Solent Scallop Survey Summary - July 2021

Purpose

As part of Southern IFCA's management of Bivalve species in the Solent, a baseline survey has been carried in order to better understand the extent and nature of the Solent scallop fishery. This survey aims to provide an initial understanding on the distribution of the king scallop (*Pecten maximus*) and collect information on the population structure of the scallops found within the Solent. The intention is to use the findings of this survey to not only provide an initial baseline but also be used to develop an annual monitoring programme which will enable Southern IFCA to track population trends and feed this into its management of the Solent bivalve fisheries through the newly confirmed Solent Dredge Permit Byelaw

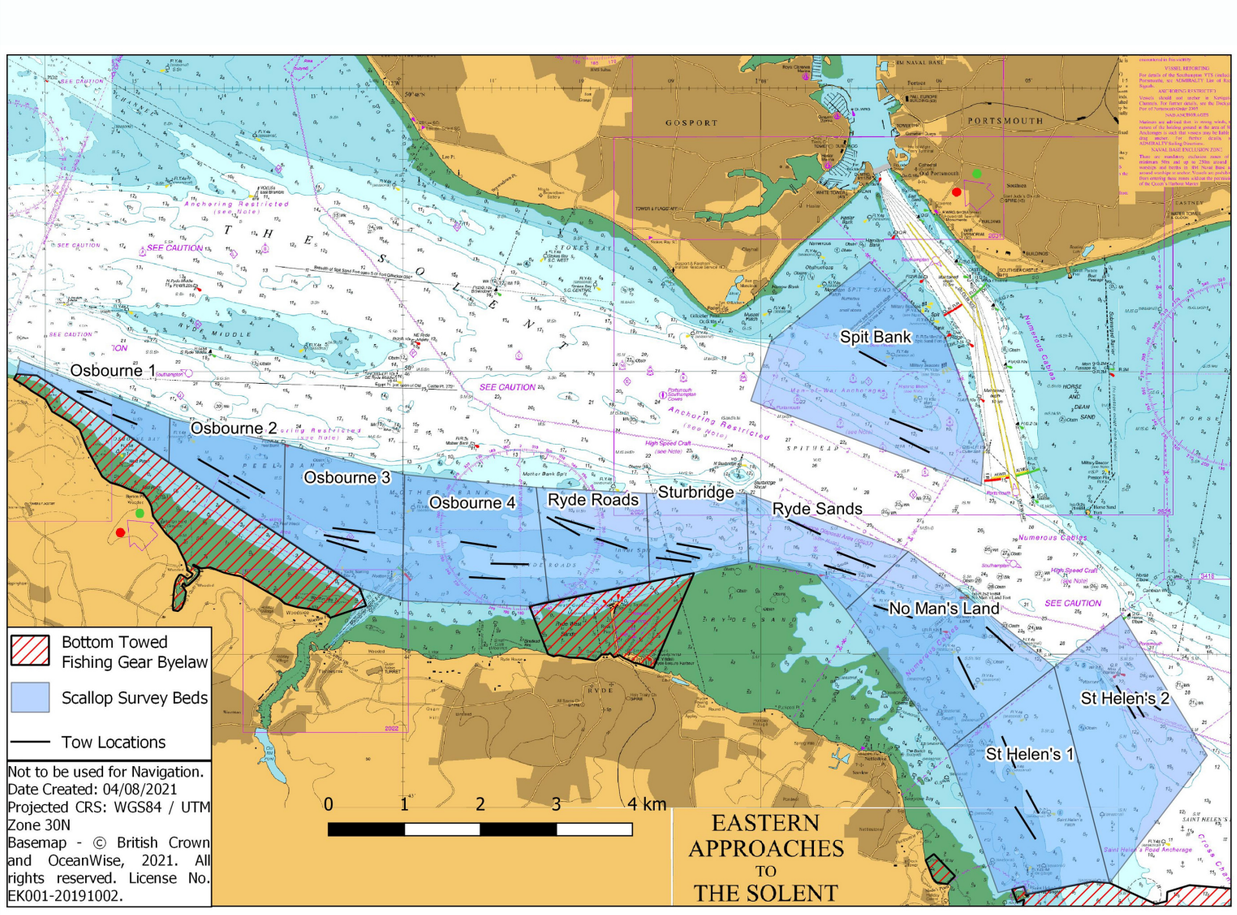

Figure 1 - Survey areas and Tow locations

Method

Areas for the survey were defined in consultation with local fishers, identifying current fishing areas as well as any areas of interest to consider in the future.

