

## Thames Estuary (rMCZ5) Evidence Review

Region	Balanced Seas	
Site Name/number	Thames Estuary rMCZ BS5	
ENG Features present and proposed for inclusion within MCZ designation	BSH	<ul style="list-style-type: none"> <li>• Intertidal sand and muddy sand</li> <li>• Intertidal mixed sediments</li> <li>• Subtidal coarse sediment</li> <li>• Subtidal sand</li> <li>• Subtidal mud</li> </ul>
	Habitat FOCI	<ul style="list-style-type: none"> <li>• Sheltered muddy gravels</li> </ul>
	Species FOCI	<ul style="list-style-type: none"> <li>• <i>Alkmaria romijni</i></li> <li>• <i>Osmerus eperlanus</i></li> <li>• <i>Anguilla anguilla</i></li> </ul>
ENG Features present but not proposed for inclusion within MCZ designation	BSH	<ul style="list-style-type: none"> <li>• Intertidal mud</li> <li>• Coastal saltmarshes and saline reedbeds.</li> </ul>
	Habitat FOCI	<ul style="list-style-type: none"> <li>• Seagrass beds</li> <li>• Ross worm <i>Sabellaria spinulosa</i> reefs</li> </ul>
	Species FOCI	<ul style="list-style-type: none"> <li>• <i>Hippocampus hippocampus</i></li> </ul>
Non-ENG Features (Geological/geomorphological)		<ul style="list-style-type: none"> <li>• Mosaic of Intertidal mud and coastal saltmarsh and saline reedbed.</li> </ul>

### Evidence Summary – data provided by Regional MCZ Projects

Feature	Evidence Summary	Key Sources
Intertidal sand and muddy sand	Point and polygon data from MB0102, MESH and Regional Projects BS. MESH confidence score is 1. 1 ground truthed record in agreement with habitat type. Multiple sample records but not well distributed over more than 50% of the rMCZ.	MB0102, MESH and Regional Projects BS.
Intertidal mixed sediments	Point and polygon data from MB0102, MESH and Regional Projects BS. MESH confidence score is 1. No validation point overlaps with BSH. 21 sample records but not well distributed over more than 50% of the rMCZ.	MB0102, MESH and Regional Projects BS.
Subtidal coarse sediment	Point and polygon data from MESH, UKSea Map, MB0102, and Regional Projects BS. MESH confidence score is 82. Multiple validation points. Habitat and point extent combined did not cover more than 50% of the rMCZ.	MESH, UKSea Map, MB0102, and Regional Projects BS.
Subtidal sand	Point and polygon data from MESH,	MESH, UKSea Map and

	UKSea Map and Regional Projects BS. No MESH confidence score. Sample data not well distributed over more than 50% of the rMCZ.	Regional Projects BS.
Subtidal mud	Point and polygon data from MESH, UKSea Map, and Regional Projects BS. No MESH confidence score. Sample data not well distributed over more than 50% of the rMCZ.	MESH, UKSea Map, and Regional Projects BS..
Sheltered muddy gravels	Point data from Regional Projects BS. > 2 ground truthed point records. No polygon data available	Regional Projects BS.
<i>Alkmaria romijni</i>	Point data from Regional Projects BS. No Survey Id: (layer name: ALKNGR_Merge_MCZ). All the data points were collected by specialist. 20 records less than 6 years old available	Regional Projects BS.
<i>Osmerus eperlanus</i>	545 point records. > 5 specialists records < 6 years old	Point data from Regional Projects BS and Environment Agency
<i>Anguilla anguilla</i>	595 point records. > 5 specialists records < 6 years old	Point data from Regional Projects BS and Environment Agency

