



**Regulation & Compliance  
Sub-Committee Meeting**

**To be held at:**

**EIFCA Offices, 6 North Lynn Business Village  
Bergen Way, King's Lynn, PE30 2JG**

**Tuesday  
13<sup>th</sup> December 2016  
1030 hours**



Meeting: **Regulation and Compliance Sub-Committee**

Date: 13 December 2016

Time: 10:30

Venue: Eastern IFCA office, Kings Lynn

*"Eastern Inshore Fisheries and Conservation Authority will 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."*

- 1 Welcome - *Chair*
- 2 Declaration of members' interests - *Chair*

**Action Items**

- 3 Minutes of the Regulation & Compliance Sub-Committee meeting on 24<sup>th</sup> February 2016 - *Chair*
- 4 Matters Arising – *Clerk*
- 5 Shrimp Permit Byelaw 2016 and associated permit conditions – *CEO / Staff Officer*
- 6 Marine Protected Areas Byelaw 2017 – *CEO / Staff Officer*
- 7 Any other urgent business  
To consider any other items which the Chair is of the opinion are matters of urgency by reason of special circumstances which must be specified

Julian Gregory  
Chief Executive Officer  
28<sup>th</sup> November 2016

## Regulation & Compliance Sub-Committee

*"EIFCA will lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economical benefits to ensure healthy seas, sustainable fisheries and a viable industry".*



A meeting of the Regulation & Compliance Sub-Committee took place at Eastern IFCA offices in King's Lynn on 24<sup>th</sup> February at 1322 hours

### Members Present:

Mr Tom Pinborough	Chair	MMO Appointee
Cllr Hilary Cox		Norfolk County Council
Mr John Davies		MMO Appointee
Mr Paul Garnett		MMO Appointee
Mr Ceri Morgan		MMO Appointee
Mr Rob Spray		MMO Appointee
Mr John Stipetic		MMO Representative

### Representatives from Outside Bodies

Emma Thorpe Natural England

### Eastern IFCA Officers Present:

Andrew Bakewell	Head of Finance
Luke Godwin	Marine Protection Project Officer
Julian Gregory	Acting CEO
Simon Lee	Senior IFCO (Compliance)

### R&C16/01 Welcome by the Chair

The Chair welcomed members to the meeting, and noted that Emma Thorpe was attending to provide advice in the absence of Connor Donnelly.

### R&C16/02 Apologies for Absence

Apologies for absence were received from Messrs Brewster (MMO Appointee), Donnelly (NE Representative), Hirst (EA Representative) and Mr Williamson (MMO Appointee) and Councillors Baker (NCC) and Byatt (SCC).

### R&C16/03 Declaration of Members Interests

Messrs Davies and Garnett reiterated the Declarations of Interest which were already recorded by the Authority.

### R&C16/04 Minutes of the Regulation & Compliance Sub-Committee meeting on 17<sup>th</sup> November 2015

Mr Garnett felt the wording in the resolution of Minute R&C15/09 did not reflect the decision made and requested it be changed. Following discussion it was agreed to amend the wording to read:

**"Agree to explore spatial closures in the context of options 2 & 3 as the Authority's preferred management option"**

**Proposed: Mr Spray**

**Seconded: Mr Garnett**

**All Agreed**

### R&C16/05 Matters Arising

R&C15/09: The A/CEO advised that he had heard there had been comment that the Authority had neither the inclination or funding to look into gear trials. He advised this was not the case and the Officers would be working with the industry on this matter.

### R&C16/06 Whelk Management

Members were reminded of the process to date with regard to the Whelk and Permit byelaws.

To summarise the permit byelaw would be a tool to use in a range of different permits through a byelaw. The Permit byelaw would allow the issuing of a

permit, the setting of permit conditions and the ability to limit the number of permits.

The whelk byelaw would require a permit under the permitting byelaw, with the major impact being the introduction of whelk management measures such as MLS, pot limitation, riddle size etc.

The response to formal consultation had been a general agreement that legislation was needed and support for the flexible approach however, there had been concerns expressed about the potential to limit pot and permit numbers as well as a MLS.

With regard to pot limitation concerns had been raised that this would have a greater impact on larger vessels and fishing in the Wash would be unviable for King's Lynn vessels. The suggestion had been made that there could be 250 pots/crew member, up to a maximum of 750 pots. However, based on 2014 figures if all vessels fished up to this level the fishery could be significantly over fished.

The recommended 500 pot limit was a compromise between an increase in the MLS and the 300 maximum pot limit which applied in KEIFCA district.

The concerns regarding limiting permits were discussed, at the current time there was no intention to limit the number but in future it may become necessary. However, to ensure the decision was not taken lightly there was a process written in to the byelaw which involved an Impact Assessment, Consultation and then consideration by the sub-committee.

Members then considered the next steps of the byelaw making process. It was noted that once it was sent to the MMO for consideration there may be some minor wording changes required, it was agreed that in the case of minor amendments the A/CEO could approve the changes, however, for any major changes the sub-committee would convene again. It was anticipated the new byelaw would start as the end date of the Emergency byelaw.

Mr Garnett expressed concern about the wording on page 21 (para 7 of the Permit Byelaw) relating to named persons only being allowed to fish unless they had the permission of the Authority to do so. Mr Garnett felt if left open it was a a loop hole which could be exploited, he felt further consideration should be given to the wording. Members noted the view and also noted there needed to be some leeway to cover anomalies. It was suggested that legal advice should be sort with regard to this particular paragraph.

**Members Agreed to note:**

- **the results of the formal consultation with regards to the Whelk byelaw and the permit byelaw**
- **the rationale and justification for the final draft of the Permit Byelaw and Whelk byelaw**

**Members Resolved to Agree:**

- **to the recommended amendments to both byelaws.**  
**Proposed: Mr Spray**  
**Seconded: Mr Morgan**  
**All Agreed**
- **to the Permit Endorsement Process and the Flexible Permit Conditions Process**  
**Proposed: Mr Morgan**  
**Seconded: Mr Spray**  
**All Agreed**

- **Direct officers to submit the proposed byelaws to the Minister for consideration**  
**Proposed: Cllr Cox**  
**Seconded: Mr Stipetic**  
**All Agreed**
- **to delegate responsibility to the ACEO to make minor wording amendments on the byelaws, including issues relating to paragraph 7 of the Permit byelaw.**  
**Proposed: Mr Morgan**  
**Seconded: Mr Garnet**  
**All Agreed**

#### **R&C16/07 Application & Saving Byelaw**

A review had been carried out of the byelaws inherited from NEIFCA. It had been noted that 15 of them were not applicable and required revoking, it was also necessary to extend the application of all, but two, of EIFCA's byelaws to cover the extended district.

Members were advised that following a period of formal consultation no objections had been received.

**Members Agreed to note the rationale and justification for the final draft of the Application and Exemptions Byelaw 2016.**

#### **Members Resolved to:**

- **Direct officers to submit the proposed byelaws to the Minister for consideration**  
**Proposed: Mr Morgan**  
**Seconded: Cllr Cox**  
**All Agreed**
- **Agree to delegate responsibility to the Acting CEO to make minor wording amendments on the byelaws**  
**Proposed: Mr Stipetic**  
**Seconded: Mr Spray**  
**All Agreed**

#### **R&C16/08 Marine Protected Areas Byelaw Review**

Members were reminded that in 2013 a byelaw had been put in place to introduce Regulatory Notices to meet conservation objectives. This byelaw allowed Regulatory Notices to be applied to MPAs listed in Schedule One of the Byelaw, the purpose being to avoid any unlawful delegation of powers.

Since the inception of this byelaw further sites have been added to the list of MPAs, for example the Cromer Shoal Marine Conservation Zone has been designated which could require management measures in the future, and additional SACs, SPAs and MCZs were anticipated in the near future. With this in mind the Officers were proposing that the current byelaw be revoked and replaced with an amended version which would include provision for a Regulatory Notice to be implemented in any site designated through legislation.

However, since the paper had been prepared for members, Officers had been notified that Defra felt the proposed byelaw did not pass legal scrutiny and was considered to involve an element of risk in relation to possible claims of unlawful sub-delegation of powers. Their advice was understood to be that Regulatory Notices could only be applied to sites listed in Schedule One of the

Byelaw, which would mean remaking the byelaw each time a new site was designated.

The A/CEO felt that it may be possible to challenge this decision if the Authority could get their own legal advice to support the proposed Byelaw. In the event of the challenge not being supported it would mean getting an amendment to add a schedule listing the relevant sites, which although it would mean a slight delay would not completely derail the process.

The question of how much this would cost was raised and whether AIFCA could be asked to share the cost of any legal fees incurred by challenging the decision. The A/CEO did not believe the legal fees would be substantial.

**Members Agreed to Note the rationale for the review of the Protected Areas Byelaw.**

**It was Resolved to:**

- **Agree to make the Marine Protected Areas Byelaw 2016 as it is currently drafted**  
**Proposed: Mr Morgan**  
**Seconded: Mr Spray**  
**All Agreed**

- **Delegate to the A/CEO the ability to amend the byelaw to introduce a schedule to specify the designated sites in which Regulatory Notices can be introduced in the event that legal advice indicates that the existing definition of a 'marine protected area' in the byelaw is not appropriate**  
**Proposed: Mr Stipetic**  
**Seconded: Mr Pinborough**  
**All Agreed**

- **Direct officers to conduct formal consultation for the Marine Protected Areas Byelaw**  
**Proposed: Cllr Cox**  
**Seconded: Mr Morgan**

**All Agreed**

There being no other business the meeting closed at 1415 hours.

#### Vision

The Eastern Inshore Fisheries and Conservation Authority will 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



## Regulation and Compliance Sub Committee meeting

### Action Item 5

13 December 2016

**Report by:** L. Godwin T/Senior IFCO / Staff Officer and J. Gregory CEO

### **Shrimp Permit Byelaw 2016**

#### **Purpose of report**

To present the sub-committee with the Shrimp Permit Byelaw 2016 and associated permit conditions.

#### **Recommendations**

Members are recommended to:

- **Note** the rationale and justification for the final draft of the Shrimp Permit Byelaw 2016 and associated permit conditions;
- **Note** the Impact Assessment associated with the Shrimp Byelaw 2016;
- **Agree** to make the Shrimp Byelaw 2016;
- **Agree** to introduce the associated Shrimp Permit Conditions as presented in option 2;
- **Direct** officers to undertake a formal consultation in relation to the Shrimp Permit byelaw 2016 and associated permit conditions;

**Executive summary** - Assessment of shrimp fishing activity within the Wash and North Norfolk Coast SAC has concluded that the activity is likely to have adverse effects on site integrity. The most sensitive habitats are proposed as being managed through spatial closures with the remainder protected through effort limitation. By ensuring that no more than 12,897 tows are undertaken within the site in a year, there is not likely to be an adverse impact on the designated habitats.

To achieve this the Shrimp Permit Byelaw 2016 is proposed which will require shrimp fishers to obtain a permit and enable Eastern IFCA to introduce flexible permit conditions to manage effort. It is also proposed that vessels are required to use vessel monitoring devices such that Eastern IFCA can effectively monitor fishing effort, pursuant of preventing impacts.

Two models for managing effort are discussed and it is concluded that a dynamic, 'threshold' model is most appropriate as this has the required protective effect and the least economic impact on fishers. The two models are also tested against the key concerns of the industry which concludes that a 'threshold' model is most effective. Therefore, Officers recommend this option (option 2).

Effort limitations are required only in The Wash and North Norfolk Coast SAC but the requirement to have a permit and have a vessel monitoring device is extended across the entire district. This will enable Eastern IFCA to detect changes in shrimp fishing activity in other MPA such that management can be introduced as necessary where site integrity is at risk of being adversely effected.

## **Background**

Eastern IFCA undertook assessments of all fisheries which occur within Marine Protected Areas, specifically European Marine Sites within the district. This assessment concluded that shrimp fishing activity within the Wash and North Norfolk Coast Special Area of Conservation (WNNC SAC) was potentially having an adverse effect on some features of the site specifically, sub-tidal mixed sediment and sub-tidal mud.

Officers undertook to develop management measures which would meet the conservation objectives of the site but would also enable fishing activity where it was appropriate to do so. To this end, it is proposed that a combination of spatial closures and effort limitation is used.

Pursuant of implementing effort limitations on shrimp fishing activity, the Shrimp Byelaw 2016 was made on 27 April 2016. This byelaw required any person undertaking shrimp fishing activity to obtain a permit issued under the Permit Byelaw 2016 (which was made November 2015). It was intended that permit conditions would be developed and implemented in slower time. Subsequent legal issues have resulted in the Permit Byelaw 2016 not being consented by the Minister, as reported at the 27<sup>th</sup> Authority meeting (2<sup>nd</sup> November 2016). This had the 'knock-on' effect of invalidating the previously made Shrimp Byelaw 2016.

To implement shrimp management measures for the protection of designated habitats, a new byelaw was necessary through which a permit was both required and could be granted. In addition, permit conditions have now been developed which limit shrimp fishing effort to levels which do not have a significant impact on the features of the WNNC SAC.

Spatial closures are presented in Action Item 6 of this meeting.

## **Report**

### Shrimp Permit Byelaw 2016

Legal advice from Defra has indicated that any byelaw which requires a permit to fish also needs to contain wording on the issuing of such permits to be compliant with Better Regulation Principles. Pursuant of this, the previously made Shrimp Byelaw 2016 has been combined with the previously made Permit Byelaw 2016 to provide the Shrimp Permit Byelaw 2016.

The proposed Shrimp Permit Byelaw 2016 is presented in appendix 1 of this paper.

The byelaw requires any person who fishes for shrimp for commercial purposes to obtain one of two categories of permit;

- Category One Permit: permits fishing for shrimp within the WNNC SAC;
- Category Two Permit: permits fishing within Eastern IFCA's district except within the WNNC SAC.

The distinction between the two categories of shrimp permit reflect that different permit conditions are associated with each. This relates to effort limitations for shrimp fishing activity within the WNNC SAC.

A summary of the key provisions of the byelaw and rationale for their inclusion are presented in table 1 (below).

<b>Table 1.</b>	
<b>Key Provision (paragraphs)</b>	<b>Rationale</b>
Prohibition on fishing within the district or within the WNNC SAC without a permit (paragraphs 2 and 3).	Enables Eastern IFCA to issue flexible permit conditions to dynamically manage fishing effort within the WNNC SAC. This effectively creates two categories of permit; a Category One Permit allows for fishing within the Wash and North Norfolk Coast, a Category Two Permit allows for fishing throughout the district except within the Wash and north Norfolk Coast SAC.
Prohibition on using fishing gears other than 'shrimp beams' (paragraph 5).	The assessment has considered anecdotal evidence which suggests shrimp fishing gear is less impacting than 'other' towed gears. The key components of other, more damaging gears are greater weight, tickler chains, teeth and otter boards. Use of these gears is not common in fishing for shrimp but this prohibition prevents gear being adapted or modified in a way which would have a greater environmental impact.
Only one permit of each category will be issued in respect of each vessel and any change of ownership will result in the cancellation of that permit (paragraph 7)	This is intended to prevent permits from having any value or a tradable commodity. This will be exercised in accordance with a policy which would allow for a permit to be reissued in certain circumstances – for example, if a fisher sells a vessel and wishes to fish from a 'new' one, a permit would be issued in relation to the new vessel. This provision also allows for fishers to obtain both a Category One and Category Two permit, allowing these fishers to fish within and outside of the Wash and North Norfolk Coast SAC.
Permits are annual and valid from the 1 <sup>st</sup> August in each year (paragraph 11).	Analysis of shrimp fishing activity data indicates that, although there is fishing all year around, fishing activity increases in August of each year. Starting the 'management year' at the beginning of the main fishery will complement the threshold model for managing effort.
The number of permits issued may be restricted and criteria may be used to restrict eligibility for a shrimp permit (paragraph 12).	Enables Eastern IFCA to restrict the size of the fleet to effectively manage effort as required.
A fee of £44 is required for an annual permit (paragraphs 13 and 14).	The fee reflects the cost associated with the administration of shrimp permits only (i.e. not including the associated research, data analysis or enforcement). No extra fee is proposed in relation to a vessel obtaining both a Category One and Category Two permit which reflects that this administrative process would not pose any additional cost to the Authority.
Flexible permit conditions can be issued, varied or revoked in accordance with the process set out in Schedule 1 of the byelaw (paragraphs 15 to 17).	Flexible permit conditions are required to manage a dynamic fishery. These are issued, varied or revoked in accordance with a proportionate process which meets the requirements of the Better Regulation Principles.
Requirement to complete and return to Eastern IFCA 'catch forms' (paragraphs 18 and 19).	Enables Eastern IFCA to collate important fisheries data which will inform future fisheries management decisions including in relation to stock sustainability.

The Shrimp Permit Byelaw is intended to provide the mechanism to dynamically manage the fishing activity within the WNNC SAC through flexible permit conditions.

#### Flexible permit conditions

Analysis of the impacts of shrimp fishing activity has concluded that the shrimp fishing fleet within the WNNC SAC needs to be limited to 12,897 tows per year. This is based on an

average tow duration of 1.88 hours at an average speed of 3.07 km per hour, as estimated from the returns data collected over the last year from shrimp fishers. This equates to an annual footprint of 32.99 km<sup>2</sup>. A more detailed calculation of the annual footprint is presented in Box 1 of the associated impact assessment (Appendix 3).

Restricting fishing effort to this level will provide protection to the sub-tidal mud and sub-tidal mixed sediment features (in combination with the proposed area closures) given the following assumptions:

- A habitat recovery period of two years – this is a precautionary figure as the majority of the habitats left 'open' to fishing (albeit under the permit scheme) are thought to recover over a six-month period. This cautious estimate was used to ensure that no element of the site not already closed to fishing would be significantly impacted by the remaining fishing activity and reflects the low confidence of the data on the extent of individual biotopes within the designated habitats;
- 45% of shrimp fishing activity occurs over sub-tidal mud and sub-tidal mixed sediment habitats – this is a precautionary assumption based on Eastern IFCA sightings data. Shrimp fishing activity is thought to occur over a mixture of sediments but with certain habitats more optimum as shrimp habitat. Assuming fishing activity over the two sub features also reflects the abundance of shrimp within these areas, fishers are still likely to target these areas to the same extent prior to the closures.

To limit the shrimp fishing effort to within this footprint on an annual basis, two models were explored;

1. Require a permit to fish and limit the number of permits issued and the number of trips each vessel could undertake in a year; and
2. Require a permit to fish but set no limitations initially. Monitor the level of fishing activity and introduce permit restrictions and effort limitations as required if defined 'thresholds' are met during a year.

Both models will deliver the required protective effect on the sensitive habitats. Whilst two options are presented below option 2 is the preferred option.

#### *Option 1. Limitation on the number of permits and trips*

This could be regarded as a 'traditional' model for limiting the amount of effort in a fishery. The proposal is to limit the fishery to predetermined levels of activity by allocating a portion of the total allowable footprint (i.e. part of the 12,897 tows) to each vessel. This is achieved by limiting the number of permits issued and restricting vessels to a certain amount of fishing activity during the year to a set number of fishing trips. It is proposed that effort is limited to a number of 'fishing trips' rather than tows because this can be enforced more effectively and takes into account the predicted high levels of latent capacity (see Box 1).

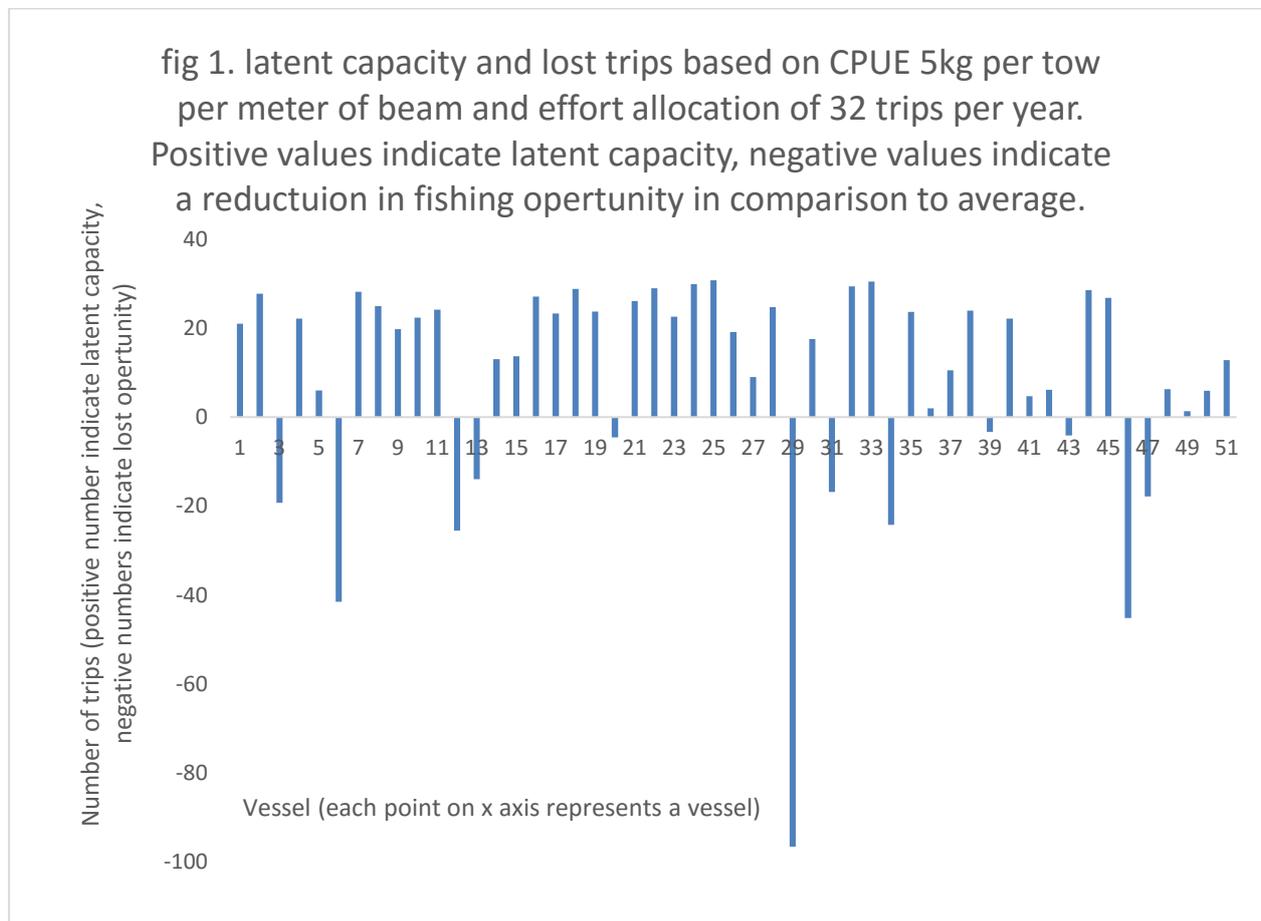
*Limiting the number of permits* - Criteria would be used to limit the number of vessels eligible for a shrimp fishing permit each year. Initial criteria would be a requirement to have landed more than 500kg of shrimp within the period 2010 to 2015 (inclusive). 65 different vessels have landed shrimp caught from within ICES statistical rectangles 34F0 and 35F0 (within which is the Wash and North Norfolk Coast SAC) during this period. This initial criteria would reduce the fleet size by 7. In addition, a further 8 vessels are thought to have moved to outside of the district or have been sold and would be unlikely to apply for a shrimp permit. As such, the fleet size is estimated to be reduced to 50 vessels.

*Restricting the activity of each vessel* – the number of trips each vessel could undertake would be limited to ensure that effort did not exceed that which would cause an adverse effect on site integrity.

Assuming that vessels undertake an average of 5 tows per trip, distributing the total number of tows between a fleet of 50 vessels gives each vessel 52 trips per year (260 tows). However, 18 vessels are identified through informal consultation and analysis of MMO data as likely to undertake as many as 3 times as many tows during a trip (with a trip lasting up to 48 hours). In addition, vessels which 'normally' undertake fewer tows per trip would have the potential to increase the number of tows which would lead to the footprint being exceeded.

To account for the potential to increase the number of tows per trip, the footprint is reduced to provide a buffer for the 18 identified vessels undertaking up to 15 tows per trip. This reduces the allocated trips per year allocated to 32 per year.

Under this management scenario, 729 of the allocated trips are unused (i.e. latent capacity) and 313 are 'lost' in comparison to that which some vessels would normally undertake (based on activity estimates using catch per unit effort data from Eastern IFCA datasets and landings data from the MMO). This is illustrated in Figure 1 below. As a proportion of the total allocated effort this represents a loss of 66% of fishing opportunity with a potential cost the industry of £307,633 to £1.36m annually.



The high levels of latent capacity within this model is a reflection of the fleet being made up primarily of smaller vessels which partake in the fishery on a 'part-time' basis and which diversify across several different fisheries. Fig 1 also indicates that twelve vessels would have fewer trips allocated than they would 'normally' undertake. That said, it is likely that the larger vessels will actually undertake more tows per trip (up to 19 during a 48 hour trip) which the smaller vessels are not capable of.

As such, a 'two-tiered' permit system could be implemented where vessels which have a certain track record over the period 2010 to 2015 (inclusive) could be taken into account and trips allocated accordingly. For example, vessels which are thought to undertake less than 40 trips per annum could be limited to less trips than the vessels which usually fish more

often. This would effectively be reallocating some of the latent capacity to where it would be more likely to be used.

This process would likely to open to additional risk of challenge and appeal. It should be noted that the modelled estimates of the number of trips per year are likely to be under-estimates as they are based on landed weight of shrimp rather than catch (i.e. there will inevitably be unsuccessful fishing trips throughout the year which result in no shrimp being landed). As such, there would need to be a process for allowing fishers to evidence the number of trips they had conducted over the same period which, particularly for under-10 meter vessels, would suffer from a paucity of data.

Advice from the MMO byelaw team has also indicated that, allocating fishing opportunity in this way is at greater risk of legal challenge.

*Option 2. Threshold model*

The assessment of impacts of shrimp fishing activity within the WNNC SAC concluded that there was no significant impact on the integrity of the site if no more than 12,987 tows are carried out each year. Analysis of the trends in fishing activity over the period 2010 to 2015 (inclusive) indicated that, whilst there is the potential for this to occur (particularly in circumstances where catch per tow is relatively low) this is not likely to have occurred during each of those years (table 2).