A local fishing vessel was chartered in order to provide further input and carry out survey fishing activities using a single N-Viro style dredge (see Figure 2) towed from the stern of the vessel.

Within each survey area:

- 3 tows, each lasting 4 minutes, were undertaken with the skipper identifying the appropriate direction and speed of tow (See Figure 1).
- Metadata for each tow including start and end time and start and end position, were recorded on logsheets.
- On completion of the tow the contents of the dredge were emptied on the back deck and the skipper sorted the catch removing all scallops from the table.
- Officers then measured the width/height of each scallop using callipers accurate to the nearest mm.
- The catch for each tow was split into over 110mm (the minimum size in ICES VIId) and under 110mm. both seperated groups of scallops were then weighed.
- On completion of the measurements the scallops were returned within the same area they were sampled.

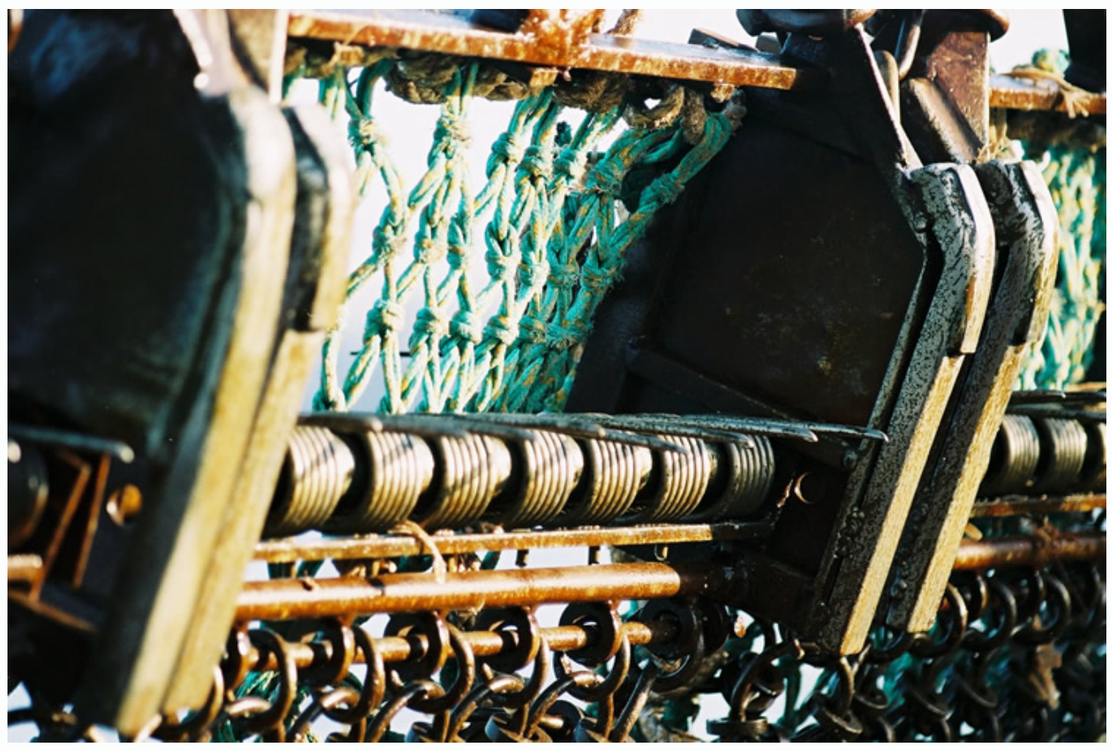

Figure 2 - example of an N-Viro Dredge

Results

The survey visited a total of 11 areas, completing 33 tows. In total 1263 scallops were caught, measured, weighed and returned.

