

Title: Margate and Long Sands European Marine Site (Specified Areas) Bottom Towed Fishing Byelaw 2017 Impact Assessment IA No: MMO06 Lead department or agency: Marine Management Organisation (MMO) Other departments or agencies: Kent and Essex IFCA, Defra, Natural England	Impact Assessment (IA)
	Date: 28/07/2017
	Stage: Final
	Source of intervention: Domestic
	Type of measure: Secondary Legislation
	Contact for enquiries: Leanne Stockdale, Marine Conservation Team, MMO Leanne.stockdale@marinemanagement.org.uk
Summary: Intervention and Options	RPC Opinion: N/A

Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANDCB on 2014 prices)	OI30	Business Impact Target Status
£-122,083	£-71,513	£7,447.9	Not in scope	Non-qualifying regulatory provision

What is the problem under consideration?

This byelaw is proposed in accordance with the revised approach introduced by the Department for Environment, Food and Rural Affairs (Defra) to ensure the full compliance with Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) with respect to commercial fishing activity.

The aim is to prevent deterioration of the sandbank feature of Margate and Long Sands European Marine Site (EMS) by prohibiting the use of bottom towed fishing in two specified areas.

Why is government intervention necessary?

Government intervention is required to redress market failure in the marine environment by implementing appropriate management measures (eg this byelaw) to conserve features to ensure negative externalities are reduced or suitably mitigated. Implementing this byelaw will support continued provision of public goods in the marine environment.

What are the policy objectives and the intended effects?

- To prevent deterioration of the sandbank feature of Margate and Long Sands EMS from the impacts of bottom towed fishing;
- To further the conservation objectives for Margate and Long Sands EMS;
- To ensure compliance with the Habitats Directive in line with Defra’s revised approach;
- To minimise socio-economic impacts on the fishing industry by maintaining access where possible to fishing grounds within the EMS.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

- Option 0. Do nothing
- Option 1. MMO byelaw to prohibit bottom towed fishing over the sensitive parts of the sandbank feature in the 6 to 12 nautical mile (nm) portion of the site, with appropriate buffering ('zoned management').
- Option 2. MMO byelaw prohibiting bottom towed fishing over the whole 6 to 12 nm portion of the site.
- Option 3. Management of the activity through a statutory instrument, regulating order or fishing licence condition.
- Option 4. Management of the activity through a voluntary agreement.

All options are compared to option 0. The preferred option is **option 1** which will promote both sustainable fisheries and conserve the marine environment and will ensure compliance with the Habitats Directive.

Will the policy be reviewed? It will be reviewed. If applicable, set review date: August 2022

Does implementation go beyond minimum EU requirements?		No		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro Yes	Small Yes	Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)	Traded: N/A		Non-traded: N/A	

I have read the impact assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Head of Marine Conservation: _____ Date: _____

Summary: Analysis & Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV) (£))		
			Low: -131,766	High: -112,399	Best Estimate: -122,083
2017	2017	10			

COSTS (£)	Total Transition (Constant Price) Years	Average Annual (excluding transition) (Constant Price)	Total Cost (Present Value)
Low	0	13,058	112,399
High	0	15,308	131,767
Best Estimate	0	14,183	122,083

Description and scale of key monetised costs by 'main affected groups'

The annual cost in terms of UK landings from the management areas is estimated to be £8,308. Net present value costs to the UK fishing industry over the ten year timeframe of this IA are £71,513.

Estimated annual enforcement costs to MMO range from £4,750 to 7,000, with a best estimate of £5,875. Net present value cost to MMO over the ten year timeframe of this IA is £50,570.

Total net present value costs are estimated to be £122,083.

No transitional costs are anticipated.

Other key non-monetised costs by 'main affected groups'

MMO will coordinate with other enforcement bodies such as UK Border Agency and the police in order to fully utilise their resources for surveillance and enforcement. These costs cannot be monetised at present as they are requested on an *ad hoc* basis and costs can vary.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	No monetised benefits	No monetised benefits	No monetised benefits
High	No monetised benefits	No monetised benefits	No monetised benefits
Best Estimate	No monetised benefits	No monetised benefits	No monetised benefits

Description and scale of key monetised benefits by 'main affected groups'

No monetised values are available for the benefits of the proposed byelaw.

Other key non-monetised benefits by 'main affected groups'

The environmental benefits of the proposed management are:

- to protect the most biodiverse parts of the Long Sands sand bank from the impacts of fishing;
- improve the health and productivity of the local marine environment, which may also in turn support the health and productivity of commercial fish stocks in the area;

- to maintain the favourable condition of the sandbank feature of, and avoid deterioration to, Margate and Long Sands EMS;
- to contribute to the overall health of the marine environment by contributing to the coherent network of well managed marine protected areas UK and North East Atlantic.

Key assumptions/sensitivities/risks

Discount rate (%)

3.5%

Average cost estimates for the fishing industry are based on MMO landings values, estimated within the management areas and International Council for the Exploration of the Sea (ICES) statistical rectangle 32F1. Actual landings derived directly from the proposed management areas are not known.

As alternative fishing grounds are easily accessible, estimated costs to the fishing industry are likely to be an overestimate, as vessels are likely to offset some of the lost revenue by fishing in other areas. In addition, costs are estimated as lost revenue rather than a loss in profits to the fishing industry, and therefore overstate the economic loss to the fishing sector as they do not account for the costs of fishing.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £:			Score for business impact target £:
Costs: 7,448	Benefits: 0	Net: -7,448	Not in scope

Evidence base

1. Introduction
2. Rationale for intervention
3. Policy objectives and intended effects
4. Background
5. Options and the preferred option
6. Cost and benefits
7. Conclusion summarising recommended option

1. Introduction

- 1.1. Margate and Long Sands European Marine Site (EMS)¹ lies in International Council for the Exploration of the Sea (ICES) statistical rectangle 32F1 (figure 1). The site extends from the north of the Thanet coast of Kent in a north-easterly direction to the outer reaches of the Thames Estuary. It contains Annex I 'sandbanks slightly covered by seawater at all times' feature, which covers the entire site except for several drying areas at the crest of some of the larger sandbanks and a navigational channel used for access to the Port of London. The sandbanks are composed of well-sorted sandy sediments, with muddier and more gravelly sediments in the troughs between banks and areas towards the boundary of the site. The banks are tidally-influenced estuary mouth sandbanks, the southern banks aligned approximately east-west in the direction of tidal currents entering the Thames Estuary from the English Channel, whereas Long Sands is aligned in a north east-south west orientation with influence from the North Sea. In common with all sandbanks the structure of the banks is dynamic and there have been significant movements of the bank edges over time.
- 1.2. The fauna of the bank crests is characteristic of species-poor, mobile sand environments, and is dominated by polychaete worms and amphipods. Within the troughs and on the bank slopes a higher diversity of polychaetes, crustaceans, molluscs and echinoderms are found. Mobile epifauna includes crabs and brown shrimp, along with squid and commercially important fish species such as sole and herring.
- 1.3. There is also a significant amount of the reef-forming Ross worm (*Sabellaria spinulosa*) at this site, although no formed reef areas have been identified at the site. Areas of high *S. spinulosa* density support a diverse attached epifauna of bryozoans, hydroids, sponges and tunicates, and additional fauna including polychaetes, bivalves, amphipods and crustaceans. These diverse communities are usually found on the flanks of the sandbanks and towards the troughs.
- 1.4. The site is situated at the mouth of the Thames Estuary and is subject to other anthropogenic impacts such as dredging and disposal, marine developments as well as commercial fishing.
- 1.5. The Department for Environment, Food and Rural Affairs (Defra) has introduced a revised approach to the management of fisheries in marine protected areas (MPA) (see section 2.1). This has resulted in the need for the MMO to assess the need for, and if necessary introduce, management of interactions identified as 'amber' in the Fisheries in European Marine Site

¹ Margate and Long Sands is a site of community importance (SCI). SCIs are sites that have been adopted by the European Commission but not yet formally designated by the government of each country. Once designated by national governments, this kind of site is referred to as special area of conservation (SAC). The umbrella term European marine site (EMS) is used in this document to avoid confusion.

