

Yachthaven Harbour, Hayling Island

Eelgrass Survey 2020

For:

Alpine Homes Ltd

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SUMMARY

A survey of eelgrass (*Zostera*) in Yachthaven Creek was carried out to update information from a previous survey carried out in 2011. The results (based mostly on recent Google Earth satellite photography) show a decrease in extent of the beds in the creek and that dense areas of eelgrass lie at their closest point c.80 metres from eastern side of the site of the new pontoon. There are also one or two small patches of more fragmented beds in close proximity to the pontoon site. It is considered that it should be possible to avoid all direct impacts to the eelgrass beds in Yachthaven Creek during construction and use of the new pontoon.

1.0 INTRODUCTION

- 1.1 A survey of eelgrass (*Zostera*) was undertaken in 2020 to provide updated information in relation to a proposed pontoon in Yachthaven Harbour, Hayling Island, as part of the Alpine Homes development on the site. Previous survey information on eelgrass in the harbour was presented in the 2011 ecology report (repeated here at **Appendix 2**). The survey data will feed into ecological mitigation strategies for the development, in particular to ensure that any impacts to the important eelgrass beds in the creek will be avoided or minimised.

2.0 METHODS

- 2.1 The survey was carried out by John Norton, assisted by Dean Swensson, on 15 June 2020. The harbour and creek area were examined visually with the aid of binoculars and by checking accessible areas of eelgrass growth. The survey focused on areas close to the proposed pontoon site but the whole of the creek sea wall was walked to gain a wider picture of the extent of eelgrass over the whole of the creek. Photographs were taken of the pontoon area and at intervals along the shore. Areas of eelgrass were provisionally marked onto printed copies of Google Earth satellite images and later mapped using QGIS software.
- 2.2 The survey was undertaken in fine, sunny weather during low tide; however the bright conditions made it difficult to see more distant areas of eelgrass. It was not possible to view or accurately map any seagrass beyond the middle of the main channel.

3.0 RESULTS

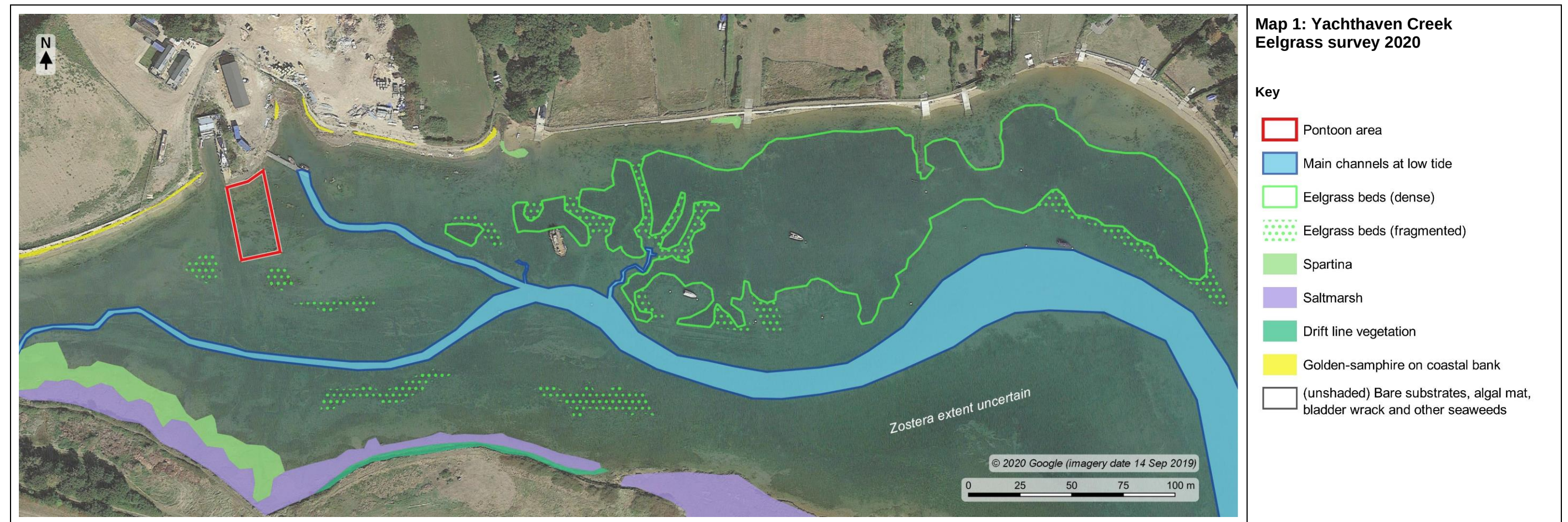
- 3.1 The results of the survey are illustrated on **Map 1**. Photographs are presented in **Appendix 1**. Map 1 also shows other vegetation present in the harbour, including cord-grass *Spartina* beds and saltmarsh, though these are mapped approximately along the southern shore.
- 3.2 A small specimen of eelgrass collected from the site was confirmed as being Eelgrass *Zostera marina*, based on leaf and shoot morphology (**Photo 8**).
- 3.3 It was evident that the areas of eelgrass mapped during the field survey correlated well with areas of dark blue-green colouration shown on the most recent Google Earth satellite