- A range of sizes were collected with the smallest scallop caught measuring 45mm in width and the largest measuring 147mm.
- Figure 3 demonstrates the size distribution across all 11 sites.
- In total 43.8% of the scallops caught were over the minimum conservation reference size of 110mm in VIId
- A further 39% of scallops were between 102mm and 109mm indicating they are near to entering the fishery.

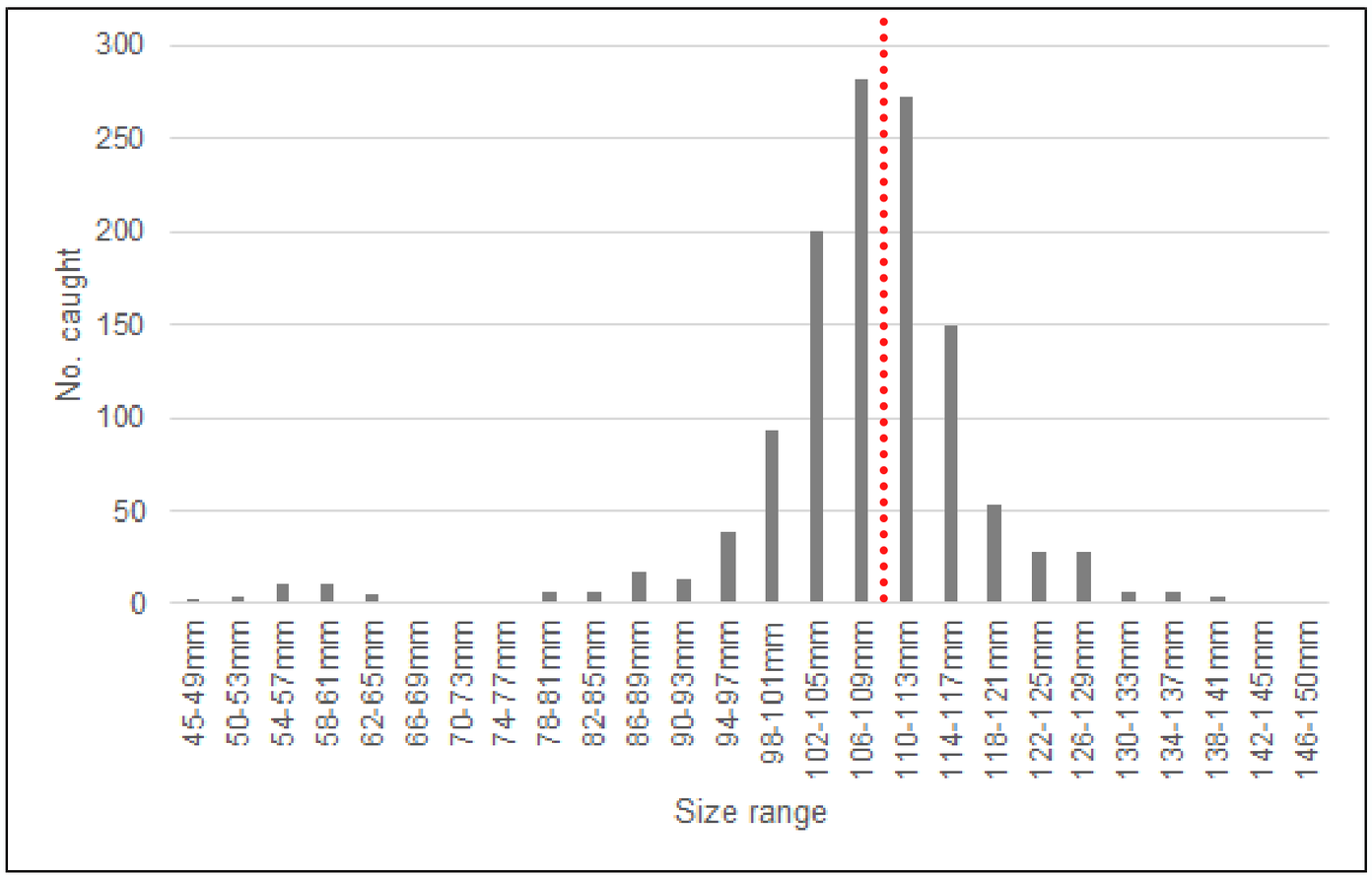

Figure 3 - Size frequency of scallop width (mm) caught across all sites sampled (red line indicates 110m minimum size for king scallops)

