

be resolved by the Environment Agency LiDAR data". What did this mean regarding the limitations of the LIDAR analysis?

CS explained that this related to the vertical accuracy of Lidar which results in there being a large horizontal distance (approx. 30m) in the potentially predicted MLW alignment (due to the flat intertidal topography) and that this distance (30m) is greater than the worst case effect of the ferry (should that effect materialise). This means that it would always be difficult to detect any effect using this analysis alone. The limitation of the analysis was recognised (and had been throughout the assessment and monitoring processes). Nevertheless, the analysis, as presented in the report, provided reassurances that there was no clear adverse change following on from (and including consideration of) all the more detailed survey work using other techniques that have been undertaken over the preceding years. These were not undermined by recognising the limitations of Lidar.

3) **RW** asked for clarification about the final bullet on page 12 of the report that says: 'There are other activities on site (including the LHC's ongoing rock armouring and the more recent channel widening work) that will be more clearly influencing the morphology of the estuary'. He noted that the LHC work did not widen the channel but maintained it between the marked navigation posts (in fact the channel is narrower now after the navigation posts were moved in 2010).

The Panel agreed that the report should refer to 'channel dredging/maintenance rather than channel widening. It was agreed that it was right for the report to mention that the LHC's work to maintain the channel and install protective breakwaters would result in changes that would be measurable using LiDAR and bathymetric survey. work whereas any ferry effects (should they exist) would not be.

4) **RW** asked for clarification as to why no volume calculation was possible from the CCO data this year (as suggested on page 16 of the report).

AC explained that this was because of the inherent survey variations ('noise') and that overall the results of the CCO survey indicated no change in sediment volumes in the recharge area in the context of this 'noise'. The Panel agreed that the report should indicate clearly that laser scanning is very accurate and the noise/variation is very small.

AC reviewed Figure 5 further and described how it showed encouraging accretion within the drainage channel emanating from the recharge area.. He recommended that an inset image be included in the report that more closely describes the recharge area. **CS** agreed that there was accretion in this area (it was also indicated by Figure 7). This would be related in part to the reduction of tidal volumes through this channel following the completion of the recharge work.

PB asked, and the Panel agreed, that references to the 5 knot ferry speed limit in the report be corrected to 5.5 knot ferry speed. **CS** noted that 5 knots was used because that was often what the actual average speed of the ferries ended up being despite the fact that 5.5 knots was the agreed speed limit. (This matter has been clarified in the final report for publication).

JB1 reported on the advice that she had received from the Environment Agency coastal specialist (Uwe Dornbusch) regarding the interpretations of the LIDAR data. **CS** said that he would follow up these technical comments. (In the course of subsequent discussions with Dr Dornbusch, it was agreed that, while the Panel would not monitor or meet for five years [see minutes below], ABPmer would separately (as part of its own research) consider the technical suggestions Dr Dornbusch made regarding Lidar analysis. This extra analysis

would not be a formal part of the EMP process (though it would be made available to the Panel).

RW asked whether any further use could be made of the CCO laser scan survey technique that had been used previously to measure if there had been changes in elevation of the intertidal habitat either side of the navigation channel

AC said that the data had been collected from a trial of the equipment but it was concluded that this data, while interesting and providing a broad description of the channel morphology, did not resolve the position of the mean low water along the intertidal areas so there was no intention to use this for the ferry monitoring or to repeat this work.

HT noted that there was plenty of opportunity for future scientific research (e.g by university students) that would add to the information already collected).

Ferry trippage

JB Reviewed the trippage and confirmed that due to the market there were 10,680 trips in 2015 and there were anticipated to be 10,774 in 2016 with 2 ships operating and no passing taking place in the river.

Future of the EMP's work

It was agreed that the recharge had worked very effectively. Since March 2013, the sediment had been retained and was ecologically functioning. Based on this evidence, and the result of the separate ferry monitoring work, there was confidence that there was no adverse effect on the integrity of the Solent European Marine Site (EMS) and that such an effect would not occur over the coming years.

As a result, a 5-year pause in the monitoring programme was agreed and it was concluded that the next meeting of the EMP should be held in November 2020. The Panel was confident that the EMS site integrity would not be affected based on the evidence collected over the last seven years. The Panel accepted that, should any ferry effects arise (none had been seen to date), they would be slow and progressive over the 30 year lifespan of the ferry operations. Any unforeseen issues could be addressed in the future as they occurred.

In 2020 the EMP would be able to advise on further data collation and monitoring work and consider the need for mitigation measures if required. The Panel noted that, by that time, it would be able to evaluate more clearly the stability of the recharge against the changes that will have taken place in the Lymington Estuary.

HT and **KB** requested that a final document be produced to accompany the temporary cessation of monitoring and meetings. This would enable the process to be picked up more easily in 2020. It was agreed that this would be in the form of a covering note that audited the work done and the documents produced (including the S106 document).

There being no other business, the meeting closed.