<b>Table 2.</b> <i>the estimated total number of tows conducted within the WNNC SAC during the period 2010 to 2015 (inclusive). Number of tows is estimated from landed weight (extracted from MMO landings data for ICES rectangles 34F0 and 35F0 which includes area outside of the WNNC SAC) assuming two different catch per unit effort rates. Catch per unit effort estimates were calculated from Eastern IFCA shrimp returns data.</i>						
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Estimated number of tows at a catch per unit effort of 10 kg shrimp per tow per meter of shrimp beam	6008	2365	6485	5703	4096	2296
Estimated number of tows at a catch per unit effort of 5 kg per tow per meter of shrimp beam	12016	4731	12970	11407	8192	4593

Given that effort is not likely to be in excess of the allowed footprint in every year, it is appropriate that the level of activity could be monitored and limitations implemented only when required.

As this would require an immediate response, there would still be a need to implement a mechanism to control effort i.e. if effort was approaching the allowed footprint during a year, the process of bringing in a new byelaw to restrict it would take too long to be effective. As such, option 2 represents a permit scheme in which the primary control of effort is a 'threshold model' which is reflected as permit conditions.

**Box 1 – managing effort through number of trips rather than tows.**

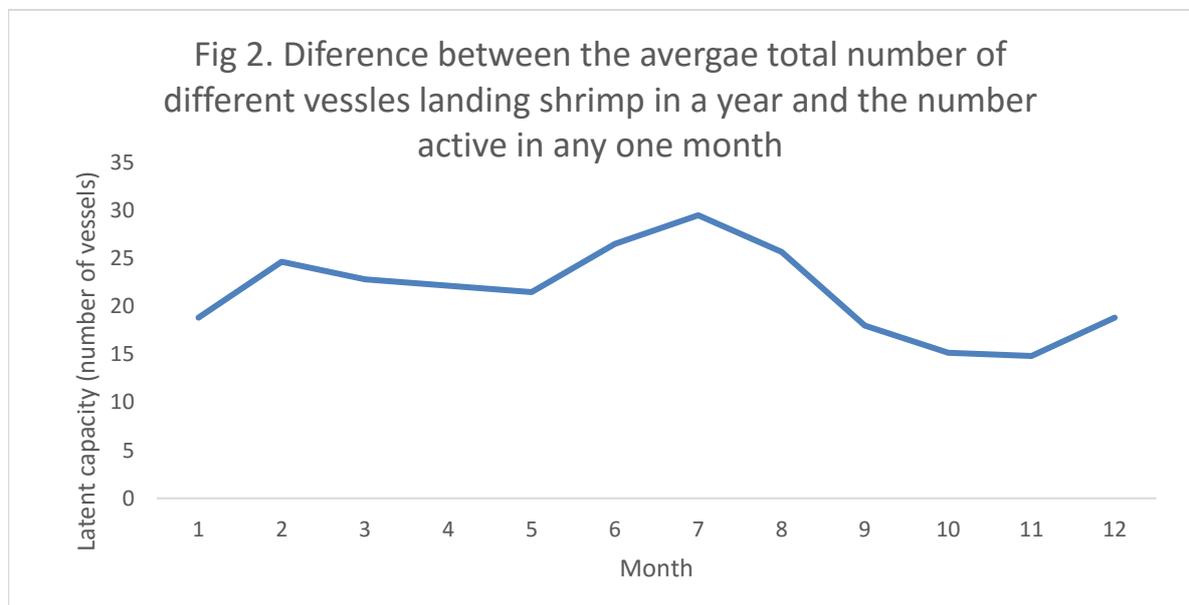
The area of contact between the 'shoes' of shrimp beams and the protected sub features within the WNNC SAC must be restricted to 32.9km<sup>2</sup> during a year. To achieve this through management measures, a more manageable metric is required which relates to fishing activity.

Analysis of landings data has found that the average tow duration is 1.88 hours and the average speed is 3 km per hour and the width of contact (i.e. the area of the shoes on a shrimp beam) is 80cm on average. Therefore we can estimate the number of tows which could be undertaken before this threshold is reached.

A number of tows per vessel is a manageable metric but would be difficult to enforce and monitor. On average, fishers conduct 5 tows per trip (i.e. leaving and returning to port) however there is large variation across the different business models of industry with some vessels undertaking significantly more tows during a fishing trip. Managing the number of trips rather than tows could also lead to fishers simply increasing the time spent at sea as a way of 'counter-acting' any effort limitations, leading to additional fishing effort and potentially exceeding the footprint.

However, both models for managing effort are likely to result in latent capacity. This is as a result of distinctly different business models in the industry. The majority of vessels taking part in the fishery are smaller vessels which tend to diversify i.e. do not fish for shrimp full-time. Splitting effort evenly over the entire fleet will likely lead to these fishers having an allocation of effort in excess of that which they would use. In contrast, there are fewer larger, full-time shrimping vessels which would lose out, receiving an allocation of tows which would be far less than they normally use. This is in part, also a reflection of the higher over-heads of a larger vessel which require a greater catch to 'pay' for the trip to sea and where 'profit' is split between a greater number of crew.

As such, by limiting trips instead of tows, the few larger vessels will not 'lose-out' to the same extent compared to smaller vessels and will use up some of the likely latent capacity from the greater number of smaller vessels. High levels of latent capacity are expected (more so in relation to Option 1 than 2). Figure 2 (below) shows that the latent capacity by number of vessels ranges from 15 to 30 over a year i.e. during some months, more than 2/3 of the fleet does not fish for shrimps even though they would be allocated tows and trips. Due to the high levels of latent capacity, there is a low risk of the footprint being exceeded if the measures are based on trips rather than tows.



As a certain threshold is reached, effort would be limited by i) not granting any additional permits and ii) limiting the number of trips each vessel could undertake until the end of the 'management year' (i.e. the following August). The model used to achieve this is presented in table 3.

<b>Threshold</b>	<b>Permit limitation</b>	<b>Effort restriction</b>
1 <sup>st</sup> August each year	No limitation on the number of permits issued	None
More than 68% of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> January	No further permits are issued until the following 1 <sup>st</sup> August	None
More than 85 % of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> April	No further permits are issued until the following 1 <sup>st</sup> August	Vessels are restricted to a number of shrimp fishing trips until the 1 <sup>st</sup> August in accordance with the following calculation (a) divided by (b):  (a) = <i>total number of remaining tows divided by 5</i>  (b) = <i>total number of Category One Permits issued in a particular year</i>
More than 96 % of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> July	No further permits are issued until the following 1 <sup>st</sup> August	Fishery closed - no further fishing until 1 <sup>st</sup> August

The thresholds presented in table 3 reflect the 'normal' progression of the shrimp fishery during the course of the year. Analysis of the seasonal trends in fishing activity show that the fishing activity starts to increase in August of each year and on average, 68% of the fishery (by landed weight) is conducted in the period 1 August to 1 January (table 4). Therefore, if more than 68% of the allowed footprint is used by fishers during this time, the fishery is on a trajectory towards exceeding the total allowable footprint during the 'management year' (1 August to 31 July). This is the first threshold which would initiate effort limitation. At this point, this would only involve a limitation on limiting additional permits.

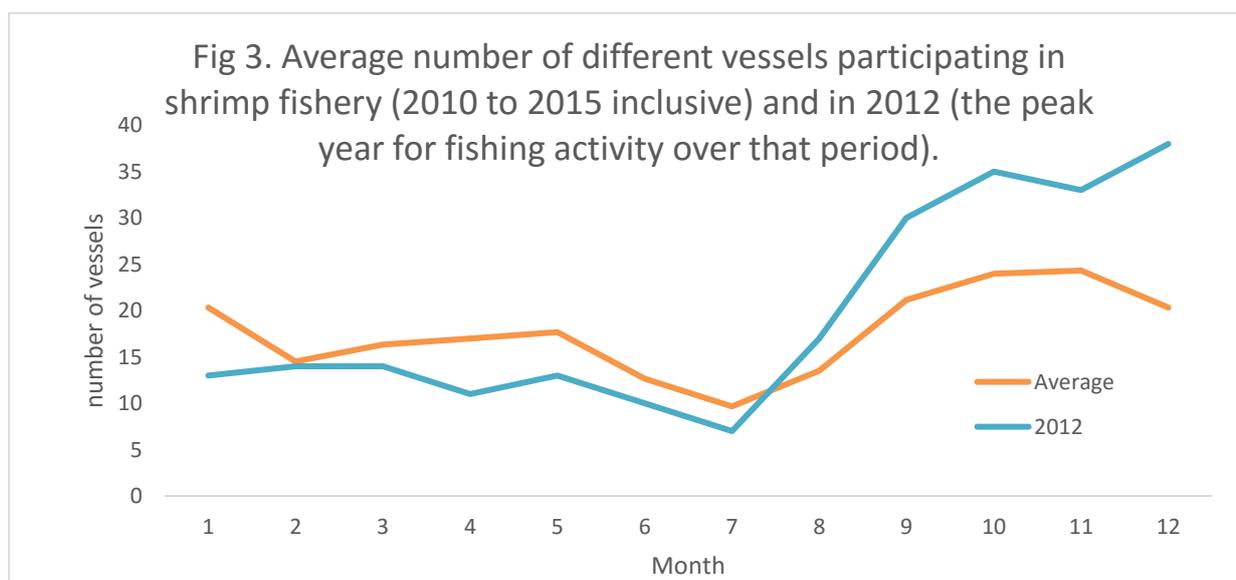
<b>Month</b>	<b>Average cumulative percentage of landings as a proportion of total landings, average proportion in relation to each month in ( )</b>		
Aug	7.9 (7.9)	Feb	80.4 (3.6)
Sep	22.1 (14.1)	Mar	84.7 (4.3)
Oct	41.5 (19.4)	Apr	89.4 (4.6)
Nov	59.1 (17.6)	May	93.2 (3.8)
Dec	68.4 (9.3)	Jun	96.4 (3.2)
Jan	76.7 (8.3)	Jul	100 (3.6)

The period 1 August to 1 January is the period during which the majority of different fishers are active within the fishery (fig 3.). Managing the fishery dynamically using the model in table 3 is supported by ensuring that the majority of fishing activity is conducted during the

early stages of the managed period. This will enable the bulk of the fishery to take part without leading to the triggering of a limitation too early. It also allows for more manageable, smaller increments to be measured as the levels of activity near the total allowable footprint.

The second threshold for effort limitation as presented in table 3 is where fishing activity reaches 85% of the footprint before 1 April. During April, the fishery is generally reaching its trough and each month from this point accounts, on average, for 4% of the total activity over the year. At this point, effort would be reduced in addition to restrictions on the issuing of any additional permits. Each vessel with a permit at the point would be allocated a number of trips based on a formula presented in the permit condition.

Trips are allocated rather than a number of tows as they represent a more 'enforceable' metric, take into account the differing business models of the fleet and reduce potential latent capacity as highlighted in Box 1 (above).



The final trigger for effort limitation is where the fishery has utilised 96% of the allowable footprint before 1 July in any year. Where this is the case, the trajectory of the fishery indicates that the threshold will be exceeded within the next month. At this point, the fishery would be closed to fishing entirely.

Within this model, it is proposed that the total allowable number of tows is 92% of the footprint determined within the impact assessment. This provides a buffer against up to two months of 'data lag' where fishers have not returned the data needed to calculate where the fishery is in relation to the footprint. Obviously, the use of i-VMS in this system would be of benefit to both Eastern IFCA in administering the model and the fishers as, it is conceivable that the buffer could be reduced as 'data lag' will not be as limiting a factor.

Setting the limit at 92% of the total does increase the risk of the fishery closing before an adverse effect is likely to occur and the potential cost to the industry.

#### Analysis of the two models

These two models were discussed at the shrimp management workshop held in September. Both models are compared and assessed against the key concerns raised during the workshop and this is presented in table 5.

In summary, whilst both models will achieve the required protective effect, option 2 more effectively meets the needs of the industry. It also represents a more proportionate approach to management and is likely to have less of an economic impact on the fishery than option 1.

Table 5. assessment of two models for managing shrimp fishing effort in the Wash and North Norfolk Coast Special Area of Conservation against concerns raised by fishers.

<b>Key concern raised</b>	<b>Discussion in relation to concern / issue</b>	
	<b>Option 1. Limit on the number of permits and fishing effort</b>	<b>Option 2. Threshold model</b>
Permitting schemes will increase effort as fishers look to get a 'track record' to secure a permit in future years	Limiting the number of permits issued each year requires a system to allocate the finite number of permits. This could range from a 'first come, first serve' approach to determining eligibility for a permit based on criteria, such as track record (which is commonly used in relation to issuing Defra / MMO licences). If track-record (i.e. evidence of having fished for shrimp in WNNC SAC) was used as a criteria, it is likely that vessels will conduct fishing activity only to ensure that they are eligible for a permit next year. This artificial increase in effort would not be of benefit to the fishery or the environment and fishers holding on to permits in this way would also increase latent capacity, increasing the economic impact of the measures on the fleet.	The threshold model would not limit the number of permits initially and as such, there would be no requirement to engage in fishing activity to build a track record. The size of the fleet in any one year would reflect the 'normal' market drivers i.e. productivity of the fishery in comparison to others and the price of shrimp. This model would also reduce latent capacity within the system as a permit would not also be associated with a portion of available trips, if you have a permit but do not fish, those trips you didn't take are not counted against the total.
No protection for full-time fishers or longer term business planning.	Permits issued under this model provide greater certainty than under the threshold model in as much as a fisher will now each year, how many trips they can undertake. That said, permits would still be issued annually and, as criteria would be used to determine any changes to such may lead to a fisher not being eligible the following year. This would only be the case when there was an evidence based need to do so and would require a consultation and an impact assessment.	The amount of fishing activity a permit holder could undertake in any year under this model would ultimately depend on the amount of fishing undertaken by other fishers. If market conditions lead to a greater number of fishers partaking in the fishery, an individual could lose out. To an extent this reflects the natural system of fishing for a finite resource – as more fishers take from the same stock, the less each individual fisher receives. In contrast, longer term business planning will benefit as fishers can be more certain that they will receive a permit each year.
Fishers who diversify during the year could lose out if 'full-time' shrimp fishers use up all the trips.	There are a number of different ways to allocate the total allowable fishing effort in a year at the beginning of each year. One model would see the total split evenly across the total number of permits issued however, analysis of this system against estimated fishing effort over the last five years concludes that many vessels are allocated much more effort than they are likely to use whereas others (i.e. the full-time shrimp fishers) have much fewer than they	As described above, allocation of fishing effort would reflect the natural distribution of a finite resource in that, as one fisher takes more, less is available for others. That said, under this model, there would be equal opportunity for any fisher to take more up to the point that the fishery reaches a threshold and has to be limited.

	<p>normally undertake. This would lead to a huge amount of latent capacity whilst some vessels are not allocated enough effort to support their business model. Although this 'even-split' seems fair, it would result in very large economic impacts on the industry as a whole.</p> <p>Alternatively, trips could be allocated in accordance with historical fishing activity i.e. the number of trips you are allocated at the beginning of the year would reflect the number you have undertaken previously. This would however lead to a few vessels being allocated the majority of effort, stifling any diversification or evolution in the fishery (i.e. vessels allocated a small amount of effort initially could never increase their allocation by fishing more as this would be restricted).</p>	<p>In addition, the timing of the 'management period' (i.e. 1<sup>st</sup> of August to 31<sup>st</sup> July each year) reflects the seasonal trends of the fishery such that the 'bulk' of activity is undertaken at the beginning which is also when the majority of vessels tend to be active.</p> <p>Furthermore, the threshold model reflects the natural progression of the fishery rather than implementing hard limitations at the beginning and as such, will more likely reflect the fishery as it develops 'normally' albeit with a known 'end point'.</p>
<p>A permit scheme could prevent 'new blood' from entering the fishery.</p>	<p>As the number of permits are limited there is the potential that criteria could restrict new entrants into the fishery, particularly if based solely on track record. That said, a 'use-it-or-lose-it' policy could be introduced where fishers not landing above a certain threshold in a year would not be allocated one the following, making room in the system for new entrants. Although, this would have the potential of penalising smaller scale fishers or fishers who experience technical or health issues during the year. It would be difficult to attain the right balance between protecting fishers currently engaged and enabling those who would be and could lead to fishing activity for the purpose of retaining a permit to meet whatever the requirements ultimately are.</p>	<p>There are no limits to the number of permits at the beginning of each year under this model and as such, 'new blood' could enter the fishery each year.</p> <p>Limitations on the number of permits issued would only be required within each year, after the point that a threshold is reached.</p>
<p>Genuine fishers will not be able to get permits / concerns regarding the allocation of permits</p>	<p>As above, where the number of permits are limited initially each year, a decision would have to be made on who gets a permit. This would be based on proportionate criteria which would be as 'fair' as possible. That said, it may preclude for example, fishers who have no track record as they have not fished for several years but who would consider themselves a 'genuine fisher'.</p>	<p>All fishers who applied would be issued a permit each year under this system and the number of permits would only be limited during a year, if thresholds were met. As such, no decision would have to be made on who could, or could not have a permit.</p>
<p>A permit system would prevent flexibility</p>	<p>A number of trips / amount of fishing effort would be allocated at the beginning of each year which would restrict the degree of flexibility each fisher would have. Given that</p>	<p>The potential for fishers to increase or decrease their level of fishing activity is more possible under this system. The amount of latent capacity would be vastly reduced meaning</p>

	<p>there are different ways to allocate effort across the fleet this could be reduced however, ultimately this model leads to a greater amount of latent capacity and less of the footprint would be available year.</p>	<p>more of the footprint is available to be used during each year which would give fishers more scope to increase fishing activity as required.</p> <p>That said, ultimately there would be a cap of the maximum allowed effort within a year.</p>
<p>Non-local vessels could enter the fishery.</p>	<p>Under this system, it would be less likely that vessels which do not already partake in the fishery could join the fishery, particularly if based on track record. That said, it is not the intention that these measures would limit the fishing opportunity of any fisher based on their geography and this would not be fair or legal.</p>	<p>This would allow for vessels not local to the Wash or North Norfolk Coast to enter the fishery and would allow for the size of the fleet to increase which would also have the effect of diminishing that which is available to 'local vessels'. That said, there is nothing prohibiting such vessels from entering the fishery presently nor has there been since the fishery started.</p>
<p>The measures could restrict the fishing activity even if the productivity of the fishery is very high</p>	<p>As this model is likely to lead to a greater amount of latent capacity, it is more likely that the measures could lead to fishers being 'out of effort' when the fishery is performing well. These measures do not reflect the productivity of the shrimp fishery and their primary function is to protect the habitats over which the fishery operates. Ultimately, there may be a reduction in fishing opportunity as a result of the measures, resulting in a loss of earnings.</p> <p>Conversely, it could be argued that if the fishery is in good health then fewer shrimp tows are required as catch per tow should also increase and as such, a smaller amount of effort would be needed.</p>	<p>As with model 1, this model has the potential to reduce fishing effort even if shrimp productivity is high as these measures are not designed around stock metrics. That said, there is less likely to be latent capacity within this model which should reduce the potential for lost opportunity.</p> <p>In addition, as there are no 'track record' or other criteria to be met to obtain a permit each year, fishers will not feel as though they must fish to guarantee a permit in the future. As such, fishing activity can better reflect the state of the stock with less effort being used during periods of low productivity, allowing a more organic development of a fishery each year.</p>
<p>Could result in a drop in the price of shrimp</p>	<p>There is no mechanism identified within these measures which would lead to shrimps caught being less valuable except where an abundance of shrimp is landed as a result of fishers undertaking the activity only to secure a permit the following year by obtaining track record.</p> <p>That said, informal consultation with the industry has indicated that the first sale value of shrimp is primarily determined by foreign markets as UK landings contribute only a small proportion of the total landed within Europe.</p>	<p>As for model 1, no relationship between the limiting of fishing effort under the permit scheme and the price of shrimp is identified.</p>
<p>If the number of permits is limited,</p>	<p>To fully equip a vessel to undertake shrimp fishing activity can cost tens of thousands of pounds. As the proposed</p>	<p>There are no limitations on the number of permits issued at the beginning of each year and as such this does not apply.</p>

<p>the sell-on value of a shrimp vessel is reduced</p>	<p>byelaw would not attach a permit to a vessel only, the permit would not 'follow' the vessel to a new owner and as such, the new owner may not be able to use the vessel to fish for shrimp. As such, the worth of the vessel is reduced as it cannot be resold as a shrimp vessel.</p>	
<p>General economic impact / loss of opportunity</p>	<p>This model has a greater level of economic impact as it is likely to result in latent capacity each year. This reflects the variety of business models within the fishery, particularly in relation to the number of trips a fisher would 'normally' undertake versus how many they are allocated.</p> <p>It would also limit the opportunity to fish for shrimp. Shrimp caught within The Wash account for circa 95% of shrimp landed in the UK annually. Eastern IFCA would have to limit the opportunity to take part in that fishery each year by allocating a set number of permits.</p>	<p>Shrimp fisheries are often resilient to very high fishing pressures, probably in excess of that which the habitats on which they are found. As such, there is the potential that this model would limit the economic benefit of the fishery to below that which it could have achieved.</p> <p>That said, this model offers a much lower amount of latent capacity and does not limit the number of entrants to the fishery. The opportunity to fish is maintained as it currently is at the beginning of each year.</p>

## iVMS and VMS+

In addition to effort limitation, it is also proposed that permit conditions are used to require vessels to have an electronic monitoring device. Inshore Vessel Monitoring System (iVMS) and Vessel Monitoring System + (VMS+) are both low cost systems, which can report a vessels position at high frequencies (up to 1 minute intervals) and, given the complexity of the preferred option (including the requirement on Eastern IFCA to accurately monitor activity) these systems are considered necessary for the success of the measures.

It is proposed that this permit condition is required for fishing within and outside of the Wash and North Norfolk Coast SAC. This reflects Eastern IFCA's need to monitor fishing activity and prevent adverse effects within other MPA.

Vessels greater in length than 12m have been required to have VMS+ through national measures for some time. Such devices also meet the type approval criteria for iVMS and as such there will not be a requirement for any vessel to have two devices. It is likely that EMFF funding will be available to support the implementation of iVMS.

There is the potential for a national approach to implementing inshore Vessel Monitoring System for all vessels of 12m (length) and under. If this happens then the requirement can be removed from the flexible permit conditions in due course.

### **Next Steps**

If made, the Shrimp Permit Byelaw 2016 would need to go to formal, public consultation. This consists of two consecutive weeks of advertising (in the Fishing News) followed by a 28-day period for responses to be submitted. It is intended that the associated permit conditions are also part of the consultation.

Given the complexity of the preferred option, it is likely that the proposed measures will receive additional legal scrutiny from both the MMO (through the QA process) and Defra. To this end, it is recommended that the public consultation be delayed until advice from MMO and Defra can be taken into account. The MMO have advised that such a delay between making a byelaw and conducting the associated public consultation does not pose any legal risk and is common place. It is recommended that this delay is justified in the context of the importance of both the fishery and the MPA.

### **Risk**

There is limited legal risk associated with this stage of the byelaw making process. The potential for challenge against the proposed measures have been mitigated by extensive informal consultation over the past two years and the resultant proposals should already reflect the main concerns of the industry.

Informal consultation has focussed on the fishers within the Wash as these are the most likely to be impacted by the measures, to the greatest extent. The proposed measures will apply to shrimp fishers throughout the district, including the requirement to have iVMS and as such, additional effort will be made to identify and engage with fishers outside of The Wash during the formal consultation.

Given the timescales set out in the section above, the measures will not be in place by the 'December 2016 deadline' however, Defra have informally indicated that, as measures are 'in the pipe-line' this will be acceptable, especially given the various legal setbacks in relation to the wording of the byelaws thus far.

The permit conditions associated with the recommended option 2 (threshold model) are likely to come under legal scrutiny by MMO and Defra. Should it be found to not be in keeping with Better Regulation principles, it may not be consented by the Minister and may require significant changes. In this case, the byelaw may require an additional consultation.

## **Conclusions**

The Shrimp Permit Byelaw 2016 is proposed which will enable Eastern IFCA to implement effort limitations for the purpose of protecting designated habitats within the Wash and North Norfolk Coast Special Area of Conservation. Two models for implementing the required effort limitations have been identified and assessed against the outputs from the shrimp workshop held with the industry in September 2016. This assessment indicates that option 2 (threshold model) is most likely to meet the needs of the industry whilst still having the required protective effect.

## **Appendices**

1. Proposed Shrimp Permit Byelaw 2016
2. Shrimp Permit Byelaw 2016 – Flexible Permit conditions and permit limitations
3. Shrimp Permit Byelaw 2016 – Impact Assessment



**Eastern  
Inshore Fisheries and Conservation Authority**

**MARINE AND COASTAL ACCESS ACT 2009 (c. 23)**

**Shrimp Permit Byelaw 2016**

The Authority for the Eastern Inshore Fisheries and Conservation District in exercise of its powers under sections 155 and 156 of the Marine and Coastal Access Act 2009 makes the following byelaw for the District.

**Interpretation**

1. In this byelaw:
  - a. 'the Authority' means the Eastern Inshore Fisheries and Conservation Authority as defined in Articles 2 and 4 of the Eastern Inshore Fisheries and Conservation Order 2010 (SI 2010/2189);
  - b. 'Category One Permit' means a permit granted for fishing for shrimps for commercial purposes within the Wash and North Norfolk Coast Special Area of Conservation as set out in paragraph 2;
  - c. 'Category Two Permit' means a permit granted for fishing for shrimps for commercial purposes within the district except within the Wash and North Norfolk Coast Special Area of Conservation as set out in paragraph 3;
  - d. 'the District' means the Eastern Inshore Fisheries and Conservation District as defined in Articles 2 and 3 of the Eastern Inshore Fisheries and Conservation Order 2010;

- e. 'fishing' includes digging for bait; the shooting, setting, towing and hauling of fishing gear; gathering sea fisheries resources by hand or using a hand operated implement; catching, taking or removing sea fisheries resources and 'fish' is to be construed accordingly;
- f. 'fishing for commercial purposes' means fishing for sea fisheries resources for sale or reward;
- g. 'fishing for recreational purposes' means fishing for sea fisheries resources for pleasure or personal consumption only and not for sale or reward;
- h. 'fishing gear' includes any nets, pots, ropes, anchors, surface markers, lines, dredges, grabs, rakes or other implements used for the purposes of fishing;
- i. 'named representative' means a person who has been granted permission to fish from a vessel by the owner of that vessel, and has been nominated by the owner of a vessel for the purposes of paragraph 10;
- j. 'owner' means the person named as the owner of a vessel in the certificate of registry for that vessel granted under the Merchant Shipping Act 1995 (c.21) and the Merchant Shipping (Registration of Ships) Regulations 1993 (SI 1993/3138), or in the Channel Islands or Isle of Man;
- k. 'flexible permit conditions' means any of the conditions determined by the Authority as provided in paragraph 15 in accordance with the process set out in Schedule 1;
- l. 'registered fishing vessel' means a vessel:
  - i. registered under Part II of The Registry of Shipping and Seaman as governed by the provisions of the Merchant Shipping Act 1995 and the Merchant Shipping (Registration of Ships) Regulations 1993, or in the Channel Islands or Isle of Man; and
  - ii. in respect of which there is a valid fishing licence issued under the Sea Fish (Conservation) Act 1967 (c.84);
- m. 'shrimp' means a marine organism of the species *Pandalus montagui* (commonly known as pink shrimp) or belonging to the genus' *Crangon* or *Palaemon* including *Crangon crangon* (commonly known as 'brown shrimp');

- n. 'shrimp permit' means a Category One or a Category Two Permit;
- o. 'shrimp trawl' means trawl net where the mouth or opening of the net is kept open by a beam, which is mounted at each end on guides or skids which travel along the seabed which is used to capture shrimps;
- p. 'vessel' means a ship, boat, raft or watercraft of any description and includes non-displacement craft, personal watercraft, seaplanes and any other thing constructed or adapted for floating on or being submerged in water (whether permanently or temporarily) and a hover craft or any other amphibious vehicle, used or capable of being used as a means of transportation on water;
- q. 'Wash and North Norfolk Coast special area of conservation' means the area as set out in Schedule 2.