photograph, dated September 2019. Consequently the Google imagery was used as the main basis for the mapping. It was also possible to distinguish between areas of dense cover of eelgrass and areas where it was more fragmented (as had been done during previous surveys).

- 3.4 The proposed pontoon site consists entirely of an elevated section of muddy substrate which is strongly dominated by bladder wrack seaweeds (**Photos 1-2**), as is the adjacent area to the east, including the area under the existing jetty/pontoon and either side of the small channel which runs from here to the main channel (**Photo 3**). Similar vegetation was observed in 2011 and there has been no change in vegetation on the new pontoon site. The main areas of dense eelgrass in the creek are shown in **Photos 5-7**. The nearest of these lies 81m from the edge of the pontoon site (as mapped in Figure 1) at its closest point.
- 3.5 There are one or possibly two small areas of eelgrass in close proximity to the proposed pontoon site. The first of these was visible from the shore and is shown in **Photo 4**, measuring 160m². The second mapped to the south of the pontoon (c.110m²) was not visible from the shore and is difficult to say for certain whether it definitely supports eelgrass or not. However, previous surveys do show eelgrass in this general area.
- 3.6 The Google imagery did not appear to show any dense eelgrass beds on the south side of the main channel. However, two areas of fragmented eelgrass appear to be present towards the west end of the creek on the south side. The remainder of the area to the south has been marked as 'uncertain' on Map 1, but the eelgrass here appears to be at best fragmented, or possibly absent altogether. The total area of dense eelgrass mapped in 2020 is therefore 1.54 ha, with fragmented eelgrass 0.32 ha, giving a total of 1.86 ha.
- 3.7 The more detailed survey in 2011, which also covered the area to the south of the channel, produced a total area of 3.74 ha. Even allowing for the different survey methods and coverage, this indicates at least a small decline, which based on Google Earth satellite imagery appears mainly due to a contraction in the beds in the western part of the creek, including those areas in closer proximity to the proposed pontoon site.
- 3.8 It is interesting to note that the most recent of the two Hampshire and Isle of Wight Wildlife Trust (HWT) surveys (conducted between 2006 and 2008; marked in red on the map in Appendix 2) mapped the distribution of eelgrass in the creek mainly to the south of the channel. This did not correlate with the 2011 survey, nor the present survey, and it seems possible that the HWT data was mapped incorrectly. It is unlikely that such a large change in spatial distribution would occur in the space of three years or so, compared to relatively little change between 2011 and 2020.

4.0 CONCLUSIONS

The current extent of Eelgrass *Zostera marina* in Yachthaven Creek has possibly reduced slightly from that recorded in 2011. The main areas occur to the east of the proposed pontoon site, which itself supports dense bladder wrack seaweed of lower ecological value than the eelgrass beds. It is considered that it should be possible to avoid all direct impacts to the nearby eelgrass beds during construction and use of the new pontoon.



APPENDIX 1: PHOTOGRAPHS

Photographs taken on 13 June 2018.



Photo 1. View of proposed pontoon site, showing dominance of bladder wrack seaweed on muddy substrate.



Photo 2. Northern part of proposed pontoon site in foreground, viewing east; existing jetty visible on left side.



Photo 3. Channel leading into harbour from existing jetty, showing absence of eelgrass in this area.



