

Blackwater, Crouch, Roach and Colne Estuaries (rMCZ3) Evidence Review

Region	Balanced Seas	
Site Name/number	Blackwater, Crouch, Roach and Colne Estuaries rMCZ BS3	
ENG Features present and proposed for inclusion within MCZ designation	BSH	<ul style="list-style-type: none"> • High energy intertidal rock • Intertidal mixed sediment
	Habitat FOCI	<ul style="list-style-type: none"> • Native Oyster <i>Ostrea edulis</i> beds
	Species FOCI	<ul style="list-style-type: none"> • <i>Ostrea edulis</i> • <i>Tenellia adspersa</i> • <i>Anguilla anguilla</i>
ENG Features present but not proposed for inclusion within MCZ designation	BSH	<ul style="list-style-type: none"> • Moderate energy intertidal rock • Intertidal coarse sediment • Intertidal mud • Coastal saltmarshes and saline reedbeds • Intertidal sediments dominated by aquatic angiosperms • Intertidal biogenic reefs • Moderate energy infralittoral rock • Low energy infralittoral rock • Moderate energy circalittoral rock • Subtidal coarse sediment • Subtidal sand • Subtidal mud • Subtidal mixed sediments • Subtidal macrophyte-dominated sediment.
	Habitat FOCI	<ul style="list-style-type: none"> • Blue Mussel beds (including intertidal beds on mixed and sandy sediments) • Estuarine rocky habitats • Intertidal under boulder communities • Sea-pen and burrowing megafauna communities • Peat and clay exposures • Ross worm <i>Sabellaria spinulosa</i> reefs • Seagrass beds • Sheltered muddy gravels • Subtidal sands and gravels
	Species FOCI	<ul style="list-style-type: none"> • <i>Osmerus eperlanus</i> • <i>Raja undulata</i>
Non-ENG Features (Geological/geomorphological)		<ul style="list-style-type: none"> • Clacton Cliffs and Foreshore • Mosaic of intertidal mud, coastal saltmarsh and saline reedbed.

Evidence Summary – data provided by Regional MCZ Projects

Feature	Evidence Summary	Key Sources
High energy intertidal rock	Presence and extent based on predicted modelled polygon data from MESH/ MB0102 and data points from MESH.	MESH/ MB0102
Intertidal mixed sediment	Presence and extent based on predicted modelled polygon data from MB0102/ MESH, data points from MESH, and data points from Regional Project data BS (points from EA database compiled by Ian Humphreys).	MB0102/ MESH and Regional Project FS
Native Oyster <i>Ostrea edulis</i> beds	No data available	No data available
<i>Ostrea edulis</i>	Presence and extent based on data points from MB0102, data points from Cefas	MB0102, Cefas,
<i>Tenellia adspersa</i>	Presence and extent based on data points from MB0102.	MB0102
<i>Anguilla anguilla</i>	No data provided	No data provided

Description of New Evidence Identified by MB0116 project

Anecdotal evidence provided by NE to MB0116 project

Evidence Description	Source	Feature
Rees, H. L., R. Waldock, et al. (2001). Improvements in the fauna of the Crouch estuary (United Kingdom) following a decline in TBT concentrations,	ICES, Copenhagen (Denmark)	Native Oyster <i>Ostrea edulis</i> beds
Richardson, C. A., S. A. Collis, et al. (1993). "The age determination and growth rate of the European flat oyster, <i>Ostrea edulis</i> , in British waters determined from acetate peels of umbo growth lines."	ICES Journal of Marine Science: Journal du Conseil 50(4): 493-500.	Native Oyster <i>Ostrea edulis</i> beds
Allison, S. 2012. Assessment of year class and stock levels of european flat oyster <i>Ostrea edulis</i> in the Ray Sand Channel, part of the Blackwater rMCZ complex.	Essex Wildlife Trust commissioned by Natural England	Native Oyster <i>Ostrea edulis</i> beds
Dredge_Data_results_2012_MCZ,	Essex Wildlife Trust	<i>Ostrea edulis</i>

