

East Channel association

**Regional Environmental
Monitoring & Management
Reporting Programme**

Extraction Management Reporting

Dredging Activity Report Series: Volume 1, Issue 3

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

The companies of the ECA are:



Britannia Aggregates Ltd



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.

Document Information

This document forms a component of the ECR Dredging Activity Report Series. Dredging activity reporting, in turn, forms part of the overall ECA Regional Environmental Monitoring and Management (REMM) Reporting Programme. A full description of the ECA REMM Reporting Programme can be viewed online at www.eastchannel.info.

This report should be cited as:

ECA and MarineSpace. 2009. East Channel Region Dredging Activity Report – 2008 Activity. Volume 1, Issue 3.

The dredging activity data presented in this report has been provided by The Crown Estate's agents Haskoning UK. The data have been drawn from Electronic Monitoring System (EMS) recordings made by the vessels of the ECA companies.

This report has been completed on behalf of the ECA by MarineSpace Ltd. Any queries regarding the information included in the report may be directed to the Regional Development Manager at:

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Circulation

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East Channel Association (ECA) Data

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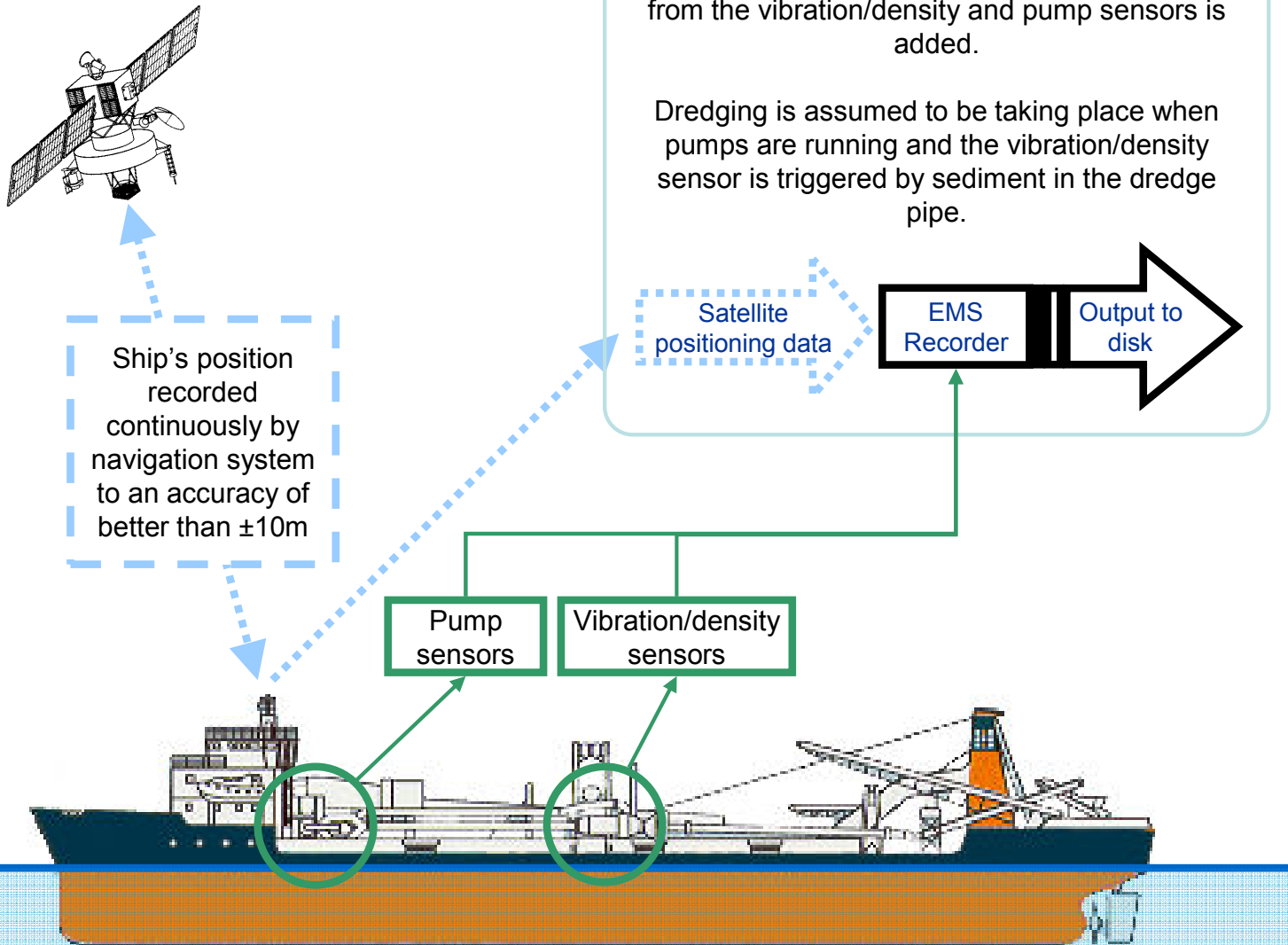
1. Dredging Activity Reporting in the ECR – EMS Data