Matrix², including the interaction between bottom towed fishing gear and the sandbank feature in this site.

- 1.6. Bottom towed fishing gear means fishing gear which is pushed or pulled through the sea and contacts the seabed. This includes demersal otter and beam trawls, dredges and demersal seines.
- 1.7. As part of the conclusions of the MMO assessment of the impacts of fishing on the Margate and Long Sands EMS (appendix 1), MMO concluded that without mitigation, it could not be ascertained that there would be no adverse effect to the integrity of the site from bottom towed fishing over certain parts of the sandbank feature which were identified as particularly sensitive. Management measures mitigating this adverse effect are therefore required to avoid deterioration of the sandbank feature and to further the conservation objectives of the site.
- 1.8. Margate and Long Sands EMS straddles the 6 nm limit. MMO will manage fisheries in the portion of the site between the 6 and 12 nm limits. Kent and Essex Inshore Fisheries and Conservation Authority (IFCA) will manage fisheries inshore of 6 nm.
- 1.9. This impact assessment (IA) has been prepared to outline the costs and benefits of the proposed MMO byelaw to prohibit bottom towed fishing for the protection of the reef features. The IA also indicates why the option being recommended is the preferred option for management. A draft of this IA will be subject to public consultation.

2. Rationale for intervention

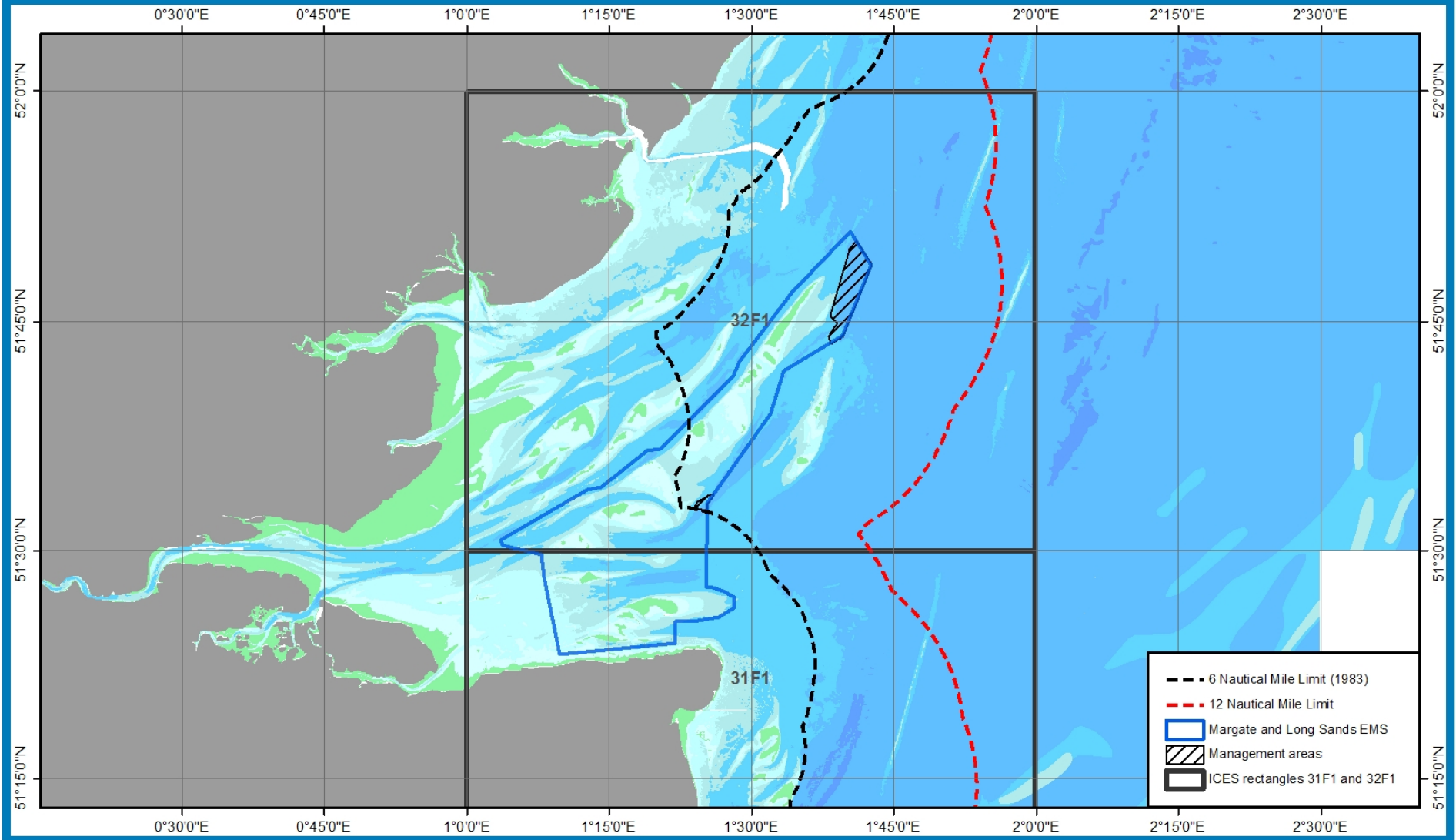
- 2.1. MMO has duties to exercise all relevant functions to ensure compliance with the Habitats Directive³. Implementing this byelaw will ensure that fishing activities do not result in deterioration of the site, therefore ensuring compliance with Article 6 of the Habitats Directive.
- 2.2. Commercial fishing in MPAs can potentially cause negative outcomes as a result of 'market failures'. These failures can be described as:
 - Public goods and services: A number of goods and services provided by the marine environment such as biological diversity are 'public goods' (no-one can be excluded from benefiting from them, but use of the goods does not diminish the goods being available to others). The characteristics of public goods, being available to all but belonging to no-one, mean that individuals do not necessarily have an incentive to voluntarily ensure the continued existence of these goods which can lead to under-protection/provision.
 - Negative externalities: Negative externalities occur when the cost of damage to the marine environment is not fully borne by the users causing the damage. In many cases no monetary value is attached to the goods and services provided by the marine environment and this can lead to more damage occurring than would occur if the users had to pay the price of damage. Even for those marine harvestable goods that are traded (such as wild fish), market prices often do not reflect the full economic cost of the exploitation or of any damage caused to the environment by that exploitation.
- 2.3. This byelaw aims to redress these sources of market failure in the marine environment through conservation of designated features of EMS, which will ensure negative externalities are reduced or suitably mitigated.

² www.gov.uk/government/publications/fisheries-in-european-marine-sites-matrix

³ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

Figure 1: Margate and Long Sands EMS within ICES rectangles 31F1 and 32F1

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3. Policy objectives and intended effects

3.1. The Marine and Coastal Access Act 2009 (MaCAA) established MMO to lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.

3.2. The policy objective pertinent to this IA is to mitigate negative impacts to this site from fishing activities and thereby avoid deterioration of the sandbank feature and further the conservation objectives of the site. This will be achieved by prohibiting bottom towed fishing on and adjacent to sensitive portions of the sandbank feature.

3.3. The conservation objectives of this site are: subject to natural change, to maintain the:

- extent of the habitat;
- diversity of the habitat and its component species;
- community structure of the habitat (eg population structure of individual notable species and their contribution to the functioning of the ecosystem);
- natural environmental quality (eg water quality, suspended sediment levels, etc); and
- natural environmental processes (eg biological and physical processes that occur naturally in the environment, such as water circulation and sediment deposition should not deviate from baseline at designation).

3.4. The intended effects are that deterioration of the sandbank feature is avoided and obligations under Article 6 of the Habitats Directive are met. In addition, the economic impacts of management intervention will be minimised where possible.

4. Background

4.1. In August 2012 Defra undertook a review into the management of fisheries within EMS in order to identify future management required to ensure site features are maintained at favourable condition. This resulted in a revised approach⁴ to management of fishing in EMS. This was later extended to include marine conservation zones (MCZs) and is referred to as the revised approach to management of fishing in marine protected areas.

4.2. The revised approach is being implemented using an evidence based, risk-prioritised, and phased basis. Risk prioritisation is informed by a matrix which categorises the risks from interactions between fishing activity and ecological features. Activity/feature interactions have been categorised as red, amber, green, or blue.