## **Prohibitions**

- 2. A person must not fish for shrimps or land shrimps caught within the Wash and North Norfolk Coast special area of conservation unless that person is:
  - a. the holder of a Category One Permit; or
  - b. a named representative, nominated by the holder of a Category One Permit; or
  - c. not fishing for commercial purposes

and must undertake fishing or related activities in accordance with any flexible permit conditions issued by the Authority.

- 3. A person must not fish for shrimps within the District or land shrimps caught within the District outside of the Wash and North Norfolk Coast special area of conservation unless that person is:
  - a) the holder of a Category Two Permit; or
  - b) a named representative, nominated by the holder of a Category Two; or
  - c) not fishing for commercial purposes

and must undertake fishing or related activities in accordance with any flexible permit conditions issued by the Authority.

4. A person must not fish for shrimps under the authority of a permit from a vessel other than the vessel named on that shrimp permit without firstly obtaining the agreement of the Authority. Such agreement may be given in circumstances where the permit holder, named representative or the named vessel are unable to put to sea.
5. A person must not, when fishing for shrimps, use fishing gear other than a shrimp trawl which must not have any of the following attachments:
  - d) tickler chains; or
  - e) otter boards; or
  - f) any item designed to or with the effect of penetrating the seabed except the guides or skids.

### **Permits**

6. The Authority may issue a shrimp permit to the owner of a registered fishing vessel, or to a person fishing for commercial purposes other than from a vessel;
7. A vessel may hold a maximum of one Category One permit and one Category Two permit. The vessel, will be named on the shrimp permit, and any change in legal or beneficial ownership of the vessel after the issue of the permit will result in the cancellation of any shrimp permit issued to that vessel.
8. A person without a vessel may hold a maximum of one Category One permit and one Category Two permit.
9. Shrimp permits are not transferable.
10. Application for a shrimp permit must be made using printed forms available from the Authority. These forms will require applicant and vessel details. The applicant may nominate up to 2 persons as their named representatives whose details must also be entered on the application form.
11. Permits will be valid from the date of issue until the following 1<sup>st</sup> of August.
12. The Authority may restrict the number of shrimp permits issued and may set criteria to restrict eligibility for a shrimp permit in accordance with the procedure set out in Schedule 1.

### **Shrimp permit fees**

13. A fee will be charged for each shrimp permit which must be paid prior to the issuing of such unless a person is issued a Category One Permit and a Category Two Permit in relation to the same registered fishing vessel in which case a fee is only charged for one of the permits.
14. The fee for a shrimp permit is £44.

## **Flexible permit conditions**

15. The Authority may attach to permits flexible conditions which fall within one or more of the categories listed in paragraph 16.
16. The categories referred to in paragraph 15 are:
  - a) vessel design restrictions;
  - b) catch restrictions;
  - c) fishing gear restrictions;
  - d) fishing effort restrictions;
  - e) spatial restrictions;
  - f) time restrictions;
  - g) vessel monitoring device requirements.
17. The Authority may issue, vary or revoke flexible permit conditions following a review conducted in accordance with the procedure set out in Schedule 1.

## **Catch returns**

18. The holder of a shrimp permit must submit to the Authority, no later than the 10<sup>th</sup> day of each month, such information relating to the previous month as is required by the Authority on forms which will be provided by the Authority.
19. The information referred to in paragraph 18 may include:
  - a) spatial information;
  - b) information on fishing effort;
  - c) catch data;
  - d) by-catch information;
  - e) gear information;
  - f) date and time information;
  - g) vessel information.

## **Revocations**

- 20.** The byelaws with the title 'XII Shrimp and Prawn Fishing' which was made by the North Eastern Sea Fisheries Committee in exercise of powers under the Sea Fisheries Regulation Act 1966 and which was in force immediately before the making of this byelaw is revoked such as it applied within the District.

## **Schedule 1**

### **Procedure**

1. The procedure for restricting the number of shrimp permits issued in any year and setting criteria to restrict the eligibility for a shrimp permit as referred to in paragraph 12, or issuing, varying or revoking flexible permit conditions as referred to in paragraph 17 (in this Schedule, 'the proposed changes') must include the following steps:
  - a) acquisition of relevant available evidence including:
    - i. scientific and survey data, and scientific advice provided by the Authority, the Centre for Environment, Fisheries and Aquaculture Sciences or such other persons as the Authority thinks fit;
    - ii. advice given by Natural England or other external authorities, organisations, persons or bodies as the Authority thinks fit; and
    - iii. information from any other relevant source including that which is relevant to effective enforcement;
  - b) consultation by such methods as the Authority considers appropriate with such stakeholders, organisations and persons as appear to the Authority to be representative of the interests likely to be substantially affected by the proposed changes;
  - c) undertaking an impact assessment relating to any restriction of the issuing of shrimp permits or the issuing, varying or revoking flexible permit conditions;
  - d) consideration by the Authority of all information arising from subparagraphs (a) to (c) above.
2. The Authority must review flexible permit conditions and restrictions of the issuing of shrimp permits no less frequently than every four years after the date that a flexible permit condition or restriction on the issuing of shrimp permits has taken effect.
3. The review of flexible permit conditions or restrictions on the issuing of shrimp permits will be in accordance with a formal operational procedure agreed by the Authority and will include the steps set out in paragraph 1.

4. Where restrictions on the issuing of permits or flexible permit conditions are issued, maintained, varied or revoked shrimp permit holders will be notified in writing.

## **Schedule 2**

### **Wash and North Norfolk Coast Special Area of Conservation**

[to populate with chart and coordinates for consultation]

I hereby certify that the Shrimp Permit Byelaw 2016 was made by Eastern Inshore Fisheries and Conservation Authority at their meeting on the 13<sup>th</sup> December 2016.

Julian Gregory

Chief Executive Officer

Eastern Inshore Fisheries and Conservation Authority

6 North Lynn Business Village, Bergen Way, King's Lynn, Norfolk PE30 2JG

## **Explanatory Note**

(This note does not form part of the byelaw)

This byelaw requires persons who fish for commercial purposes for shrimps within the District to obtain a shrimp permit. They are also required to fish in accordance with any flexible permit conditions issued by the Authority.

Shrimp permits expire on the 1<sup>st</sup> August each year and a fee is payable to the Authority for the issuing of a shrimp permit which is £44.

The byelaw prohibits the use of tickler chains, otter boards or any item designed to or with the effect of penetrating the seabed except the guides or skids in fishing for shrimps.

The number of shrimp permits which will be issued by the Authority can be restricted. The Authority can also set criteria to determine which applicants are eligible for a shrimp permit.

This byelaw also allows the Authority to implement flexible permit conditions which will reflect best available evidence. These permit conditions will be used to protect fisheries and the environment and to ensure long-term, sustainable fisheries.

To implement any restrictions on the issuing of permits or introduce, vary or revoke permit conditions the Authority will carry out a consultation with potentially affected stakeholders and produce an Impact Assessment which will be considered by the Authority.

The Authority must also review any restrictions on the issue of shrimp permits or flexible permit conditions once every four years as a minimum.



**Eastern  
Inshore Fisheries and Conservation Authority**

**Shrimp Permit Byelaw 2016**

**Flexible Permit Conditions and Permit Limitations – Category One Permit**

The flexible permit conditions and permit limitations relate to Category One Permits issued under the Shrimp Permit Byelaw 2016 and apply in relation to shrimp fishing activity within the Wash and North Norfolk Coast special area of conservation. The flexible permit conditions should be read in conjunction with that byelaw.

**Interpretation**

1. In these flexible permit conditions:
  - a. 'shrimp fishing trip' means the period beginning when a registered fishing vessel has left its moorings until it returns to a mooring during which any amount of shrimp fishing activity has taken place;
  - b. 'register of approved devices' means the MMO and IFCA I-VMS approved products register, published by the Marine Management Organisation which can be viewed at the following website <https://www.gov.uk/government/publications/inshore-vessel-monitoring-system-ivms/mmo-and-ifca-i-vms-approved-products-register>;
  - c. a 'vessel monitoring device' means a device which is listed on the register of approved devices or a VMS+ device;
  - d. 'VMS+ device' means the device specified by the Marine Management Organisation as the VMS+ device;
  - e. 'Restricted Area' means an area restricted under the Marine Protected Areas Byelaw 2017.

## Flexible permit conditions

2. Vessel monitoring devices –
  - a. a functioning vessel monitoring device must be on board a vessel used under the authority of a shrimp permit;
  - b. the vessel monitoring device associated with a vessel operating under the authority of a Shrimp Permit must record or report at least once in every ten minutes when operating outside of a Restricted Area;
  - c. the vessel monitoring device associated with a vessel operating under the authority of a Shrimp Permit must record or report at least once in every two minutes when operating within a Restricted Area.
  
3. Restrictions within the Wash and North Norfolk Coast special area of conservation – total fishing effort within the Wash and North Norfolk Coast special area of conservation is restricted to 12,987 tows between August 1<sup>st</sup> of any year and the following July 31<sup>st</sup>. Fishing effort will be restricted as follows;
  - a. the number of Category One permits issued will be restricted in accordance with table one; and
  - b. holders of a Category One permit will be limited to the number of shrimp fishing trips which can be undertaken within the Wash and North Norfolk Coast special area of conservation as set out in table 1.

## Permit Limitations

4. The number of Category One Permits issued in any one year are limited in accordance with table 1.

Table 1. permit limitations and effort restrictions.

Trigger point	Permit limitation	Effort restriction
1 <sup>st</sup> August each year	No limitation on the number of permits issued	None
More than 68% of the total number of tows have been conducted at any time after 1 <sup>st</sup>	No further permits are issued until the following 1 <sup>st</sup> August	None

August and before the following 1 <sup>st</sup> January		
More than 85 % of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> April	No further permits are issued until the following 1 <sup>st</sup> August	Vessels are restricted to a number of shrimp fishing trips until the 1 <sup>st</sup> August in accordance with the following calculation (a) divided by (b):  <i>(a) = total number of remaining tows divided by 5</i>  <i>(b) = total number of Category One Permits issued in a particular year</i>
More than 96 % of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> July	No further permits are issued until the following 1 <sup>st</sup> August	Fishery closed no further fishing until 1 <sup>st</sup> August

Where any permit limitations are imposed in accordance with table one, notification will be posted on the Eastern IFCA website ([www.eastern-ifca.gov.uk](http://www.eastern-ifca.gov.uk)).

Where any effort restrictions are imposed in accordance with table one, all Category One permit holders will be notified in writing and such notice will include the number of fishing trips which they are limited to. Effort limitations in relation to Table 1 will not be in effect until the date that such written notification has been sent.

**Commencement date:**

**Latest review date:**

**Expiry date: n/a**

I hereby certify that the above flexible permit conditions were made by Eastern Inshore Fisheries and Conservation Authority at their meeting on the 13<sup>th</sup> December 2016.

The above flexible permit conditions come into effect on

**Julian Gregory**

Chief Executive Officer

Eastern Inshore Fisheries and Conservation Authority

6 North Lynn Business Village, Bergen Way, King's Lynn, Norfolk PE30 2JG



**Eastern  
Inshore Fisheries and Conservation Authority**

**Shrimp Permit Byelaw 2016**

**Flexible Permit Conditions and Permit Limitations – Category Two Permit**

The flexible permit conditions and permit limitations relate to shrimp permits issued under the Shrimp Permit Byelaw 2016 and apply in relation to fishing activity outside of the Wash and North Norfolk Coast special area of conservation. The flexible permit conditions should be read in conjunction with that byelaw.

**Interpretation**

1. In these flexible permit conditions:

- a. 'shrimp fishing trip' means the period beginning when a registered fishing vessel has left its moorings until it returns to a mooring during which any amount of shrimp fishing activity has taken place;
- b. 'register of approved devices' means the MMO and IFCA I-VMS approved products register, published by the Marine Management Organisation which can be viewed at the following website <https://www.gov.uk/government/publications/inshore-vessel-monitoring-system-ivms/mmo-and-ifca-i-vms-approved-products-register>;
- c. 'vessel monitoring devices' means a device which is listed on the register of approved devices or a VMS+ device;
- d. 'VMS+ device' means the device specified by the Marine Management Organisation as the VMS+ device.
- e. 'Restricted Area' means an area restricted under the Marine Protected Areas Byelaw 2017.

## **Flexible permit conditions**

2. Vessel monitoring devices –
  - d. a functioning vessel monitoring device must be on board a vessel used under the authority of a shrimp permit;
  - e. the vessel monitoring device associated with a vessel operating under the authority of a Shrimp Permit must record or report at least once in every ten minutes when operating outside of a Restricted Area;
  - f. the vessel monitoring device associated with a vessel operating under the authority of a Shrimp Permit must record or report at least once in every two minutes when operating within a Restricted Area.

## **Permit Limitations**

3. There are no limitations on the number of Category Two permits issued.

## **Commencement date:**

## **Latest review date:**

## **Expiry date: n/a**

I hereby certify that the above flexible permit conditions were made by Eastern Inshore Fisheries and Conservation Authority at their meeting on the 13<sup>th</sup> December 2016.

The above flexible permit conditions come into effect on:

## **Julian Gregory**

Chief Executive Officer

Eastern Inshore Fisheries and Conservation Authority

6 North Lynn Business Village, Bergen Way, King's Lynn, Norfolk PE30 2JG

## Appendix 3 – Shrimp Permit Byelaw 2016: Impact Assessment

<b>Title: Shrimp Permit Byelaw 2016</b> <b>IA No:</b> <b>EIFCA003</b> <b>Lead department or agency:</b> <b>Eastern Inshore Fisheries and Conservation Authority</b> <b>Other departments or agencies:</b>	<b>Impact Assessment (IA)</b>
	<b>Date: 24/11/2016</b>
	<b>Stage: Development/Options</b>
	<b>Source of intervention: Domestic</b>
	<b>Type of measure: Secondary Legislation</b>
	<b>Contact for enquiries:</b> Julian Gregory – CEO (01553 775321)
<b>Summary: Intervention and Options</b>	RPC Opinion: <b>N/A</b>

Cost of Preferred (or more likely) Option			
Total Present Value	Net Business Net Present Value	Net cost to business per year (EANCB: 2014 prices; 2015 present value)	In scope of One-In, Two-Out? Measure qualifies as
£-398,447.72	£-303,980.45	£33,609.50	No   NA
<p><b>What is the problem under consideration?</b> Habitat Regulations Assessments have concluded that certain levels of shrimp fishing activity in The Wash has a likely significant impact on designated sub-features of the Wash and North Norfolk Coast Special Area of Conservation (SAC). Bottom towed gear in general has a high risk of causing impacts on a range of vulnerable habitats throughout the marine protected areas (MPA) within the Eastern IFCA District and increases in activity levels could result in damage to such and the integrity of MPAs as a result. Eastern IFCA has assessed the fishery at high risk of sustainability issues because there are no effort limitations in place and there is a paucity of fisheries data related to this activity.</p> <p><b>Why is government intervention necessary?</b> The risk to MPAs dictates that a regulatory approach is required in relation to the protection of designated habitats. The preferred option seeks to balance the needs of the industry with environmental protection by implementing a flexible permit byelaw, enabling dynamic fisheries management which limits economic impacts.</p>			
<p><b>What are the policy objectives and the intended effects?</b></p> <p>Introduce flexible effort restrictions which will allow Eastern IFCA to manage effort to prevent the activity causing a significant impact on site integrity within the Wash and North Norfolk Coast SAC.</p> <p>Introduce a mechanism which will allow Eastern IFCA to implement additional effort limitations in relation to other areas (including other MPAs) to prevent damage to features of MPAs in accordance with monitoring and control plans and to manage a fishery at maximum sustainable yield as data becomes available.</p> <p>To collect data relevant to monitoring the impact of the fishery on MPAs operating the fishery at maximum sustainable yield.</p> <p>Partial cost recovery for the associated measures.</p>			
<p><b>What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)</b></p> <p><b>Option 0. Do nothing.</b></p> <p><b>Option 1. A combination of flexible permit conditions and byelaw provisions and limiting fishing effort in accordance with a 'threshold' model.</b></p> <p><b>Option 2. A combination of flexible permit conditions and byelaw provisions and limiting fishing effort through limiting the number of permits issued and restricting vessels to a number of trips per annum.</b></p> <p><b>Option 3. Total closure.</b></p>			

The preferred option is option 1 - a combination of flexible permit conditions and byelaw provisions administered through an Eastern IFCA byelaw to balance flexibility with proportionate deterrent for non-compliance.

<b>Will the policy be reviewed?</b> It will be reviewed. <b>If applicable, set review date:</b> 6 years					
Does implementation go beyond minimum EU requirements?			<b>Yes</b>		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	<b>Micro</b> Yes	<b>&lt; 20</b> <b>Yes</b>	<b>Small</b> <b>Yes</b>	<b>Medium</b> <b>Yes</b>	<b>Large</b> <b>Yes</b>
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)			<b>Traded:</b> <b>N/A</b>	<b>Non-traded:</b> <b>N/A</b>	

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 Chief Executive Officer: ..... Date: \_\_\_\_\_

**Summary: Analysis & Evidence** Policy Option 1

**Description:**

**FULL ECONOMIC ASSESSMENT**

<b>Price Base Year 2016</b>	<b>PV Base Year 2016</b>	<b>Time Period Years 10</b>	<b>Net Benefit (Present Value (PV) (£m))</b>			
			<b>Low:</b> Unknown	<b>High:</b> Unknown	<b>Best Estimate:</b> Unknown	

<b>COSTS</b>	<b>Total Transition (Constant Price) 1 Years</b>	<b>Average Annual (excluding transition) (Constant Price)</b>	<b>Total Cost (Present Value)</b>
<b>Low</b>	£1,400	£14,096	£122,733
<b>High</b>	£9,400	£182,860	£1,583,401
<b>Best Estimate</b>	£6,600	<b>£45,523</b>	<b>£398,447</b>

**Description and scale of key monetised costs by 'main affected groups'** Small scale costs include the permit fee of £44 per annum and costs associated with electronic reporting from iVMS or VMS+ devices at a rate of £0.02 per report sent. Higher scale costs are associated with the loss of fishing opportunity relating to effort limitation and limitations on the number of permits issued (within the Wash and North Norfolk Coast fishery) although these are only applicable in the high estimate of costs. Judgements in relation to the scale of costs relate to average annual first sale value of £16,123 to £44,537 per vessel (depending on fishery productivity).

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

None identified

<b>BENEFITS (£m)</b>	<b>Total Transition (Constant Price) Years</b>	<b>Average Annual (excl. Transition) (Constant Price)</b>	<b>Total Benefit (Present Value)</b>
<b>Low</b>	Unknown	Unknown	<b>Unknown</b>
<b>High</b>	Unknown	Unknown	<b>Unknown</b>
<b>Best Estimate</b>	Unknown	Unknown	<b>Unknown</b>

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

Monetised benefits cannot be estimated.

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

Protection of the habitats identified at being at risk from shrimp fishing activity will have a positive effect on the overall ecological functioning of the MPA and potentially improve fishery productivity, including in relation to species other than shrimps.

Key assumptions/sensitivities/risks	<b>Discount rate (%)</b>	<b>3.5%</b>
Assumption: Proposed management measures will have protective effect on designated habitats.		
Sensitivities/risk:		

**BUSINESS ASSESSMENT (Option 1)**

<b>Direct impact on business (Equivalent Annual) £m:</b>			<b>In scope of Measure qualifies OITO?</b>	
<b>Costs:</b> £33,609.50	<b>Benefits:</b> N/A	<b>Net:</b> £-33,609.50	<b>No</b>	<b>as N/A</b>

## **Evidence base**

### **1. Introduction**

Defra's revised approach to managing fishing activity in European Marine Sites (EMS) required Eastern IFCA to ensure that fishing activity does not have an adverse effect on site integrity in EMS which occur within the IFC District. This requirement derives from Article 6 of the Habitats directive and the Conservation of Habitats and Species Regulations (as amended) 2010 (SI 2010/490). Furthermore, Eastern IFCA are required under the Marine and Coastal Access Act 2009 to further the conservation objectives of any Marine Conservation Zones within the Eastern IFC district.

Eastern IFCA also has a duty to take action to ensure the sustainable exploitation of fisheries within its district as per section 153 of the Marine and Coastal Access Act 2009. In carrying out its duties Eastern IFCA is obliged to ensure good environmental status of fish and shellfish stocks as per the Marine Strategy Framework Directive (2008/56/EC) namely; sustainable fisheries with high long-term yields, stocks functioning at full reproductive capacity, and to maintain or increase the proportion of older and larger individuals.

The prolific shrimp fishery within the Eastern IFC District cooccurs primarily with the Wash and North Norfolk Coast Special Area of Conservation (SAC). The fishery was assessed in accordance with s.61 of the Habitats and Species Regulations (as amended) 2010 and it was concluded that management measures are required to prevent an adverse effect on site integrity.

This impact assessment outlines the potential costs and benefits in relation to the Shrimp Permit Byelaw 2016. It is intended that this byelaw will introduce management measure for the shrimp fishery within the Wash and North Norfolk Coast SAC to prevent damage to the designated features of the site whilst enabling a long-term, sustainable fishery. In addition, the byelaw will enable Eastern IFCA to implement management measures throughout the district as required, through a proportionate process including consultation and the production of additional Impact Assessments.

### **2. Rationale for intervention**

Inshore Fisheries and Conservation Authorities have duties to ensure that fish stocks are exploited in a sustainable manner, and that any impacts from that exploitation on designated features in the marine environment are reduced or suitably mitigated, by implementing appropriate management measures (e.g. this byelaw). Implementing this byelaw will ensure that fishing activities are conducted in a sustainable manner and that the marine environment is suitably protected.

Fishing activities can potentially cause negative outcomes as a result of 'market failures'. These failures can be described as:

1. **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.
2. **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.

3. Common goods - A number of goods and services provided by the marine environment such as populations of wild fish are 'common goods' (no-one can be excluded from benefiting from those goods however consumption of the goods *does* diminish that available to others). The characteristics of common goods (being available but belonging to no-one, and of a diminishing quantity), mean that individuals do not necessarily have an individual economic incentive to ensure the long-term existence of these goods which can lead, in fisheries terms, to potential overfishing. Furthermore, it is in the interest of each individual to catch as much as possible as quickly as possible so that competitors do not take all the benefits. This can lead to an inefficient amount of effort and unsustainable exploitation.

IFCA byelaws aim to redress these sources of market failure in the marine environment through the following ways:

- Management measures to conserve designated features of MPAs will ensure negative externalities are reduced or suitably mitigated.
- Management measures will support continued existence of public goods in the marine environment, for example conserving the range of biodiversity in the sea of the IFCA District.
- Management measures will also support continued existence of common goods in the marine environment, for example ensuring the long-term sustainability of fish stocks in the IFCA District.

### **3. Policy objectives and intended effects**

The policy objectives are as follows:

1. To have a protective effect on MPA within the Eastern IFC District whilst minimising the economic impact on the shrimp fishing industry;
2. To ensure long-term, sustainable shrimp fisheries which are prosecuted in line with maximum sustainable yield;
3. To collect such evidence as is required to inform effective management of the shrimp fishery.

The intended effects of the measures are as follows:

1. To require shrimp fishers to obtain a Shrimp Permit in order to prosecute shrimp fisheries;
2. To limit the amount of shrimp fishing activity within the Wash and North Norfolk Coast SAC such that the activity does not have an adverse effect on site integrity;
3. To require all shrimp fishers to provide the required fisheries data such that increases in shrimp fishing activity within other MPA can be detected;
4. To enable Eastern IFCA to implement measures which prevent shrimp fishing activity from having an adverse effect on site integrity in MPA throughout the district through a proportionate process;
5. To partially recover costs associated with shrimp management measures.

### **4. Background**

Brown shrimp (*Crangon crangon*) caught in The Wash account for circa 90% of shrimp landed in the UK per annum with a total first sale value of circa £467,585 to £2.07m per annum (MMO landing data 2010 to 2015 inclusive). Between 27 and 48 vessels prosecute this fishery

and a total of 65 different vessels have prosecuted the fishery between 2010 to 2015 (inclusive). Brown shrimp is the primary species of shrimp targeted within this fishery with catches of pink shrimp several orders of magnitude lower over the last six years (first sale value of £2325 in 2015). Pink shrimp were historically more important but market and fisheries productivity drivers have led to the decline in this fishery. In addition, Eastern IFCA spatial closures implemented for the protection of biogenic reef (*Sabellaria spinulosa*) are thought to have coincided with the last remaining 'pink shrimp fishing grounds'.

Shrimp fishing is assessed as having a likely significant effect on site integrity within the Wash and North Norfolk Coast SAC. The 'skids' of shrimp fishing trawls (beam trawls) are thought to apply the pressure 'shallow penetration' on the habitats with which it interacts. In particular, the activity is concluded as having a detrimental impact on the sub-features sub-tidal mud and sub-tidal mixed sediment at certain levels of activity, depending on the biotope makeup of the sub-features and the level of fishing activity.

