

# East Channel association

**Regional Environmental  
Monitoring & Management  
Reporting Programme**

**2010 East Channel Environmental Network Meeting  
Post Event Briefing**

### The East Channel Association (ECA)

The ECA is an association of marine aggregate companies who are permitted, or have applied for permission, to extract sand and gravel from the East Channel Region (ECR). Read more about their plans and operations at [www.eastchannel.info](http://www.eastchannel.info)

The companies of the ECA are:



**CEMEX UK Marine Ltd**



**DEME Building Materials Ltd**



**Hanson Aggregates Marine Ltd**  
(now part of the Heidelberg Cement Group)



**United Marine Dredging Ltd**



**Volker Dredging Ltd**

### The ECA Charter

The companies of the ECA have committed to operate under the terms of a 'code of practice' known as the ECA Charter.

#### The ECA Charter

The ECA have developed a code of practice to assist management of their activities. The ECA are committed to managing their activities cooperatively in the ECR in order to:

- Implement the results and recommendations of the REA and ensuing studies as appropriate to individual applications.
- Co-operate with and fund future regional environmental studies and research.
- Recognise the results of further environmental studies and respond to recommendations.
- Monitor, mitigate and manage environmental impacts and operational activity on a regional basis.
- Carefully manage dredge areas, with an aim of reducing the dredged area to a minimum.
- Restrict operational dredging areas through zoning of permission areas.
- Only target resources >2m thick.
- Minimise screening.
- Ensure transparency – make all relevant dredging data publicly available through regular company reporting.
- Enable Audit – all relevant data will be made available for analysis by independent experts.

## 1. Introduction

The fifth annual East Channel Environmental Network (ECEN) meeting was held at Baden Powell House, London, on the 13<sup>th</sup> July, 2010. The meeting is arranged by the East Channel Association (ECA), a group of companies who operate marine aggregate extraction licences in the East Channel Region (ECR). The purpose of the meeting is to present the findings of regional environmental monitoring to stakeholders, invite comment and incite discussion regarding the dredging operations and the ECA's future plans.

The briefing note is intended for circulation to all ECEN meeting attendees and ECR stakeholders and has been produced to provide an overview of the event and to address matters raised prior to, during and immediately following the meeting.

## 2. Status of Dredging

The status of licences and applications and levels of dredging activity in the region were reviewed during the meeting. At the meeting current levels of dredging as a proportion of the permitted tonnage were discussed. Data has been reviewed since the meeting and revised proportional measures are presented in Table 1.

**Table 1 Tonnage stated in REA, permitted tonnage and actual dredged tonnage, Aug 2006 - Dec 2009, ECR (Data source: Posford Haskoning, 2003, Crown Estate/Haskoning UK, 2010).**

	REA	Permitted	Actual
Tonnage	28.33	26.91	6.15

It is therefore apparent that actual extraction rates from the region are less than 22% of that used as the basis for impact assessment in the REA (lower offtake scenario of 8.5Mtpa) and approximately 23% of permitted extraction tonnage. This information will form a basic component of the data required when assessing the impact of operations in the first five years of activity and when plans are being developed for subsequent periods of dredging activity.

## 3. Status of Monitoring

Monitoring has been undertaken annually since 2005. A significant amount of effort has been invested in the regional survey programme and the results of the surveys have been shown to be capable of detecting biological impacts from dredging in the active dredge zones. Additionally, the physical process monitoring at Area 473 East shows deposits of sand on the seabed – suggesting that secondary impacts of dredging are starting to develop. Along with established elements of the monitoring programme, a sediment tracer survey and plume survey were completed in 2008. The results of these surveys will further improve understanding of the nature and scale of impacts resulting from dredging in the region.

## 4. Current Activities

Annual biological monitoring surveys have been completed from 2005 to 2010 and seabed sediment monitoring work has been undertaken at Area 473 East in 2005, 2007, 2008 and 2009. A large amount of effort is now being directed towards rationalising, integrating and interpreting the data acquired in previous years in order that the nature and extent of dredging impacts can be properly described. This will help inform future dredging and monitoring plans.

### 4.1. The First Regional Monitoring Review (RMR I)

Now that the dredging in the ECR has entered its 5<sup>th</sup> year, the ECA have initiated the First Regional Monitoring Review (RMR I). A substantive review of dredging during the first 5 years of activity is required by individual licence conditions and to support this process the ECA are committed to completing a regional review. A basic scope for the RMR I was presented to stakeholders early in 2009 and at present the ECR are collating and integrating the results of monitoring. The outputs of this process will be used to test the predictions of the REA and determine whether the REA provided a sound basis for developing dredging proposals. With the resulting improvement in understanding, dredging proposals for years 6-10 will be developed.

### 5. The ECEN Meeting – Questions, Answers and Actions

The 2010 ECEN meeting was well attended by individuals representing a variety of organisations. During presentations a number of issues were raised by members of the audience. Where possible, the issues raised are dealt with below. In some cases, due to the nature of the issue raised, it has not been possible to provide a definitive answer at this time. Work towards dealing with such issues will continue in the coming months.