4.3. Interactions categorised as red were prioritised for the implementation of management measures by the end of 2013 to avoid the deterioration of Annex I features, in line with obligations under Article 6(2) of the Habitats Directive.

4.4. Interactions categorised as amber require a site-level assessment to determine whether management of an activity is required to protect features. Interactions which are categorised as green also require site-level assessment if there are 'in-combination' effects.

4.5. A categorisation of blue indicates that there is no feasible interaction between activity and feature, and as such no further assessment or management is required.

⁴ www.gov.uk/government/publications/managing-fisheries-in-mpas-approach-and-process

4.6. Paragraphs 6(1) and 6(2) of the Habitats Directive require that, within special areas of conservation (SACs), Member States:

- establish the necessary conservation measures which correspond to the ecological requirements of the Annex I natural habitat types and the Annex II species present on the sites; and
- take appropriate steps to avoid the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated.

4.7. Regulation 8(1) of the Conservation of Habitats and Species Regulations 2010 defines an EMS as any (among others) special area of conservation, special protection Area or site of Community importance.

4.8. Regulation 6 of these regulations lays out the management requirements for EMS, in line with Articles 6(2), 6(3) and 6(4) of the Habitats Directive.

4.9. Margate and Long Sands EMS contains sandbank features for which interaction with bottom towed fishing, potting and netting have been categorised as amber. Therefore a site level assessment is required to determine whether management is required.

4.10. The main fishing activities within Margate and Long Sands EMS from UK vessels are potting for whelk, crab and lobster in the inshore part of the site, drift netting and otter trawling for demersal fish such as sole, cod and rays and dredging for cockles, mussels and oysters. French and Belgian vessels also target demersal fish using otter trawls, beam trawls and demersal seines, and dredge for molluscs in the part of the site offshore of 6 nm.

4.11. The MMO assessment of fishing in Margate and Long Sands EMS (appendix 1) concluded that management is required to mitigate the interaction between bottom towed fishing and the parts of the sandbank feature identified as being particularly sensitive to pressures exerted by bottom towed fishing gears. These areas are shown in figure 1.

5. Options and the preferred option

5.1. As part of Defra's revised approach, the preferred management tools are MMO byelaws between the 6 and 12nm limits. Margate and Long Sands EMS straddles the 6nm boundary. MMO and Kent and Essex IFCA have agreed that MMO will lead on management in the 6 to 12nm portion of the site, and Kent and Essex IFCA will lead on any required management of the 0 to 6nm portion of the site.

5.2. Option 0. Do nothing

Doing nothing would mean that the MMO could not ascertain that no adverse effect to the integrity of the site was occurring, and that obligations under Defra's revised approach and Article 6 (2) of the Habitats Directive would not be met.

5.3. Option 1. MMO byelaw to prohibit the use of bottom towed gears over the sensitive parts of the sandbank feature in the 6-12nm portion of the site, with appropriate buffering ('zoned management').

This is the recommended option.

5.4. Option 2. MMO byelaw prohibiting the use of bottom towed gears over the whole 6-12nm portion of the site

Prohibiting the use of bottom towed gear throughout the whole of the site would allow MMO to ascertain that no adverse effect to the integrity of the site was occurring from fishing activities. However it is not necessary to ensure no adverse effect to the integrity of the site is occurring, and would result in economic loss for bottom towed gear fishermen, fishing in the non-sensitive parts of the site.

5.5. Option 3. Management of the activity through a statutory instrument, regulating order or fishing licence condition

These mechanisms for management are not appropriate in this instance. MMO byelaw making powers as designated under the MaCAA are more appropriate because they are designed to be used to manage activity within marine protected areas providing the appropriate level of power, flexibility, consultation and speed.

5.6. Option 4. Management of the activity through a voluntary agreement

Voluntary agreements are in line with the principles of Better Regulation, which require that statutory regulation is introduced only as a last resort.

However, Defra's revised approach states that management measures for commercial fishing in EMSs should be implemented through statutory regulatory to ensure adequate protection is achieved. Furthermore, fishing vessels from France, Belgium and the UK all operate within the site making reaching a voluntary agreement difficult.

5.7. The recommended option is Option 1: MMO byelaw to prohibit the use of bottom towed gears over the sensitive parts of the sandbank feature in the 6 to 12nm portion of the site, with appropriate buffering ('zoned management').

5.8. This option is recommended because:

- Prohibiting bottom towed gear over the most sensitive parts of the sandbank feature will allow MMO to ascertain that no adverse effect will occur to the integrity of the site as a result of fishing activities, whilst allowing continued economic gain for fishing vessels operating in the rest of the site.
- MMO is the most appropriate authority to implement fisheries management measures between the 6 and 12nm limits.
- MMO byelaws are designed to manage activities in the marine environment for the protection of MPAs, offering the appropriate levels of flexibility and control.
- Kent and Essex IFCA are best placed to manage fisheries in the portion of the site within the Kent and Essex Inshore Fisheries and Conservation District.

5.9. The boundaries of the proposed management areas were determined taking into account the best available existing evidence of the extent and sensitivity of the feature as well as the need for a 'buffer zone' between the features and the byelaw boundary. Ease of enforcement and the need to have clear demarcation to promote compliance was also taken into account when considering the shape of the prohibited area.

6. Consultation

6.1. Formal consultation of the proposed byelaw took place from 14 October to 12 December 2017.

6.2. Responses from 17 organisations or individuals were received during this period. Five supported the proposed byelaw and 12 objected.

- 6.3. Of the objections, seven indicated that the byelaw was too restrictive or unnecessary and voiced concerns about the impact of the byelaw on the fishing industry. The remaining five objectors believed that the byelaw did not go far enough in protecting the site from the impacts of fishing.
- 6.4. A number of technical issues were raised regarding the MMO assessment of the impacts of fishing at this site, and these were used to update and improve the assessment document.
- 6.5. As part of the consultation, MMO identified additional evidence showing *Sabellaria spinulosa* reef extending out of one of the areas identified as sensitive. Although *S. spinulosa* reef is not a feature of this site (unlike some other EMSs), Natural England advice received by MMO indicates that it does contribute to the condition of the sandbank feature.
- 6.6. As a result of the additional information, the boundaries of management area A were altered to ensure the most appropriate areas of the site are protected.
- 6.7. All stakeholders who responded to the initial public consultation were informed about the alteration and given two weeks to provide any further comments. During this period, only one objection was received, on the basis that the boundary should be further altered in order to include a wider area.

7. Analysis of costs and benefits

Benefits

- 7.1. Prohibition of the use of bottom towed fishing gear in the proposed management areas will contribute to the protection of the most sensitive biotopes at the site. These biotopes include areas with dense populations of polychaete worms and areas containing long-lived bivalve species.

Costs

- 7.2. Prohibition of the use of bottom towed fishing gear in the proposed management areas could result in the following costs:
- direct costs to the fishing industry from reduced access to fishing grounds;
 - indirect costs to the fishing industry associated with displacement to other fishing grounds;
 - environmental impacts related to possible increased damage to habitats on other areas due to displacement;
 - costs to the MMO for the administrative and enforcement of management.
- 7.3. Costs to the fishing industry, including potential displacement costs, and administrative and enforcement costs to the MMO can be monetised and these estimated values have been collated and presented as part of this impact assessment (tables 1 and 2 below).
- 7.4. Environmental costs due to possible increased damage of habitats are difficult to value and are therefore described here as non-monetised costs.