- 78 (6% of total) scallops were sampled under 90mm in width, this does not provide a true estimate of numbers of scallop of this age class due to the mesh size on the dredge but confirms the presence of early year classes. Roughly 50% of this group were around the 45-65mm width range indicating they are likely in their 1st-2nd year (depending on whether they were spring or autumn spawned). These scallops would typically not be retained by the dredge, due to their size these likely were caught up in old oyster and scallop shell instead of going through the mesh of the dredge, but again their presence in particular re-emphasizes recent recruitment to the fishery.
- Only 128 (10% of total) of the scallops sampled were over 118mm, this may reflect larger scallops having been subject to harvest by fishers operating in the Solent.

Figure 4 - Range of scallops found in a single tow - measuring 50mm width (left) to 140mm (right)

Site Comparison

- Catch rate per unit of effort (CPUE) was calculated at all sites by converting the data into weight of scallops (over 110m) per metre of dredge per hour (kg/m/hr).
- Figure 4 provides a summary of the average CPUE found in each survey area across the Solent.
- The highest CPUE was noted at Osbourne 2 and Ryde Sands.
- The highest number of scallops of all age classes were caught in Osbourne Bay at sites Osbourne 2 and 3 with 178 and 195 individual scallops caught respectively across the 3 tows.
- The highest proportion of over size scallops were caught at Spit sands with 77% measuring a width above 110m (n=49).