#### Issue 1: Area 477

Why has the application for Area 477 been withdrawn?

The company concerned reports that the application for Area 477 has been withdrawn for operational and economic reasons.

#### Issue 2: Extent of Monitoring

How far has the monitoring extended?

Spatially, monitoring is undertaken over an area of seabed defined by the tidal excursion around licence and application areas. Temporally, monitoring has been undertaken annually since 2005.

#### Issue 3: Character of Screened and Cargo Sediment

What is the difference between the sediment loaded compared with the sediment rejected during screening?

Aggregate material extracted from the ECR is generally a 50/50 mix of gravel and coarse sand. The material returned to the sea through screening is predominantly fine/medium sand and silt/clay. Some coarse sand may also be rejected during screening. More details regarding the character of sediment loaded and rejected during dredging operations in the region will be provided in the first regional monitoring review.

#### Issue 4: Screening Discharges

How much material is rejected during screening?

Screening discharges have been measured as part of the plume study. The results of the study will provide details of the mass of sediment discharges by both screening and overspill. The plume study was due to be published in 2010 but further work has been required to properly define the nature and mass of sediment returned to the sea during dredging. The results of the plume study will be published in 2011 and incorporated into the first regional monitoring review.

#### Issue 5: Sediment Character

What is the chemical composition of the material rejected?

Issues related to the fine sediment and contamination in the ECR were covered in the briefing note issued following the 2009 ECEN meeting. The information is represented as an Appendix to this document (Appendix 1).

#### Issue 6: Impacts on Biological Communities

Have the communities in the reference areas changed?

Some change in the reference area communities has been detected. The changes noted may be due to natural variation in the communities' constituent fauna or may be due to localised variability in the physical nature of the seabed. The reasons for changes in both reference areas and impacts areas will be investigated in more detail in the first regional monitoring review.

#### Issue 7: Impacts on Biological Communities

Is it possible to state that the changes detected in reference areas are not due to dredging activity?

Yes. Where detected, changes occur based on the presence or absence of one or two distinct species. Also, if changes were due to dredging then they would be evident at sites within the secondary impact areas and to date no such changes have been detected.

### **Issue 8: Future Dredging and Assessment of Cumulative and In-Combination Impacts**

Will dredging activity increase in future and how will you assess the cumulative and in-combination effects of this increase?

Much higher extraction tonnages were modelled at the REA and EIA stage of the planning process and predicted impacts were assessed to be acceptable. On that basis, the volume of sediment extracted from the region could be increased from present levels and still be within the acceptable limits defined during the REA and EIA process. There is now very good empirical data that can be used to test and refine the models upon which original decisions were made. The testing and revision of models will enable a more informed management and monitoring programme in the future that will be better able to assess regional cumulative and in-combination effects of dredging.

### **Issue 9: Sediment Character**

What chemical analysis has been undertaken on silt contained in the seabed sediment?

Issues related to chemical contaminants and dredging in the ECR were covered in the briefing note issued following the 2009 ECEN meeting. The information is represented as an Appendix to this document (Appendix 1).

### **Issue 10: Reference Areas**

Could Area 477 become a reference site for the biological programme?

Some sites sampled as part of the Area 477 monitoring may be revisited to provide contextual data but there are already sufficient data to assess impacts and monitor the natural variability of regional faunal communities.

### **Issue 11: Secondary Impacts**

If the sand moving north-east from the dredging area is different in character to that occurring naturally and then should more monitoring be concentrated in the north-east?

The data generated from sampling and analysis of seabed sediment in the region shows that naturally occurring mobile sand and mobile sand that exists as a result of dredging are similar in nature. Mobile sand in the region is transported north-eastwards to an area of naturally sandy seabed and entrainment into bank features. Due to the fact that the sand released by dredging would be undetectable against the naturally occurring sandy seabed conditions to the north-east, more intense monitoring of this area would yield no useful data.

### **Issue 12: Impact Magnitude**

Can any conclusions regarding the magnitude of impacts be drawn based on the evidence from monitoring?

To date, the results of monitoring suggest the impacts detected are occurring as predicted (i.e. changes to faunal communities in the primary impact zones) but are less severe than predicted. The lower severity of impacts is most likely due to the limited extraction to date compared with the predicted extraction and highly conservative assumptions used as the basis for the REA. A full consideration of the results of monitoring will be undertaken during the first regional monitoring review.

### **Issue 13: Plume Dispersion**

Can the plume sediments be re-suspended?

The finest particles released by dredging can be re-suspended on subsequent tides. During each re-suspension event the particles are dispersed until they become part of the natural background material being transported through the region.

### **Issue 14: Herring Spawning**

Is herring spawning sensitive to fine sediment?

The herring spawning potential study will consider the effect of fine sediment and other effects of dredging. The findings of the study will be incorporated into the first regional monitoring review.

### **Issue 15: MCZ Project**

What contribution is the ECA making to the MCZ project?