Uncertainty and data assumptions

- 7.5. Cost estimates have been based on UK landings values estimated within the management areas. Landings information are reported at ICES rectangle level and it is therefore not possible to ascertain what proportion of the total landings value was actually derived directly from the proposed management areas. The reported activity data (quantity and value of landings along with details of gear involved) was taken from MMO Ifish database.
- 7.6. For vessels not operating a vessel monitoring system (VMS) an area based estimate of the landings reported by all UK under 15 metre vessels within ICES rectangle 32F1 was applied to the management areas. Landings of cockles in 2013 and 2014 have been removed from analysis as expert opinion from the Kent and Essex IFCA confirmed that the overwhelming majority of these cockles originated from within the 6 nautical mile limit, and therefore not from within the proposed management areas. Otherwise, this approach assumes homogenous distribution of landings from within the ICES rectangle. The estimates should be used with caution as it is very likely that there are patterns of activity within the ICES rectangle which mean some areas actually represent the origin for more or fewer landings than the average figure we have used.
- 7.7. For operating VMS, landings records from a specific date were matched with individual vessels' VMS reports from the same period, and the landings quantities and values were attributed accordingly. Only VMS reports from vessels travelling from zero to six knots were used. These estimates should also be treated with caution as most vessels report via VMS only once every two hours.
- 7.8. VMS data indicate that alternative fishing grounds to the proposed management areas are easily accessible (figures 3 to 7). Estimated costs to the fishing industry are likely to be an overestimate, as vessels are likely to offset some of the lost revenue by fishing in other areas.
- 7.9. It is also possible that the increased environmental status within the management areas could coincide with relatively more abundant fishing grounds, and therefore the analysis may have underestimated the value of reduced fishing ground.

Costs to the UK fishing industry

- 7.10. This impact assessment considers the economic impact to UK businesses and individuals. Economic impacts to non-UK businesses and individuals, including fishing vessels registered outside of the UK, are not in scope. However, information on costs to fishing vessels registered outside of the UK is discussed separately in box 1 and tables 7 and 8.
- 7.11. To estimate the economic impacts of the proposed management, fishing patterns of vessels using bottom towed gear within and around the proposed management areas from 2009 to 2015 were analysed. Fisheries landings are reported at ICES statistical rectangle level. The proposed management areas fall within ICES rectangle 31F2.
- 7.12. Landings reported by UK vessels using bottom towed gears in ICES rectangle 32F1 are displayed in table 1 based on the size of the vessels and the type of fishing gear used. The bottom towed gear category includes beam trawls, otter trawls, dredges, Scottish seines and Danish seines. The non-bottom towed gear category includes pots, nets, midwater trawls and all other fishing gears.

Table 1. Total UK landings from ICES 32F1

	Non bottom towed gear		Bottom towed gear		All gears	
	Qty (T)	£	Qty (T)	£	Qty (T)	£
Under 15m						
2009	113	316,398	196	840,377	309	1,156,774
2010	169	595,405	228	911,334	397	1,506,739
2011	1,090	1,302,675	298	958,960	480	1,518,264
2012	1,401	1,445,305	253	864,430	653	1,619,955
2013	705	967,008	231	597,748	655	1,395,600
2014	252	735,285	142	342,107	394	1,077,392
2015	217	692,826	200	523,857	417	1,216,460
15m+						
2009	261	71,845	48	182,201	310	254,047
2010	0	0	54	314,910	54	314,910
2011	0	0	39	293,634	39	293,634
2012	<1	44	43	333,658	43	333,702
2013	0	0	63	289,715	63	289,715
2014	0	0	18	106,538	18	106,538
2015	6	6,899	31	196,301	37	203,200
Total						
2009	374	388,243	244	1,022,578	619	1,410,821
2010	169	595,405	282	1,226,249	451	1,821,654
2011	1,090	1,302,675	336	1,249,688	1,426	2,552,363
2012	1,401	1,445,349	293	1,197,680	1,694	2,643,029
2013	705	967,008	3,905	2,807,590	4,610	3,774,598
2014	252	735,285	4,307	4,109,166	4,558	4,844,451
2015	223	699,725	1,731	1,585,891	1,954	2,285,616

7.13. Throughout the years analysed, commercial fishing vessels of 15 metres length or over were required to have onboard a VMS which reports their position via satellite at least once every two hours. From 2013 to 2015 there was a phased introduction of VMS to vessels between 12 and 15 metres length. The 12 to 15 metre vessels active in this area are believed to have started using VMS at the start of 2014. Figures 2 to 6 show the locations of VMS reports from UK vessels in relation to the proposed management areas from 2009 to 2015 and indicate the size class of the vessel.

7.14. For vessels not using VMS, estimates of landings originating from within the management areas were generated by allocating landings based on the size of the management areas as a proportion of the sea area of ICES rectangle 32F1. Table 2 shows the size of the management areas as percentage of the size of sea area of ICES rectangle 32F1.

7.15. For vessels using VMS, estimates of landings originating from within the management areas were generated by linking each vessel's VMS reports to landings records.

7.16. For the years 2009 to 2013, landings from vessels of 12 to 15 metres length were estimated using the area-based (non-VMS) method. For the years 2014 and 2015, landings from these vessels were estimated by linking landings records and VMS reports.

7.17. Tables 3 to 5 show the estimated landings from bottom towed gears originating from within the management areas.

- 7.18. For the years where VMS data are available for vessels of 12 to 15 metres length (2014 and 2015), the estimates of landings from within the management areas are substantially higher than those in the years where no VMS data were available. This could indicate that the area-based method used to landings estimates in the years 2009 to 2013 is underestimating the levels of landings from the 12 to 15 metre fleet from these areas.
- 7.19. To estimate the total of cost over ten years, the annual average value estimated to have originated from the two management areas (£8,308) was used as the best estimate of the annual cost to the fishing industry of introducing the proposed byelaw.
- 7.20. A discounting rate of 3.5% was applied to calculate the present value and 2016 was used as the price base year. The net present value cost over 10 years to the UK fishing industry of the proposed measures is estimated to be £71,513.

Table 2: Size of management areas

	Actual size (km ²)	As % of ICES 32F1 (3,408.68km ²)
Area A	28.94	0.85
Area B	2.28	0.07
Total (areas 1+2)	31.26	0.93

Table 3: Estimates of bottom towed gear landings from Area A

Year	0-12 m		12-15 m		15 m+		Total	
	Qty (t)	Value (£)	Qty (t)	Value (£)	Qty (t)	Value (£)	Qty (t)	Value (£)
2009	1.25	5,334	0.41	1,809	0.34	1,592	2	8,735
2010	1.68	6,823	0.25	924	0.07	152	2	7,899
2011	2.04	6,176	0.5	1,975	0	0	2.54	8,151
2012	1.72	5,778	0.42	1,595	0	0	2.14	7,373
2013	1.63	4,352	0.33	729	0	0	1.96	5,081
2014	0.94	2,025	0.7	2,451	0	0	1.64	4,476
2015	1.29	3,291	1.44	4,185	0	0	2.73	7,476
Annual average	1.51	4,825	0.58	1,953	0.06	249	2.14	7,027

Table 4: Estimates of bottom towed gear landings from Area B

Year	0-12 m		12-15 m		15 m+		Total	
	Qty (t)	Value (£)	Qty (t)	Value (£)	Qty (t)	Value (£)	Qty (t)	Value (£)
2009	0.1	439	0.03	149	0	0	0.13	588
2010	0.14	561	0.02	76	0.14	783	0.3	1,420
2011	0.17	509	0.04	163	0.18	1,799	0.39	2,471
2012	0.14	476	0.03	131	0	0	0.17	607
2013	0.13	358	0.03	60	0.85	2,984	1.01	3,402
2014	0.08	166	0	0	0	0	0.08	166
2015	0.11	271	0.02	38	0	0	0.13	309
Annual average	0.12	398	0.02	88	0.17	795	0.32	1,280

Table 5: Total bottom towed gear estimates (areas A and B combined)

Year	0-12 m		12-15 m		15 m+		Total	
	Qty (t)	Value (£)	Qty (t)	Value (£)	Qty (t)	Value (£)	Qty (t)	Value (£)
2009	1.35	5,773	0.45	1,958	0.34	1,592	2.13	9,323
2010	1.82	7,384	0.27	1,000	0.21	935	2.3	9,319
2011	2.21	6,685	0.54	2,138	0.18	1,799	2.93	10,622
2012	1.87	6,254	0.46	1,727	0	0	2.31	7,980
2013	1.76	4,710	0.36	789	0.85	2,984	2.97	8,483
2014	1.02	2,191	0.7	2,451	0	0	1.72	4,642
2015	1.39	3,562	1.46	4,223	0	0	2.86	7,785
Annual average	1.63	5,223	0.61	2,041	0.23	1,044	2.46	8,308

Box 1. Fishing vessels from France and Belgium

Although the focus of this impact assessment is the impacts on the UK businesses and public bodies, vessels from France and Belgium also have access to fish in the proposed management areas.