Dredging activity in the ECR is undertaken by collation of the records of the Electronic Monitoring System (EMS) that is installed on all dredging vessels. Use of an EMS is a legal requirement for all companies operating dredging vessels.

All marine aggregate dredging operations in the United Kingdom are continuously monitored using a 'black box' (EMS). The EMS uses the ship's satellite positioning system and sensors on board the vessel to record its position and activity. Data are encrypted so that the system cannot be tampered with. The data are provided to the Crown Estate on a monthly basis and are consolidated in an annual dredging activity report produced by BMAPA and the Crown Estate. The schematic shows the basics of the system.



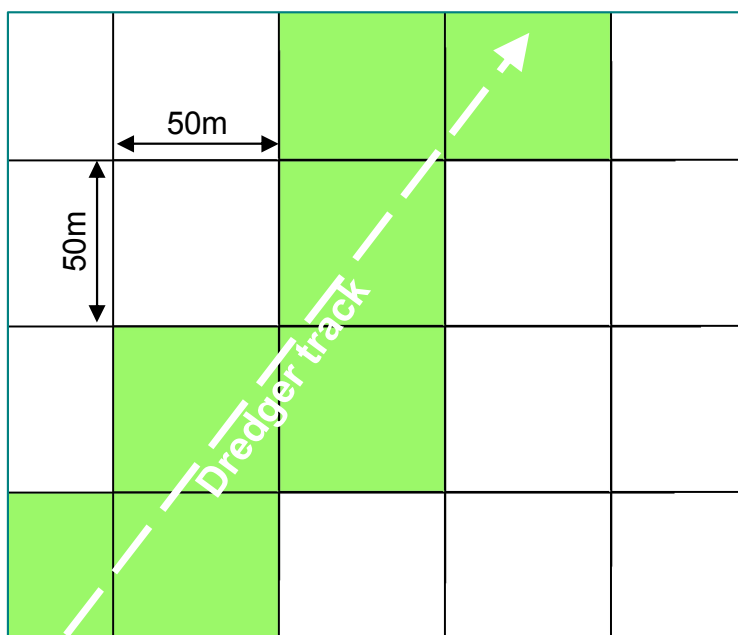
Image: BMAPA



1.1. What Does the EMS Record?

The EMS combines data from the satellite navigation system and sensors on the dredge pumps and pipe. In this way records can be kept of where the dredger is and what it is doing. The data are recorded and visualised as a track plot that shows where the dredger went and its activity.

This data is then plotted over a 50m x 50m grid and the time spent within each cell of the grid is recorded. An example of this is shown in the schematic below.



In this case the dredger has transited across the chart and each 50m x 50m cell through which the dredger passed has been highlighted. It can be seen from this that this method of recording dredging activity over-estimates the area directly affected by a single pass of the dredge gear and this should be borne in mind when reviewing the dredging activity data. However, for the purposes of monitoring activity over a long time series EMS data provides a powerful tool and presents an opportunity to relate dredging activity to seabed impact recorded by seabed monitoring surveys.

