Introduction & Background

i.1 Introduction

The 6 companies of the East Channel Association (ECA) have all made applications to extract marine aggregates (sand and gravel) from the seabed within an area of the UK continental shelf known as the East Channel Region (ECR) (**Figure 1**).

During the application process and subsequent Regional Environmental Assessment (REA) the companies made a commitment to undertake assessment and monitoring of their activities using both licence specific and coordinated regional methods. As part of this approach the REA provided an assessment of the environmental conditions and sensitivities of the region and the likely cumulative and in-combination effects of extraction activities.

The recommendations of the REA included a requirement for the companies of the ECA to collaborate in undertaking a programme of regional monitoring. This monitoring programme was developed in consultation with the relevant regulatory bodies and technical specialists in order to provide data capable of identifying the impacts of extraction activities in the ECR.

The scope of monitoring was developed following extensive discussions with government scientific advisors and was progressively revised during development. The initial monitoring scope was presented in the ECA Regional Monitoring Blueprint v0.3 (Emu, 2005). The scope of analysis and reporting has been under continual review since the issue of the Blueprint v0.3 as issues have arisen during the monitoring activities.

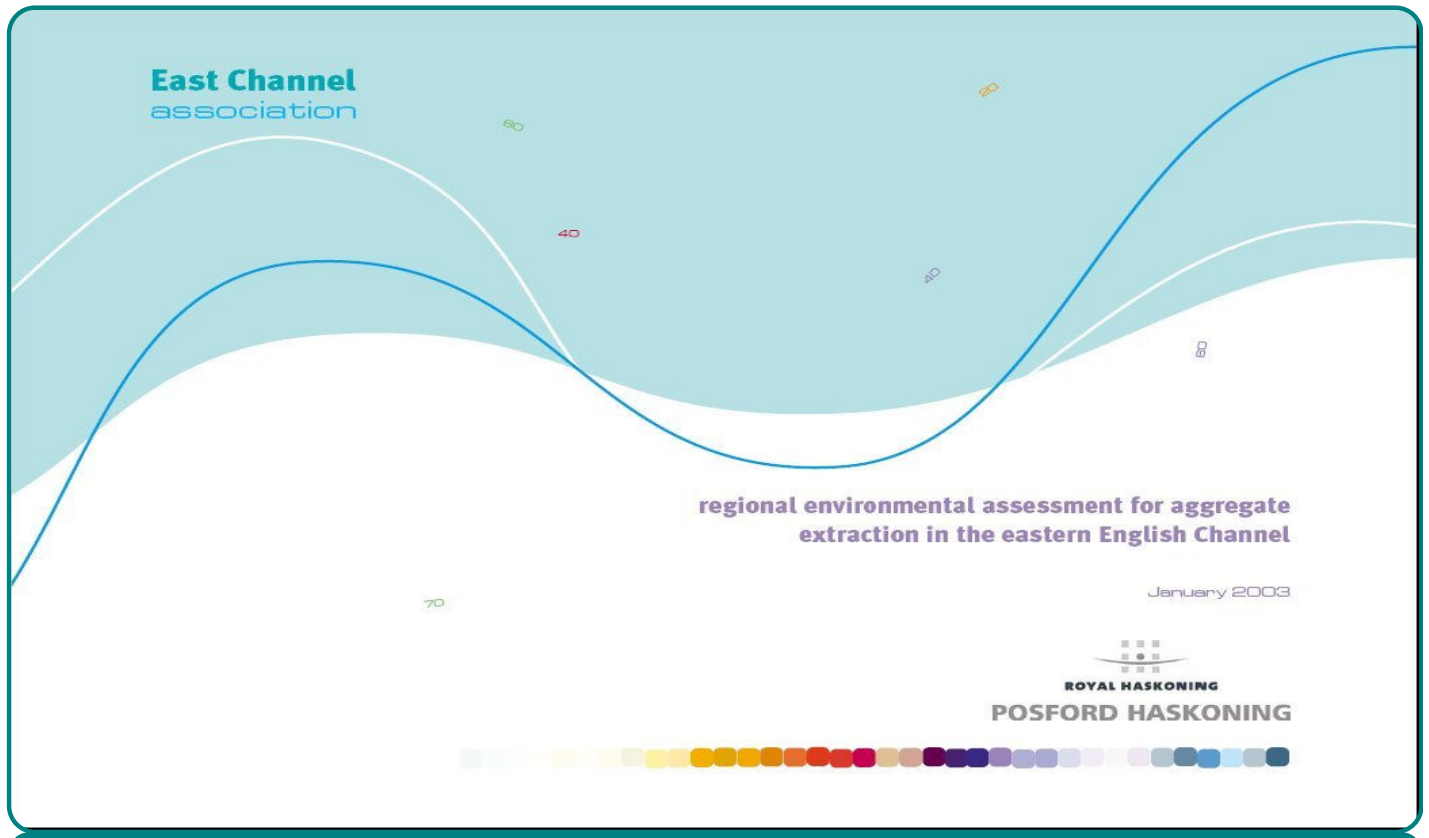
This report has been commissioned by the ECA to provide a description of the monitoring and management activities undertaken during the last 18 months up to December 2006.