The ECA are on the MCZ Steering Group and are, and will be, making contributions as appropriate. This is likely to include monitoring survey results and data linked to EIA/REA documents.

### **Issue 16: Secondary Impacts of Dredging**

How far are the sand streaks to the north-east of Area 473 detectable?

Sand streaks are evident up to 2km from the boundary of the licence area based on the results of sidescan sonar data.

### **Issue 17: Results of Tracer Study**

How long was tracer detected for following release? What would have happened to the tracer after the survey ended?

Searches for tracer took place three times in the 22 days following release. Tracer was detected on all occasions. Following the survey tracer would have continued to disperse in largely the same manner it had over the first 22 days. As such, a multiplication of the results of obtained during the survey would provide a good indication of the pattern of dispersal in the following weeks.

### **Issue 18: Physical Process Monitoring**

How are plumes/tracer/sidescan sonar data linked?

The sidescan sonar provides a long term view of the seabed texture, seabed sediment character and sediment build up. The plume and tracer studies provide data regarding how sediment released during dredging behaves during settling, deposition and transport. The elements of the physical process monitoring are linked insofar as their combined results will provide an integrated view of the processes by which dredging changes the physical nature of the environment.

### Appendix 1 – Extract from 2009 ECEN Briefing Note Discussing Sediment Contamination in the ECR

**During the meeting the need for environmental impact assessments of smaller grain sizes and ultrafine silt particles on the biodiversity affected by the plume was flagged. Bearing in mind that toxic materials released into the marine environment tend to be reconcentrated in silt, over what distance should monitoring of the plume occur, as the finer silt particles will travel much further?**

The REA states that 'Siltation effects are short-term and localised as all tides in the ECR have the capability to resuspend silts, consequently there will no noticeable change to seabed sediments. Continual resuspension will result in gradual transport of the silts out of the ECR to the north-east. Cumulative siltation due to multiple, simultaneous dredging operations is predicted to be negligible given the scale of the ECR. If production increases to 17Mtpa, siltation is again expected to be insignificant.'

The plume survey aims to describe the character and behaviour of sediment discharged from a dredger during operations in the ECR. By virtue of its design, the survey is capable of measuring the concentration of suspended sediment following discharge from the dredger at long distances from the site of dredging. Measurements taken during the survey, show that the volume of very fine sediment (silt and clay) discharged is low. Thus, it is anticipated that following dispersion of these particles over the spatial extent of the plume, their effect on the biology of the seabed will be negligible. Additionally, deposition of silt in this region is likely to be temporary and resuspension of silt/clay particles and transport away from the region is predicted. The implication of this is that silt/clay particles will present a negligible risk to the health of seabed habitats and species. Of significantly greater importance, are the effect of sand sized grains that are discharged from the dredger. Sand discharges occur in much greater volume and are predicted to result in more noticeable impacts. The plume, tracer and seabed sediment survey have all been designed to provide information capable of monitoring the fate of discharged sand particles as these pose the greatest risk to the health of sensitive seabed habitats and species.

As the plume study data are presently being interpreted, it is not possible to provide further detail on this issue at present. However, the ECA note the points made by Marinet in this regard and will pass these on to their plume survey contractors for consideration during reporting.

It is worth noting the findings of the SEA study for the region (SEA8 Contaminants: A Review of the Contaminant Status of SEA 8 covering the Western Approaches, Celtic Sea and English Channel. 2007. Prepared by: David Sheahan, Steven Brooks, Angela Raffo, Carol Smedley and Robin Law, CEFAS. From [http://www.offshore-sea.org.uk/consultations/SEA\\_8/SEA8\\_TechRep\\_Contaminants.pdf](http://www.offshore-sea.org.uk/consultations/SEA_8/SEA8_TechRep_Contaminants.pdf)). Regarding contamination of water and seabed sediment the study notes 'As sediments adsorb many groups of contaminants it is not surprising that [in the SEA 8 area] most sediment contaminant concentrations were at least 3 orders of magnitude higher than those measured in seawater samples. With the exception of alkylphenols, which were not detected in any of the sediment samples, highest concentrations of all contaminants measured in sediment samples were consistently found at the mouth of the River Severn/ Bristol channel. The proximity of this area to industrialised centres (e.g. Bristol, Cardiff, Swansea) was likely to be responsible for the higher concentrations of contaminants. Elevated concentrations of metals were also found at the mouth of the River Tamar. Historical mining activity is thought to be the major contributor to the high sediment metal loads within this area.'

Thus there is no suggestion that the East Channel Region has a contamination problem and that sediment contamination is only a significant problem in inshore areas close to industrialised centres and dredge disposal sites. Levels of contaminants in seawater and sediment in the East Channel Region were greatest inshore, proximal to ports and harbours. Even so, only in extreme cases, close to large industrialised ports, were maximum allowable concentrations exceeded.

The proposals for licences to extract aggregate in the ECR have been thoroughly assessed both on a licence specific scale and through the REA process. At no point was the potential effect of sediment toxicity considered to be significant.