Landings information from 2009 to 2014 were requested from French and Belgian fisheries authorities and was received in September 2015. Landings values were received in Euros and were converted to pound sterling using annual average exchange rates derived from UK Forex⁵.

Estimates of the value of bottom towed gear fisheries landings derived from within the proposed management areas were determined by using the locations of VMS reports, and the time associated to each report, from the relevant state's vessels registered as using bottom towed gear in the EU fleet register⁶.

Belgian vessels registered as using bottom towed gears (dredges, otter trawls, beam trawls and demersal seines) landed a total catch with a value of £11,993,945 from the whole of ICES rectangle 32F1 from 2009 to 2014.

An annual average of £47,706 was estimated as being derived from within the proposed management areas by Belgian vessels.

Using the worst case scenario that 100% of these landings are lost, and applying a discounting rate of 3.5%, the net present value cost over the 10 year life of the impact assessment to Belgian fishing vessels is estimated to be £410,638

French vessels registered as using bottom towed gears (dredges, otter trawls, beam trawls and demersal seines) landed a total catch with a value of £19,291,148 from the whole of ICES rectangle 32F1 from 2009 to 2014.

An annual average of £6,831 was estimated as being derived from within the proposed management areas by French vessels.

Using the worst case scenario that 100% of these landings are lost, and applying a discounting rate of 3.5%, the net present value cost over the 10 year life of the impact assessment to French fishing vessels is estimated to be £58,799.

⁵ www.ukforex.co.uk/forex-tools/historical-rate-tools/yearly-average-rates

⁶ <http://ec.europa.eu/fisheries/fleet/index.cfm>

Table 6: Landings estimates from Belgian vessels

Belgium (bottom towed gears)	2009	2010	2011	2012	2013	2014	Annual average
32F1 landings	£2,604,900	£3,291,086	£2,798,020	£1,299,089	£766,056	£1,234,794	£1,998,991
% of VMS pingtime within MAs	2.06	1.91	2.81	1.91	3.86	2.59	2.59
MA1 landings estimate	£49,988	£58,384	£73,607	£22,270	£24,004	£34,053	£43,718
MA2 landings estimate	£3,622	£4,522.66	£5,090	£2,581	£5,555	£2,555	£3,988
MA1+MA2 landings estimate	£53,611	£62,907	£78,698	£24,851	£29,559	£36,608	£47,706

Table 7: Landings estimates from French vessels

France (bottom towed gears)	2009	2010	2011	2012	2013	2014	Annual average
32F1 landings	£5,604,200	£106,743	£3,027,383	£2,028,223	£1,860,885	£6,663,714	£3,215,191
% of VMS pingtime within MAs	0.224	0	0.698	0	0.364	0	0.21
MA1 landings estimate	£13,091	£0.00	£21,125	£0.00	£6,769	£0.00	£6,831
MA2 landings estimate	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
MA1+MA2 landings estimate	£13,091	£0.00	£21,125	£0.00	£6,769	£0.00	£6,831

Table 8: Annual additional costs of enforcement of recommended option

Activity	Cost per unit	Estimated units/year	Low cost scenario	High cost scenario	Best estimate (mid-point)
Royal Navy surface surveillance	£750-1,000 per inspection	1-2	£750	£2,000	£1,375
Joint enforcement patrols with IFCA	£800-1,000 per day	5	£4,000	£5,000	£4,500
Total	-	-	£4,750	£7,000	£5,875

Table 9: Best estimate present values (3.5% discount rate)

	Year										Total
	1	2	3	4	5	6	7	8	9	10	
Cost to MMO (£)	5,875	5,676	5,484	5,299	5,120	4,947	4,779	4,618	4,462	4,311	50,570
Cost to UK fishing industry (£)	8,308	8,027	7,756	7,493	7,240	6,995	6,759	6,530	6,309	6,096	71,513
Total cost (£)	14,183	13,703	13,240	12,792	12,360	11,942	11,538	11,148	10,771	10,407	122,083

Costs to MMO

7.21. MMO have a specific MPA monitoring and control framework and, as part of this will create specific monitoring and control plans specific to individual MPAs. Any action taken will be intelligence led and risk based enforcement in line with the approach adopted by a number of regulatory bodies across government in accordance with the National Intelligence Model. Where intelligence suggests non-compliance or a risk of non-compliance, we will deploy resources accordingly. This may include a Navy presence or joint operations with other agencies (for example the IFCA, UK Border force or the Environment Agency). The MMO would coordinate any joint operations. The principles by which the MMO will regulate marine protected area are set out by the Legislative and Regulatory Reform Act 2006 and the Regulators' Compliance Code and aim to ensure that the MMO is proportionate, accountable, consistent, transparent and targeted in any enforcement action it takes.

7.22. Table 8 highlights the estimated enforcement costs for the management of this preferred option.

7.23. A discounting rate of 3.5% was applied to calculate the present value and 2017 was used as the price base year. The net present value cost over 10 years to the MMO of the proposed measures is estimated to be £50,570 (see tables 8 and 9).

Total monetised costs

7.24. Total monetised costs over 10 years (including costs to UK businesses and government) are estimated to be £122,083 (see table 9).

Figure 2: UK VMS 0-6 knots 2009

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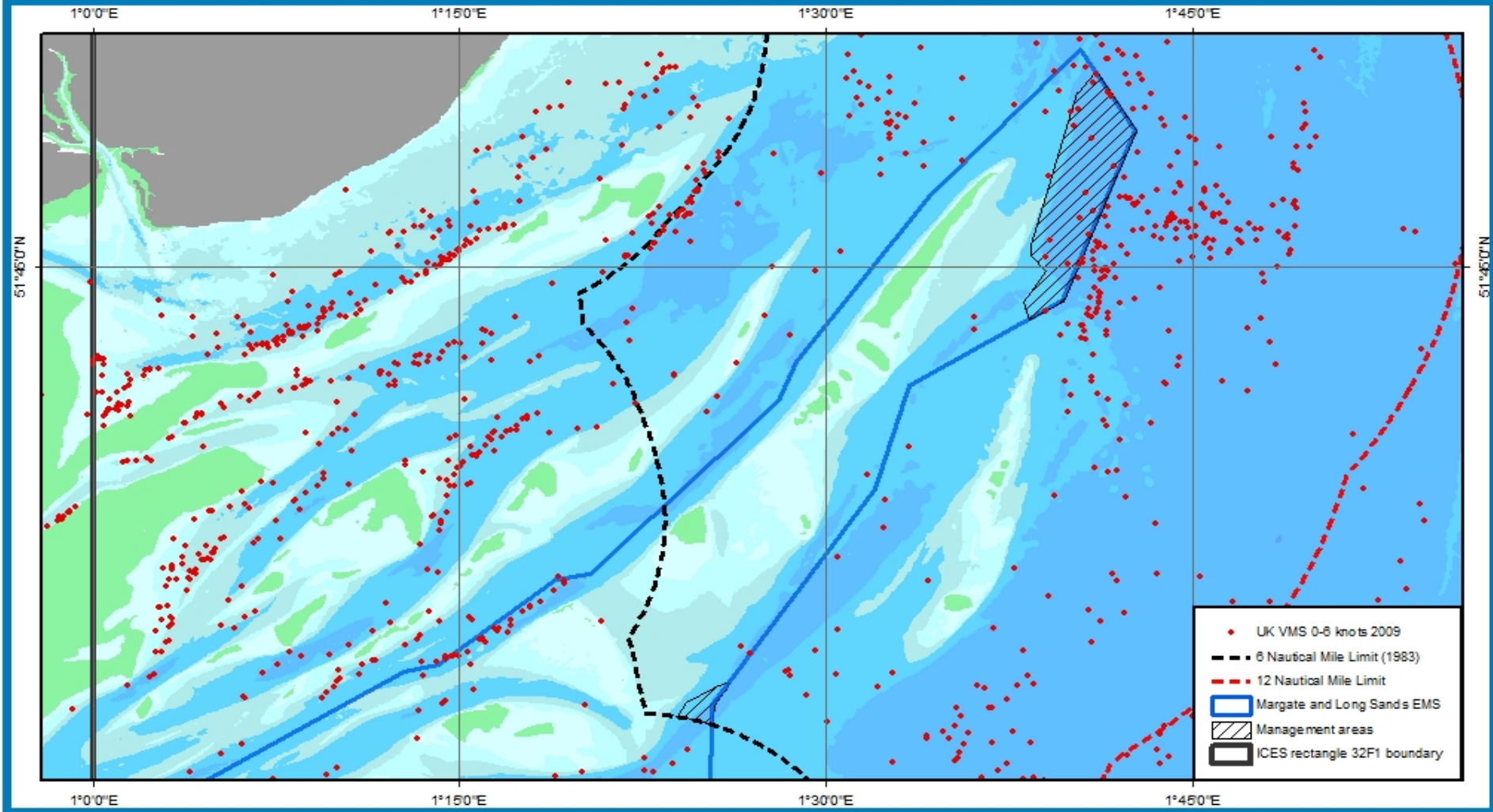