Part 1 of the report includes a description of monitoring activities including the field methods used and the samples taken during the field work. The report also provides a baseline description of the region in terms of the seabed character and its associated biological communities.

Additionally there is also a description of the methods that will be employed to collate and report data to inform assessments of herring spawning ground potential in a regional context. Reporting of archaeological assessments is also considered.

Part 2 of the report describes the management activities that have been undertaken. This includes work on extraction/fishing activity reporting, liaison arrangements, navigation communications and safety plans, biodiversity management, data management/dissemination and stakeholder meetings. There is also an update regarding the development of monitoring studies described in the Blueprint v0.3.

Marine aggregate forms a vital component of the overall supply of sand and gravel to London and the South East of England. Approximately 70% of London's sand and gravel requirement is satisfied by marine resources.



The REA presents a description of the regional environment and the basis for prediction of impacts arising from aggregate extraction in the ECR.

i.2 Background

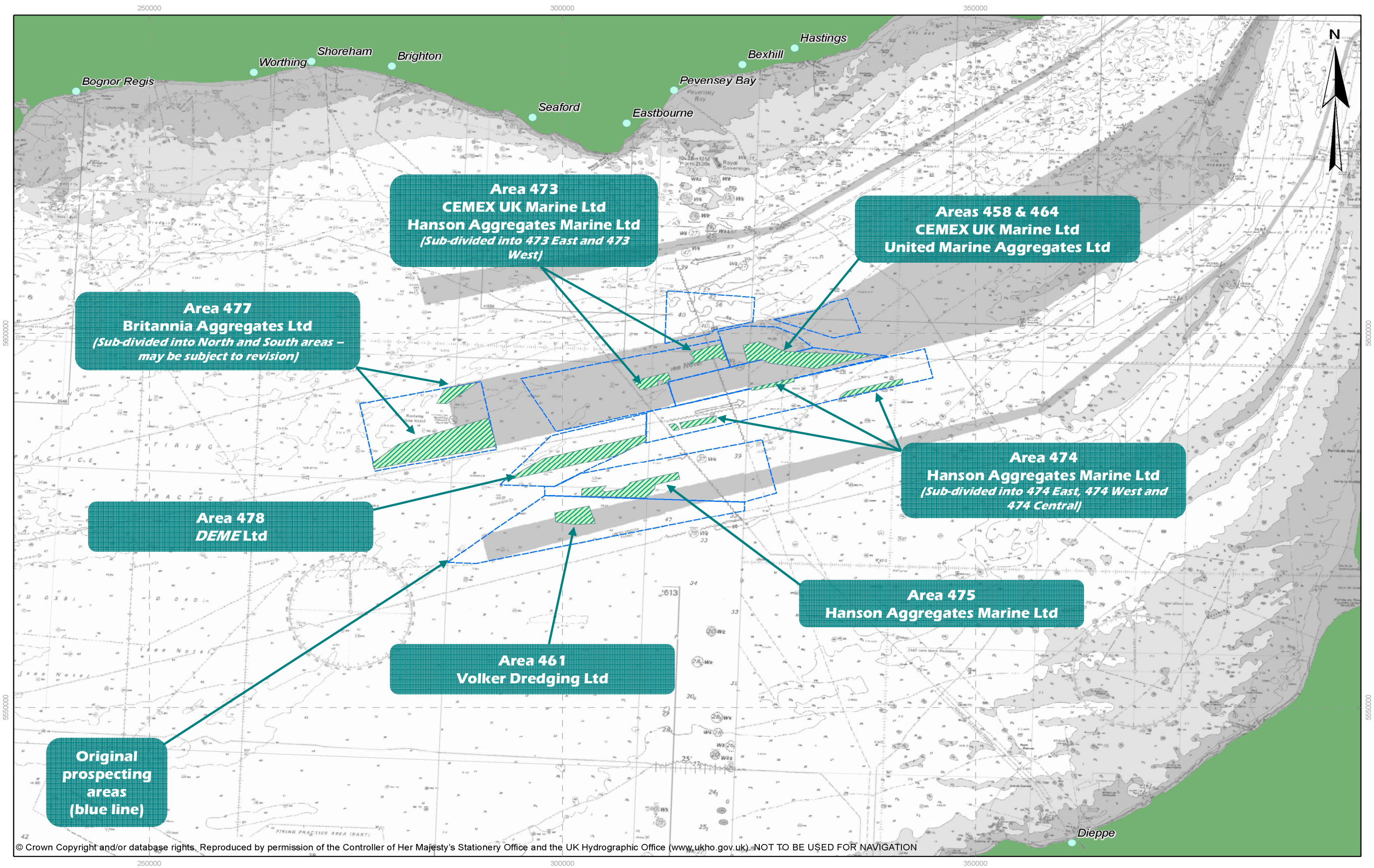
Applications for permission to extract minerals from the Eastern English Channel were initiated in the late 1990's. The applicant companies progressed each application individually until concerns were raised that further assessment was required to address the potential cumulative and in-combination effects of operations across the region.