In order to enable a fishery within the Wash and North Norfolk Coast SAC, management measures are required. It is intended that the most sensitive elements of the 'at risk' sub features are protected through spatial closures. These areas of the site are thought to have slow recoverability (over two years) and are sensitive enough to be 'damaged' with a single interaction. These components are also thought to be vulnerable to surface abrasion in addition to shallow penetration. These spatial closures are to be implemented through a separate IFCA byelaw, the Marine Protected Areas Byelaw 2017 and are not considered as part of this Impact Assessment.

Other components of the two 'at risk' sub features are thought to recover over a period of 6 months to 2 years and are not considered sensitive to surface abrasion. It is concluded that, effort limitations which restrict shrimp fishing activity to interacting with these components less than once in two years will provide the required protective effect on the site. This is proposed as being achieved through limiting shrimp fishing effort to 12,987 shrimp fishing tows within the Wash and North Norfolk Coast per annum (excluding closed areas). Several assumptions are made in relation to this conclusion as set out in Box 1.

The proposed Byelaw and associated flexible permit conditions will enable Eastern IFCA to implement the required effort limitations and provide a protective effect on the site. In addition to effort limitations (administered through a limitation on the number of permits issued and the number of fishing trips) administrative measures are required to support the measures. These include a process for issuing, varying or revoking flexible permit conditions on an annual basis (including consultation with the industry and the production of an impact assessment), a requirement to complete and return fisheries data forms, a requirement to use an electronic monitoring device when prosecuting the shrimp fishery (iVMS or VMS+) and a permit fee to cost recover the cost to the IFCA in relation to issuing permits, producing and issuing fisheries data forms and entering fisheries data into Eastern IFCA databases.

### **Intervention outside of the Wash and North Norfolk Coast SAC**

Habitats Regulations assessments have concluded that there is no adverse effect on site integrity in relation to other SAC or Special Protection Areas (SPA) within the Eastern IFC District. These conclusions were primarily as a result of low levels of activity outside of the Wash and North Norfolk Coast SAC.

Eastern IFCA is required to develop monitoring and control plans (MCP) for SAC and SPA within the district where no management measures are put in place with a view to introduce regulation should fishing activity increase, causing an adverse effect on site integrity.

Bottom towed gear is considered to be a higher risk form of fishing activity (compared to, for example potting, hook and line fishing, netting etc.). To mitigate the risk of damage to other MPA as a result of increased levels of shrimp fishing activity, the proposed byelaw will have effect on all shrimp fishers in the Eastern IFC District. Effort limitations are not presently required within other MPA and as such, will not apply, however the mechanism for introducing measures as permit conditions will be in place such that Eastern IFCA can implement such as required. In addition, vessels will be required to return fisheries data forms (including fishing

effort) and spatial data will be collected through electronic monitoring devices (iVMS or VMS+) such that Eastern IFCA can monitor shrimp fishing activity.

The likelihood of increases in effort outside of the Wash and North Norfolk Coast SAC are increased given that effort limitations therein may result in displacement from the area.

### **Intervention in the context of fisheries sustainability**

None of the proposed byelaw provisions or flexible permit conditions relate to fisheries sustainability however, Eastern IFCA has assessed the fishery as at high risk of sustainability issues primarily due to its high value (and contribution to the local economy), paucity of data and present lack of management. The proposed byelaw will provide a mechanism for Eastern IFCA to implement fisheries management measures in relation to stock sustainability in the future as required.

In addition, the requirements to provide fisheries data and iVMS or VMS+ data will improve the understanding of the fishery, particularly in relation to fishing effort, which will aid in the development of management measures. The industry is presently undertaking to have the fishery accredited through the Marine Stewardship Council accreditation process and Eastern IFCA will look to assist the industry to this end by implementing such measures as is considered appropriate through the proposed byelaw.

### Box 1. Shrimp fishing footprint calculations

Spatial closures implemented through the Marine Protected Areas Byelaw 2017 have been proposed to protect the most sensitive features (primarily where recovery periods are above two years). This has the effect of reducing the area available to shrimp fishing activity within the rest of the site and increases the chance of interaction between shrimp fishing gear and the sub-features not closed to fishing.

*Area of interaction* – during shrimp fishing activity, the ‘shoes’ on either end of the shrimp beam exert the pressure ‘shallow penetration’. Each shrimp beam trawl will have two shoes and shrimp vessels use two beam trawls (which is known as twin-beaming). The width of beam shoes is on average 20cm (0.8m over both beams).

The average tow duration is 1.88 hours at an average speed of 3.07km per hour (Eastern IFCA Shrimp Returns database). Therefore, the total area of interaction between the seabed and shrimp beam shoes is 0.0056km<sup>2</sup> per tow.

*Area of sub-feature* – The extent of the sub-feature exposed to shrimp fishing (i.e. not including the proposed closures) is 65.9km<sup>2</sup> of seabed.

*Level of interaction with sub-features* – given the area of interaction and the area of the sub-feature, it is estimated that the feature can sustain 5,897 tows per year before an adverse effect occurs. However fishing activity does not occur only over the sub features.

Shrimp fishing activity is thought to occur primarily at depths of between 0-10m although it is known to occur at greater depths also. The area within the site within this depth range is 377.9km<sup>2</sup> (not including closures and obstacles). As such, if fishing activity is spread evenly over the primary fishing areas, the probability of interaction is 17.5% and a total number of 33,779 tows would need to occur each within the site to have an adverse effect.

However, shrimp fishing is not thought to be evenly distributed over the fishable portion of the site. Eastern IFCA vessel sighting data indicates that 45% of shrimp fishing activity within the site occurs over or within 0.5km of the sub features. At a probability of interaction of 45%, an estimated 12,987 tows can occur within the site per annum before an adverse impact occurs. This is a more likely scenario given Pinn and Ansell (1993), which finds that all of the sub-tidal mud feature and a large portion of the sub-tidal mixed sediment feature are within the ‘optimal’ range for shrimp habitat. The optimal sediment range for shrimp habitats does also extend to coarser sediments which also exist in The Wash and are likely to be targeted by shrimp fishers.

Table one (below) shows estimates for the number of tows estimated to have been undertaken given a catch per unit effort of 10kg and 5kg of shrimp, per meter of beam per tow (as determined from the Eastern IFCA shrimp database and MMO landings figures). Considering that the threshold for an adverse effect on site integrity is 12,987, it can be seen in table 1 that an adverse effect potentially occurred in 2012. In addition, fishing effort estimates for 2010 and 2013 were very close to the ‘threshold’ of impact.

	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Estimated number of tows at a catch per unit effort of 10 kg shrimp per tow per meter of shrimp beam	6008	2365	6485	5703	4096	2296
Estimated number of tows at a catch per unit effort of 5 kg per tow per meter of shrimp beam	12016	4731	12970	11407	8192	4593

## 5. The options

**Option 0: Do nothing** – The do-nothing option is not capable of providing the required protection of the habitats designated under national and European legislation. This would likely result in market failures leading to wider detrimental impacts.

**Option 1 (*preferred option*): Shrimp Permit Byelaw 2016 (threshold model)** – the implementation of this byelaw would require fishers to obtain a permit to fish for Shrimps within the Eastern IFC District and require relevant fisheries data to be sent to the Authority. This will also enable Eastern IFCA to monitor shrimp fishing activity and implement management within other MPA and throughout the district as required.

Within the Wash and North Norfolk Coast SAC, effort limitations will be implemented dynamically through the year in relation to a threshold model which would limit the economic impact on the industry whilst still having the required protective effect. The triggers which would initiate effort limitations follow the natural progression of the shrimp fishery, enabling fishers to continue to fish seasonally and diversify across several different fisheries, reducing the pressure on any single fishery.

**Option 2: Shrimp Permit Byelaw 2016 (limit the number of permits and trips per year)** - the implementation of this byelaw would require fishers to obtain a permit to fish for shrimps within the Eastern IFC District and require relevant fisheries data to be sent to the Authority. This will also enable Eastern IFCA to monitor shrimp fishing activity and implement management within other MPA and throughout the district as required.

Within the Wash and North Norfolk Coast SAC, effort limitations will be implemented by limiting the number of permits issued and allocating each permit holder a number of permitted shrimp fishing trips per year. This option is not the preferred option because, by comparison to Option 1, this model would lead to greater economic impacts and lost opportunity through latent capacity. It would potentially lead to increases in shrimp fishing effort to provide 'track record' evidence to secure a permit being issued the following year and limit the potential for younger fishers to enter the industry. It is also unlikely to reflect the different business models within the sector and could lead to disproportionate impacts on different business models.

**Option 3: Total closure (within the Wash and North Norfolk Coast SAC)** – Closure of the site would have disproportionate impacts on the industry and effectively end the UK's contribution to the markets in relation to brown shrimp, with some 90% of the UK's catch coming from The Wash.

## 6. Analysis of costs and benefits

### Option 0 – Do nothing

The direct cost to business is zero as no restrictions would be put in place however, the resultant market failure could have indirect, wider costs to the local industry and society. Ultimately failure to protect MPA within the Eastern IFC district could lead to reduced ecosystem functioning and infraction proceedings from the European Commission.

There are no benefits associated with this option.

### Option 1 – (*preferred option*): Shrimp Permit Byelaw 2016 (threshold model)

**Permit fee** – the fee associated with a shrimp permit is £44 annually. The fee is intended as cost recovery for the purchasing of a shrimp returns book and pre-paid envelopes provided for returning the required shrimp fisheries data and the cost in officer time associated with

the processing of a permit and entering catch data into Eastern IFCA systems. The permit fee does not reflect costs on Eastern IFCA in their entirety (for example, enforcement of the measures).

A high and low estimate of costs to business is determined by the analysis of vessels which prosecuted the shrimp fishery during the period 2010 to 2015. In 2015 only 27 different vessels prosecuted the fishery and this forms the basis of the 'low' estimate. In 2012, 48 different vessels prosecuted the fishery and this is the basis for the 'high' estimate. The average number of vessels to prosecute the fishery during the period 2010 to 2015 is 39. Therefore, the 'best' estimate for costs to business in relation to the permit fee is based on 39 permits being issued per year and is £1716.

**iVMS and VMS+ installation costs** – Eastern IFCA intends to implement the requirement to install iVMS alongside a funding bid to cover the cost of iVMS installation. It is intended that the cost of requiring additional units will be mitigated entirely through a combination of EMFF funding and Eastern IFCA funding support.

**iVMS and VMS+ reporting costs** – The cost of reporting via iVMS is currently commercially sensitive therefore costs are estimated based on VMS+ billing rates using the General Packet Radio Service (GPRS). A VMS+ report is currently charged at £0.02 but can also be paid for as part of a monthly or yearly contract which could reduce the associated costs.

The proposed permit conditions require vessels to have on board iVMS or VMS+ devices which are reporting every ten minutes unless they enter an area closed to bottom towed gear when the device will report once every two minutes.

Informal dialogue with the MMO has indicated that annual packages available for iVMS and VMS+ units reporting at the required periods cost between £100 to £150 per year. Therefore, a high estimate cost is based on 48 vessels (the peak number of different vessels between 2010 and 2015 inclusive) at £150 per year is £7200. The low estimate is based on 27 vessels on a £100 contract, the cost of which is £2700. A best estimate is determined using the average number of vessels between 2010 and 2015 (inclusive) on a contract costing £125 per year, which is £4917.

The best estimate is likely to be an overestimate given that the majority of vessels identified as fishing for shrimp do so seasonally, diversifying across several different fisheries throughout the year.

**Effort limitations** – The assessment of impacts of shrimp fishing activity within the WNNC SAC concluded that there was no significant impact on the integrity of the site if no more than 12,987 tows are carried out each year. Analysis of the trends in fishing activity over the period 2010 to 2015 (inclusive) indicated that, whilst there is the potential for this to occur (particularly in circumstances where catch per tow is relatively low) this is not likely to have occurred during each of those years (table 3).

**Table 3.** the estimated total number of tows conducted within the WNNC SAC during the period 2010 to 2015 (inclusive). Number of tows is estimated from landed weight (extracted from MMO landings data) assuming two different catch per unit effort rates. Catch per unit effort estimates were calculated from Eastern IFCA shrimp returns data.

	2010	2011	2012	2013	2014	2015
Estimated number of tows at a catch per unit effort of 10 kg shrimp per tow per meter of shrimp beam	6008	2365	6485	5703	4096	2296
Estimated number of tows at a catch per unit effort of 5 kg per tow per meter of shrimp beam	12016	4731	12970	11407	8192	4593

Given that effort is not likely to be in excess of the allowed footprint in every year, it is appropriate that the level of activity could be monitored and limitations implemented only when required.

As this would require an immediate response, there would still be a need to implement a mechanism to control effort i.e. if effort was approaching the allowed footprint during a year, the process of bringing in a new byelaw to restrict fishing effort would take too long to be effective. As such, option 1 represents a permit scheme in which the primary control of effort is a 'threshold model' which is reflected as permit conditions.

As a certain threshold is reached, effort would be limited by i) not granting any additional permits and ii) limiting the number of trips each vessel could undertake until the end of the 'management year' (i.e. the following August). The model used to achieve this is presented in table 4.

Threshold	Permit limitation	Effort restriction
1 <sup>st</sup> August each year	No limitation on the number of permits issued	None
More than 68% of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> January	No further permits are issued until the following 1 <sup>st</sup> August	None
More than 85 % of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> April	No further permits are issued until the following 1 <sup>st</sup> August	Vessels are restricted to a number of shrimp fishing trips until the 1 <sup>st</sup> August in accordance with the following calculation (a) divided by (b):  (a) = total number of remaining tows divided by 5  (b) = total number of Category One Permits issued in a particular year
More than 96 % of the total number of tows have been conducted at any time after 1 <sup>st</sup> August and before the following 1 <sup>st</sup> July	No further permits are issued until the following 1 <sup>st</sup> August	Fishery closed no further fishing until 1 <sup>st</sup> August

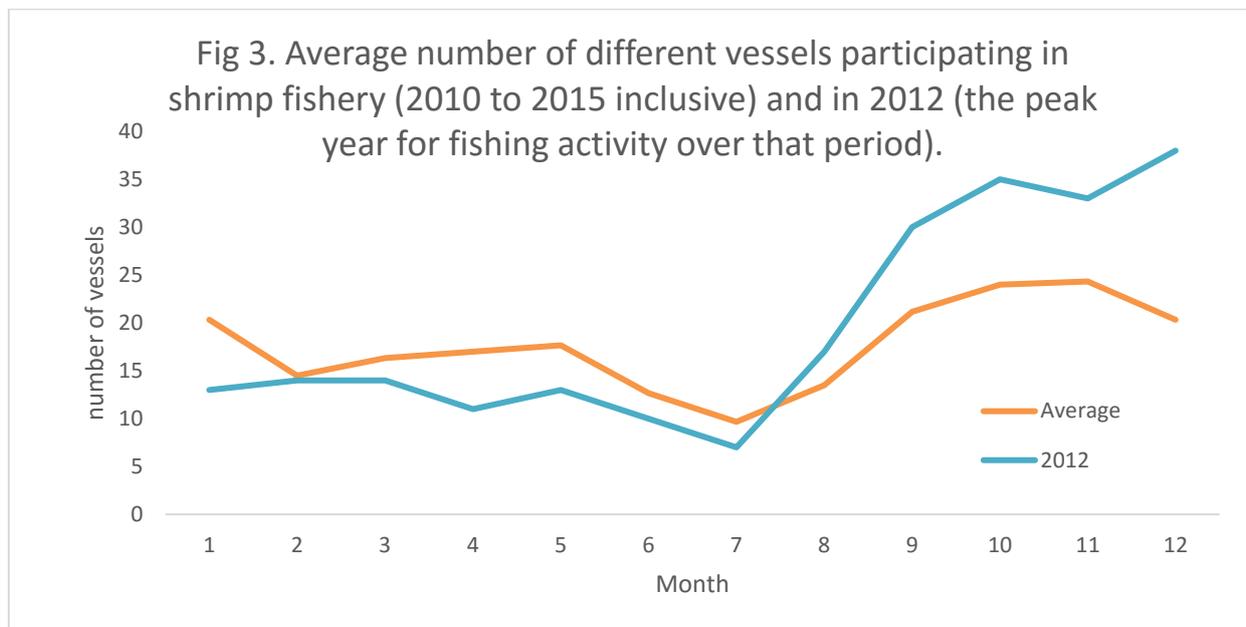
The thresholds presented in table 4 reflect the 'normal' progression of the shrimp fishery during the course of the year. Analysis of the seasonal trends in fishing activity show that the fishing activity starts to increase in August of each year and on average, 68% of the fishery (by landed weight) is conducted in the period 1 August to 1 January (table 5). Therefore, if more than 68% of the allowed footprint is used by fishers during this time, the fishery is on a trajectory towards exceeding the total allowable footprint during the 'management year' (1 August to 31 July). This is the first threshold which would initiate effort limitation. At this point, this would only involve a limitation on limiting additional permits.

Table 5. the progression of the shrimp fishery in relation to average landed weights.			
Month	Average cumulative percentage of landings as a proportion of total landings, average proportion for each month in()		
Aug	7.9 (7.9)	Feb	80.4 (3.6)
Sep	22.1 (14.1)	Mar	84.7 (4.3)
Oct	41.5 (19.4)	Apr	89.4 (4.6)
Nov	59.1 (17.6)	May	93.2 (3.8)
Dec	68.4 (9.3)	Jun	96.4 (3.2)
Jan	76.7 (8.3)	Jul	100 (3.6)

The period 1 August to 1 January is the period during which the majority of different fishers are active within the fishery (fig 3.). Managing the fishery dynamically using the model in table 3 is supported by ensuring that the majority of fishing activity is conducted during the early stages of the managed period. This will enable the bulk of the fishery to take part without leading to the triggering of a limitation too early. It also allows for more manageable, smaller increments to be measures towards the end of the managed period fishing activity reduces.

The second trigger for effort limitation as presented in table 3 is where fishing activity reaches 85% of the footprint before 1 April. At this point the fishery is generally reaching its trough and each month from this point accounts, on average, for 4% of the total activity over the year. At this point, effort would be reduced in addition to restrictions on the issuing of any additional permits. Each vessel with a permit at the point would be allocated a number of trips based on a formula presented in the permit condition.

Trips are allocated rather than a number of tows as they represent a more 'enforceable' metric, take into account the differing business models of the fleet and reduce potential latent capacity as highlighted in Box 2 (below).



The final trigger for effort limitation is where the fishery has utilised 96% of the allowable footprint before 1 July in any year. Where this is the case, the trajectory of the fishery indicates that the threshold will be exceeded within the next month. At this point, the fishery would be closed to fishing entirely.

Within this model, it is proposed that the total allowable number of tows is 92% of the footprint determined within the impact assessment. This provides a buffer against up to two months of 'data lag' where fishers have not returned the data needed to calculate where the fishery is in relation to the footprint. Obviously, the use of i-VMS in this system would be of benefit to both Eastern IFCA in administering the model and the fishers as, it is conceivable that the buffer could be reduced as 'data lag' will not be as limiting a factor.

The high estimate for costs associated with this measure is determined assuming a lower catch per unit of effort for shrimps (5kg per meter of beam per tow – this is half that which is the current average, according to Eastern ICA's shrimp database). Under these circumstances, the 92% threshold would have been reached in 2012 (as per table 3 above) and the fishery closed to further fishing worth circa 7.9% of the total fishery that year – circa £163,340. The low estimate of costs for this measure is zero which, given table 3, is a likely situation in most years. Given a final threshold of 92% total allowable tows (which is 11,948), impacts would have only occurred in 2010 and 2012. Therefore, the 'best estimate' is an annual cost of £28,682 which is determined from the total economic losses over the period 2010 to 2015 averaged across the same period.

Option 1 and 2 is assessed against the key concerns raised by fishers during informal consultation (table 6). In summary, option 1 effectively meets the needs of the industry whilst still having the required protective effect. It also represents a more proportionate approach to management and is likely to have less of an economic impact on the fishery than option 2 or 3.

### Public costs

Costs to Eastern IFCA include administrative costs associated with issuing permits and entering fisheries data into Eastern IFCA systems. This cost is estimated as £44 per permit issued and is recovered through the permit fee.

Additional costs include enforcement costs, in particular those associated with recovering fisheries data from fishers and at sea patrols to enforce the requirement to have a permit to fish for shrimp. Based on 6 additional sea patrols and 4 additional shore patrols, this cost is estimated as £10,208 per annum.

There is also a transitional cost associated with the requirement for vessels to have iVMS (if they do not currently have VMS+). Eastern IFCA is pursuing funding which will cover 80 to 90% of the cost of iVMS installation. The remaining cost (i.e. 10 to 20%) will be covered by Eastern IFCA. An estimated 72 vessels have landed shrimp caught from within the Eastern IFC district in the period 2010 to 2015 (inclusive). A high estimate for the cost to Eastern IFCA is based on all of these vessels which are less than 12m in overall length or greater than 15m in overall length obtaining iVMS (i.e. excluding vessels in the range 12 to 15m as these will have VMS+). Based on a unit costing an estimated £1000 including installation, the high cost to the IFCA is estimated at £9400. The low cost is based on only those fishers active during 2015 which would require iVMS (14) and Eastern IFCA only contributing 10% of the cost. The low cost is estimated as £1400. The best estimate for this cost as a result of these measures is the based on 33 vessels requiring iVMS (total number of vessels less than 12m and more than 15m during 2012 fishery), this cost is estimated as £6,600 (based on a 20% contribution from Eastern IFCA).

## Box 2 – managing effort through number of trips rather than tows.

The area of contact between the 'shoes' of shrimp beams and the protected sub features within the WNNC SAC must be restricted to 32.9km<sup>2</sup> during a year. To achieve this through management measures, a more manageable metric is required which relates to fishing activity.

Analysis of landings data has found that the average tow duration is 1.88 hours and the average speed is 3 km per hour and the area of contact (i.e. the area of the shoes on a shrimp beam) is 80cm on average. Therefore we can estimate the number of tows which could be undertaken before this threshold is reached. This number is 12,987 tows per year (given that 45% of activity is likely to occur over the sub feature – see box 1).

A number of tows per vessel is a manageable metric but would be difficult to enforce and monitor. On average, fishers conduct 5 tows per trip (i.e. leaving and returning to port) however there is large variation across the different business models of industry with some vessels undertaking significantly more tows during a fishing trip. Managing the number of trips rather than tows could also lead to fishers simply increasing the time spent at sea as a way of 'counter-acting' any effort limitations, leading to additional fishing effort and potentially exceeding the footprint.

However, both models for managing effort are likely to result in latent capacity. This is as a result of distinctly different business models in the industry. The majority of vessels taking part in the fishery are smaller vessels which tend to diversify i.e. do not fish for shrimp full-time. Splitting effort evenly over the entire fleet will likely lead to these fishers having effort in excess of that which they would use. In contrast, there are fewer larger, full-time shrimping vessels which would lose out, receiving an allocation of tows which would be far less than they normally use. This is in part, also a reflection of the higher over-heads of a larger vessel which require a greater catch to 'pay' for the trip to sea and where 'profit' is split between a greater number of crew.

As such, by limiting trips instead of tows, the few larger vessels will not 'lose-out' to the same extent compared to smaller vessels and will use up some of the likely latent capacity from the greater number of smaller vessels. High levels of latent capacity are expected (more so in relation to Option 1 than 2). Figure 4 (below) shows that the latent capacity by number of vessels ranges from 15 to 30 over a year i.e. during some months, more than 2/3 of the fleet does not fish for shrimps even though they would be allocated tows and trips. Due to the high levels of latent capacity, there is a low risk of the footprint being exceeded if the measures are based on trips rather than tows.



## Benefits

No benefits can be monetised, save for the comparison in economic impacts as compared to Option 2 and 3. The main benefits associated with this option are related to protection of ecosystem functioning through the protection of sensitive habitats which has the potential to increase economic outputs of the shrimp fishery in the long term but also in relation to wider environmental impacts.

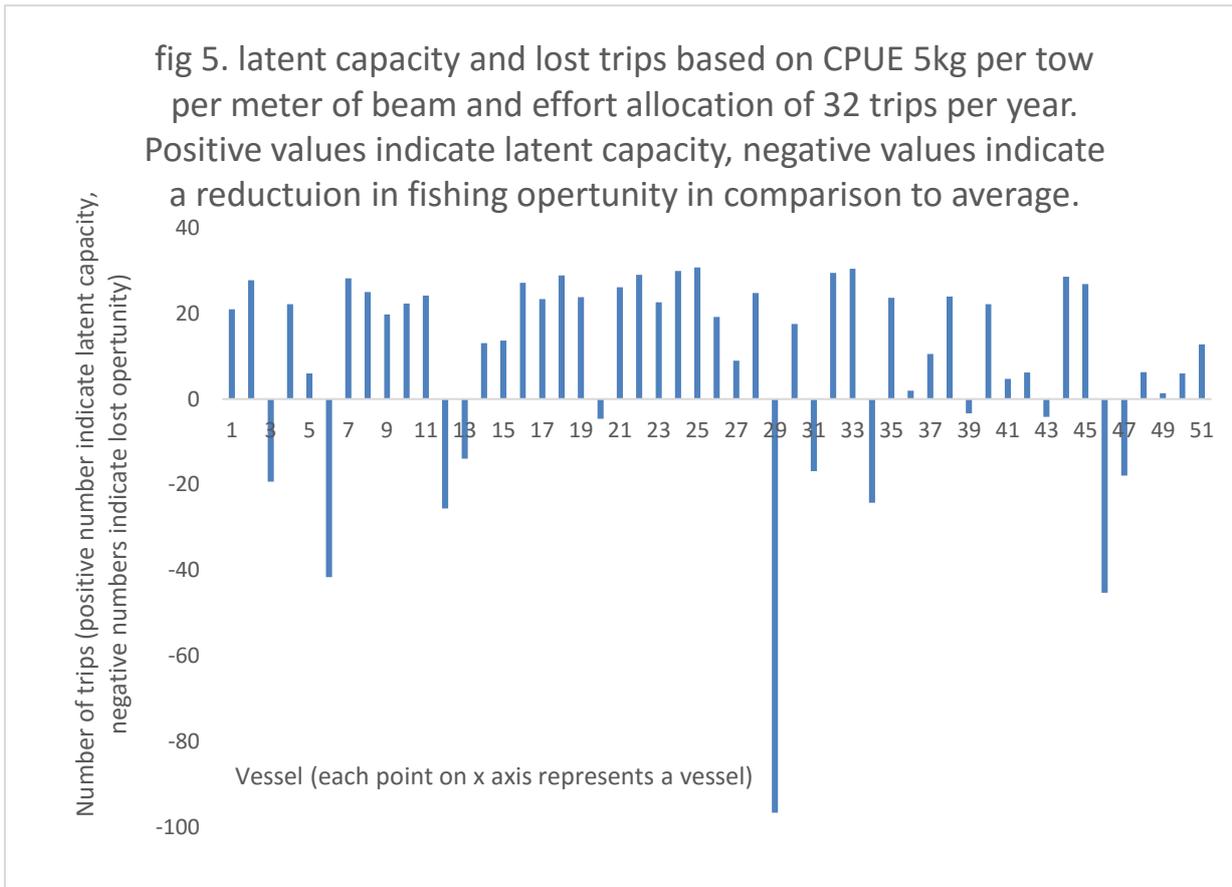
The shrimp fishery within the Wash and North Norfolk Coast SAC is highly dynamic. Option 1 will provide management measures which will enable the fishery to develop and follow a natural cycle of increases and decreases in effort in line with economic drivers and fisheries productivity within parameters which will prevent an adverse effect on the SAC.