Figure 3: UK VMS 0-6 knots 2010

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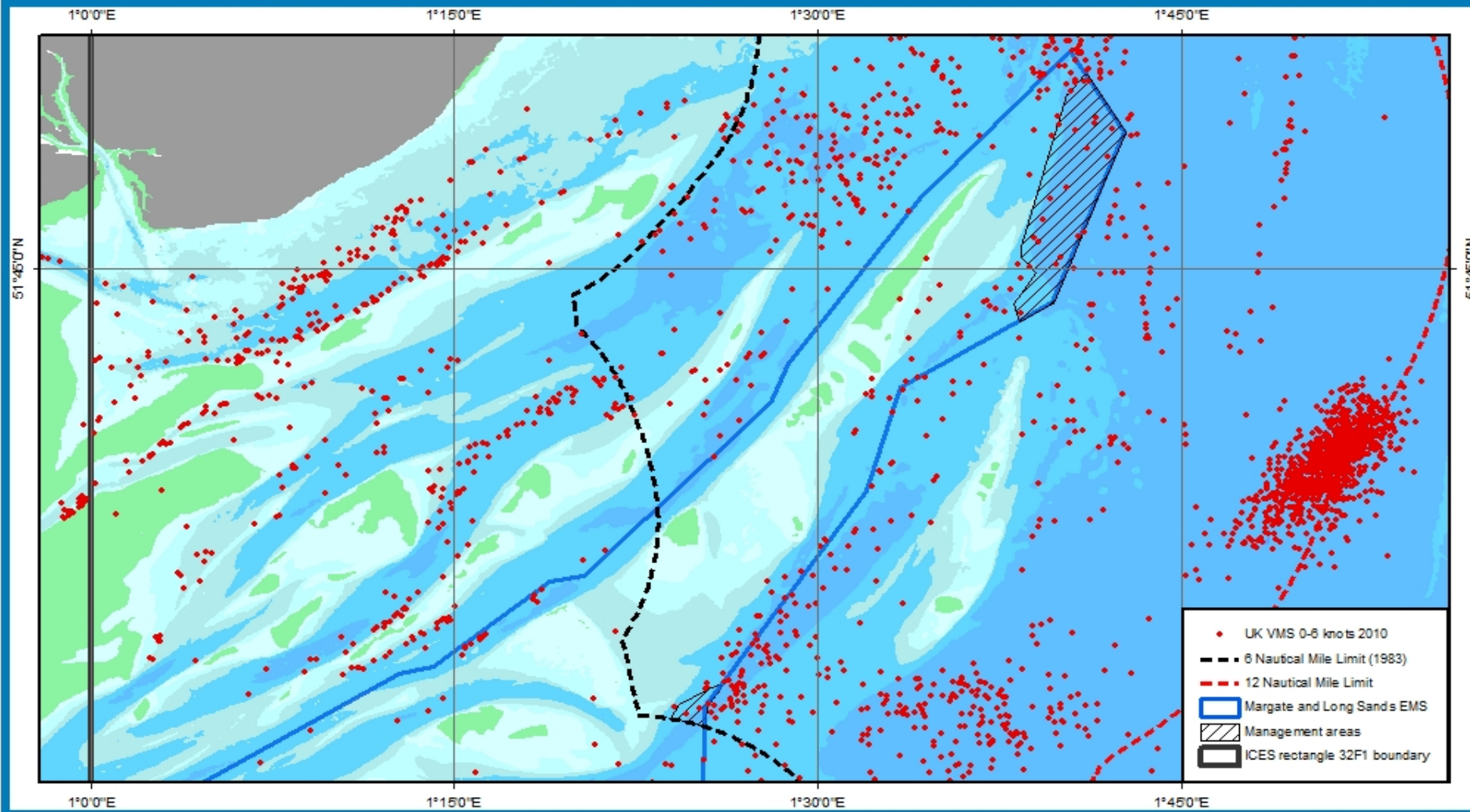


Figure 4: UK VMS 0-6 knots 2011

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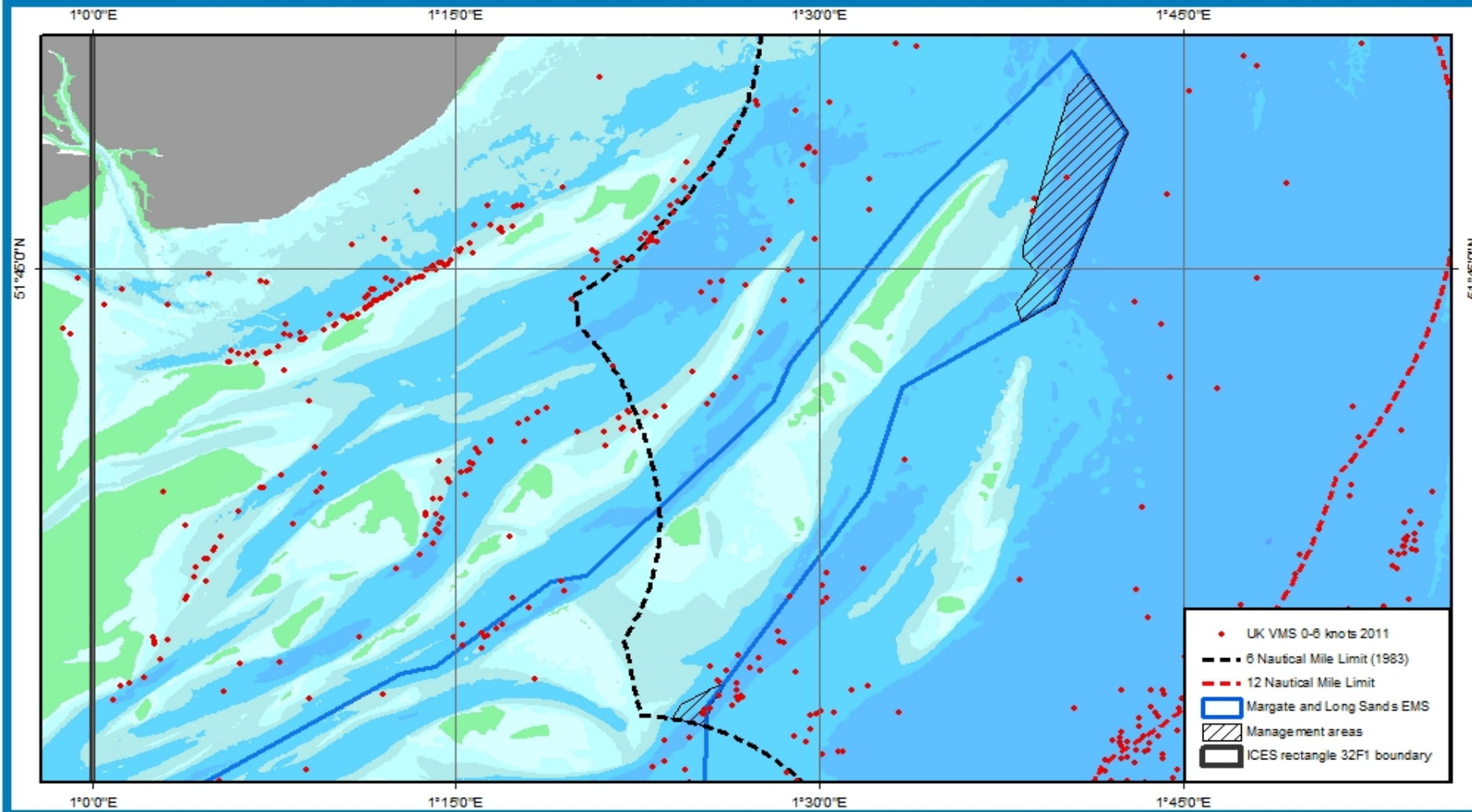