Photo 4. Patch of eelgrass (yellow line) adjacent to the south-west corner of the proposed pontoon area (see Map 1).



Photo 5. View across creek from first slipway, 130m east of the proposed pontoon. Here, some dense areas of eelgrass are clearly visible as dark green patches on the mud, but form a narrow zone.



Photo 6. View from first slipway looking south-east. The eelgrass beds widen out here and almost reach the shingle areas on the upper part of the shore.



Photo 7. View south-east into the creek from the third slipway, 320m east of the proposed pontoon. Most of the greenish colouration is probably eelgrass beds.



Photo 8. Eelgrass (*Zostera marina*) in typical muddy substrate.

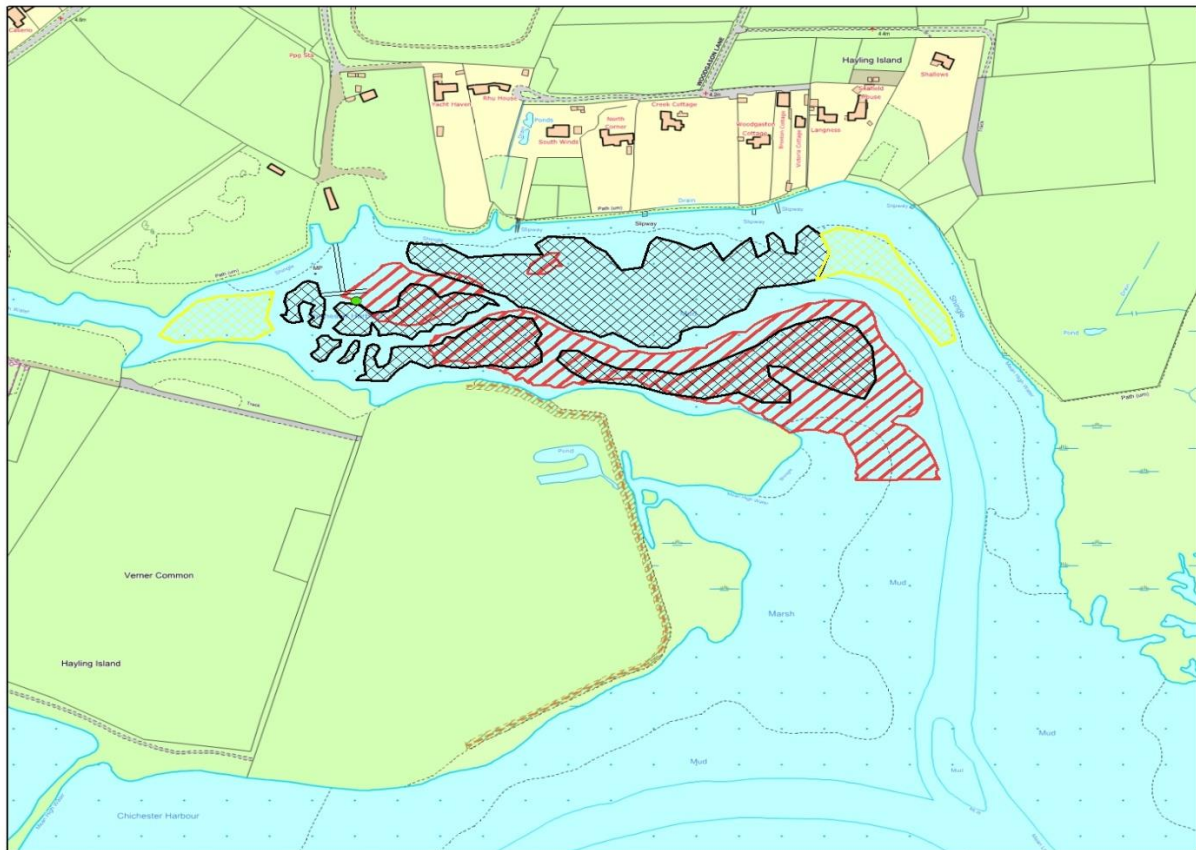
APPENDIX 2: EXTRACT FROM 2011 ECOLOGY REPORT

Eelgrass beds

HWT compiled maps of eelgrass *Zostera* beds of Chichester Harbour (20) which show the results of surveys in Chichester Harbour from 1995-2005 and 2006-2008. The exact years of survey are not known but the distribution appears to have contracted when the more recent survey was carried out. The map indicates that *Zostera* grows in parts of the creek mostly to the east of the proposed pontoon area (in lower parts of the creek) and not at higher levels which are densely vegetated by larger seaweeds, as would be expected from the known habitat preferences and ecology of the species. Further smaller and fragmented beds are also distributed to the west of the proposed pontoon area.