To address this issue the individual companies formed the ECA to facilitate cooperative and collaborative assessment and monitoring studies. It was determined that whilst the individual applications were adhering to the specified Government View application process, a further level of assessment was required to address regional issues.

The companies decided to undertake a Regional Environmental Assessment to provide a wider description of the ECR and potential cumulative and in-combination effects of the planned extraction. This regional assessment was completed and published in 2003 and formed the basis for much of the planning of the regional monitoring programme.

The REA recommended that the companies should engage in a regional monitoring programme capable of measuring the spatial impact of extraction operations. Specific issues were highlighted as being of particular concern, notably; the development of fine sediment deposits on the seabed within and surrounding the dredging area, and their influence on benthic communities. The possible in-combination effects of plumes and issues related to commercial fish and shellfish resources were also highlighted as areas of concern.

Therefore, the regional monitoring programme was designed taking into account the findings of the individual environmental impact assessments of applications and the regional environmental assessment.



The ECR development currently consists of 8 licence applications composed of 12 smaller dredging permission areas (green hashed areas).

At present, Areas 461, 473, 474 and 475 have received positive Government View decisions and have submitted pre-dredge monitoring reports that satisfy the conditions of their licences. To date, extraction activity has occurred at Area 461 and Area 473 East. Activity is expected in Area 474 Central in the next 3 months.

Government View decisions are expected for Area 464 and 458 in the near future. Applications for Areas 478 and 477 will be submitted over the next 12-18 months.

i.3 Terms of Reference – The Blueprint v0.3

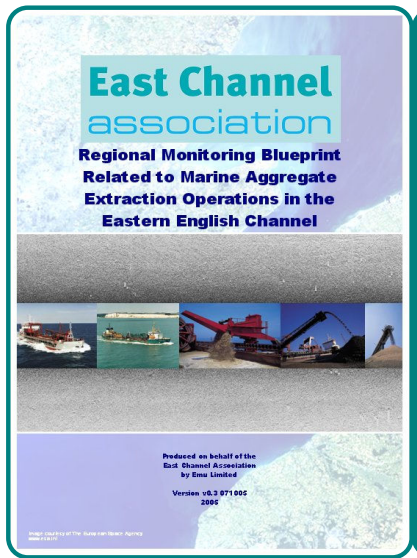
The ECA Regional Monitoring Blueprint v0.1 was first issued to members of the ECR Technical Working Group (TWG) for comment in April 2005. A revised version, v0.2, based on comments received was issued in July 2005. This document contained the agreed biological survey specifications that were used as the basis for field operations in August – September 2005. Final amendments to the Blueprint were incorporated during this time and Blueprint v0.3 was issued in October 2005.