Figure 5: UK VMS 0-6 knots 2012

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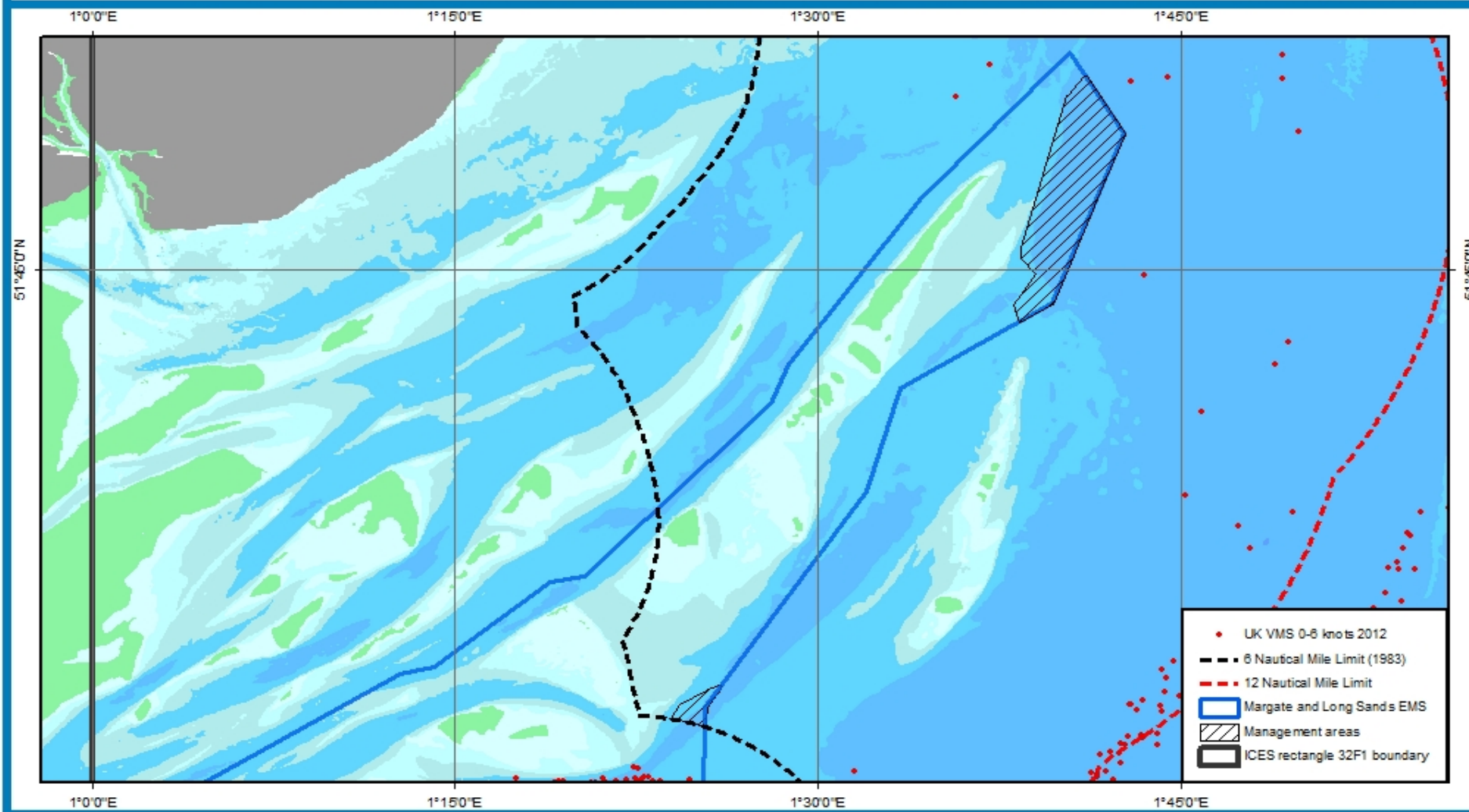