A survey of the extent of the eelgrass within the zone of influence was undertaken in September and October 2011. The beds' extent and positions were determined on an aerial image through a combination of on shore observations using optical aids and wading out through the channels at low tide. Bed extents were recorded with a hand held GPS device, mapped in the field and later quantified using Geographic Information Systems (GIS). The qualitative on shore visual observations were then drawn as polygons over the aerial image using the GPS points to define bed positions and extents. The survey methodology followed the JNCCs marine monitoring handbook (21) as far as was possible. However, in some instances this was not possible, such as the timing of the survey falling outside the optimum period (May – August) and the most recent remote sensing data available being three years old. Using the polygons created by the site visit, the eelgrass beds are estimated to be 3.74ha (**Figure 9**) in area and therefore currently represent approximately 3.74% of the total area of eel grass in the harbour (22).

The HWT survey (20, see **Figure 9**) recorded the extent of the eelgrass beds within the zone of influence as 3.27ha. There was a marked difference between the two surveys in the spatial distributions of the beds and in particular the northern bed adjacent to the row of shoreline houses. However, when comparing the approximated areas for the two surveys the 2011 data indicate an increase of 12.6%. During the 2011 it was noted that the beds appearing fragmented in nature (i.e. density falling below 50% coverage, qualitatively assessed on site using a 0.5m² quadrat). In these instances (plotted as yellow polygons in the map) the egg wrack *Ascophyllum nodosum* which dominates the near shore eulittoral zone, is encroaching into the normally dense monospecific *Zostera* spp. stands, which may be indicative of some form of disturbance already occurring. For the remaining beds density largely exceeded 85% by coverage. The channels present were also covered by *Ulva* for approximately 2m on both sides and thus causes a further degree of fragmentation between beds although likely to be a naturally occurring fragmentation.



↑ OS map replicated under licence. Licence number 100048821

Figure 9: Extent of eelgrass beds within the zone of influence. Red hatched areas show the extent of the eelgrass as mapped in 2008 by HWT (20), black and yellow crosshatched areas show the extent of eelgrass in 2011 based on field survey data with the yellow crosshatching indicating areas where the eelgrass is fragmented (Scale 1:4,000).

During the late summer/autumn 2011 period up to four boats were moored on swinging moorings within the creek (see **Figure 10** for an example). Within the vicinity of these moorings, damage to the habitat was apparent due to the ridge of the hull of the moored boats creating substantial ridges and scars within the eelgrass bed, effectively reducing the extent of the beds (**Figures 11** and **12**). With relevant permission and licences, it is understood that presently 26 swinging berths are available in the Yachthaven Creek from Chichester Harbour Conservancy. The latest eelgrass survey carried out during Autumn 2011 has shown that eelgrass beds are widespread although increasingly fragmented over Yachthaven and that there would be very few areas where swinging berths would not have at least some adverse impact upon the eelgrass beds, potentially causing a significant reduction in the overall quantity and distribution. This may have long term negative influences such as encroachment and colonisation from other less ecologically important species such as sea lettuce *Ulva lactuca* and *Fucus spp.*, or erosion of soft sediments with the continuous scaring and scraping of the sediments from long term use and likely reducing the likelihood of re-colonisation by eelgrass. This may be an explanation for the apparent fragmentation of the eelgrass beds when the recent extent is compared to that from 2008 (20).

The eelgrass beds within Chichester Harbour as a whole are an important feature of the Solent Maritime SAC and are vital for the bird populations which are features of the Chichester and Langstone Harbours

SPA/Ramsar Site/SPA. They are an Annex I habitat under the Habitats Regulations and are a priority within the UKBAP, HBAP and HvBAP. Therefore, the eelgrass beds within the zone of influence are considered to be of **national value**, although they may be declining in quality as a result of swing moorings.