### Option 2 – Shrimp Permit Byelaw 2016 (limit the number of permits and trips per year)

Costs associated with permit fees and iVMS and VMS+ reporting are likely to be the same as for option 1. There are significant additional costs associated with effort limitations compared to option 1, primarily due to latent capacity.

**Limiting the number of permits** – Criteria would be used to limit the number of vessels eligible for a shrimp fishing permit each year. Initial criteria would be a requirement to have landed more than 500kg of shrimp within the period 2010 to 2015 (inclusive). 65 different vessels have landed shrimp caught from within ICES statistical rectangles 34F0 and 35F0 during this period, this initial criteria would reduce the potential fleet size by 7. In addition, a further 8 vessels are thought to have moved to outside of the district and would be unlikely to apply for a shrimp permit. As such, the fleet size is estimated to be reduced to 50 vessels.

Limiting permits based on historical fishing activity will exclude 'new' vessels from entering the fishery and would potentially lead to fishers undertaking the activity solely to retain a permit each year. The cost associated with limiting permits in this way is limited and small scale as only vessels which land very few shrimps would be excluded.



**Limiting shrimp fishing activity** – the number of trips each vessel could undertake would be limited to ensure that effort did not exceed that which would cause an adverse effect on site integrity. Vessels would be limited to a number of trips rather than tows (as per box 2).

Assuming that vessels undertake an average of 5 tows per trip, distributing the total number of tows between a fleet of 50 vessels gives each vessel 52 trips per year (260 tows). However, 18 vessels are identified through informal consultation as likely to undertake as many as 3 times as many tows during a trip (with a trip lasting up to 48 hours). In addition, vessels which 'normally' undertake fewer tows per trip would have the potential to increase the number of tows which would lead to the footprint being exceeded.

To account for the potential to increase the number of tows per trip, the footprint is reduced to provide a buffer for the 18 identified vessels undertaking up to 15 tows per trip. This reduces the allocated trips per year allocated to 32 per year.

Under this management scenario, 729 of the allocated trips are unused and 313 are 'lost' in comparison to that which some vessels would normally undertake (Figure 5). As a proportion of the total allocated effort this represents 66% with a monetary value of £307,633 to £1.36m annually in lost fishing opportunity.

Limiting permits and trips per year is likely to lead to large economic impacts and to bad practice with the intention to retain permits. Further analysis of option 1 and 2 are compared to key concerns raised by fishers is presented in table 6 Below.

Table 6. assessment of two models for managing shrimp fishing effort in the Wash and North Norfolk Coast Special Area of Conservation against concerns raised by fishers. **[NB table presented in paper (above) as table 5]**

### Option 3 – Total closure

This option does not reflect Eastern IFCA's obligations under Marine and Coastal Access Act to support a viable industry and is considered over-precautious in the circumstances. Circa 90% of UK shrimp landings (by weight) are caught from within The Wash making it a nationally important fishery. Total closure of this fishery would be a disproportionate response as a degree of effort limitation will have the required protective effect.

## **One In Two Out (OITO)**

**OITO is not applicable for byelaws as they are local government byelaws introducing local regulation and therefore not subject to central government processes.**

### **Small firms impact test and competition assessment**

**No firms are exempt from this byelaw as it applies to all firms who use the area, it 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.**

### **Conclusion**

Management measures are required for the protection of sensitive habitats within the Wash and North Norfolk Coast SAC. Effort limitations are required to prevent sensitive habitats being exposed to shrimp fishing gear at a rate of more than once in every two years which is a precautionary approach given that much of the habitat is thought to recover within 6 months of any damage.

To implement effort limitation, a permit scheme is proposed which enables Eastern IFCA to dynamically manage the fishery on an annual basis through permits and permit conditions. A model is proposed which would enable Eastern IFCA to reduce the regulatory burden on fishers and reduce the likelihood of economic impacts (particularly through latent capacity). The proposed model would require Eastern IFCA to monitor the activity within the fishery (through both fisheries data forms and electronic monitoring devices) to determine if the fishery is likely to exceed the footprint which would lead to an adverse effect on site integrity. This model is proposed as the preferred option as it meets the requirements to protect the sensitive habitats whilst still enabling a viable fishery.

Option 0 would fail to meet Eastern IFCA's requirements under the Habitats Regulations 2010 and the Habitats Directive. Options 2 and 3 would have significant and disproportionate impacts on the industry.

### ***Recommended option:***

The recommended option is option 1.

## Annex A: Policy and Planning

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

East Inshore Marine Plan

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:

Marine Plan Policy	Policy Text	Policy screened in or out from assessment	Assessment of plan policy
<b>Policy AGG1</b>	Proposals in areas where a licence for extraction of aggregates has been granted or formally applied for should not be authorised unless there are exceptional circumstances.	×	Does not apply.
<b>Policy AGG2</b>	Proposals within an area subject to an Exploration and Option Agreement with The Crown Estate should not be supported unless it is demonstrated that the other development or activity is compatible with aggregate extraction or there are exceptional circumstances.	×	Does not apply.
<b>Policy AGG3</b>	Within defined areas of high potential aggregate resource, proposals should demonstrate in order of preference: a) that they will not, prevent aggregate extraction b) how, if there are adverse impacts on aggregate extraction, they will minimise these c) how, if the adverse impacts cannot be minimised, they will be mitigated d) the case for proceeding	×	Does not apply.

	with the application if it is not possible to minimise or mitigate the adverse impacts		
<b>Policy AQ1</b>	<p>Within sustainable aquaculture development sites (identified through research), proposals should demonstrate in order of preference:</p> <p>a) that they will avoid adverse impacts on future aquaculture development by altering the sea bed or water column in ways which would cause adverse impacts to aquaculture productivity or potential</p> <p>b) how, if there are adverse impacts on aquaculture development, they can be minimised</p> <p>c) how, if the adverse impacts cannot be minimised they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	×	
<b>Policy BIO1</b>	<p>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).</p>	✓	<p>The measures will further the ecosystem functioning within the Wash and North Norfolk Coast SAC with potentially positive effect on biodiversity.</p>

<b>Policy BIO2</b>	Where appropriate, proposals for development should incorporate features that enhance biodiversity and geological interests.	×	
<b>Policy CAB1</b>	Preference should be given to proposals for cable installation where the method of installation is burial. Where burial is not achievable, decisions should take account of protection measures for the cable that may be proposed by the applicant.	×	Does not apply.
<b>Policy CC1</b>	<p>Proposals should take account of:</p> <ul style="list-style-type: none"> <li>• how they may be impacted upon by, and respond to, climate change over their lifetime and</li> <li>• how they may impact upon any climate change adaptation measures elsewhere during their lifetime</li> </ul> <p>Where detrimental impacts on climate change adaptation measures are identified, evidence should be provided as to how the proposal will reduce such impacts.</p>	✓	These management measures are likely to result in increased ecosystem functioning which will provide additional resilience to natural systems.
<b>Policy CC2</b>	Proposals for development should minimise emissions of greenhouse gases as far as is appropriate. Mitigation measures will also be encouraged where emissions remain following minimising steps. Consideration should also be given to emissions from other activities or users affected by the proposal.	✓	Measures will have little impact on emissions of greenhouse emissions.

<p><b>Policy CCS1</b></p>	<p>Within defined areas of potential carbon dioxide storage,(mapped in figure 17)proposals should demonstrate in order of preference:  a) that they will not prevent carbon dioxide storage  b) how, if there are adverse impacts on carbon dioxide storage, they will minimise them  c) how, if the adverse impacts cannot be minimised, they will be mitigated  d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	<p>×</p>	<p>Does not apply.</p>
<p><b>Policy CCS2</b></p>	<p>Carbon Capture and Storage proposals should demonstrate that consideration has been given to the re-use of existing oil and gas infrastructure rather than the installation of new infrastructure (either in depleted fields or in active fields via enhanced hydrocarbon recovery).</p>	<p>×</p>	<p>Does not apply.</p>
<p><b>Policy DD1</b></p>	<p>Proposals within or adjacent to licensed dredging and disposal areas should demonstrate, in order of preference  a) that they will not adversely impact dredging and disposal activities  b) how, if there are adverse impacts on dredging and disposal, they will minimise these  c) how, if the adverse impacts cannot be minimised they will be mitigated  d) the case for proceeding with the proposal if it is not</p>	<p>×</p>	<p>Does not apply</p>

	possible to minimise or mitigate the adverse impacts		
<b>Policy DEF1</b>	Proposals in or affecting Ministry of Defence Danger and Exercise Areas should not be authorised without agreement from the Ministry of Defence.	×	Does not apply
<b>Policy EC1</b>	Proposals that provide economic productivity benefits which are additional to Gross Value Added currently generated by existing activities should be supported.	✓	The brown shrimp fishery within the East Inshore Marine Plan Area were previously is a nationally important fishery. Management of the shrimp fishery will allow for a longer-term, sustainable fishery to be continued in the absence of larger quotas in other fisheries.
<b>Policy EC2</b>	Proposals that provide additional employment benefits should be supported, particularly where these benefits have the potential to meet employment needs in localities close to the marine plan areas.	✓	At least two processor plants (which process shellfish) are known to process shrimp catches from across the district and further – enabling a viable shrimp fishery will support jobs in addition to fishing activity (e.g. factory cleaners, admin etc.).
<b>Policy EC3</b>	Proposals that will help the East marine plan areas to contribute to offshore wind energy generation should be supported.	×	Does not apply.

<b>Policy ECO1</b>	Cumulative impacts affecting the ecosystem of the East marine plans and adjacent areas (marine, terrestrial) should be addressed in decision-making and plan implementation.	✓	The management of the shrimp fishery in line with the Habitat Regulations (2010) will have a benefit on the biodiversity and wider ecosystem functioning and services.
<b>Policy ECO2</b>	The risk of release of hazardous substances as a secondary effect due to any increased collision risk should be taken account of in proposals that require an authorisation.	✓	Measures are not likely to increase the likelihood of collisions.
<b>Policy FISH1</b>	Within areas of fishing activity, proposals should demonstrate in order of preference: a) that they will not prevent fishing activities on, or access to, fishing grounds b) how, if there are adverse impacts on the ability to undertake fishing activities or access to fishing grounds, they will minimise them c) how, if the adverse impacts cannot be minimised, they will be mitigated d) the case for proceeding with their proposal if it is not possible to minimise or mitigate the adverse impacts	✓	The proposed Byelaw and associated permit conditions (option 1) will limit fishing opportunities to levels which will not cause an adverse effect on site integrity. Impacts are minimised in Option 1 by managing the fishery through a 'threshold' model which take into account the natural cycles of the fishery.
<b>Policy FISH2</b>	Proposals should demonstrate, in order of preference: a) that they will not have an adverse impact upon spawning and nursery areas and any associated habitat b) how, if there are adverse impacts upon the spawning and nursery areas and any associated habitat, they will minimise them	✓	The proposed measures may reduce shrimp fishing effort in some years which has the potential to reduce by-catch from within The Wash which is considered to be a relatively important nurseary area. The proposed byelaw does allow for additional permits conditions to be

	<p>c) how, if the adverse impacts cannot be minimised they will be mitigated</p> <p>d) the case for proceeding with their proposals if it is not possible to minimise or mitigate the adverse impacts</p>		<p>introduced as required (in line with a proportionate process including consultation and the production of an IA). It is intended that further permit conditions could be implemented in the future which would reduce impacts on by-catch (in line with the industries Marine Stewardship Council accreditation bid).</p>
<b>Policy GOV1</b>	<p>Appropriate provision should be made for infrastructure on land which supports activities in the marine area and vice versa.</p>	×	<p>Does not apply.</p>
<b>Policy GOV2</b>	<p>Opportunities for co-existence should be maximised wherever possible.</p>	×	<p>Does not apply.</p>
<b>Policy GOV3</b>	<p>Proposals should demonstrate in order of preference:</p> <p>a) that they will avoid displacement of other existing or authorised (but yet to be implemented) activities</p> <p>b) how, if there are adverse impacts resulting in displacement by the proposal, they will minimise them</p> <p>c) how, if the adverse impacts resulting in displacement by the proposal, cannot be minimised, they will be mitigated against or</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts of displacement</p>	✓	<p>No displacement anticipated.</p>

<b>Policy MPA1</b>	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.	✓	The present byelaw is proposed for the protection of designated sub-features within the Wash and North Norfolk Coast SAC.
<b>Policy OG1</b>	Proposals within areas with existing oil and gas production should not be authorised except where compatibility with oil and gas production and infrastructure can be satisfactorily demonstrated.	✓	Does not apply.
<b>Policy OG2</b>	Proposals for new oil and gas activity should be supported over proposals for other development.	✗	Does not apply.
<b>Policy PS1</b>	Proposals that require static sea surface infrastructure or that significantly reduce under-keel clearance should not be authorised in International Maritime Organization designated routes.	✗	Does not apply.

<p><b>Policy PS2</b></p>	<p>Proposals that require static sea surface infrastructure that encroaches upon important navigation routes (see figure 18) should not be authorised unless there are exceptional circumstances. Proposals should:</p> <ul style="list-style-type: none"> <li>a) be compatible with the need to maintain space for safe navigation, avoiding adverse economic impact</li> <li>b) anticipate and provide for future safe navigational requirements where evidence and/or stakeholder input allows and</li> <li>c) account for impacts upon navigation in-combination with other existing and proposed activities</li> </ul>	<p>×</p>	<p>Does not apply.</p>
<p><b>Policy PS3</b></p>	<p>Proposals should demonstrate, in order of preference:</p> <ul style="list-style-type: none"> <li>a) that they will not interfere with current activity and future opportunity for expansion of ports and harbours</li> <li>b) how, if the proposal may interfere with current activity and future opportunities for expansion, they will minimise this</li> <li>c) how, if the interference cannot be minimised, it will be mitigated</li> <li>d) the case for proceeding if it is not possible to minimise or mitigate the interference</li> </ul>	<p>✓</p>	<p>Does not apply.</p>
<p><b>Policy SOC1</b></p>	<p>Proposals that provide health and social well-being benefits including through maintaining, or enhancing, access to the coast and</p>	<p>✓</p>	<p>Does not apply.</p>

	marine area should be supported.		
<b>Policy SOC2</b>	Proposals that may affect heritage assets should demonstrate, in order of preference: a) that they will not compromise or harm elements which contribute to the significance of the heritage asset b) how, if there is compromise or harm to a heritage asset, this will be minimised c) how, where compromise or harm to a heritage asset cannot be minimised it will be mitigated against or d) the public benefits for proceeding with the proposal if it is not possible to minimise or mitigate compromise or harm to the heritage asset	×	Does not apply.
<b>Policy SOC3</b>	Proposals that may affect the terrestrial and marine character of an area should demonstrate, in order of preference: a) that they will not adversely impact the terrestrial and marine character of an area b) how, if there are adverse impacts on the terrestrial and marine character of an area, they will minimise them c) how, where these adverse impacts on the terrestrial and marine character of an area cannot be minimised they will be mitigated against d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts	×	Does not apply.

<p><b>Policy TIDE1</b></p>	<p>In defined areas of identified tidal stream resource (see figure 16), proposals should demonstrate, in order of preference:</p> <p>a) that they will not compromise potential future development of a tidal stream project</p> <p>b) how, if there are any adverse impacts on potential tidal stream deployment, they will minimise them</p> <p>c) how, if the adverse impacts cannot be minimised, they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	<p>×</p>	<p>Does not apply.</p>
<p><b>Policy TR1</b></p>	<p>Proposals for development should demonstrate that during construction and operation, in order of preference:</p> <p>a) they will not adversely impact tourism and recreation activities</p> <p>b) how, if there are adverse impacts on tourism and recreation activities, they will minimise them</p> <p>c) how, if the adverse impacts cannot be minimised, they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	<p>×</p>	

<p><b>Policy TR2</b></p>	<p>Proposals that require static objects in the East marine plan areas, should demonstrate, in order of preference:</p> <p>a) that they will not adversely impact on recreational boating routes</p> <p>b) how, if there are adverse impacts on recreational boating routes, they will minimise them</p> <p>c) how, if the adverse impacts cannot be minimised, they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	<p>✓</p>	<p>Proposals do not require static objects to be used.</p>
<p><b>Policy TR3</b></p>	<p>Proposals that deliver tourism and/or recreation related benefits in communities adjacent to the East marine plan areas should be supported.</p>	<p>✓</p>	<p>No direct effect on this policy although, increased ecosystem functioning will potentially increase the value of the site with regards to designated species (including for example, migratory bird species) which could lead to increased benefits through tourism.</p>
<p><b>Policy WIND1</b></p>	<p>Developments requiring authorisation, that are in or could affect sites held under a lease or an agreement for lease that has been granted by The Crown Estate for development of an Offshore Wind Farm, should not be authorised unless</p> <p>a) they can clearly demonstrate that they will not compromise the construction, operation, maintenance, or decommissioning of the Offshore Wind Farm</p> <p>b) the lease/agreement for</p>	<p>×</p>	<p>Does not apply.</p>

	<p>lease has been surrendered back to The Crown Estate and not been re-tendered</p> <p>c) the lease/agreement for lease has been terminated by the Secretary of State</p> <p>d) in other exceptional circumstances</p>		
<p><b>Policy WIND2</b></p>	<p>Proposals for Offshore Wind Farms inside Round 3 zones, including relevant supporting projects and infrastructure, should be supported.</p>	<p>×</p>	<p>Does not apply.</p>

## Vision

The Eastern Inshore Fisheries and Conservation Authority will 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



## Regulation and Compliance Sub Committee meeting

### Action Item 6

13 December 2016

**Report by:** J. Stouff Senior Marine Environment Officer / J. Gregory CEO / L. Godwin Staff Officer

## Marine Protected Areas Byelaw 2017

### Purpose of report

To present the sub-committee with the Marine Protected Areas Byelaw 2017.

### Recommendations

Members are recommended to:

- **Note** the rationale and justification for the final draft of the Marine Protected Areas Byelaw 2017;
- **Note** the Impact Assessment associated with the Marine Protected Areas Byelaw 2017;
- **Agree** to make the Marine Protected Areas Byelaw 2017;
- **Direct** officers to undertake a formal consultation in relation to the Marine Protected Areas Byelaw 2017;

### Background

#### *Marine protected areas*

“Marine protected area” (MPA) is a general term for an area of sea that is designated for the protection of particular plants and animals and the habitats that support them. Designations include sites recognised under national and European laws – examples are shown in Table 1.

Table 1. Examples of marine protected areas in Eastern IFCA district

Type of marine protected area	Origin	Mechanism
Site of special scientific interest (SSSI)	National	Countryside & Rights of Way Act 2000
Marine Conservation Zone (MCZ)	National	Marine & Coastal Access Act 2009
Special Area of Conservation (SAC) <sup>1</sup> / Site of Community Importance (SCI)	European Union	EU Habitats Directive 1992 UK Habitats Regulations 2010 UK Offshore Habitats Regulations 2007
Special Protection Area (SPA)	European Union	EU Birds Directive 1979 UK Habitats Regulations 2010
Ramsar Site	International	Ramsar Convention on Wetlands 1971

<sup>1</sup> Special Areas of Conservation are referred to as Sites of Community Importance (SCI) before designation by member states

Marine protected areas are instrumental in helping to meet UK commitments under the OSPAR Convention for the Protection of the Marine Environment of the North-east Atlantic (1992), and under the Conventions for Biological Diversity (1992).

The majority of sea area in the Eastern IFCA district has some form of marine protected area designation (illustrated in Figure 1).

*Existing Eastern IFCA Protected Areas Byelaw*

Eastern IFCA made its Protected Areas Byelaw in 2014. This included four Regulatory Notices to close parts of marine protected areas in the Eastern IFCA district, to protect features at high risk of damage from fishing activities (“red risk” interactions) – shown in Table 2, for information.

Table 2. Regulatory notices in existing Eastern IFCA Protected Areas Byelaw 2014

Regulatory Notice	Feature protected	Restricted activity	Marine protected area containing closures
1	<i>Sabellaria spinulosa</i> reef	Towed demersal fishing	The Wash & North Norfolk Coast Special Area of Conservation
2	Subtidal boulder & cobble reef	Towed demersal fishing	
3	Seagrass	Towed demersal fishing	
4	Seagrass	Towed demersal fishing, hand gathering and bait digging	Humber Estuary Special Area of Conservation

These closures remain in place and will be reviewed in 2017.

*Requirement for additional closures*

The initial closures only protect the most sensitive features from the most damaging activities. To ensure all fishing activities are appropriately managed in marine protected areas, between 2014-2016 Eastern IFCA assessed the impacts of all commercial fisheries in marine protected areas, specifically European Marine Sites, within the district. A Habitats Regulations assessment approach was used. This concluded that the majority of feature/fishery interactions operating at existing levels are not posing a risk to the integrity of designated sites.

However, the assessments showed that shrimp fishing activity (beam trawling) within the Wash and North Norfolk Coast Special Area of Conservation could not be ruled out from having an adverse effect on that site. This is because of physical pressures caused by beam trawling on two seabed features: sub-tidal mixed sediment and sub-tidal mud, and the relatively high levels of effort in this fishery. Therefore, mitigation is needed to protect these features from damage caused by this fishery.

Management measures have been designed to meet the conservation objectives of the site but also to enable fishing activity where possible. To this end, it was proposed that a combination of spatial closures and effort limitation be used; this approach was endorsed by the Authority. Agenda Item 5 sets out how effort will be managed through the Shrimp permitting byelaw. The focus of this paper is spatial management of the towed demersal fishing (including shrimp beam trawling).

In addition to spatial closures for towed demersal gear in the Wash and North Norfolk Coast, a further “red risk” interaction has been identified as requiring management. This interaction is towed demersal fishing over biogenic reef (*Sabellaria spinulosa*), in the Haisborough Hammond and Winterton Site of Community Importance. Management is proposed in the form of spatial closures around reef features. This risk was not addressed in the 2014 byelaw because at that time it had been agreed this site would be managed by the Marine Management Organisation. In summer 2015 this approach was changed, meaning Eastern IFCA was required to manage fishing in the inshore (-0-6nm) section of this site.

## Report

### Marine Protected Areas Byelaw 2017

This byelaw will replace the Eastern IFCA Protected Areas Byelaw. Defra advised that the Regulatory Notices approach used in the 2014 byelaw should no longer be used. This means that the existing closures (in the 2014 byelaw), which related to “red risk interactions”, need to be re-made in this Marine Protected Areas 2017 byelaw. It is not intended to review these existing closures in this paper; they are scheduled to be re-assessed in 2017.

This paper will focus on the new closures to be introduced under the new byelaw. These will be closures to all towed, demersal gear (trawls and dredges) in seven areas of the Wash & North Norfolk Coast, and in three areas of Haisborough, Hammond and Winterton marine protected areas. The Regulatory Notice approach will not be used, so future alterations, revocations or introductions of new closed areas would need to be undertaken by a full review of the byelaw.

#### *Wash & North Norfolk Coast closures*

It is proposed that seven areas will be closed to towed demersal gear within the Wash & North Norfolk Coast Special Area of Conservation. These areas are shown in Figure 1, labelled “K, L, M, N, O, P” and “seasonally restricted area”. In total, these closures will affect 14.3% of the site. The closures will protect sensitive seabed habitats (subtidal mixed sediments and subtidal muds) from damage from fishing gear being towed across the seabed. These habitats form part of the designated features of the site.

The fishing impact assessment (including scientific literature reviews) and liaison with Natural England and fishermen have identified that these habitats are more sensitive to damage from fishing where they occur in water deeper than 10m. This is because at shallower depths, the habitats are exposed to significantly more natural disturbance from waves and currents than disturbance from fishing activities. The closures have been designed to encompass the majority of these sensitive habitats at depths greater than 10m, and a smaller proportion of the less sensitive parts of these habitats in shallower water areas (Table 3).

Table 3. Percentage of habitats to be protected by new closures

Subtidal mixed sediment		Subtidal mud	
Deeper than 10m	0-10m	Deeper than 10m	0-10m
71	46	68	30

Each closed area has been selected using the following criteria:

- Natural England habitat maps and detailed data evidence summary
- Additional feature evidence (Cefas and Environment Agency survey data)
- Eastern IFCA habitat mapping data (2015/2016)
- Seabed depth

- Fishing industry fishing grounds (Eastern IFCA questionnaire January 2016, informal dialogue and shrimp workshops)
- Additional ecological benefits (e.g. *Sabellaria spinulosa* reef, fish nursery areas)
- Enforceability

When designing mitigation for damage to protected features, socio-economic factors can only be taken into account when ecological goals are met. Closures have been designed firstly to protect sufficient proportions of the most vulnerable habitats (ultimately so that towed demersal fisheries will not damage the ecological functioning of the site), and then to avoid the most important fishing areas. Inevitably, spatial closures will have some impact on fishing activities. The extent of closed areas is minimised through the use of effort limitations (Action Item 5) which will provide the required protective effect whilst minimising the loss of fishing opportunity. These impacts are considered in more detail in the Impact Assessment (Appendix 2).

Particular consideration was given to the proposed Restricted Area on the North Norfolk Coast off Blakeney. Informal consultation indicated that an inshore portion of this area is of particular importance to a small number of shrimp fishers between late summer and the following spring. It is proposed that a corridor is open to fishers between 15 October and 31<sup>st</sup> March, by applying a 'seasonal closure'. This will result in a small proportion of the protected habitat remaining exposed to fishing activity during this period. However, water depths are shallow (mostly less than 10m) in this area, where the habitats are less sensitive to fishing impacts compared with deeper areas. It is recommended that the area be closed during spring and summer to enhance protection of juvenile fish utilising these shallow water areas.