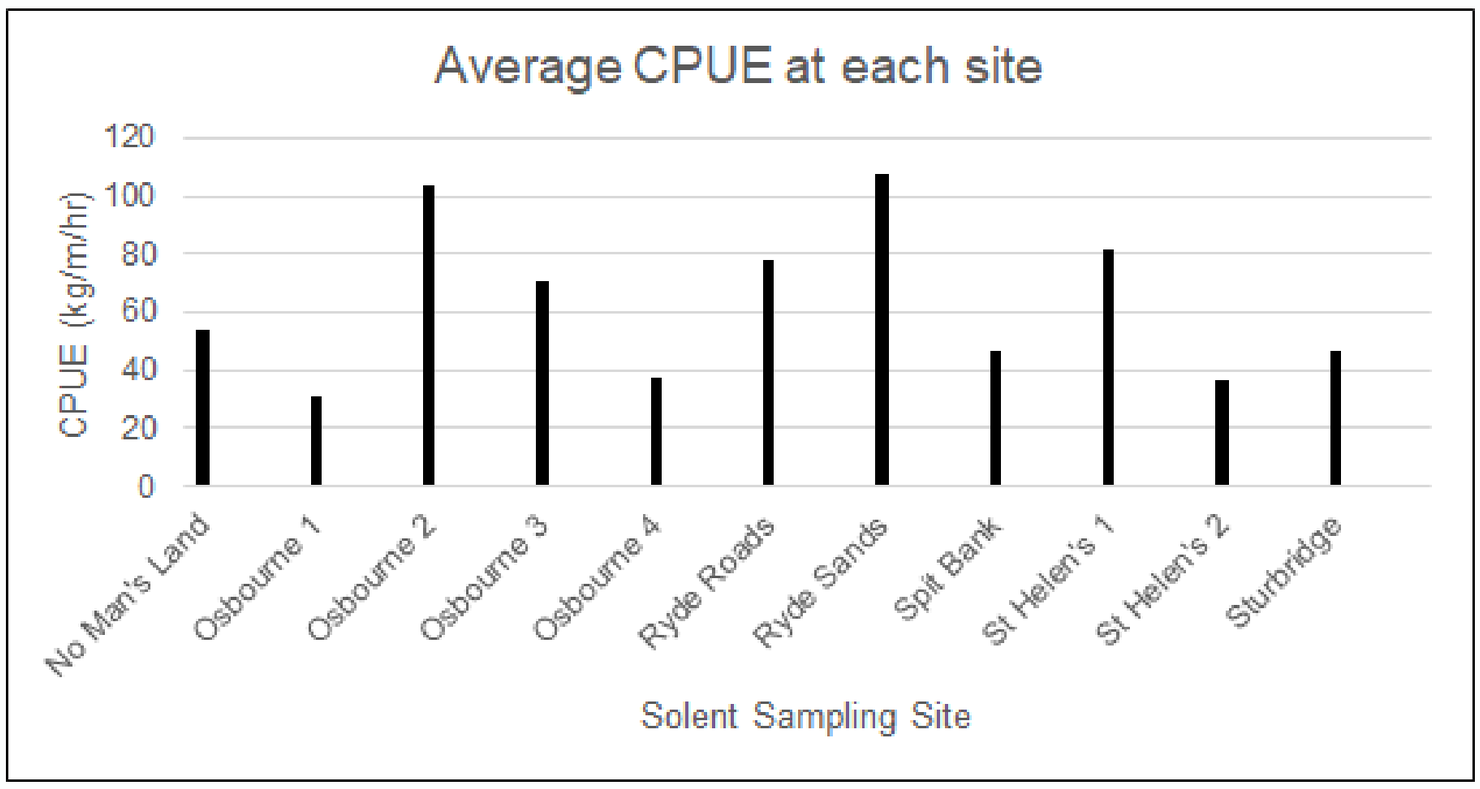

Figure 5 - Average Catch per unit of effort (kg/m/hr) caught at each of the different survey areas.

Population extent

- The extent of fishing activity has increased in recent years spreading from a focus around shellfish bed areas at St Helens's and No Man's Land forts into the wider Osbourne Bay area.
- One aim of the survey was to better understand the extent of scallop populations within the Solent by mapping the areas where scallops were caught.
- This survey focused on sites on the North East of the Isle of Wight and towards the entrance of Portsmouth Harbour. At all of the survey sites identified in Figure 1 scallops were found in the dredge.
- Analysis of other dredge survey data, such as the Solent native oyster survey, provides a wider distribution of survey sites, and although not focused on fishing for scallops, these are occassionaly sampled as a bycatch.
- Figure 6 provides an indication of where scallops were caught at sites across both surveys.
- Additional areas where scallops were sampled were Portsmouth and Langstone Harbours, Lee-on-the-Solent, entrance of the Hamble, Stanswood and on the North East coast of the Isle of Wight. The numbers caught in the dredges were much lower than in those fished area, but these new areas where scallops were sampled could provide some insight into areas the scallop populations may grow.