The data presented in this report has been provided by the Crown Estate's Agents, Royal Haskoning, who are responsible for collating all EMS data for the UK.

1.2. How is the EMS Data Presented?

As described, data are collated and plotted on a 50m x 50m grid. The time that dredgers have spent within each cell is added and a total time is calculated for that cell. The data are presented as intensity plots. Three levels of intensity are presented:

Low = <15mins dredging activity per cell, per year.

Medium = 15mins – 1hr 15mins dredging activity per cell, per year.

High = >1hr 15mins dredging activity per cell, per year.

Colours are ascribed to the three levels of intensity:

Low Intensity	
Medium Intensity	
High Intensity	

2. Issue of Licences in the ECR in 2008

One licence was issued in 2008. DEME Building Materials Ltd received a licence to dredge Area 478. This brings the total number of licences issued in the ECR to 6. A summary of all licences issued to date is presented below.

Area	Licencee(s)	Date of Issue
461	Volker	2006
473	Hanson & CEMEX	2006
474	Hanson	2006
475	Hanson	2006
464/458	CEMEX & UMD	2007
478	DEME	2008

3. Overview of Dredging Activity in the ECR in 2008

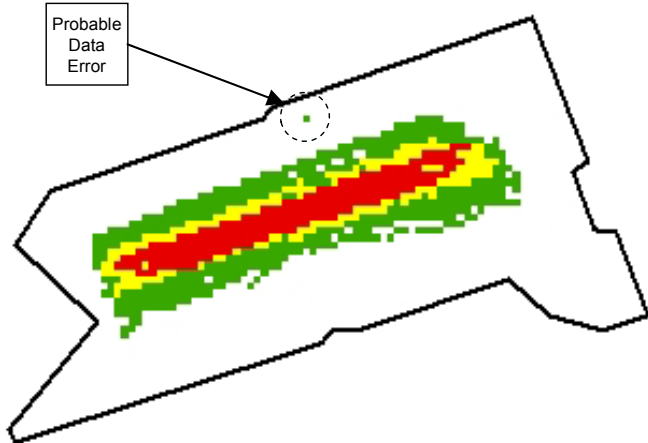
A licence to extract aggregate was issued to DEME Building Materials Ltd in 2008 for Area 478. Dredging was initiated in Area 478 in 2008 with extraction of trial cargos. Dredging continued on Areas 473 East, 474 Central, 464/458 and 461. No dredging occurred in Area 475 during the reporting period.

Seasonal dredging restrictions on Areas 461 and 478, in light of sensitivities associated with herring spawning activity, meant that no activity was permitted on these licences in January, February, November or December of 2008. Restrictions on screening were observed on Areas 461 and 478. Screening was permitted on the other active areas, 473 East, 474 Central and 464/458.

3.1. Licence Area Dredging Activity and Intensity

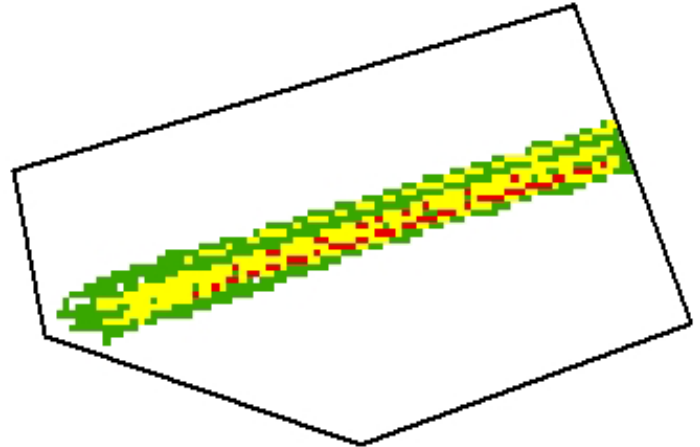
NB Low intensity = <15mins, per cell, per year
 Medium intensity = 15mins–1hr 15mins, per cell, per year
 High intensity = >1hr 15mins, per cell per year