It is considered that some of the closure areas will provide additional ecological benefits. Although not the primary reason for selecting these areas, such benefits support wider Eastern IFCA goals including sustainable fisheries and healthy seas. For example, Area O includes a large part of Blakeney Harbour, an important fish nursery area for many species including bass. Restricting trawling in this area is likely to protect large quantities of juvenile fish (although shrimp beam trawls are reasonably selective for larger fish, they are known to retain very small fish, particularly flatfish). This will benefit these fish populations as well as species that feed on them. In addition to subtidal mixed sediments and subtidal mud, Areas L and M both include *Sabellaria* reef – a feature that requires protection from damage caused by towed demersal fishing gear as a "red risk" interaction.

Table 4 lists the areas proposed for closure in the Wash & North Norfolk Coast. It also shows the amount of each feature that these closures would protect, at deeper and shallower depths, and an indication of the confidence in feature evidence for each area.

#### *Evidence base*

Best available evidence is used to determine the positions of proposed Restricted Areas which includes several different datasets provided by Natural England. Some of this data has been augmented by Environment Agency, Cefas and Eastern IFCA surveys.

Some data have been determined as being of low confidence and Natural England has agreed that spatial closures would not be appropriate without additional evidence gathering. The effort limitations proposed through the Shrimp Permit Byelaw 2016 will mitigate the risk of adverse effects.

Area K (table 4) is a particularly contentious closed area because it is of importance to the shrimp fishing industry, but evidence shows it contains sensitive habitats which require protection through closures. Available habitat data for this area is of high confidence but is also more than ten years old. Whilst the original dataset has been augmented by Environment Agency and Cefas surveys (including video and grab sample analysis), given its potential

importance to the industry, Officers have scheduled to undertake additional survey work to verify habitat type. Therefore, there is potential for Area K to be amended (by an increase or decrease in extent) pending the results of the survey. It is recommended that the CEO be delegated authority to amend Restricted Area K on this basis.

Further detail on the evidence base for each closed area is given in Appendix 3.

Table 4. Closure areas in the Wash & North Norfolk Coast Special Area of Conservation under Marine Protected Areas Byelaw 2017.

Closure area name	Closure location	Closure area (hectares)	Proportion of sub-feature protected				Natural England evidence	Eastern IFCA evidence	Additional comment
			Subtidal mixed sediment		Subtidal mud				
			>10m depth	<10m depth	>10m depth	<10m depth			
K	Lynn Anchorage	431.1	0.91	1.00	9.15	2.93	Quite high confidence in feature data; includes Cefas grab samples and video (2012) and EA grab samples (2015)	(2015 survey) Confirmed feature in some areas, not in others	Additional EIFCA verification (sampling for particle size analysis) planned Dec 2016. Encompasses two existing EIFCA closed areas for <i>Sabellaria spinulosa</i> reef (areas B and C)
L	Lower Road	220.3	0.13	0.58	0.00	0.26	Includes some subtidal mixed sediment and some subtidal mud	(2015 survey) Identified additional areas of both target habitats.	Encompasses existing EIFCA closed area for <i>Sabellaria spinulosa</i> reef (Area A)
M	Dogs Head	1750	0.29	8.05	0.51	3.17	Includes some subtidal mixed sediment. Data includes EA grab samples (2015)	(2013 survey) Identified additional extent of subtidal mixed sediment	<i>Sabellaria spinulosa</i> reef also present
N	Blakeney (1)	6035	31.54	30.43	47.08	19.98	Includes extensive areas of both target habitats	No EIFCA surveys undertaken in this area	Northern section of a westward extension of existing closure to trawling and dredging (EIFCA byelaws 12 and 15).
O	Blakeney (2)	2462					Includes extensive areas of both target habitats	No EIFCA surveys undertaken in this area	Southern section of a westward extension of existing closure to trawling and dredging (EIFCA byelaws 12 and 15). Additional benefit for juvenile fish in Blakeney harbour area

Closure area name	Closure location	Closure area (hectares)	Proportion of sub-feature protected				Natural England evidence	Eastern IFCA evidence	Additional comment
			Subtidal mixed sediment		Subtidal mud				
			>10m depth	<10m depth	>10m depth	<10m depth			
Seasonal Restricted Area	Blakeney (3)	674					Includes extensive areas of both target habitats	No EIFCA surveys undertaken in this area	Closed 1st April to 15th October. Enables fishing activity seasonally. Seasonal closure of benefit to juvenile fish.
P	Cley	3812	38.26	5.66	10.89	3.24	Includes extensive areas of both target habitats	No EIFCA surveys undertaken in this area	Matches existing closed area for trawling and dredging under EIFCA byelaws 12 and 15.

### Haisborough, Hammond & Winterton closures

It is proposed that three areas will be closed to towed demersal gear within the Haisborough, Hammond & Winterton Site of Community Importance. These areas are shown in Figure 2. In total, these closures will affect 30.1% of the inshore part of this site, and would protect 100% of the *Sabellaria spinulosa* reef from damage caused by fishing gear being towed across the seabed. These habitats form part of the designated features of the site. Table 5 lists the three areas proposed for closure in the Haisborough, Hammond & Winterton site.

Each closed area has been selected using the following criteria:

- Natural England/Joint Nature Conservation Committee habitat maps
- Additional feature evidence (Cefas video data, July 2016)
- Eastern IFCA habitat mapping data (October 2016)
- Fishing industry fishing grounds (Eastern Sea Fisheries Joint Committee Fisheries Mapping Project, informal dialogue)
- MMO landings data
- Enforceability

Inevitably, spatial closures will have some impact on fishing activities. However, whilst the restricted areas are significant in size, only limited impacts are anticipated. The inshore section of this site supports a low level of potting and netting, but is not generally targeted for trawling and dredging. Analysis of the MMO landings data indicates that bottom-towed fishing activity is undertaken here at very low levels. A large proportion fishing in this area is bass fishing, primarily netting. In addition, bass fishing restrictions are being implemented through the European Commission which will have the effect of reducing bass landings as a result of bottom-towed-gear. The closures are only a small proportion of the fishing area from which impacts are estimated (ICES rectangle 33F1). It is therefore predicted there will be little impact on current fishing activities. Economic impacts are considered in more detail in the Impact Assessment (Appendix 2).

The larger, offshore section of this site is managed by Defra and Marine Management Organisation. Proposals for management require negotiations with other Member States whose fleets target these areas. Defra undertook informal consultation earlier in 2016 on a proposed closure affecting a large part of the offshore section of this site. Foreign vessels are not permitted to fish within the Eastern IFCA part (0-6nm) of this site.

Table 5. Closure areas in Haisborough, Hammond & Winterton Site of Community Importance under Marine Protected Areas Byelaw 2017.

Closure area name	Closure location	Closure area (hectares)	Natural England evidence	Eastern IFCA evidence
R	Winterton Shoal	73.5	Regional Environmental Characterisation survey (2010)	Not required
S	Barley Picle	1,327.8	Regional Environmental Characterisation survey (2010) Cefas video data (2016)	Additional camera survey Oct 2016
T	East of Cross Sand	2,796.5	Regional Environmental Characterisation survey (2010)	Additional camera survey Oct 2016

### *Evidence base*

Modelled data provided by Natural England indicated *Sabellaria* reef (biogenic reef) presence within the Haisborough, Hammond and Winterton Site of Community Importance (SCI). Eastern IFCA undertook habitat survey work within the area in October 2016. The results, analysed in conjunction with an assessment of raw video data supplied by CEFAS, confirmed the presence of *Sabellaria* reef within some of the modelled areas (Figure 2). Based on subjective assessment of the video evidence, the quality of reef found at many of the survey stations was good, with appreciably more elevation and coverage of reef than would be typical for *Sabellaria* reefs in The Wash. This provided confidence that closures are appropriate for these areas, to protect the feature from damage by towed demersal fishing gear.

*Sabellaria* reef has been found to exist within and outside the boundaries of the Haisborough Hammond & Winterton SCI. Due to the ecological and fisheries management benefits of high quality *Sabellaria* reef, and in line with Natural England advice (April 2013) for dealing with protected features which extend beyond site boundaries, where appropriate the proposed closures also extend beyond the site boundary of the MPA. This is the case for proposed Restricted Areas S and T (figures 4 and 5 respectively).

Given that this feature is considered of 'red-risk' and pursuant of Defra's revised approach to managing fishing activity in MPA, closures to towed, demersal fishing activity are proposed for the protection of these features.

### **Next Steps**

If made, the Marine Protected Areas Byelaw 2017 will go to formal, public consultation. This consists of two consecutive weeks of advertising (in the Fishing News) followed by a 28-day period for responses to be submitted.

It is intended that the consultation in relation to this byelaw coincide with the consultation for the Shrimp Permit Byelaw 2016. As such, it is recommended that the formal consultation is delayed (i.e. not undertaken immediately) with a view to align the both consultations.

### **Risk**

There is limited legal risk associated with this stage of the byelaw making process. The potential for challenge against the proposed measures has been reduced by extensive informal consultation over the past two years and the resultant proposals should already reflect the main concerns of the industry. Informal consultation has focused on the closures within the Wash and North Norfolk Coast SAC and the fishers within the Wash as these are the most likely to be impacted by the measures, to the greatest extent.

Given the timescales set out in the section above, the measures will not be in place by the 'December 2016 deadline' however, Defra have informally indicated that, as measures are 'in the pipe-line' this will be acceptable, especially given the various legal setbacks in relation to the wording of the byelaws thus far.

For the measures to be effective, spatial closures must coincide with the designated habitats. The best available evidence with regards to habitat location includes a combination of datasets provided by Natural England, some of which are in relation to

surveys conducted over ten years ago. As such, some of the evidence is considered as low confidence.

## **Conclusions**

Assessments of shrimp fishing activity within the Wash and north Norfolk Coast SAC has concluded that management is required to prevent adverse effects on site integrity. Spatial closures aimed at protecting the most 'at risk' habitats within the site are proposed. These closures will have the required protective effect but, through consultation with the industry, the closures have been designed to limit the economic impact on the fishers. The extent of the closures is reduced through the use of effort limitation in addition to spatial closures (as presented in Action Item 5).

Spatial closures are also required within the Haisborough, Hammond and Winterton Site of Community Importance to protect the 'red-risk' feature biogenic reef (*Sabellaria spinulosa*). It is predicted that closures in this site will not have a significant impact on fishing activity.

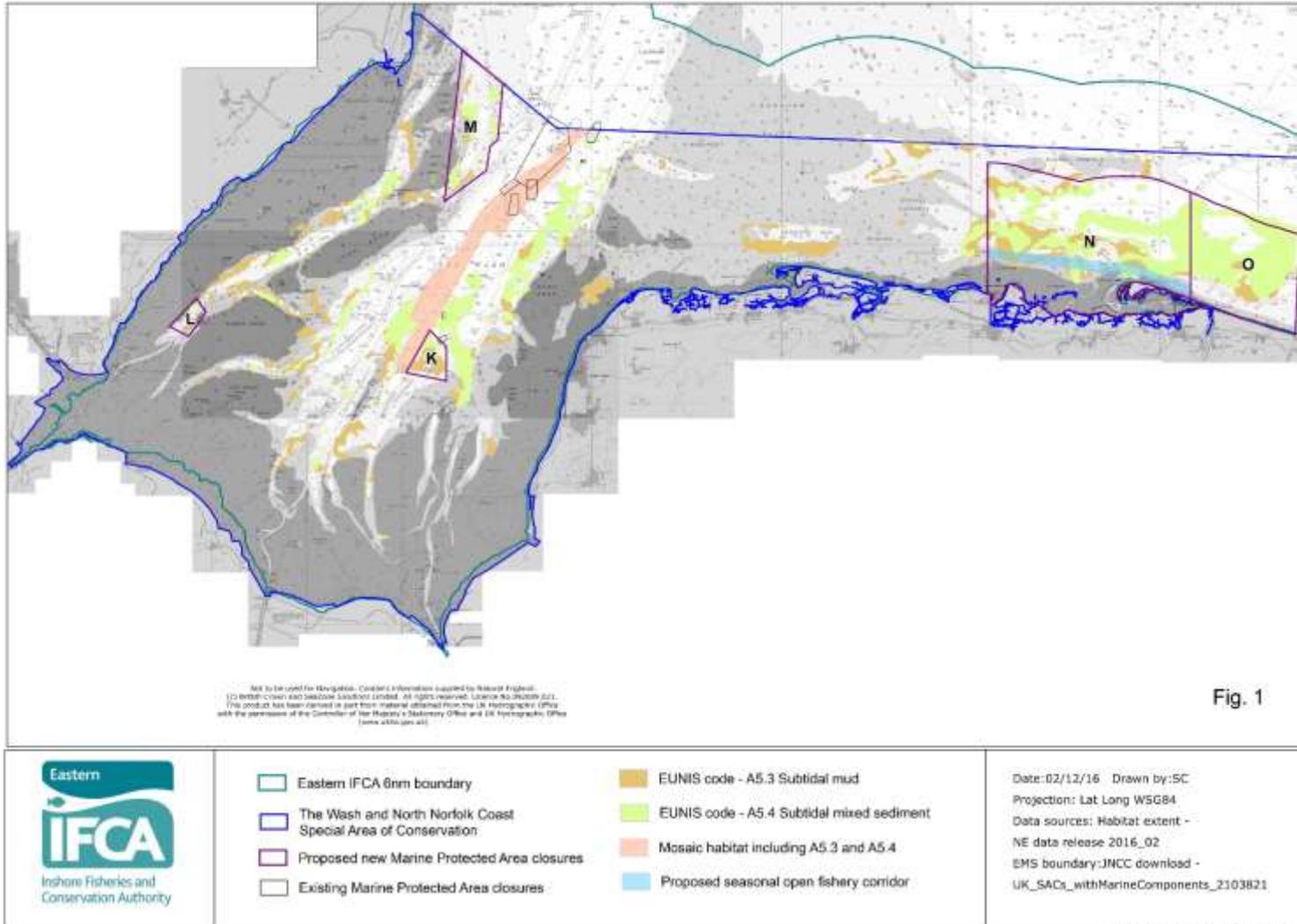
## **Figures**

4. Figure 1 – Proposed restricted areas in the Wash and North Norfolk Coast SAC
5. Figure 2 – Proposed closed areas in the Haisborough, Hammond and Winterton SCI

## **Appendices**

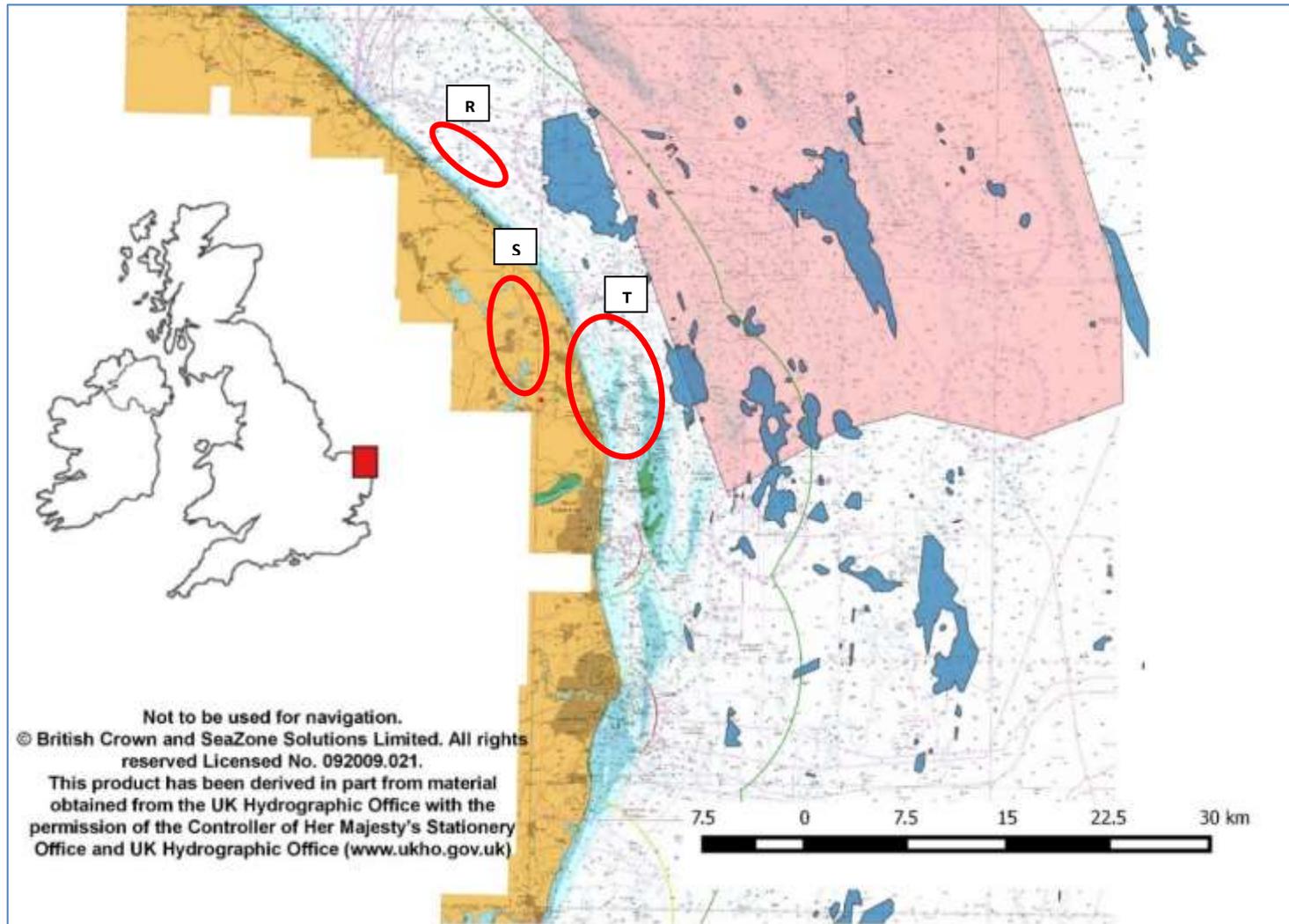
1. Proposed Marine Protected Areas Byelaw 2017
2. Marine Protected Areas Byelaw 2017 – Impact Assessment
3. Evidence base for spatial closures in The Wash & North Norfolk Coast Special Area of Conservation and in Haisborough, Hammond & Winterton Site of Community Importance

**Figure 1 – Showing proposed closed areas within the Wash and North Norfolk Coast SAC. Area N is now proposed as being split into two separate closed areas (N and O). Area O is now proposed as area P.**



2016\_12\_Layout\_5hrmp\_papers.WDR

**Figure 2 – Showing indicative areas within the Haisborough, Hammond and Winterton SCI. Closed areas R, S and T are shown in Appendix 3.**



## **Appendix 1 – Marine Protected Areas Byelaw 2017**



### **EASTERN INSHORE FISHERIES AND CONSERVATION AUTHORITY**

#### **MARINE AND COASTAL ACCESS ACT 2009 (c. 23)**

#### **Marine Protected Areas Byelaw 2016**

The Authority for the Eastern Inshore Fisheries and Conservation District in exercise of the powers conferred by sections 155, 156 and 158 of the Marine and Coastal Access Act 2009 makes the following byelaw for that District.

#### **Interpretation**

1. In this byelaw:

- a) 'the Authority' means the Eastern Inshore Fisheries and Conservation Authority as defined in Articles 2 and 4 of the Eastern Inshore Fisheries and Conservation Order 2010 (SI 2010/2189);
- b) 'the District' means the Eastern Inshore Fisheries and Conservation District as defined in Articles 2 and 3 of the Eastern Inshore Fisheries and Conservation Order 2010;
- c) co-ordinates are based on WGS 84 datum, where 'WGS 84' means the World Geodetic System, revised in 1984;
- d) 'fishing' includes:
  - (i) digging for bait;
  - (ii) shooting, setting, towing and hauling of fishing gear;
  - (iii) gathering sea fisheries resources by hand or by using a hand operated implement;
  - (iv) catching, taking or removing sea fisheries resources;

- e) 'fishing gear' includes any nets, pots, ropes, anchors, surface markers, lines, dredges, grabs, rakes or other implements used during fishing.
- f) 'Right of Common' means particular, specialised and defined rights held by "commoners" in respect of registered "common land" but does not include any right of several fishery, a common law right of fishery or any other Rights on, to or over any portion of the seashore that is enjoyed by a person under a local or special Act, a Royal charter, letters patent, or by prescription or immemorial usage.

## **Restrictions**

- 2. The restrictions set out in the schedules to this byelaw apply and contravention of such constitutes a contravention of this byelaw.

### **Application**

- 3. This byelaw does not apply to any person performing an act which would otherwise constitute an offence against this byelaw, if that act was carried out in exercise of any right of common held by that person.

### **Revocations**

- 4. The byelaw with the title "Protected Areas Byelaw" made by the Authority on 18 September 2013 and in force immediately before the making of this byelaw is revoked.

## SCHEDULE 1

### MANAGEMENT MEASURES FOR THE WASH AND NORTH NORFOLK COAST SPECIAL AREA OF CONSERVATION

#### Interpretation

1. In this schedule:
  - a) 'beam trawl' means a trawl net where the mouth or opening of the net is kept open by a beam, which is mounted at each end on guides or skids which travel along the seabed;
  - b) 'bottom towed gear' means any fishing gear designed to be towed, dragged or pushed through the water whilst in contact with the seabed;
  - c) 'Restricted Area' means any of the areas titled A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, SH, EH, SF, BP, or BC specified using co-ordinates in the tables in paragraph 7 of this schedule;
  - d) 'Seasonal Restricted Area' means the area titled N specified using co-ordinates in the tables in paragraph 8 of this schedule;
  - e) 'secured and stowed' means that fishing gear is stored in such a way that use cannot readily be made of it for any fishing activity.

#### Protected characteristics

2. The marine habitats and species to which this schedule applies are:
  - a) biogenic reef of the *Sabellaria spinulosa*;
  - b) sub-tidal boulder and cobble communities;
  - c) *Zostera* (eelgrass) beds.

#### Restrictions

3. A person must not fish with bottom towed gear in any of the Restricted Areas.
4. A person must not fish with bottom towed gear in the Seasonal Restricted Area between 1<sup>st</sup> April and 15<sup>th</sup> October in any year.
5. Subject to paragraph 5, when transiting through a Restricted Area bottom towed gear on vessels must be secured and stowed.
6. A vessel fishing using a beam trawl is exempt from paragraph 4 if the following apply:
  - a) it had been fishing up to the boundary of a Restricted Area or it will be fishing immediately upon leaving the Restricted Area; and

- b) any beam is hoisted so that it is clearly visible above the sea and that no part of the fishing gear is in contact with any part of the seabed whilst the vessel is within the Restricted Area.

### Restricted Areas

7. The following tables set out the co-ordinates of the Restricted Areas referred to in sub-paragraph 1(c) of this schedule:

<b>Area A</b>			
Restricted Area A is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.			
<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
A.	52° 57.87' N	00° 08.71' E	3.794
B.	52° 57.85' N	00° 08.81' E	
C.	52° 57.82' N	00° 08.83' E	
D.	52° 57.71' N	00° 08.65' E	
E.	52° 57.73' N	00° 08.58' E	
F.	52° 57.87' N	00° 08.71' E	

<b>Area B</b>			
Restricted Area B is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.			
<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
A.	52° 57.15' N	00° 22.28' E	16.02
B.	52° 57.04' N	00° 22.43' E	
C.	52° 56.86' N	00° 22.02' E	
D.	52° 56.99' N	00° 21.86' E	
E.	52° 57.15' N	00° 22.28' E	

<b>Area C</b>			
Restricted Area C is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.			
<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
A.	52° 57.86' N	00° 22.14' E	7.048
B.	52° 57.86' N	00° 22.31' E	
C.	52° 57.67' N	00° 22.31' E	
D.	52° 57.67' N	00° 22.14' E	
E.	52° 57.86' N	00° 22.14' E	

### Area D

Restricted Area D is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	52° 59.11' N	00° 27.46' E	2.397
B.	52° 59.06' N	00° 27.52' E	
C.	52° 59.00' N	00° 27.38' E	
D.	52° 59.06' N	00° 27.32' E	
E.	52° 59.11' N	00° 27.46' E	

### Area E

Restricted Area E is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	53° 02.05' N	00° 25.91' E	40.87
B.	53° 01.94' N	00° 26.23' E	
C.	53° 01.56' N	00° 25.36' E	
D.	53° 01.72' N	00° 25.17' E	
E.	53° 02.05' N	00° 25.91' E	

### Area F

Restricted Area F is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	53° 01.61' N	00° 25.79' E	62.53
B.	53° 01.61' N	00° 26.14' E	
C.	53° 01.02' N	00° 26.15' E	
D.	53° 00.94' N	00° 26.05' E	
E.	53° 00.94' N	00° 25.59' E	
F.	53° 01.61' N	00° 25.79' E	

### Area G

Restricted Area G is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	53° 02.03' N	00° 26.61' E	66.62
B.	53° 02.03' N	00° 27.15' E	
C.	53° 01.57' N	00° 27.15' E	
D.	53° 01.41' N	00° 26.95' E	
E.	53° 01.41' N	00° 26.61' E	
F.	53° 02.03' N	00° 26.61' E	

### Area H

Restricted Area H is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	53° 03.86' N	00° 30.22' E	59.33
B.	53° 03.86' N	00° 30.48' E	
C.	53° 03.67' N	00° 30.48' E	
D.	53° 03.22' N	00° 30.15' E	
E.	53° 03.22' N	00° 29.78' E	
F.	53° 03.48' N	00° 29.78' E	
G.	53° 03.86' N	00° 30.22' E	

### Area I

Restricted Area I is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	53° 02.66' N	00° 29.46' E	2.726
B.	53° 02.66' N	00° 29.63' E	
C.	53° 02.59' N	00° 29.63' E	
D.	53° 02.59' N	00° 29.46' E	
E.	53° 02.66' N	00° 29.46' E	

### Area J

Restricted Area J is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 2 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	53° 04.04' N	00° 27.78' E	687.0
B.	53° 03.73' N	00° 28.71' E	
C.	53° 02.94' N	00° 28.91' E	
D.	53° 01.76' N	00° 26.78' E	
E.	53° 02.05' N	00° 25.91' E	
F.	53° 04.04' N	00° 27.78' E	

### Area K

Restricted Area K is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart x for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	52° 57.29 'N	00° 21.47 'E	431.10
B.	52° 56.78 'N	00° 22.35 'E	
C.	52° 55.69 'N	00° 22.35 'E	
D.	52° 55.95 'N	00° 20.21 'E	
E.	52° 57.29 'N	00° 21.47 'E	

### Area L

Restricted Area L is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart x for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	52° 58.30 'N	00° 09.16 'E	220.30
B.	52° 57.87 'N	00° 09.67 'E	
C.	52° 57.10 'N	00° 08.77 'E	
D.	52° 57.41 'N	00° 07.74 'E	
E.	52° 58.30 'N	00° 09.16 'E	

### Area M

Restricted Area M is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart x for illustrative purposes.

