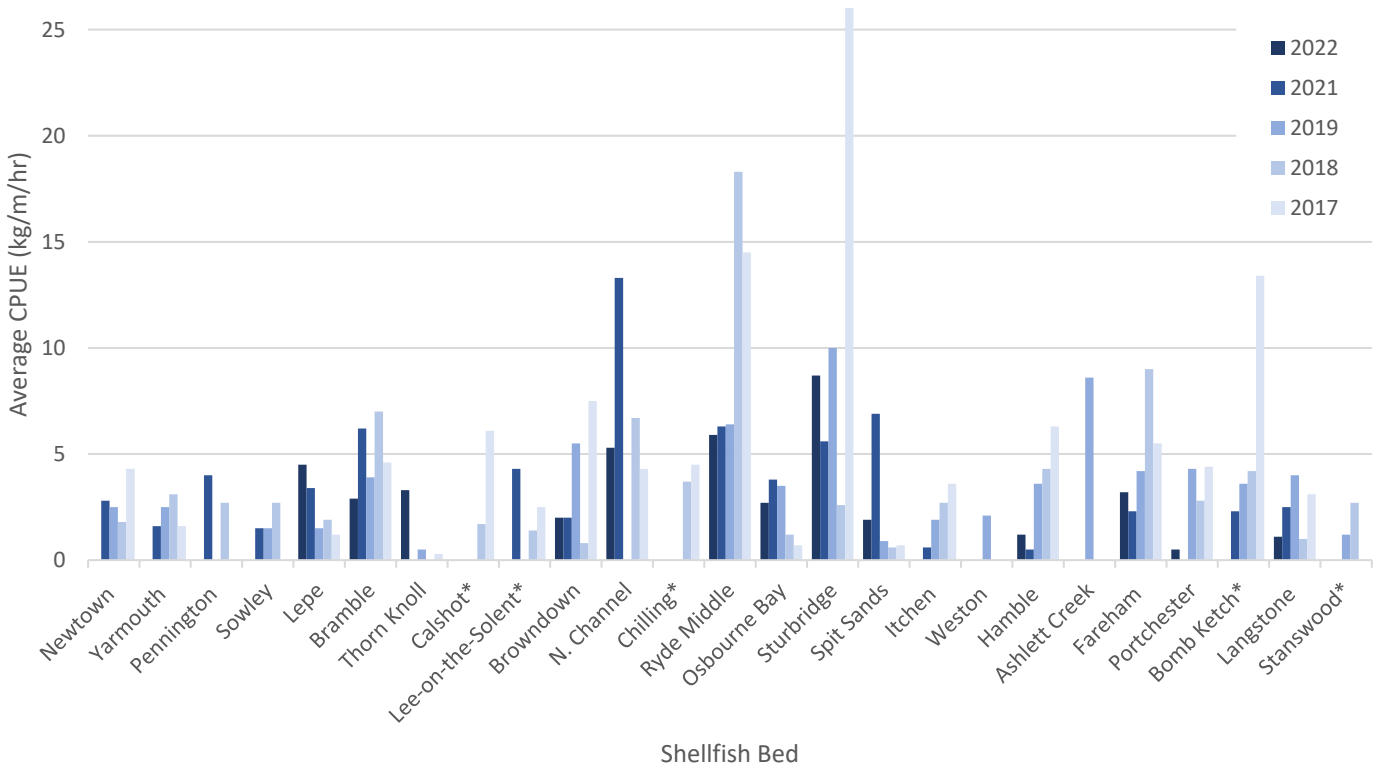

Figure 3: Timeseries of the Average Catch Per Unit Effort (CPUE, kg/m/hr) values from each shellfish bed in the Solent from 2017-2022. * Represents a CPUE value of 0 for Shellfish beds surveyed in 2022. No surveying took place in 2020 due to COVID restrictions.

5. Conclusions

- This report summarises the findings of the 2022 Oyster survey.
- CPUE remains low across all Solent beds as indicated by Table 1 and Figure 3.
- No shellfish bed nor BMA met their respective baseline CPUE threshold levels set out in the Management Intentions Document (15kg/m/hr and 5kg/m/hr respectively, SIFCA 2021).
- For individual shellfish beds, Sturbridge reached the highest at 8.7 kg/m/hr and for a BMA the Eastern Solent reached the highest at 4.6 kg/m/hr.
- A comparison between years shows no consistent improvement in average CPUE across the shellfish beds.
- The presence of native oyster spat cannot be quantified due to the presence of saddle oysters (see Section 3.2.1), however observation from the survey indicates that there were limited signs of spat fall.