The terms of reference for regional monitoring studies were provided in the ECA Regional Monitoring Blueprint v0.3. The main objectives of the regional monitoring programme are:

- ***To provide a regional baseline of the pre-dredge status of seabed habitats and biota in the Eastern English Channel in the vicinity of the proposed dredging.***
- ***To provide a regional reference point against which predictions concerning spatial and temporal impacts due to dredging may be tested.***
- ***To allow the predictions concerning impacts due to dredging to be tested.***
- ***To assist in management of individual licence areas whilst ensuring a regional perspective is maintained.***
- ***To ensure that data gathered from individual licence areas are comparable and compatible for combination across the regional area.***
- ***To help inform development of thresholds that may be applied to dredging management and enable further limitation of impacts during the life of dredging permissions.***
- ***To place the conservation importance of the area into a regional and national context through the development of Habitat, Species and Biodiversity Action Plans.***

The Blueprint v0.3 specified the survey techniques that would be employed to assess the baseline characteristics of the seabed and associated communities. It also provided the specification for the baseline seabed sediment survey that has been carried out at Area 473 East.

Timings for surveys were provided in Blueprint v0.3. These timings were based on a prediction that aggregate extraction would begin at the beginning of 2006. Repeat surveys were planned accordingly. As extraction activities have only recently begun, the timing and scope of repeat survey provided in Blueprint v0.3 have been revised accordingly. Recommendations for timing and scope of repeat surveys, bearing in mind the delay to initiation of extraction, are provided later in this report.



The ECA Regional Monitoring Blueprint v0.3 describes the techniques and specifications for surveys that are to be carried out in the ECR. The Blueprint will be amended periodically as the monitoring progresses. An update regarding the development of Blueprint proposals is provided later in this report.

A variety of survey techniques have been employed to acquire data capable of describing the physical and biological characteristics of the region.

i.4 Regional Monitoring Activity

Baseline monitoring activities in 2005 were split into two main areas of activity: monitoring of the seabed's physical character and biological community monitoring. In addition to these aspects, there is a requirement to collate data from third party sources. The baseline activities required were specified in Blueprint v0.3. A brief overview of the scope of the baseline monitoring surveys is provided below. Part 1 of this report describes the baseline monitoring activities in more detail.

A. Physical Monitoring

Physical monitoring survey plans were developed to provide information regarding:

- ***Regional seabed sediment character as described by analysis of Hamon grab samples***
- ***The fate of fine sand returned the seabed by the dredging process***

It was agreed that studies related to Item 2 would be carried out at a regional 'type site'; Area 473 East. The first stage of the physical monitoring studies at Area 473 East was to undertake a survey that would provide the baseline description of the seabed within and surrounding the area. The scope of the survey was discussed and agreed with CEFAS and the proposed array provided in Blueprint v0.3. It was agreed that the scope of baseline monitoring would include:

- ***Review of high resolution sidescan sonar data***
- ***Seabed photography at 73 sampling sites***
- ***Seabed profile imaging at 10 sites***
- ***Clamshell grab sampling at 74 sampling sites***
- ***Video transect surveys***

Subsequent particle size analysis of the clamshell grab samples was also proposed, utilising standard sieving techniques and laser sizing for fine sediment fractions.

B. Biological Monitoring

The biological monitoring surveys specified in Blueprint v0.3 were agreed with CEFAS and the JNCC during discussions in 2004 – 2005. It was agreed that work to provide data within 5 main biological monitoring components would be undertaken, specifically:

- ***Benthic Infaunal and Epifaunal Communities***
- ***Epibenthic Communities, Biotopes and Habitats***
- ***Commercially Important Epibenthic Species (Scallop, Crab and Whelk)***
- ***Demersal Fish Species***
- ***Pelagic Fish with Benthic Spawning (Herring)***

Sampling techniques were specified that would enable collection of data suitable for describing the regional habitats and associated faunal communities at relevant spatial scales.

i.5 Collated Data

In addition to field surveys specified in the Blueprint v0.3 and outlined above, it was agreed that specific regional data sets from other sources would be collated to provide a wider understanding of the habitats, species, natural resources and heritage resources of the ECR. The data being sourced to achieve this includes:

☐ ***ICES Herring Assessment Working Group (HAWG) Survey Data for the Eastern Channel***

ICES HAWG have agreed that available herring spawning and stock survey data can be made available to the ECA for inclusion in the regional monitoring programme. Data have been acquired and are presented later in this report.