### Description of New Evidence Identified by MB0116 project

Evidence Description	Source	Feature
EA_smelt_eel_tracwater_MCZ data	Environment Agency	<i>Anguilla anguilla</i> and <i>Osmerus eperlanus</i> .
Langston (2002 ). Peer reviewed literature, Ruddock, P. J., D. J. Bird, et al. (2003). "Bile metabolites of polycyclic aromatic hydrocarbons (PAHs) in European eels <i>Anguilla anguilla</i> from United Kingdom estuaries."	Science of the Total Environment 301(1-3): 105-117.	<i>Anguilla anguilla</i>
Livingstone, D. R., C. L. Mitchelmore, et al. (2000). "Development of hepatic CYP1A and blood vitellogenin in eel ( <i>Anguilla anguilla</i> ) for use as biomarkers in the Thames Estuary, UK."	Marine Environmental Research 50(1-5): 367-371.	<i>Anguilla anguilla</i>
Pilcher, M. W. and J. F. Moore (1993). "Distribution and prevalence of <i>Anguillicola crassus</i> in eels from the tidal	Journal of Fish Biology 43(3): 339-344.	<i>Anguilla anguilla</i>

Thames catchment."		
Peters, L. D., A. Doyotte, et al. (2001). "Seasonal variation and estradiol-dependent elevation of Thames estuary eel <i>Anguilla anguilla</i> plasma vitellogenin levels and comparisons with other United Kingdom estuaries."	Science of the Total Environment 279(1-3): 137-150	<i>Anguilla anguilla</i>
Power, M. and M. J. Attrill (2007). "Temperature-dependent temporal variation in the size and growth of Thames estuary smelt <i>Osmerus eperlanus</i> ."	Marine Ecology Progress Series 330: 213-222	<i>Osmerus eperlanus</i>

### Evidence That Could Not Be Acquired by MB0116 project

Evidence Description	Source	Feature
Rock and thin sediment shape files.	British Geological Society	Broadscale habitats
Abundances and regional distributional data of <i>Anguilla anguilla</i>	Cefas: ROGERS, S. I. AND MILLNER, R. S., 1996. Factors affecting the annual abundance and regional distribution of English inshore demersal fish populations: 1973 to 1995. ICES J. mar Sci., 53: 1094-1112.	<i>Anguilla anguilla</i> , <i>Osmerus eperlanus</i>
Abundances and regional distributional data of <i>Anguilla anguilla</i>	Cefas: S.I. Rogers*, R.S. Millner* and T.A. Mead* (1998) Science Series, Technical Report, CEFAS, Lowestoft, 108: 130pp	<i>Anguilla anguilla</i> <i>Osmerus eperlanus</i>
Species abundance for benthic macrofauna, along with ancillary data on biomass, and sediment particle size distributions and contaminant concentrations, where available. visual sediment descriptions were sourced from field observations at the time of sampling.	Bolam, S. G., Rees, et al. (2006). "Ecological consequences of dredged material disposal in the marine environment: A holistic assessment of activities around the England and Wales coastline." <u>Marine Pollution Bulletin</u> <b>52</b> (4): 415-426.	Features unknown
Shallow seismic and side-scan sonar surveys of areas of marine aggregate.	CEMEX UK Marine Ltd, Aggregate - EIA	Broadscale and habitat FOCI unknown
EIA fish and invertebrate survey results	Ports, London – EIA Fish & Epibenthic Invertebrate Resources, Princes Channel, outer Thames Estuary, 2002. Client: Port of London Authority. Baseline biological resource surveys of the	<i>Anguilla anguilla</i> , <i>Osmerus eperlanus</i> Unknown features

	<p>benthic &amp; epibenthic fauna of the lower Thames Estuary relating to the London Gateway Port Development, 2001-2003. Client: Posford Haskoning Ltd on behalf of P&amp;O.</p> <p>Seasonal Changes in Fish &amp; Epibenthic Invertebrate Resources, Princes Channel, outer Thames Estuary, 2002. Client: Port of London Authority.</p>	
EIA survey results	Ports, Tilbury - EIA	Unknown features
EIA survey results	Intergen, Power stations, Coryton, gas - EIA	Unknown features