Figure 6: UK VMS 0-6 knots 2013

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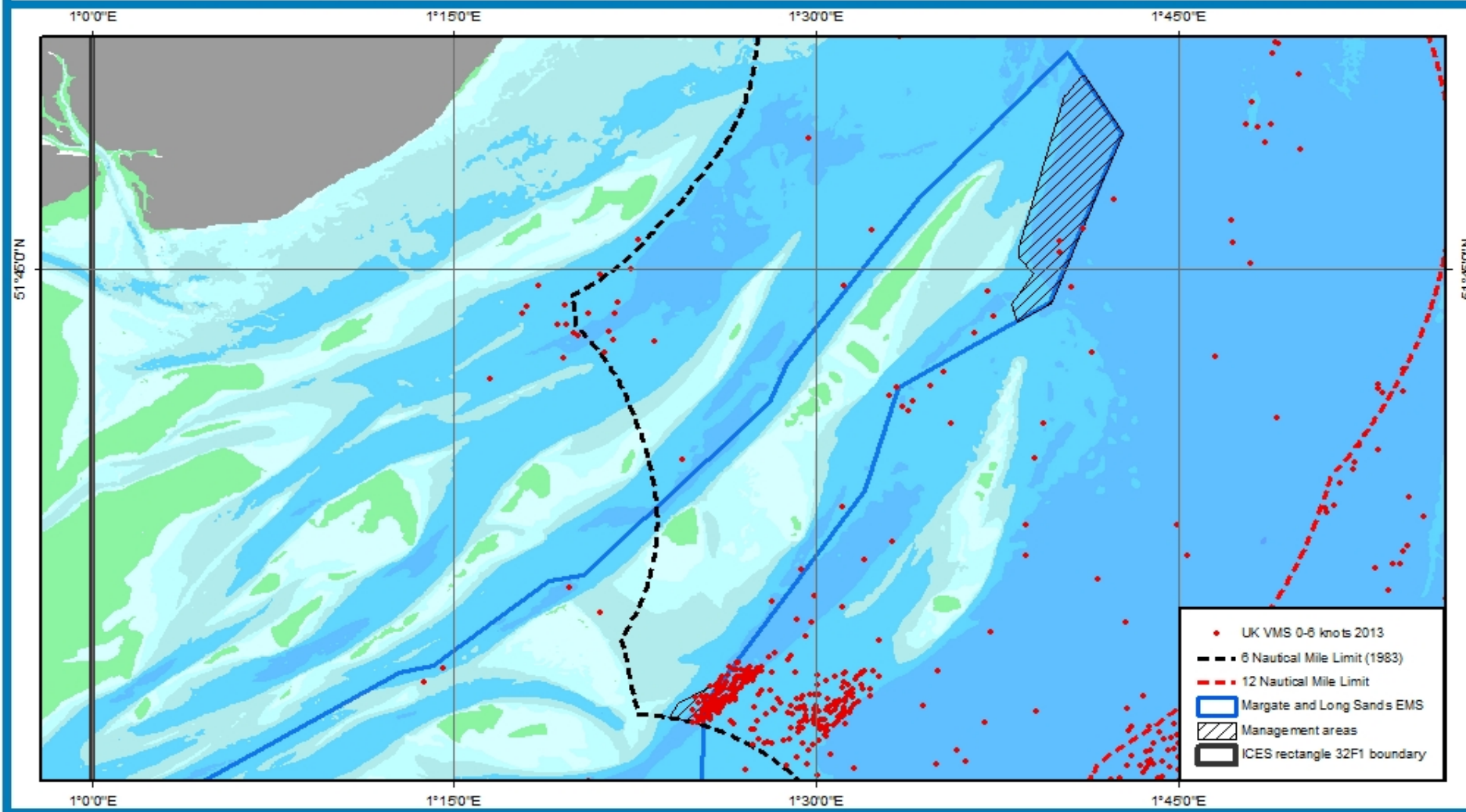
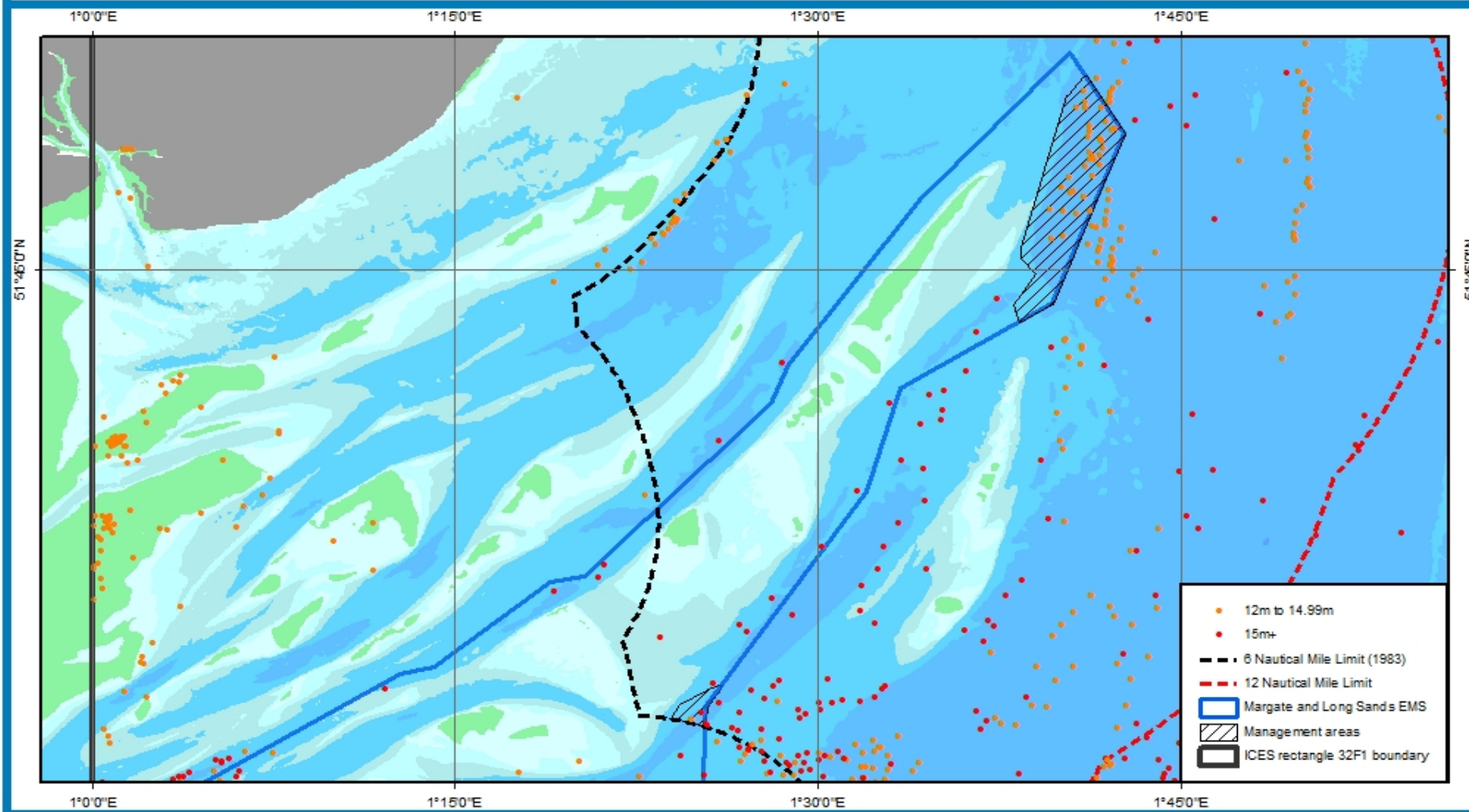


Figure 7: UK VMS 0-6 knots 2014

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8. Review

- 8.1. The MMO assessment of fishing activities within Margate and Long Sands EMS will be reviewed after two years or sooner if significant new information becomes available. New information which would trigger a review could include new seabed survey data or updated advice from Natural England.
- 8.2. If a review of the MMO assessment results in a change to the conclusion in terms of the level of restriction of fishing required, MMO amend the management measures accordingly. Any change to the byelaw will only be made be subject to public consultation and will require confirmation by the Secretary of State before coming into force.

9. Conclusion

- 9.1. Recommended option: MMO byelaw to prohibit the use of bottom towed gears over the sensitive sandbank biotopes, with appropriate buffering ('zoned management').
- 9.2. This option is recommended because:
- The MMO assessment of fishing activities within Margate and Long Sands EMS concluded that mitigation of bottom towed fishing activities is required to ascertain that fishing activities are not having an adverse effect on the integrity of the site.
 - MMO is the most appropriate authority to take forward fisheries management measures between 6 and 12nm.
 - The boundary of the proposed management areas were determined taking into account the best available existing evidence of the extent of sensitive biotopes as well as the need for a 'buffer zone' between the features and the byelaw boundary. Ease of enforcement and the need to have clear demarcation to promote compliance was also taken into account when considering the shape of the management areas.

Annex A: Policy and Planning

One in Three Out (OI3O)

OI3O is not applicable for MMO byelaws implemented for MPA management.

Small firms impact test and competition assessment

No firms are exempt from this byelaw. It applies to all firms who use the area. This measure does not have a disproportionate impact on small firms. It also has no impact on competition as it applies equally to all businesses that utilise the area.

Which marine plan area is the MPA and management measure in?

The proposed byelaw will include management areas in the East inshore plan area and the South East inshore plan area.

Have you assessed whether the decision on this MPA management measure is in accordance with the Marine Policy Statement and any relevant marine plan?

- Yes

If so, please give details of the assessments completed:

- In the East inshore plan area the byelaw is in accordance with the following objectives and policies from the East Marine Plans:
 - Objective 6: To have a healthy, resilient and adaptable marine ecosystem in the East marine plan areas.
 - Objective 7: To protect, conserve and, where appropriate, recover biodiversity that is in or dependent upon the East marine plan areas.
 - Objective 8: To support the objectives of marine protected areas (and other designated sites around the coast that overlap, or are adjacent to the East marine plan areas), individually and as part of an ecologically coherent network.
 - Policy BIO1: Appropriate weight should be attached to biodiversity, reflecting the need to protect biodiversity as a whole, taking account of the best available evidence including on habitats and species that are protected or of conservation concern in the East marine plans and adjacent areas (marine, terrestrial).
 - Policy MPA1: Any impacts on the overall marine protected area network must be taken account of in strategic level measures and assessments, with due regard given to any current agreed advice on an ecologically coherent network.
- In the South East inshore plan area no marine plan is currently in place. Therefore for management areas in this plan area, therefore consideration has been given to the Marine Policy Statement. The decision on this MPA management measure is in accordance with the Marine Policy Statement, in particular:

- 3.1.8 Marine plan authorities and decision-makers should take account of the regime for MPAs and comply with obligations imposed in respect of them. This includes the obligation to ensure that the exercise of certain functions contribute to, or at least do not hinder, the achievement of the objectives of a MCZ or MPA (in Scotland). This would also include the obligations in relevant legislation relating to SSSIs and sites designated under the Wild Birds and Habitats Directives.
- 3.8.3 Decision makers must therefore have regard to the provisions of the CFP in developing any plans or proposals affecting fisheries. The CFP is currently being reviewed with the aim of introducing a reformed vision by 1 January 2013. The view of the UK Administrations is that the overall aim of the reformed CFP should be to attain ecological sustainability whilst optimising the wealth generation of marine fish resources and their long term prospects.