☐ ***Defra Fisheries Overflight and Landings Data***

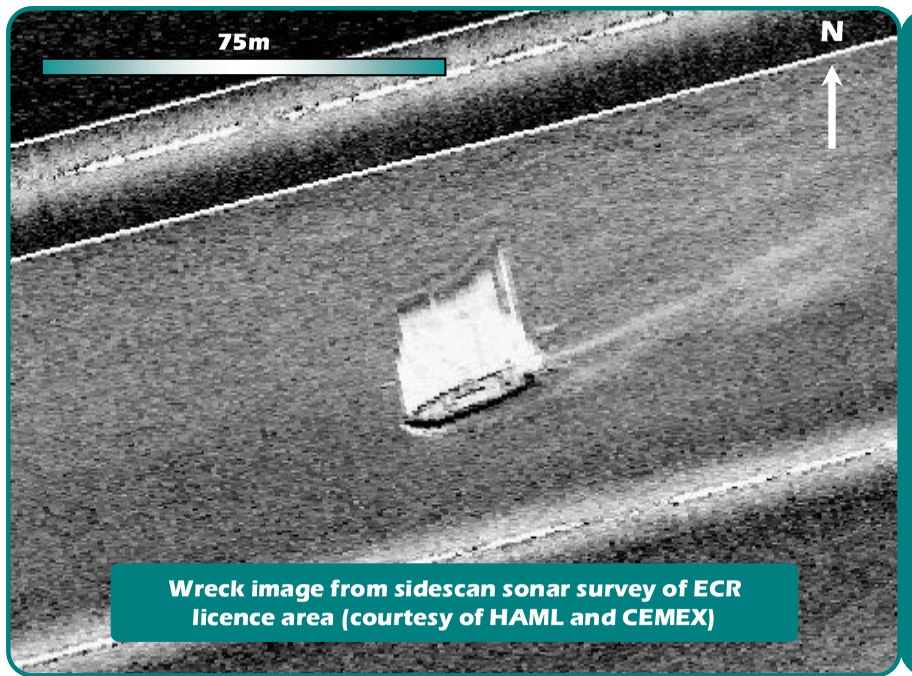
To augment the data presented in the REA, the most recent overflight data have been acquired from Defra Marine Fisheries Agency (MFA). Landings data have also been requested. It is intended that these data will be used to determine whether there has been a significant change in fishing activities since the REA and also provide a basis for monitoring changes in location and level of activity during the term of extraction in the region.

☐ ***Archaeological Assessment Data***

A large amount of archaeological data exists resulting from licence specific assessments undertaken during the licence application process and also from the REA. This data will be collated and included in the ECA GIS to provide a catalogue of find locations in relation to aggregate extraction activities. An outline of the scope of annual regional archaeological reporting is provided.

☐ ***Individual Licence Monitoring and Aggregate Extraction Activity***

Aggregate production from the ECR will be monitored using the licence specific geophysical/environmental surveys and electronic monitoring system (EMS). Cargo landings data will be supplied by operators to the Crown Estate. The ECA will seek to include non-commercially sensitive data to the regional monitoring programme. Current active zone charts are included in later in the report.



Wreck image from sidescan sonar survey of ECR licence area (courtesy of HAML and CEMEX)