6. References

- Neal, K.J. 2004. *Anomia ephippium* Saddle oyster. In Tyler-Walters H. and Hiscock K. *Marine Life Information Network: Biology and Sensitivity Key Information Reviews*, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 05-08-2022]. Available from: https://www.marlin.ac.uk/species/detail/2053
- SIFCA, (2021. Solent Dredge Permit Byelaw - Management intentions document. SIFCA, 2021. Solent Dredge Permit Byelaw - Management intentions document. https://secure.toolkitfiles.co.uk/clients/25364/sitedata/Redesign/Solent-Dredge-Fisheries/Management-Intentions-Document-SDPB.pdf

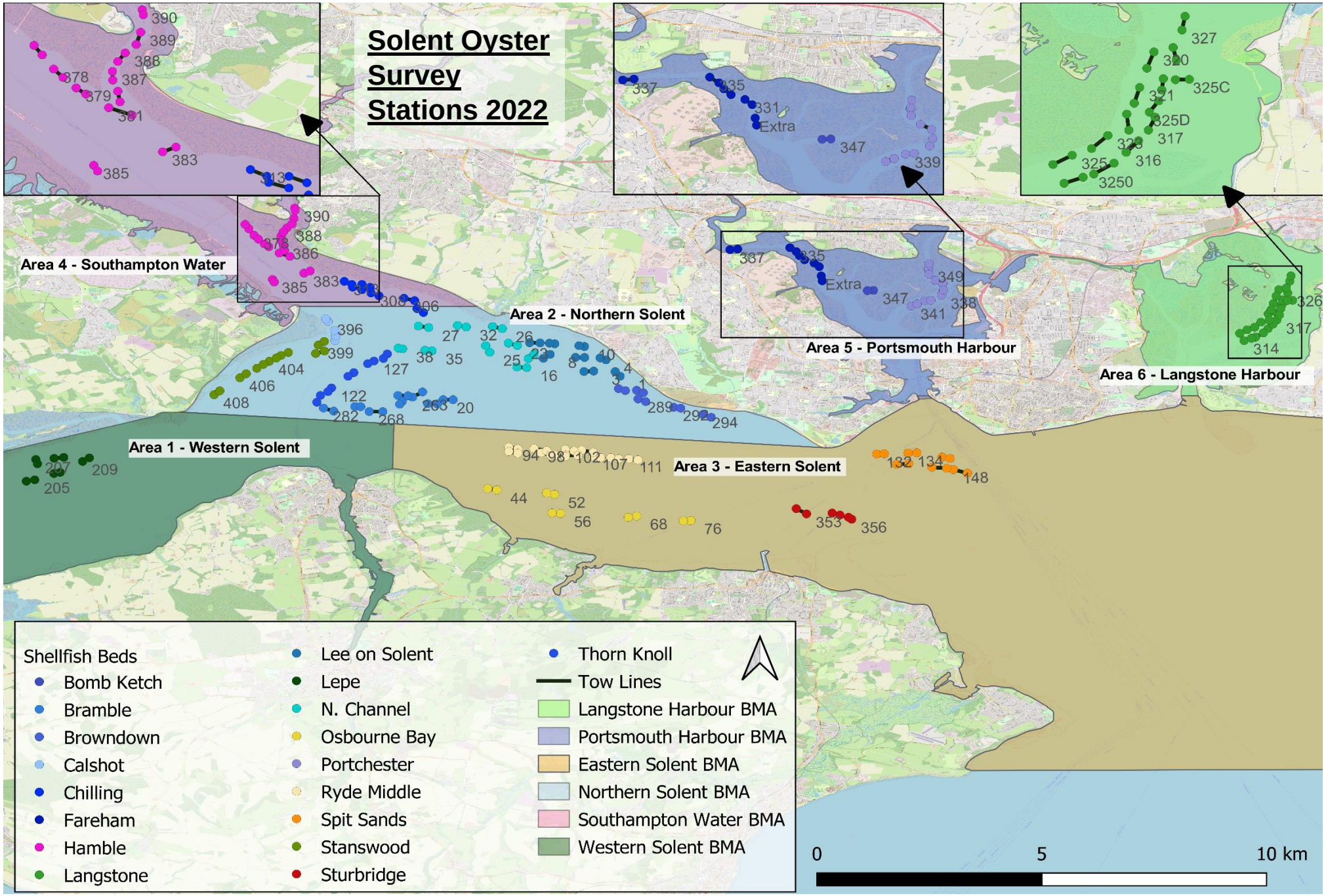

Figure 4: Map showing the 6 Bivalve Management Areas and the shellfish beds within each which were surveyed as part of the 2022 Solent Native Oyster.