3.1.1. Area 473 East (Hanson/CEMEX)



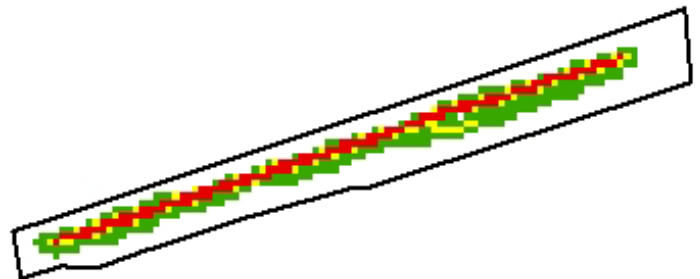
Dredging activity in Area 473 East was restricted to the designated active dredge zone. Maximum intensity recorded over any 50mx50m cell was >1hr 15mins. No out of area dredging events occurred during the recording period. The area of 50x50m cells within which dredging occurred was 2.0225km². Of this total area, low intensity dredging occurred in 1.075km², medium intensity in 0.4075km² and high intensity in 0.54km².

3.1.2. Area 461 (Volker)



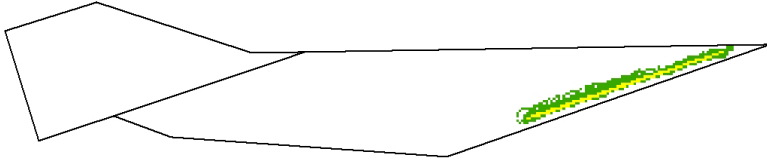
Dredging in Area 461 was restricted to the designated active area. Maximum intensity recorded over any 50mx50m cell was >1hr 15mins. No out of area dredging events occurred during the recording period. The area of 50x50m cells within which dredging occurred was 1.7325km². Of this total area low intensity dredging occurred in 0.8575km², medium intensity in 0.7275km² and high intensity in 0.1475km².

3.1.3. Area 474 Central (Hanson)



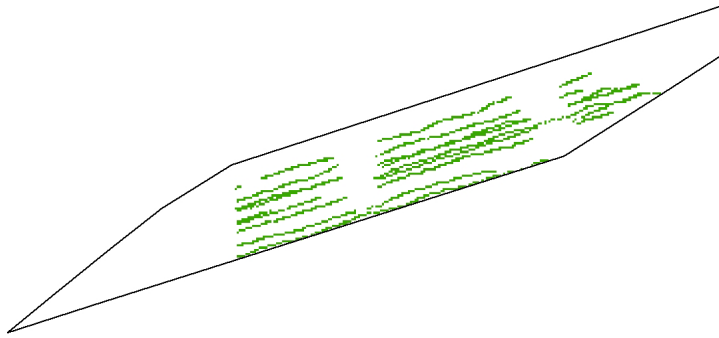
Dredging in Area 474 Central was restricted to the designated active area. Maximum intensity recorded over any 50mx50m cell was >1hr 15mins. No out of area dredging events occurred during the recording period. The area of 50x50m cells within which dredging occurred was 0.99km². Of this total area, low intensity dredging occurred in 0.545km², medium intensity in 0.1375km² and high intensity in 0.3075km².

3.1.4. Area 464/458 (CEMEX/UMD)



Dredging activity in Area 464/458 was restricted to the designated active dredge zone in Area 458. Maximum intensity recorded over any 50mx50m cell was 15mins – 1hr 15mins. No out of area dredging events occurred during the recording period. The area of 50x50m cells within which dredging occurred was 1.0625km². Of this total area low dredging intensity occurred in 0.7775km² and medium intensity in 0.285km².

3.1.5. Area 478 (DEME)



Dredging activity in Area 478 was restricted to extraction of test cargos only following issue of the permission to dredge. Maximum intensity recorded over any 50mx50m cell was <15mins. No out of area dredging events occurred during the recording period. The area of 50x50m cells within which dredging occurred was 0.1725km². All activity was classified as low intensity.

