

Redefining biotopes in offshore coarse and mixed sediments

Garnet Hooper¹, Nigel Thomas¹, Peter Barfield¹, Karen Webb²

¹Emu Ltd, Victory House, Trafalgar Wharf (Unit 16), Hamilton Road,
Portchester, Portsmouth PO6 4PX United Kingdom

Phone: +00-(44)-2392-205500

E-mail: garnet.hooper@emulimited.com

²JNCC, Monkstone House, City Road, Peterborough PE1 1JY United Kingdom

Introduction: The regulation and monitoring of the dredging and marine aggregates extraction industries has produced a wealth of scientific data that tends to be used to answer specific regulatory requirements, but little else except for perhaps historical or contextual comparisons with later studies. There is a growing interest within the industry and to encourage multiple uses of such data in order to maximise the scientific value of the data collected. Projects such as this one seek to address this shortfall. Outputs from such projects feed back into the regulatory process, providing important revisions, new regulatory tools or supplementary data for informed decision making. In the UK, both the Marine Nature Conservation Review (MNCR) habitat classification scheme (Connor *et al.*, 2004) and European Nature Information System (EUNIS) are used in order to produce habitat maps relevant at regional, National and European scales. The MNCR habitat classification scheme biotope codes are directly convertible to EUNIS. Currently, the UK MNCR Habitats Classification has low data density in reference to offshore mixed sands and gravels (coarse and mixed sediments) – sediments of value to the aggregates extraction industry. The analysis of regional-level survey datasets from aggregate extraction areas in the South Coast of England, Eastern English Channel and Outer Thames estuary was used in order to achieve two main aims - i) Define new biotopes and region variants; and ii) develop a standard methodology for defining new biotopes and regional variants from future survey data. The latter aim is to facilitate the inclusion of new biotope definitions into habitat classification schemes. Currently any new suggested biotopes are not included into the classification. By developing a standard methodology, this reduces assessment time, allowing the inclusion of new biotopes for future revisions easily.

Methods: Faunal and particle size data was analysed using PRIMER routines (Clarke & Gorley, 2006) such as Similarity Profile (SIMPROF), clustering and multi-dimensional ordination (sorting), Similarity percentage (SIMPER), Analysis of Similarity (ANOSIM), Principle Co-ordinates Analysis (PCA), Biological-Environmental trend correlation (BIOENV) and LINKTREE in order to identify the environmental factors (predominantly sediment components) that result in faunal groupings (Clarke,

1993). In this was we could identify the habitat and characteristic taxa of faunal communities which comprise biotopes. As part of this assessment, both Folk and Wentworth classifications were used in order to assess which of these methods is most appropriate in identifying differences between biotopes.

Results: This study concludes at the end of 2010, and hence results are not available prior to the submission of the final report.

Discussion: By supplementing current habitat classification systems with new biotopes based on quantitative survey data for habitats with low data density, this allows more confident and comparable habitat mapping of coarse and mixed sediment regions. More appropriate mapping allows better management and more informed regulation. This is not only important for the marine aggregates and dredging industries, but the data and biotopes generated will be available for much broader interest, such as assessment of anthropogenic impact, determination of environmental change (e.g. global warming) or for the assessment of Marine Protected Areas (MPAs).

Acknowledgements:

The Marine Aggregate Levy Sustainability Fund (<http://www.alsf-mepf.org.uk/>) for funding the project. Thanks also to the members of the South Coast Dredging Association (SCDA), East Channel Association (ECA) and Thames Estuary Dredging Association (TEDA).

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