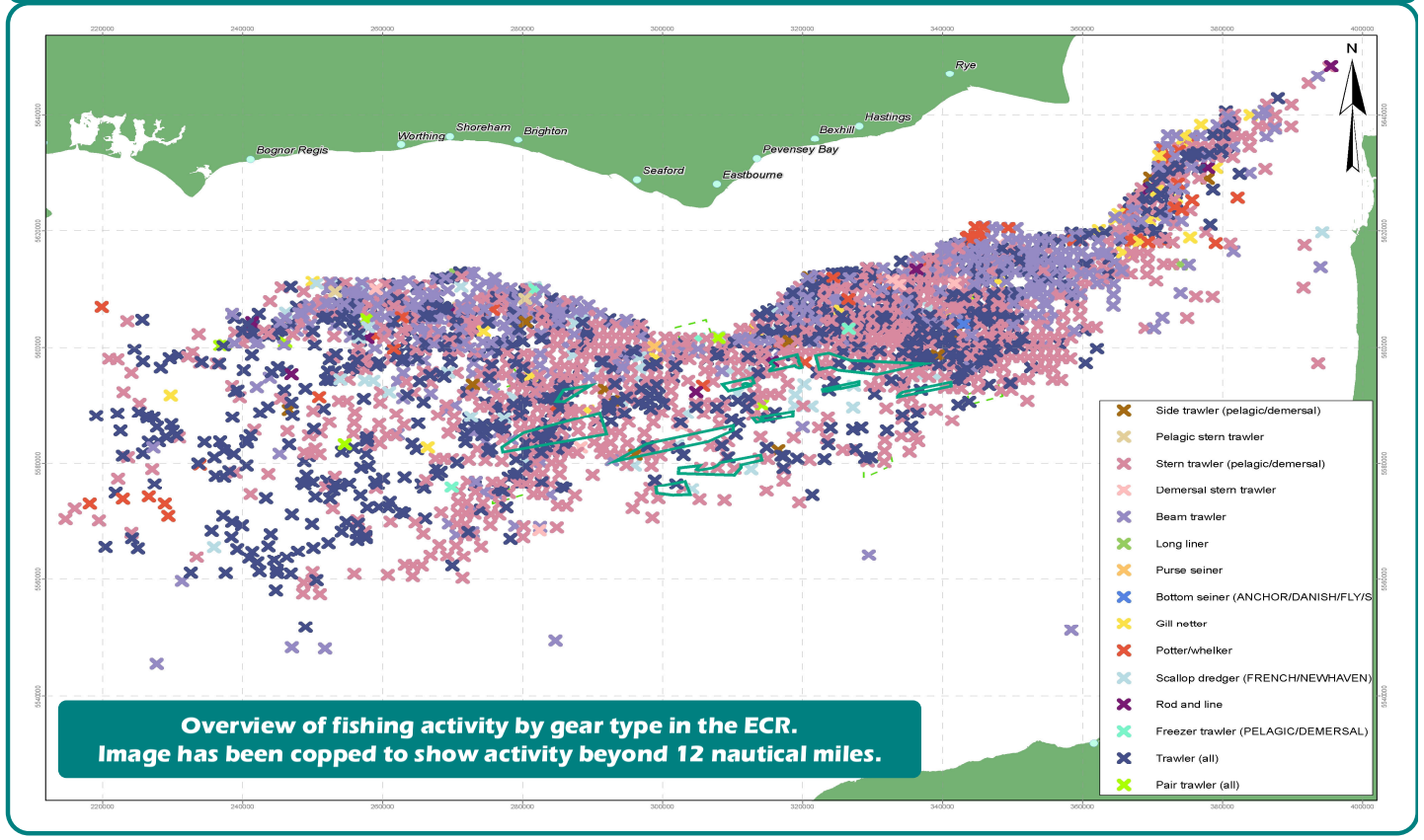
A vast quantity of geophysical data will be generated during monitoring activities in the ECR. This data not only has value in determining the impacts of aggregate extraction but also in describing archaeological sites across the region.

i.6 Other Aspects of Regional Monitoring

In addition to the baseline activities described in this report, other facets of the regional monitoring programme have also been developed during the previous twelve months. These principally include the plume and tracer studies that are to be undertaken at the regional 'type site', Area 473 East.

Methodologies for the plume and tracer study are currently being developed by HR Wallingford and Emu Limited respectively. The current status of the studies is presented later in the report.

Collation & analysis of aggregate extraction and fishing activity data will be undertaken and reported as part of monitoring activities.



Overview of fishing activity by gear type in the ECR.
Image has been copped to show activity beyond 12 nautical miles.

i.7 Regional Management Activity

Part 2 of this report describes the management of activities in the ECR.

Biodiversity management is considered in this section of the report. An update of the ECR BAP is provided along with a description of progress against targets.

Part 2 also includes progress towards development of liaison protocols and common operational measures to address the concerns of fishing and navigation stakeholders. Monitoring and reporting of extraction activity is described along with consideration of reporting of fishing activity. Analysis and presentation of available data is discussed.

Development of the ECA GIS is discussed along with plans for the ECA website. A description of stakeholder meetings held during the previous twelve months is provided. The outcomes of these meetings are summarised.

An update to the v0.3 Blueprint document is also provided. The findings and recommendations of baseline survey activities have been considered and a plan for the continuation of monitoring is provided. Where progress has been made on design of specific monitoring plans (tracer, plume) this is described.

Introduction and Background Summary

→ The REA provides the basis for assessment of potential cumulative and in-combination impacts from aggregate extraction in the ECR.

→ The Blueprint v0.3 describes the agreed regional monitoring programme for ECR.

→ Monitoring in the ECR requires assessment of the physical conditions at the seabed and the processes that determine the scale of impacts resulting from aggregate extraction activity.

→ Monitoring in the ECR requires determination of the baseline habitats and biological communities across the region and consideration of annual repeat monitoring to detect changes in community structure due to aggregate extraction activity.

→ This Regional Report is formed of two sections:

Part 1. Regional Environmental Monitoring Report
Part 2. Regional Management Report

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