3.2. Summary of ECR Dredging Activity 2008 (km²)

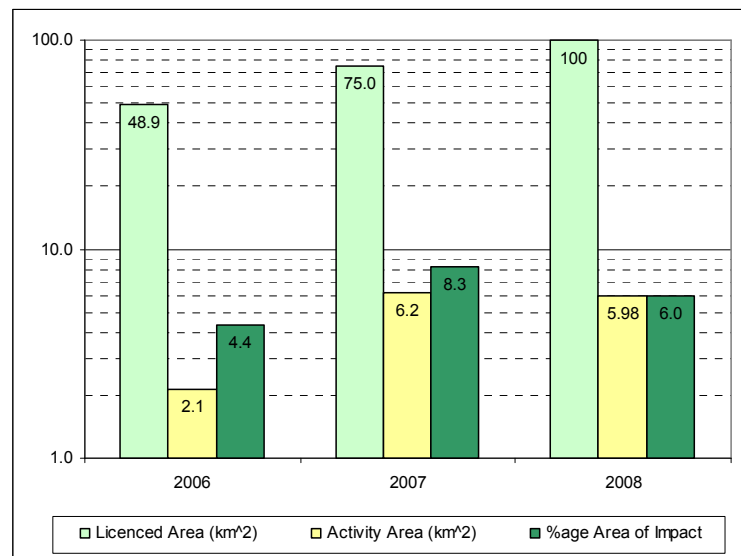
Area	Low	Med	High	Total
473 E	1.075	0.4075	0.54	2.0225
474 C	0.545	0.1375	0.3075	0.99
461	0.8575	0.7275	0.1475	1.7325
464/458	0.7775	0.2850	0	1.0625
478	0.1725	0	0	0.1725
2008 ECR Total				5.98

(see chart overleaf)

4. 2006 – 2008 Activity Comparison

The total area licensed for extraction in 2008 increased from 75 to 100km². The area of activity, based on a calculation of activity recorded in 50mx50m cells, decreased from 6.2 to 5.98km². This reduction was due to the lack of activity in Area 475. The percentage area of impact thus decreased from 8.3 to 6%.

Figure 1 Comparison of licensed area, activity area and percentage area of impact 2006-2008



A calculation of extraction efficiency is possible by comparing the area of direct dredging impact with the total tonnage of aggregate extracted from the region. In 2006, extraction efficiency was 0.027Mt/km² primarily due to extraction activity being restricted to test dredging of only 0.0585Mt of aggregate. In 2007, efficiency had risen to 0.283Mt/km² as tonnage extracted increased to 1.756Mt. In 2008, efficiency had risen slightly to 0.376Mt/km² as the intensity of dredging increased in several production areas.