Dredge_Data_results_2012_RA, Mersea_Reference_Area_MCZ, Ray_sand_sample_MCZ, South_Bank_Samples_MCZ		
Marine Recorder points	Supplied by MBA	<i>Ostrea edulis</i> <i>Tenellia</i> <i>adspersa</i>
Milner, N. (2001). At the Cutting Edge: Using Thin Sectioning to Determine Season of Death of the European Oyster, <i>Ostrea edulis</i> ."	Journal of Archaeological Science 28(8): 861-873.	<i>Ostrea edulis</i>
8 new feature data points from the Environment Agency (survey ID: EID00000010).	Environment Agency WFD	<i>Anguilla anguilla</i>
Colclough, S., L. Fonseca, et al. (2005). "Fish utilisation of managed realignments."	Fisheries Management and Ecology 12(6): 351-360	<i>Anguilla anguilla</i>

Evidence That Could Not Be Acquired by MB0116 project

Evidence Description	Source	Feature
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>
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>
Rock and thin sediment shape files.	British Geological Society	Broadscale habitats
NE Intertidal Benthic Infauna Survey 2011-12 - Essex Estuaries & Swale	NE	Intertidal mixed sediments

Confidence Assessment

Feature	Presence	Extent	Condition	Boundaries (site)
High energy intertidal rock	Low	Low	Low	Low
Intertidal mixed sediment	Low	Low	Low	
Native Oyster <i>Ostrea edulis</i> beds	Low	Low	Low	
<i>Ostrea edulis</i>	High	High	Low	
<i>Tenellia adspersa</i>	Moderate	Moderate	Low	

<i>Anguilla anguilla</i>	High	High	Low	
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Both confidence assessments for 'High energy intertidal rock' and 'Intertidal mixed sediment' returned a 'low' confidence in presence and extent as less than 50% of all point data in the rMCZ were in agreement with the habitat and there was not more than one feature data point overlapping the polygon.

The anecdotal evidence confirms the presence and extent of 'Native Oyster *Ostrea edulis* beds' feature however without any GI data only a 'low' score is achieved as any conflicting HOCI data cannot be factored into the confidence score.

'High' scores for presence and extent were obtained for '*Ostrea edulis*' as there were more than 68 data points and 63 polygons collected by specialists all being less than 6 years old available within the rMCZ. In addition the anecdotal evidence helps to validate the presence and extent of the feature.

A 'moderate' score was obtain for both presence and extent of *Tenellia adspersa* since four data points were available, two of which are <12 years old and all were collected by specialists.

The presence and extent of '*Anguilla anguilla*' has been assessed as 'high' because of the ponds identified for this features 5 are less than 6 years old and 3 are less than 12 years, all were collected by Environment Agency specialists. The anecdotal evidence helps to validate the presence and extent of the feature to confirm the assessment.

The condition assessment for all the features was based on a Vulnerability Assessment and could not be improved beyond a 'low' confidence score. Project MB0102 considered *Ostrea edulis* to be sensitive to a range of activities. Confidence in condition is assessed as low, as either activities did not occur (aggregate extraction) there was no evidence for impacting activities (navigation dredging) or the spatial footprint did not overlap the site (waste disposal, some fishing metiers). Although shellfish harvesting does occur it was considered that management measures would be in place to prevent degradation of resource. To reflect these uncertainties confidence was not raised to moderate. *Anguilla anguilla* were considered likely to be highly sensitive to fishing pressures and, potentially, to water abstraction (it should be noted that this species was not assessed as part of the MOB102 sensitivity matrix). The fisheries data layers are too coarse to indicate whether this inshore site (and hence this mobile species features) were overlapped by these activities. Commercial fishing would not occur at the inshore margins. Water abstraction is not considered to exert pressure across the entire site.

The confidence assessment in the boundary of the site was classified as low primarily because the site boundary was not closely aligned to the boundary of the individual features. The mapped extent of the boundary of the '*Ostrea edulis*' and 'Intertidal sand and muddy sand' features are not well aligned to the rMCZ boundary.