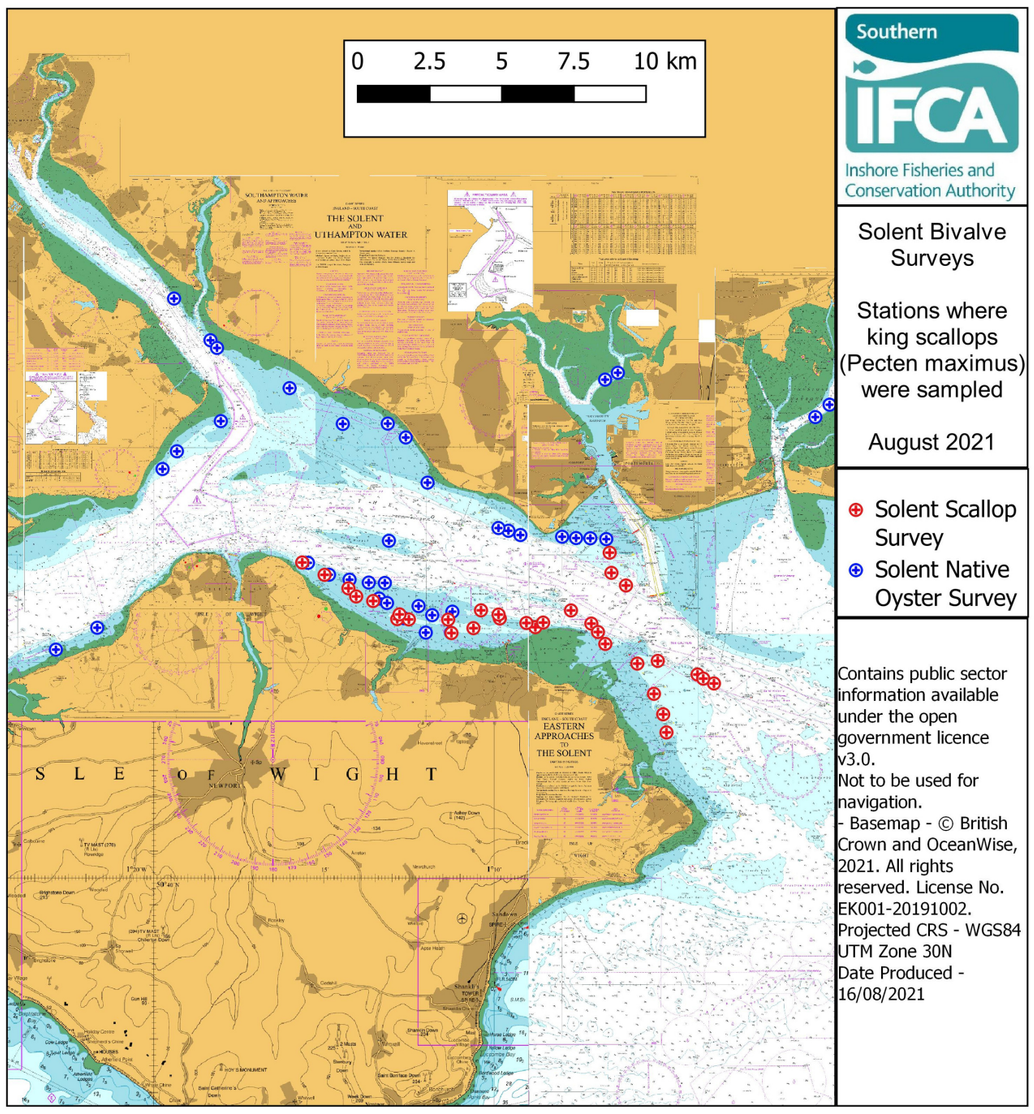

Figure 6 - Map indicating the location of king scallops found on multiple surveys (Solent Scallop and Solent Native Oyster)

Conclusions

- The survey demonstrates that a range of size scallops exist in Solent across the survey area including those yet to enter the fishery (<110m), although quantifying the smaller age classes is difficuly as they would not have been sampled by the fishing gear used.
- The number of scallops caught in size ranges >117mm dropped, indicating that fishing activities may have removed the larger scallops.
- The survey provides a baseline for population structure and catch rates that can be tracked by repeating the survey annually. Site co-ordinates have been retained to ensure consistency and CPUE in particular will provide a useful metric for monitoring trends in scallop populations.
- Scallops were sampled in all bed areas indicating a wide geographic range to the species. It is anticipated that this extends beyond the survey area, and future surveys may track further spread of the species. Initially further analysis of scallops found in other surveys, particularly the Solent native oyster survey has given an indication on areas where the population may increase and could inform future survey plans.
- Further work could be undertaken relating to aging scallops and growth rates, which may provide a better understanding of the anticipated recruitment into the fishery. Collaboration with academic or partner organisations may allow for this.

Acknowledgements

The successful completion of the survey was due to assistance provided by local members of the fishing community fengaged in the fishery, the skipper and the owner of vessel Solent Star - P6 for undertaking the survey, and CEFAS for the loaning of bluetooth callipers which contributed significantly to the efficiency of the sampling as well as helping reduce the number of surveyors required.