East English Channel Dredging Intensity 2008

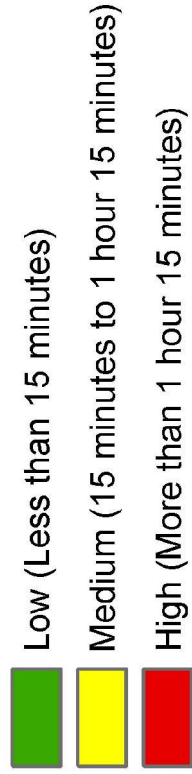
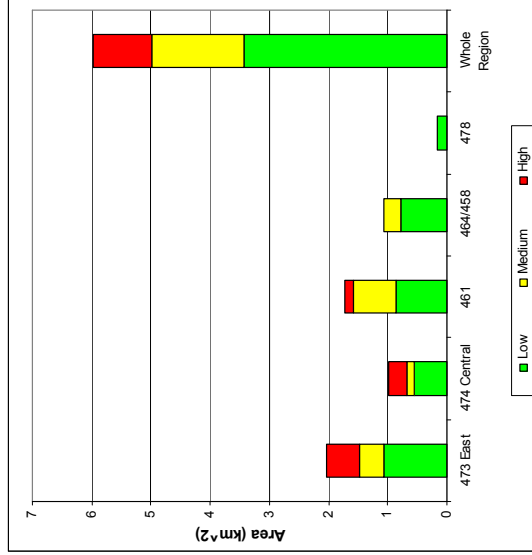
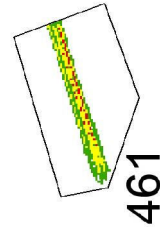
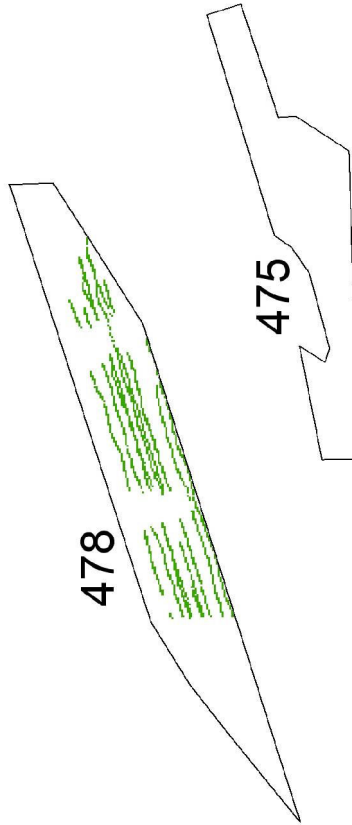
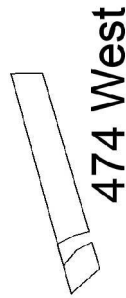
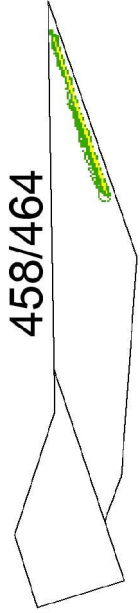
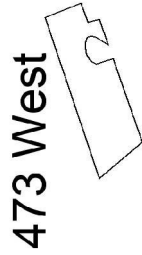
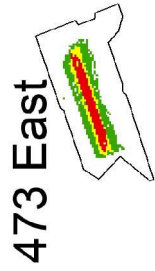
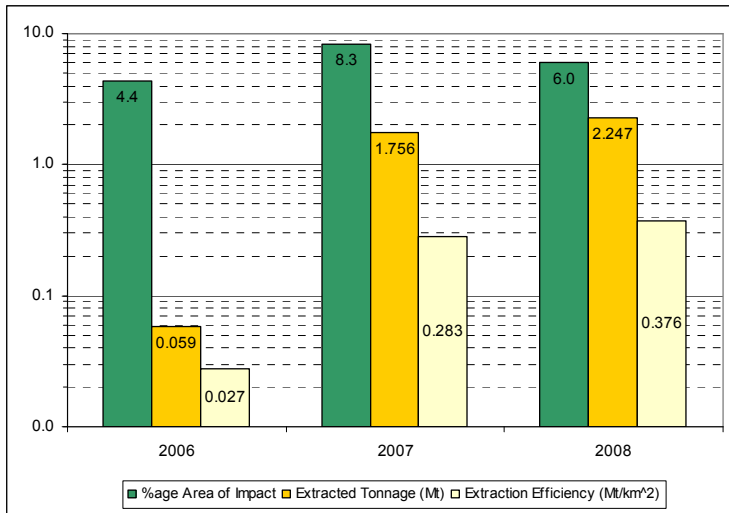


Figure 2 Comparison of percentage area of impact, extraction tonnages and extraction efficiency 2006-2008



5. Conclusions

In 2008 dredging activity took place on 5 licence areas; Area 473 East, Area 461, Area 474 Central, Area 478 and Area 464/458. All dredging activity was recorded by the EMS.

The total area within which dredging activity was recorded was 5.98km². Total permitted extraction was 9,590,000 tonnes. Total extraction from the region was 2,246,821 tonnes. Actual extraction as a percentage of permitted extraction was 23.4%.

Extraction efficiency in 2008, defined as the tonnage extracted per unit area of impact, was 0.376Mt/km².

6. Recommendations

Dredging activity reporting should be maintained throughout the lifetime of extraction activity in the ECR. Data recorded by the EMS will be of prime importance when determining the impact of dredging activity. As such, EMS data should be provided by the ECA members for input to the ECR GIS.