Point	Latitude		Longitude		Area (hectares)
A.	53°	06.13 'N	00°	23.18 'E	1750.00
B.	53°	05.07 'N	00°	25.32 'E	
C.	53°	02.33 'N	00°	24.46 'E	
D.	53°	01.35 'N	00°	22.24 'E	
E.	53°	06.13 'N	00°	23.18 'E	

#### Area N

Restricted Area N is defined by a boundary drawn by a straight line connecting points A and B, a line drawn between points B and C which follows the three nautical mile boundary (three nautical miles from the 1983 baseline) and a series of straight lines drawn in sequence between points C to G listed in this table and as set out in chart x for illustrative purposes.

Point	Latitude		Longitude		Area (hectares)
A.	52°	59.84 'N	00°	50.88 'E	6035
B.	53	02.58	00	50.89	
C.	53°	01.65 'N	01°	01.60 'E	
D.	52°	58.67 'N	01°	01.60 'E	
E.	52°	59.41 'N	00°	58.52 'E	
F.	52°	59.43 'N	00°	57.35 'E	
G.	52°	59.84 'N	00°	50.88 'E	

#### Area O

Restricted Area N is defined by a boundary drawn by a straight line connecting points A and B, a line drawn between points B and C which follows the three nautical mile boundary (three nautical miles from the 1983 baseline), a straight line drawn between points C and D listed in this table and the land boundary is to be taken as the mean high water spring mark between points D and E, as set out in chart x for illustrative purposes.

Point	Latitude		Longitude		Area (hectares)
A.	52°	58.45 'N	00°	50.89 'E	2462
B.	52°	59.57 'N	00°	50.88 'E	
C.	52°	59.05 'N	00°	57.76 'E	
D.	52	59.06 'N	00	58.53 'E	
E.	52°	58.41 'N	01°	01.58 'E	
F.	52	58.45 'N	01	01.60 'E	
G.	52°	58.45 'N	00°	50.89 'E	

#### Area P

Restricted Area O is defined by a boundary drawn by a straight line connecting points A and B, a line drawn between points B and C which follows the three

nautical mile boundary (three nautical miles from the 1983 baseline), a straight line drawn between points C and D and D to E, as listed in this table and as set out in chart x for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	52° 58.27 'N	01° 01.60 'E	3812.00
B.	53° 01.65 'N	01° 01.60 'E	
C.	53° 00.31 'N	01° 07.35 'E	
D.	52° 57.16 'N	01° 07.13 'E	
E.	52° 58.27 'N	01° 01.60 'E	

#### Area SH

Restricted Area SH is defined by a straight line between points A and B in this table and the land boundary is to be taken as the mean high water springs mark, as set out in chart 3 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	52° 59.00' N	00° 40.03' E	51.69
B.	52° 58.63' N	00° 40.85' E	

#### Area EH

Restricted Area EH is defined by a straight line between points C and D in this table, the western boundary between points C and E follows the charted channel (including changes to the channel over time) and the land boundary is to be taken as the mean high water springs mark between points D and E, as set out in chart 3 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
C.	52° 58.72' N	00° 50.76' E	80.34
D.	52° 58.72' N	00° 52.00' E	
E.	52° 58.17' N	00° 51.40' E	

#### Area SF

Restricted Area SF is defined by straight lines connecting points F to H in the table below, a line drawn between points H, I and J which follows the charted channel (including changes over time) and the land boundary is to be taken as the mean high water springs mark between points J and F, as set out in chart 3 for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
F.	52° 57.78' N	00° 56.40' E	64.55
G.	52° 57.97' N	00° 56.42' E	
H.	52° 58.09' N	00° 57.22' E	
I.	52° 57.82' N	00° 57.86' E	
J.	52° 57.63' N	00° 57.79' E	

**Area BP**

Restricted Area BP is defined as the area north of a straight line drawn between points K and L in the table below and the land boundary is to be taken as the mean high water springs mark, as set out in chart 3 for illustrative purposes.

<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
K.	52° 58.27' N	00° 57.91' E	19.06
L.	52° 58.27' N	00° 58.18' E	

**Area BC**

Restricted Area BC is defined by the boundary by straight lines between points M, N and O, the land boundary between points O and P which is to be taken as the mean high water springs mark and the land boundary between points P and M which is to be taken as the mean high water springs mark, as set out in chart 3 for illustrative purposes.

<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
M.	52° 58.24' N	01° 00.75' E	67.89
N.	52° 57.79' N	01° 00.77' E	
O.	52° 57.86' N	01° 01.20' E	
P.	52° 58.03' N	01° 02.22' E	

**Seasonal Restricted Area**

1. The following table sets out the co-ordinates of the Seasonal Restricted Area referred to in sub-paragraph 1(d) of this schedule:

**Seasonal restricted Area**

The Seasonal Restricted Area is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 1 for illustrative purposes

<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
A.	52°59.84 'N	00°50.88 'E	678
B.	52°59.43 'N	00°57.35 'E	
C.	52°59.41 'N	00°58.52 'E	
D.	52°58.67 'N	01°01.60 'E	
E.	52°58.41 'N	01°01.58 'E	
F.	52°59.06 'N	00°58.53 'E	
G.	52°59.05 'N	00°57.76 'E	
H.	52°59.57 'N	00°50.88 'E	
I.	52°59.84 'N	00°50.88 'E	

## SCHEDULE 2

### MANAGEMENT MEASURES FOR THE HUMBER ESTUARY SPECIAL AREA OF CONSERVATION

#### Interpretation

1. In this schedule:
  - a) 'angling' means fishing using a rod and line or a hook and line;
  - b) 'beam trawl' means a trawl net where the mouth or opening of the net is kept open by a beam, which is mounted at each end on guides or skids which travel along the seabed;
  - c) 'crab tiling' means laying artificial items or structures in intertidal areas to gather crabs for the purpose of fishing;
  - d) 'handwork' means the collection of sea fisheries resources, including bait, using the hands or handheld 'fishing gear';
  - e) 'Restricted Area' means the area Q specified using co-ordinates in the table in paragraph 5 of this schedule.

#### Protected Characteristics

2. The marine habitats and species to which this schedule applies is *Zostera* (eelgrass) beds.

#### Restrictions

3. Subject to paragraph 4, within the Restricted Area a person must not:
  - a) fish with bottom towed gear;
  - b) fish by handwork;
  - c) fish by crab tiling.
4. The prohibitions in paragraph 3 do not apply to angling.
5. When transiting through the Restricted Area bottom towed gear on vessels must be secured and stowed.

#### Restricted Areas

6. The following table sets out the co-ordinates of Restricted Area P referred to in subparagraph 1(e) of this schedule.

### Area Q

Restricted Area Q is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart 4 for illustrative purposes.

<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
A.	53° 29.67 `N	00° 04.90 `E	170.8
B.	53° 30.44 `N	00° 06.29 `E	
C.	53° 29.10 `N	00° 06.04 `E	
D.	53° 29.67 `N	00° 04.90 `E	

### SCHEDULE 3

## RESTRICTIONS FOR THE HAISBOROUGH, HAMMOND & WINTERTON SITE OF COMMUNITY INTEREST AND ADJACENT AREAS

### Interpretation

1. In this schedule:
  - a) 'bottom towed gear' means any fishing gear designed to be towed, dragged or pushed through the water whilst in contact with the seabed;
  - b) 'Restricted Area' means any of the areas titled R, S or T specified using co-ordinates in the tables in paragraph 5 of this schedule;
  - c) 'secured and stowed' means that fishing gear is stored in such a way that use cannot readily be made of it for any fishing activity.

### Protected Characteristics

2. The marine habitats and species to which this schedule applies is biogenic reef of *Sabellaria spinulosa* and associated transitional habitats.

### Restrictions

3. Within the Restricted Area a person must not fish with bottom towed gear;
4. When transiting through the Restricted Area bottom towed gear on vessels must be secured and stowed.

### Restricted Areas

5. The following tables set out the co-ordinates of Restricted Areas referred to in subparagraph 1(e) of this schedule.

<b>Area R</b>			
Restricted Area R is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart x for illustrative purposes.			
<b>Point</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Area (hectares)</b>
A.	52°47.641 'N	1°47.716 'E	73.5
B.	52°47.777 'N	1°47.329 'E	
C.	52°48.055 'N	1°46.951 'E	
D.	52°48.349 'N	1°46.862 'E	
E.	52°48.403 'N	1°46.981 'E	
F.	52°48.258 'N	1°47.338 'E	
G.	52°47.969 'N	1°47.737 'E	
H.	52°47.704 'N	1°47.834 'E	
I.	52°47.641 'N	1°47.716 'E	

### Area S

Restricted Area S is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart x for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	52°39.823 `N	1°49.204 `E	1327.8
B.	52°42.625 `N	1°47.925 `E	
C.	52°43.087 `N	1°50.608 `E	
D.	52°39.823 `N	1°50.608 `E	
E.	52°39.823 `N	1°49.204 `E	

### Area T

Restricted Area T is defined by a boundary drawn by the series of straight lines connecting each point listed in this table to the next point in sequence, as set out in chart x for illustrative purposes.

Point	Latitude	Longitude	Area (hectares)
A.	52°36.994 `N	1°53.726 `E	2796.5
B.	52°40.07 `N	1°53.726 `E	
C.	52°40.52 `N	1°52.989 `E	
D.	52°41.671 `N	1°53.726 `E	
E.	52°41.671 `N	1°55.1 `E	
F.	52°40.097 `N	1°56.717 `E	
G.	52°36.994 `N	1°56.717 `E	
H.	52°36.994 `N	1°53.726 `E	

I hereby certify that the above byelaw was made by Eastern Inshore Fisheries and Conservation Authority at their meeting on 24<sup>th</sup> February 2016.

**Julian Gregory**

*Chief Executive Officer*

*Eastern Inshore Fisheries and Conservation Authority*

*6 North Lynn Business Village, Bergen Way, Kings Lynn, Norfolk PE30 2JG*

*The Secretary of State for Environment, Food and Rural Affairs in exercise of the powers conferred by section 155(3) of the Marine and Coastal Access Act 2009, confirms the Protected Areas Byelaw made by the Eastern IFCA on 24<sup>th</sup> February 2016.*

*The said byelaw comes into force on: .....*

*Head of Marine Planning and Sustainable Fisheries*

*A Senior Civil Servant, for and on behalf of the Secretary of State for Environment, Food and Rural Affairs*

## **Explanatory Note**

*(This note does not form part of the byelaw)*

*This byelaw sets restrictions for fishing activities to protect marine habitats and species within or adjacent to marine protected areas from fishing activities. Restrictions include areas restricted to specified fishing gear and types of fishing activity and restrictions related to the use of fishing gear.*

*Marine protected areas include;*

- Special Areas of Conservation (SAC) Sites of Community Interest (SCI) and Special Protection Areas (SPA). The European network of these areas is collectively known as Natura 2000) as provided in Article 3 Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive);*
- Marine Conservation Zones (MCZ) as designated by an Order under section 116 of the Marine and Coastal Access Act 2009 (c.23);*
- Sites of special scientific interest within the meaning of Part 2 of the Wildlife and Countryside Act 1981 (c.69);*
- National nature reserves declared in accordance with section 35 of that Act;*
- Ramsar sites within the meaning under section 37A of that Act.*

*Management measures are set out in schedules 1, 2 and 3 of this byelaw in relation to the Wash and North Norfolk Coast SAC, the Humber Estuary SAC and the Haisborough, Hammond and Winterton SCI respectively.*

*Restrictions within the Wash and North Norfolk Coast SAC include Restricted Areas in relation to fishing with bottom towed gear and a requirement to have bottom towed gear lashed and stowed when a fishing vessel is inside the Restricted Areas. Fishers are exempt from the requirement to lash and stow bottom towed gear if the vessel had been fishing up to the boundary of a Restricted Area or it will be fishing immediately upon leaving the Restricted Area however the gear is must be suspended clear of the water.*

*Restrictions in the Humber Estuary SAC include a Restricted Area in relation to fishing with bottom towed gear, fishing by hand and crab-tilling. The Restricted Area does not apply to fishing by hand when a rod and line or hook and line is used.*

*Restrictions in the Haisborough, Hammond and Winterton SCI include three Restricted Areas in relation to fishing with bottom-towed-gear.*

*Paragraph 3 of this Byelaw specifically preserves personal "rights of common". These are particular specialised and defined rights held by "commoners" in respect of registered "common land". "Rights of Common" relate only to registered common land and this Byelaw retains full force and effect against all other persons, including those exercising their common law right of fishery and any person exercising a private or several right of fishery. If you have any doubts about the applicability of this Byelaw to you, you should seek guidance from the Authority before fishing for or taking any sea fisheries resources.*

## Appendix 2 – Marine Protected Areas Byelaw 2017 – Impact Assessment

<b>Title: Marine Protected Areas Byelaw 2017</b> <b>IA No:</b> <b>EIFCA004</b> <b>Lead department or agency:</b> <b>Eastern Inshore Fisheries and Conservation Authority</b> <b>Other departments or agencies:</b>	<b>Impact Assessment (IA)</b>	
	<b>Date: 05/12/2016</b>	
	<b>Stage: Development/Options</b>	
	<b>Source of intervention: Domestic</b>	
	<b>Type of measure: Secondary Legislation</b>	
<b>Contact for enquiries: Julian Gregory – CEO (01553 775321)</b>		
<b>Summary: Intervention and Options</b>		RPC Opinion: <b>N/A</b>

Cost of Preferred (or more likely) Option						
Total Present Value	Net Present Value	Business Net Present Value	Net cost to business per year (EANCB: 2014 prices; 2015 present value)	In scope of One-In, Two-Out?	Measure qualifies as	
£-2,711,791	£-2,623,924	£290,113		No	NA	
<p><b>What is the problem under consideration?</b> Habitat Regulations Assessments have concluded that bottom towed gear activity has a likely significant impact on designated sub-features of the Wash and North Norfolk Coast Special Area of Conservation (WNNC) and Haisborough Hammond and Winterton Site of Community Importance (HHW). The habitats assessed in HHW are of 'red-risk' indicating that closure of the area is required to protect the feature from adverse effects. As such certain areas are required to be closed to fishing with bottom-towed-gears to prevent adverse effect on site integrity.</p> <p><b>Why is government intervention necessary?</b> The risk to MPAs dictates that a regulatory approach is required in relation to the protection of designated habitats.</p> <p><b>What are the policy objectives and the intended effects?</b> To protect designated habitats from detrimental impacts caused by bottom towed gear within two marine protected areas. The intended effect is to spatially restrict bottom towed gear from being used within areas designated and assessed as being vulnerable to this activity.</p> <p><b>What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)</b>  <b>Option 0. Do nothing.</b>  <b>Option 1. Partial spatial closures within MPA.</b>  <b>Option 2. Site closures (of entire MPA).</b>                      The preferred option is option 1 as this will have the required protective effect whilst enabling a proportionate amount of fishing activity.</p>						
<p><b>Will the policy be reviewed?</b> It will be reviewed. <b>If applicable, set review date:</b> 6 years</p>						
Does implementation go beyond minimum EU requirements?				Yes		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.		Micro Yes	< 20 Yes	Small Yes	Medium Yes	Large Yes
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)				Traded: N/A		Non-traded: N/A



**Summary: Analysis & Evidence** Policy Option 1

**Description:**

**FULL ECONOMIC ASSESSMENT**

<b>Price Base Year 2016</b>	<b>PV Base Year 2016</b>	<b>Time Period Years 10</b>	<b>Net Benefit (Present Value (PV) (£m))</b>		
			<b>Low:</b> Unknown	<b>High:</b> Unknown	<b>Best Estimate:</b> Unknown
<b>COSTS (£m)</b>	<b>Total (Constant Price) Years</b>	<b>Transition 1</b>	<b>Average (excluding transition) (Constant Price)</b>	<b>Annual (Transition)</b>	<b>Total (Present Value) Cost</b>
<b>Low</b>	n/a		£116,312		£1,001,177
<b>High</b>	n/a		£532,055		£4,579,762
<b>Best Estimate</b>	n/a		<b>£315,043</b>		<b>£2,711,791</b>
<b>Description and scale of key monetised costs by 'main affected groups'</b>					
Impacts in relation to WNNC spatial closures have the potential to be of a large scale as reflected in the cost estimates however, the combination of effort limitations (through the Shrimp Permit Byelaw 2016) and spatial closures limits these impacts making the estimates provided likely to be an overestimate. Closures in relation to HHW are likely to be of smaller scale given the small proportion of the area which is closed and the lower levels of fishing activity which occur. In addition, Eastern IFCA costs in relation to additional enforcement resource requirements are identified.					
<b>Other key non-monetised costs by 'main affected groups'</b>					
None identified					
<b>BENEFITS (£m)</b>	<b>Total (Constant Price) Years</b>	<b>Transition</b>	<b>Average (excl. transition) (Constant Price)</b>	<b>Annual (Transition)</b>	<b>Total (Present Value) Benefit</b>
<b>Low</b>	1. Unknown		1. Unknown		<b>Unknown</b>
<b>High</b>	Unknown		Unknown		<b>Unknown</b>
<b>Best Estimate</b>	Unknown		Unknown		<b>Unknown</b>
<b>Description and scale of key monetised benefits by 'main affected groups'</b>					
Monetised benefits cannot be estimated.					
<b>Other key non-monetised benefits by 'main affected groups'</b>					
Protection of the habitats identified at being at risk from bottom towed gear fishing activity will have a positive effect on the overall ecological functioning of the MPA and potentially improve fishery productivity, including in relation to species other than shrimps.					
Key assumptions/sensitivities/risks (%)				<b>Discount rate</b>	<b>3.5%</b>
Assumption: Habitat extent data is accurate and spatial closures are coincident with designated habitats. Fishing activity is distributed evenly through ICES statistical rectangle 34F1. Sensitivities/risk: Low confidence in habitat extent data leads to spatial closures which do not have required protective effect. Non-compliance with measures leads to environmental damage.					

**BUSINESS ASSESSMENT (Option 2)**

<b>Direct impact on business (Equivalent Annual) £:</b>			<b>In scope of Measure OITO?</b>	<b>of Measure qualifies as</b>
<b>Costs: 290113</b>	<b>Benefits: N/A</b>	<b>Net: -290113</b>	<b>No</b>	<b>N/A</b>

## Evidence base

### 7. Introduction

Defra's revised approach to managing fishing activity in European Marine Sites (EMS) required Eastern IFCA to ensure that fishing activity does not have an adverse effect on site integrity in EMS which occur within the IFC District. This requirement derives from Article 6 of the Habitats directive and the Conservation of Habitats and Species Regulations (as amended) 2010 (SI 2010/490). Furthermore, Eastern IFCA are required under the Marine and Coastal Access Act 2009 to further the conservation objectives of any Marine Conservation Zones within the Eastern IFC district.

Eastern IFCA also has a duty to take action to ensure the sustainable exploitation of fisheries within its district as per section 153 of the Marine and Coastal Access Act 2009. In carrying out its duties Eastern IFCA is obliged to ensure good environmental status of fish and shellfish stocks as per the Marine Strategy Framework Directive (2008/56/EC) namely; sustainable fisheries with high long-term yields, stocks functioning at full reproductive capacity, and to maintain or increase the proportion of older and larger individuals.

The prolific shrimp fishery within the Eastern IFC District occurs primarily within the Wash and North Norfolk Coast Special Area of Conservation (SAC). The fishery was assessed in accordance with s.61 of the Habitats and Species Regulations (as amended) 2010, which concluded that management measures are required to prevent an adverse effect on site integrity. In addition, *Sabellaria spinulosa* reef, a 'red-risk' interaction with towed demersal fishing, has been detected within the Haisborough, Hammond and Winterton Site of Community Importance and requires protection through spatial closures.

This impact assessment outlines the potential costs and benefits in relation to the Marine Protected Areas Byelaw 2017. It is intended that this byelaw will introduce spatial restrictions in relation to fishing with bottom towed gear within the Wash and North Norfolk Coast SAC and Haisborough, Hammond and Winterton SCI to prevent damage to the designated features of the site.

### 8. Rationale for intervention

Inshore Fisheries and Conservation Authorities have duties to ensure that fish stocks are exploited in a sustainable manner, and that any impacts from that exploitation on designated features in the marine environment are reduced or suitably mitigated, by implementing appropriate management measures (e.g. this byelaw). Implementing this byelaw will ensure that fishing activities are conducted in a sustainable manner and that the marine environment is suitably protected.

Fishing activities can potentially cause negative outcomes as a result of 'market failures'. These failures can be described as:

4. 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.
5. 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.

6. Common goods - A number of goods and services provided by the marine environment such as populations of wild fish are 'common goods' (no-one can be excluded from benefiting from those goods however consumption of the goods *does* diminish that available to others). The characteristics of common goods (being available but belonging to no-one, and of a diminishing quantity), mean that individuals do not necessarily have an individual economic incentive to ensure the long-term existence of these goods which can lead, in fisheries terms, to potential overfishing. Furthermore, it is in the interest of each individual to catch as much as possible as quickly as possible so that competitors do not take all the benefits. This can lead to an inefficient amount of effort and unsustainable exploitation.

IFCA byelaws aim to redress these sources of market failure in the marine environment through the following ways:

- Management measures to conserve designated features of MPAs will ensure negative externalities are reduced or suitably mitigated.
- Management measures will support continued existence of public goods in the marine environment, for example conserving the range of biodiversity in the sea of the IFCA District.
- Management measures will also support continued existence of common goods in the marine environment, for example ensuring the long-term sustainability of fish stocks in the IFCA District.

## **9. Policy objectives and intended effects**

The policy objectives are as follows:

4. To have a protective effect on MPAs within the Eastern IFC District whilst minimising the economic impact on the shrimp fishing industry;

The intended effects of the measures are as follows:

1. To restrict bottom towed gear fishing activity co-occurring with *Sabellaria spinulosa* reef within the Haisborough, Hammond and Winterton SCI and adjacent area;
2. To restrict bottom towed gear fishing activity occurring over sub-tidal mud and sub-tidal mixed sediment habitats which have been assessed as being sensitive within the Wash and North Norfolk Coast SAC;
3. To implement such closures is as necessary to have the required protective effect whilst enabling a proportionate amount of fishing activity to occur.

## **10. Background**

Brown shrimp (*Crangon crangon*) caught in The Wash account for circa 90% of shrimp landed in the UK per annum with a total first sale value of circa £467,585 to £2.07m per annum (MMO landing data 2010 to 2015 inclusive). Between 27 and 48 vessels prosecute this fishery and a total of 65 different vessels have prosecuted the fishery between 2010 to 2015 (inclusive). Brown shrimp is the primary species of shrimp targeted within this fishery with catches of pink shrimp several orders of magnitude lower over the last six years (first sale value of £2325 in 2015). Pink shrimp were historically more important but market and fisheries productivity drivers have led to the decline in this fishery. In addition, existing Eastern IFCA spatial closures implemented for the protection of biogenic reef (*Sabellaria spinulosa*) are thought to have coincided with the last remaining 'pink shrimp fishing grounds'.

Shrimp fishing is assessed as having a likely significant effect on site integrity within the Wash and North Norfolk Coast SAC. The 'skids' of shrimp fishing trawls (beam trawls) are thought to apply the pressure 'shallow penetration' on the habitats with which it interacts. In particular, the activity is concluded as having a detrimental impact on the sub-features sub-tidal mud and sub-tidal mixed sediment at certain levels of activity, depending on the biotope makeup of the sub-features and the level of fishing activity. In addition, some biotopes are thought to be sensitive to the pressure 'surface abrasion' caused by the 'footrope' and net.

In order to enable the shrimp fishery to continue within the Wash and North Norfolk Coast SAC, management measures are required. It is intended that the most sensitive elements of the 'at risk' sub features are protected through spatial closures. These areas of the site are thought to have slow recoverability (over two years) and are sensitive enough to be 'damaged' with a single interaction. These components are also thought to be vulnerable to surface abrasion in addition to shallow penetration.

Other components of the two 'at risk' sub features are thought to recover over a period of 6 months to 2 years and are not considered sensitive to surface abrasion. It is concluded that, effort limitations which restrict shrimp fishing activity to interacting with these components less than once in two years will provide the required protective effect on the site. This is proposed as being achieved through a separate byelaw, the Shrimp Permit Byelaw 2016.

Other towed demersal gear fisheries have been assessed and found not to occur within the Wash and North Norfolk Coast at levels that would have a significant effect on seabed habitat features. However, it is intended to exclude all towed demersal gear fisheries from the shrimp closure areas because this would result in no significant impact on existing fishing activities but would provide protection from future increases in other towed demersal gear fisheries.

There is a very low level of shrimp trawling and other towed demersal gear fishing in the inshore (0-6nm) part of the Haisborough, Hammond & Winterton SCI. However, the high sensitivity of *Sabellaria spinulosa* reef to impacts from towed demersal gear (including shrimp beam trawling) – these interactions are "high risk" in the Revised Approach matrix – means that intervention is required in the form of spatial closures.

## 11. The options

**Option 0: Do nothing** – The do-nothing option is not capable of providing the required protection of the habitats designated under national and European legislation. This would likely result in market failures leading to wider detrimental impacts.

**Option 1 (preferred option): Marine Protected Areas Byelaw 2017 (partial spatial closures)** – Spatial closures are introduced through the proposed byelaw, which protect a sufficient area of designated habitats within the Wash and North Norfolk Coast SAC in order to prevent fishing activity from having an adverse effect on site integrity. Spatial closures within the Haisborough Hammond and Winterton SCI prevent restrict bottom towed gear activity over 'red-risk' feature (*Sabellaria spinulosa*).

**Option 2: Total closure (within the Wash and North Norfolk Coast SAC and Haisborough, Hammond and Winterton SCI)** – the immediate, short term risk exists within the Wash and North Norfolk Coast SAC in relation to shrimp fishing activity. Closure of the site would have disproportionate impacts on the industry and effectively end the UK's contribution to the markets in relation to brown shrimp, with some 90% of the UK's catch coming from The Wash. Total closure of the Haisborough, Hammond and Winterton SCI would be disproportionate given that the 'red-risk' feature is identified within discrete areas, no additional protective effect is achieved through whole-site closures.

## 12. Analysis of costs and benefits

### Option 0 – Do nothing

The direct cost to business is zero as no restrictions would be put in place however, the resultant market failure could have indirect, wider costs to the local industry and society. Ultimately failure to protect MPAs within the Eastern IFC district could lead to reduced ecosystem functioning and infraction proceedings from the European Commission.

There are no benefits associated with this option.

Option 1 – (preferred option): Marine Protected Areas Byelaw 2017 (partial spatial closures)

### **Closures within Haisborough, Hammond and Winterton SCI (and adjacent area)**

A total of 4,200 ha (42km<sup>2</sup>) of sea area will be closed to the use of bottom towed gear (this includes beam trawls for white fish or shrimp, otter-trawls etc.). The closure is within ICES statistical rectangle 34F1, an estimated 40% of which is sea area with an estimated total extent of 1500km<sup>2</sup>.

The average, annual value of landed catch over the period 2010 to 2015 (inclusive) for species which are likely to be targeted by bottom towed gear is £46,651.87. The extent of spatial restrictions proposed to bottom towed gear is 42km<sup>2</sup>, or 2.8% of the sea area within 34F1.

Fishing effort is unlikely to be evenly distributed throughout 34F1 and is likely to be focussed on 'hot-spots' where the fish are normally found. A high estimate for the costs of the closures is considered as the annual average, this assumes that all fishing activity is coincident with the closed area and is an unlikely scenario. In addition, this is considered an overestimate given that bass (which are primarily targeted through netting, rather than bottom towed gear) make up between 17% and 49% of annual value of catch from this area.

The best estimate is based on the proportion of the area which is now closed (i.e. 2.8% of landed value). This equates to an annual impact of £1,305.90. The low cost is estimated as zero which reflects that the relative importance of the area to fishing activity may be nill and that the proportion of the area closed to fishing is small enough that other fishing opportunities within the same area are likely to exist.

### **Closures within the Wash and North Norfolk Coast SAC**

A total sea area of 153.84km<sup>2</sup> will be closed to bottom towed gear within ICES statistical rectangles 34F0 and 35F0. The combined estimated sea area of the ICES rectangles is 3194.78km<sup>2</sup>. The average value of landed catch using bottom towed gear from within these ICES rectangles is £1,413,162 with shrimp landings making up the vast majority (between 88 and 99%) of the total value of landings.

Shrimp fishing activity are not thought to be evenly distributed across the site. EIFCA sightings data suggests that circa 45% of shrimp fishing activity occurs over or within 500m of the sub features subtidal mud and sub tidal mixed sediment. In addition, fishing activity is thought to be concentrated primarily within The Wash, with lower levels of activity off the North Norfolk Coast.

Estimates of cost to business assumes that 45% of fishing occurs over the extent of the sub feature of which, 50.8% is closed under the proposed byelaw.

The high estimate takes into account the highest annual value of catch over the period 2010 to 2015 (inclusive) and this totals £475,196 annually. The low cost assumes the lowest annual total value of landed catch and is £106,104 annually. The best estimate is based on the average annual value of shrimp catch and this totals £303,530 annually. However, these are likely to be overestimates which do not take into account the potential for fishing activity to be displaced spatially. It is expected that shrimp fishing effort will remain the same, particularly as the proportion of the ICES rectangles proposed to be closed is less than 5%.

In addition, a seasonal closure has been proposed for one area of the Wash and North Norfolk Coast SAC which will reduce the cost to business further although, the importance of this area

and its contribution to the total landed weight of shrimp annually cannot be estimated given a lack of available data. Anecdotally, it has been indicated that this will reduce the economic impact on the industry.

Displacement onto other designated habitats is mitigated through effort limitation measures introduced through the proposed Shrimp Permit Byelaw 2016 which will prevent adverse effects on site integrity. Option 1 (partial closures) will have the required protective effect given the combined approach of spatial closures and effort limitations, minimising the impacts on the industry.

### **Public costs**

Additional costs include enforcement costs, in particular those associated with recovering fisheries data from fishers and at sea patrols to enforce the requirement to have a permit to fish for shrimp. Based on 6 additional sea patrols and 4 additional shore patrols, this cost is estimated as £10,208 per annum.

### **Benefits**

No benefits can be monetised. The main benefits associated with this option are related to protection of ecosystem functioning through the protection of sensitive habitats which has the potential to increase economic outputs of the shrimp fishery in the long term but also in relation to wider environmental impacts.

### Option 2 – Total closure

This option does not reflect Eastern IFCA's obligations under Marine and Coastal Access Act to support a viable industry and is considered over-precautious in the circumstances. Circa 90% of UK shrimp landings (by weight) are caught from within The Wash making it a nationally important fishery. Total closure of this fishery would be a disproportionate response as a degree of effort limitation will have the required protective effect.

Similarly, in the case of the Haisborough, Hammond and Winterton SCI, total closure is disproportionate given that the 'red-risk' feature is detected in discrete areas.

## **One In Two Out (OITO)**

**OITO is not applicable for byelaws as they are local government byelaws introducing local regulation and therefore not subject to central government processes.**

### **Small firms impact test and competition assessment**

**No firms are exempt from this byelaw as it applies to all firms who use the area, it 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.**

### **Conclusion**

Management measures are required for the protection of sensitive habitats within the Wash and North Norfolk Coast SAC and Haisborough, Hammond and Winterton SCI. Spatial closures are required for the protection of 'red-risk' features (*Sabellaria spinulosa*) and elements of the sub-features sub-tidal mud and mixed sediment which are thought to recover over a longer period of time. Failure to implement measures are likely to lead to an adverse effect on site integrity within the named MPA.

Option 0 would fail to meet Eastern IFCA's requirements under the Habitats Regulations 2010 and the Habitats Directive and Option 2 would have significant and disproportionate impacts on the industry. Option 1 provides the required protective effect on the designated habitats whilst limiting the economic impact on fishing activity.

### ***Recommended option:***

The recommended option is option 1.

## Annex A: Policy and Planning

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

East Inshore Marine Plan

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:

Marine Plan Policy	Policy Text	Policy screened in or out from assessment	Assessment of plan policy
<b>Policy AGG1</b>	Proposals in areas where a licence for extraction of aggregates has been granted or formally applied for should not be authorised unless there are exceptional circumstances.	×	Does not apply.
<b>Policy AGG2</b>	Proposals within an area subject to an Exploration and Option Agreement with The Crown Estate should not be supported unless it is demonstrated that the other development or activity is compatible with aggregate extraction or there are exceptional circumstances.	×	Does not apply.
<b>Policy AGG3</b>	Within defined areas of high potential aggregate resource, proposals should demonstrate in order of preference: a) that they will not, prevent aggregate extraction b) how, if there are adverse impacts on aggregate extraction, they will minimise these c) how, if the adverse impacts cannot be minimised, they will be mitigated d) the case for proceeding	×	The proposed measures will not interfere with the potential utilisation of those areas, except in that enhancement of Sabellaria reef, should it occur, will require that the aggregate extraction industry take this into account for future activities

	with the application if it is not possible to minimise or mitigate the adverse impacts		
<b>Policy AQ1</b>	<p>Within sustainable aquaculture development sites (identified through research), proposals should demonstrate in order of preference:</p> <p>a) that they will avoid adverse impacts on future aquaculture development by altering the sea bed or water column in ways which would cause adverse impacts to aquaculture productivity or potential</p> <p>b) how, if there are adverse impacts on aquaculture development, they can be minimised</p> <p>c) how, if the adverse impacts cannot be minimised they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	×	
<b>Policy BIO1</b>	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).	✓	The measures will further the ecosystem functioning within the Wash and North Norfolk Coast SAC and Haisborough, Hammond and Winterton SCI with potentially positive effect on biodiversity.

<b>Policy BIO2</b>	Where appropriate, proposals for development should incorporate features that enhance biodiversity and geological interests.	Tick	<i>Sabellaria spinulosa</i> reef (HHW SCI) supports biodiversity by providing physical structures on the sea bed that offer shelter and feeding opportunities for other species.
<b>Policy CAB1</b>	Preference should be given to proposals for cable installation where the method of installation is burial. Where burial is not achievable, decisions should take account of protection measures for the cable that may be proposed by the applicant.	X	Does not apply.
<b>Policy CC1</b>	Proposals should take account of: <ul style="list-style-type: none"> <li>• how they may be impacted upon by, and respond to, climate change over their lifetime and</li> <li>• how they may impact upon any climate change adaptation measures elsewhere during their lifetime</li> </ul> Where detrimental impacts on climate change adaptation measures are identified, evidence should be provided as to how the proposal will reduce such impacts.	✓	These management measures are likely to result in increased ecosystem functioning which will provide additional resilience to natural systems.
<b>Policy CC2</b>	Proposals for development should minimise emissions of greenhouse gases as far as is appropriate. Mitigation measures will also be encouraged where emissions remain following minimising steps. Consideration should also be given to emissions from other activities or users affected by the proposal.	✓	Measures will have little impact on emissions of greenhouse emissions.

<p><b>Policy CCS1</b></p>	<p>Within defined areas of potential carbon dioxide storage,(mapped in figure 17)proposals should demonstrate in order of preference:  a) that they will not prevent carbon dioxide storage  b) how, if there are adverse impacts on carbon dioxide storage, they will minimise them  c) how, if the adverse impacts cannot be minimised, they will be mitigated  d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	<p>×</p>	<p>Does not apply.</p>
<p><b>Policy CCS2</b></p>	<p>Carbon Capture and Storage proposals should demonstrate that consideration has been given to the re-use of existing oil and gas infrastructure rather than the installation of new infrastructure (either in depleted fields or in active fields via enhanced hydrocarbon recovery).</p>	<p>×</p>	<p>Does not apply.</p>
<p><b>Policy DD1</b></p>	<p>Proposals within or adjacent to licensed dredging and disposal areas should demonstrate, in order of preference  a) that they will not adversely impact dredging and disposal activities  b) how, if there are adverse impacts on dredging and disposal, they will minimise these  c) how, if the adverse impacts cannot be minimised they will be mitigated  d) the case for proceeding with the proposal if it is not</p>	<p>×</p>	<p>Does not apply – although there are licensed extraction zones in close proximity to the HHW SCI closed areas</p>

	possible to minimise or mitigate the adverse impacts		
<b>Policy DEF1</b>	Proposals in or affecting Ministry of Defence Danger and Exercise Areas should not be authorised without agreement from the Ministry of Defence.	×	Does not apply
<b>Policy EC1</b>	Proposals that provide economic productivity benefits which are additional to Gross Value Added currently generated by existing activities should be supported.	✓	The brown shrimp fishery within the East Inshore Marine Plan Area is a nationally important fishery. Management of the shrimp fishery will allow for a longer-term, sustainable fishery to be continued in the absence of larger quotas in other fisheries.
<b>Policy EC2</b>	Proposals that provide additional employment benefits should be supported, particularly where these benefits have the potential to meet employment needs in localities close to the marine plan areas.	✓	At least two processor plants (which process shellfish) are known to process shrimp catches from across the district and further – enabling a viable shrimp fishery will support jobs in addition to fishing activity (e.g. factory cleaners, admin etc.).
<b>Policy EC3</b>	Proposals that will help the East marine plan areas to contribute to offshore wind energy generation should be supported.	×	Does not apply.

<b>Policy ECO1</b>	Cumulative impacts affecting the ecosystem of the East marine plans and adjacent areas (marine, terrestrial) should be addressed in decision-making and plan implementation.	✓	The management of the shrimp fishery in line with the Habitat Regulations (2010) will have a benefit on the biodiversity and wider ecosystem functioning and services.
<b>Policy ECO2</b>	The risk of release of hazardous substances as a secondary effect due to any increased collision risk should be taken account of in proposals that require an authorisation.	✓	Measures are not likely to increase the likelihood of collisions.
<b>Policy FISH1</b>	Within areas of fishing activity, proposals should demonstrate in order of preference: a) that they will not prevent fishing activities on, or access to, fishing grounds b) how, if there are adverse impacts on the ability to undertake fishing activities or access to fishing grounds, they will minimise them c) how, if the adverse impacts cannot be minimised, they will be mitigated d) the case for proceeding with their proposal if it is not possible to minimise or mitigate the adverse impacts	✓	The proposed Byelaw will limit fishing opportunities to levels which will not cause an adverse effect on site integrity. Impacts are minimised in Option 1 by managing the fishery through a discrete spatial closures rather than 'site wide' closures.
<b>Policy FISH2</b>	Proposals should demonstrate, in order of preference: a) that they will not have an adverse impact upon spawning and nursery areas and any associated habitat b) how, if there are adverse impacts upon the spawning and nursery areas and any associated habitat, they will minimise them	✓	The proposed measures may reduce shrimp fishing effort in some areas which has the potential to reduce by-catch from within The Wash which is considered to be a relatively important nursery area.

	<p>c) how, if the adverse impacts cannot be minimised they will be mitigated</p> <p>d) the case for proceeding with their proposals if it is not possible to minimise or mitigate the adverse impacts</p>		
<b>Policy GOV1</b>	Appropriate provision should be made for infrastructure on land which supports activities in the marine area and vice versa.	×	Does not apply.
<b>Policy GOV2</b>	Opportunities for co-existence should be maximised wherever possible.	×	Does not apply.
<b>Policy GOV3</b>	<p>Proposals should demonstrate in order of preference:</p> <p>a) that they will avoid displacement of other existing or authorised (but yet to be implemented) activities</p> <p>b) how, if there are adverse impacts resulting in displacement by the proposal, they will minimise them</p> <p>c) how, if the adverse impacts resulting in displacement by the proposal, cannot be minimised, they will be mitigated against or</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts of displacement</p>	✓	There is the potential for displacement from current fishing grounds, particularly in relation to the brown shrimp fishery within the Wash and North Norfolk Coast SAC. Effort limitations are proposed through the Shrimp Permit Byelaw 2016 to prevent increases in activity leading to adverse effects on site integrity.
<b>Policy MPA1</b>	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	✓	The present byelaw is proposed for the protection of designated sub-features within the Wash and North Norfolk Coast SAC and the

	agreed advice on an ecologically coherent network.		Haisborough, Hammond and Winterton SCI.
<b>Policy OG1</b>	Proposals within areas with existing oil and gas production should not be authorised except where compatibility with oil and gas production and infrastructure can be satisfactorily demonstrated.	x	Does not apply.
<b>Policy OG2</b>	Proposals for new oil and gas activity should be supported over proposals for other development.	×	Does not apply.
<b>Policy PS1</b>	Proposals that require static sea surface infrastructure or that significantly reduce under-keel clearance should not be authorised in International Maritime Organization designated routes.	×	Does not apply.
<b>Policy PS2</b>	Proposals that require static sea surface infrastructure that encroaches upon important navigation routes (see figure 18) should not be authorised unless there are exceptional circumstances. Proposals should: a) be compatible with the need to maintain space for safe navigation, avoiding adverse economic impact b) anticipate and provide for future safe navigational requirements where	×	Does not apply.

	evidence and/or stakeholder input allows and c) account for impacts upon navigation in-combination with other existing and proposed activities		
<b>Policy PS3</b>	Proposals should demonstrate, in order of preference: a) that they will not interfere with current activity and future opportunity for expansion of ports and harbours b) how, if the proposal may interfere with current activity and future opportunities for expansion, they will minimise this c) how, if the interference cannot be minimised, it will be mitigated d) the case for proceeding if it is not possible to minimise or mitigate the interference	x	Does not apply.
<b>Policy SOC1</b>	Proposals that provide health and social well-being benefits including through maintaining, or enhancing, access to the coast and marine area should be supported.	x	Does not apply.
<b>Policy SOC2</b>	Proposals that may affect heritage assets should demonstrate, in order of preference: a) that they will not compromise or harm elements which contribute to the significance of the heritage asset b) how, if there is compromise or harm to a	×	Does not apply.

	<p>heritage asset, this will be minimised</p> <p>c) how, where compromise or harm to a heritage asset cannot be minimised it will be mitigated against or</p> <p>d) the public benefits for proceeding with the proposal if it is not possible to minimise or mitigate compromise or harm to the heritage asset</p>		
<b>Policy SOC3</b>	<p>Proposals that may affect the terrestrial and marine character of an area should demonstrate, in order of preference:</p> <p>a) that they will not adversely impact the terrestrial and marine character of an area</p> <p>b) how, if there are adverse impacts on the terrestrial and marine character of an area, they will minimise them</p> <p>c) how, where these adverse impacts on the terrestrial and marine character of an area cannot be minimised they will be mitigated against</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	×	Does not apply.
<b>Policy TIDE1</b>	<p>In defined areas of identified tidal stream resource (see figure 16), proposals should demonstrate, in order of preference:</p> <p>a) that they will not compromise potential future development of a tidal stream project</p> <p>b) how, if there are any adverse impacts on potential tidal stream deployment, they will minimise them</p>	×	Does not apply.

	<p>c) how, if the adverse impacts cannot be minimised, they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>		
<b>Policy TR1</b>	<p>Proposals for development should demonstrate that during construction and operation, in order of preference:</p> <p>a) they will not adversely impact tourism and recreation activities</p> <p>b) how, if there are adverse impacts on tourism and recreation activities, they will minimise them</p> <p>c) how, if the adverse impacts cannot be minimised, they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts</p>	×	
<b>Policy TR2</b>	<p>Proposals that require static objects in the East marine plan areas, should demonstrate, in order of preference:</p> <p>a) that they will not adversely impact on recreational boating routes</p> <p>b) how, if there are adverse impacts on recreational boating routes, they will minimise them</p> <p>c) how, if the adverse impacts cannot be minimised, they will be mitigated</p> <p>d) the case for proceeding with the proposal if it is not possible to minimise or</p>	✓	Proposals do not require static objects to be used.

	mitigate the adverse impacts		
<b>Policy TR3</b>	Proposals that deliver tourism and/or recreation related benefits in communities adjacent to the East marine plan areas should be supported.	✓	No direct effect on this policy although, increased ecosystem functioning will potentially increase the value of the site with regards to designated species (including for example, migratory bird species) which could lead to increased benefits through tourism.
<b>Policy WIND1</b>	Developments requiring authorisation, that are in or could affect sites held under a lease or an agreement for lease that has been granted by The Crown Estate for development of an Offshore Wind Farm, should not be authorised unless a) they can clearly demonstrate that they will not compromise the construction, operation, maintenance, or decommissioning of the Offshore Wind Farm b) the lease/agreement for lease has been surrendered back to The Crown Estate and not been re-tendered c) the lease/agreement for lease has been terminated by the Secretary of State d) in other exceptional circumstances	×	Does not apply.

<b>Policy WIND2</b>	Proposals for Offshore Wind Farms inside Round 3 zones, including relevant supporting projects and infrastructure, should be supported.	×	Does not apply.
---------------------	---	---	-----------------

### **Appendix 3 – Evidence base for spatial closures in The Wash & North Norfolk Coast Special Area of Conservation and Haisborough, Hammond & Winterton Site of Community Importance**

Eastern IFCA must demonstrate that commercial fishing activity does not damage or disturb features of marine protected areas to the extent that their natural value (“site integrity”) is affected.

Natural England, the statutory nature conservation body, provides conservation advice to regulators such as IFCA. This includes information on the presence, extent and condition of site features, and advice on how particular activities could damage or disturb features.

This document provides additional detail on the evidence base provided by Natural England, and in some cases augmented by additional data, for each of the proposed new closures in the Eastern IFCA Marine Protected Areas byelaw 2017.

The closures are shown on a site-level chart in Figures 1 and 2 in the main body of this report. Detailed charts of each closure area are included below.

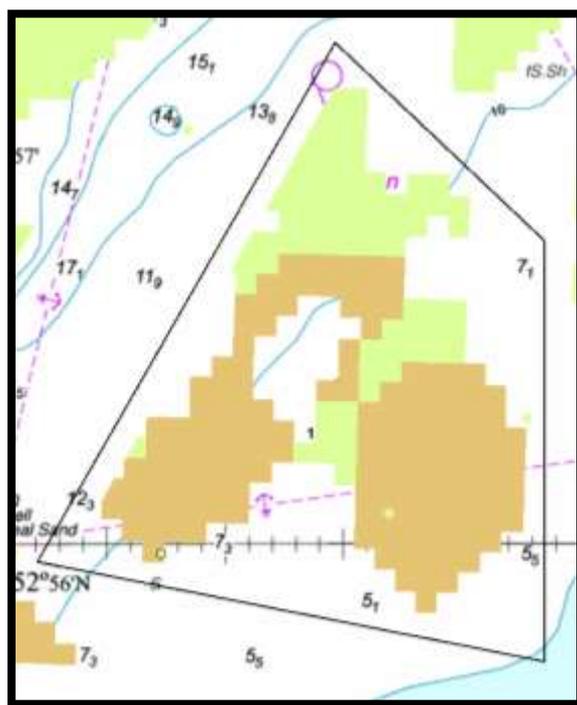
## ***The Wash & North Norfolk Coast Special Area of Conservation***

Seven closures have been selected, for the protection of sensitive seabed habitats (subtidal mixed sediments and subtidal muds) and the biological communities they support.

### *Area K – Lynn Anchorage*

Extract from Natural England Data Summary: Conclusion: Majority of data points available are towards the south of the main data release extent with EA (2015) and Cefas (2012) data confirming the presence of mixed sediment in this area. The extent may have expanded or shifted southwards. Given the recent Cefas surveys in this area and persistent mixed sediment at EA stations, we can have higher confidence in presence of mixed sediment in this area. This would make this area more suitable for targeted management.

Eastern IFCA additional evidence: Sidescan sonar, day grab and video survey (2015). Confirmed mixed sediment feature in some areas but absence in others. Recommend verification with grab sampling and particle size analysis.



*Area K – Lynn Anchorage. Extent of subtidal mixed sediment (pale green) and subtidal mud (pale brown); NE data.*

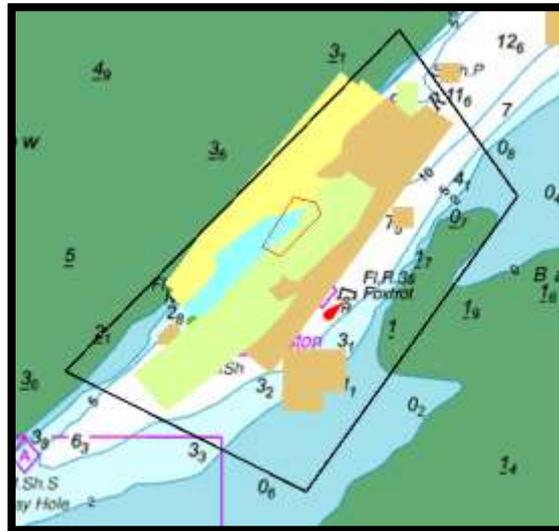
*Area L – Lower Road*

Natural England: contains both subtidal mud and subtidal mixed sediment (NE 2016\_02 National GI release) feature extent.

Eastern IFCA additional evidence: Sidescan sonar, day grab and video survey (2015). Confirmed greater extent of subtidal mixed sediment and subtidal mud than in Natural England evidence, plus area of *Sabellaria* reef.



*Area L – Lower Road. Extent of subtidal mixed sediment (pale green) and subtidal mud (pale brown); NE data.*

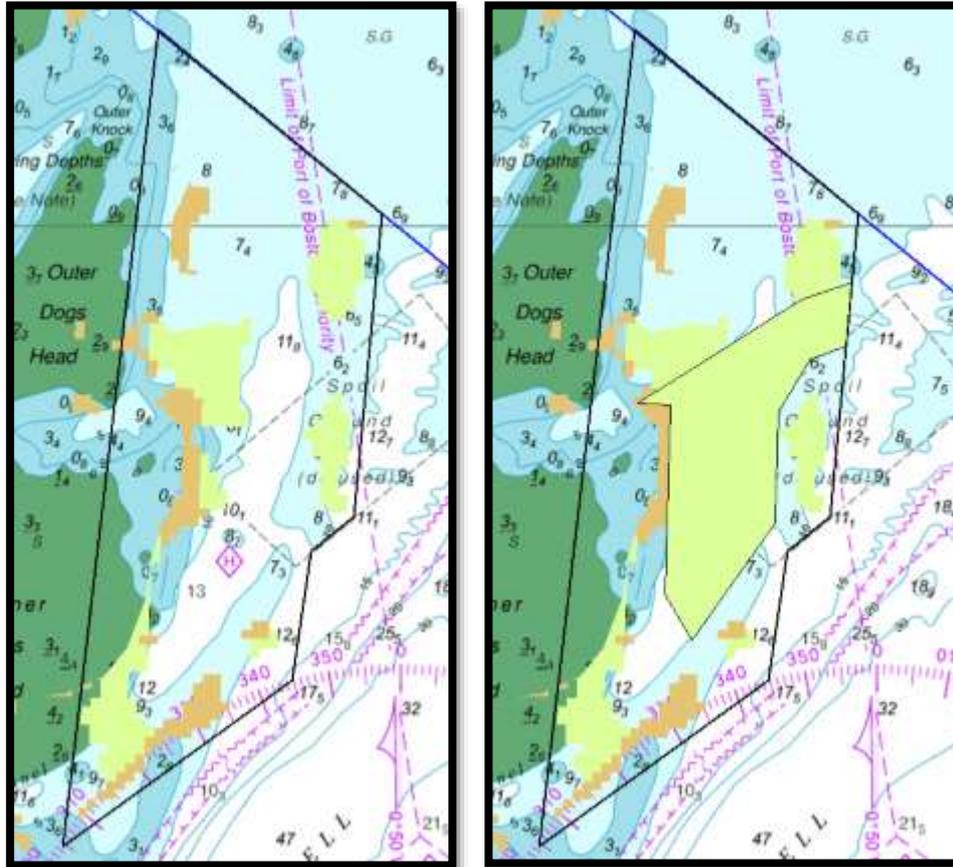


*Area L – Lower Road, Eastern IFCA survey overlaid on Natural England data. Extent of subtidal mixed sediment (pale green), subtidal mud (pale brown), Sabellaria spinulosa reef (pale blue) and sand (yellow). Red box is existing Sabellaria closure (Area A in Protected Areas byelaw 2014).*

*Area M – Dogs Head*

Natural England: contains both subtidal mud and subtidal mixed sediment (NE 2016\_02 National GI release) feature extent.

Eastern IFCA additional evidence: 2013 survey reported subtidal mixed sediment. Most this extent is within depth ranges 10m–20m.

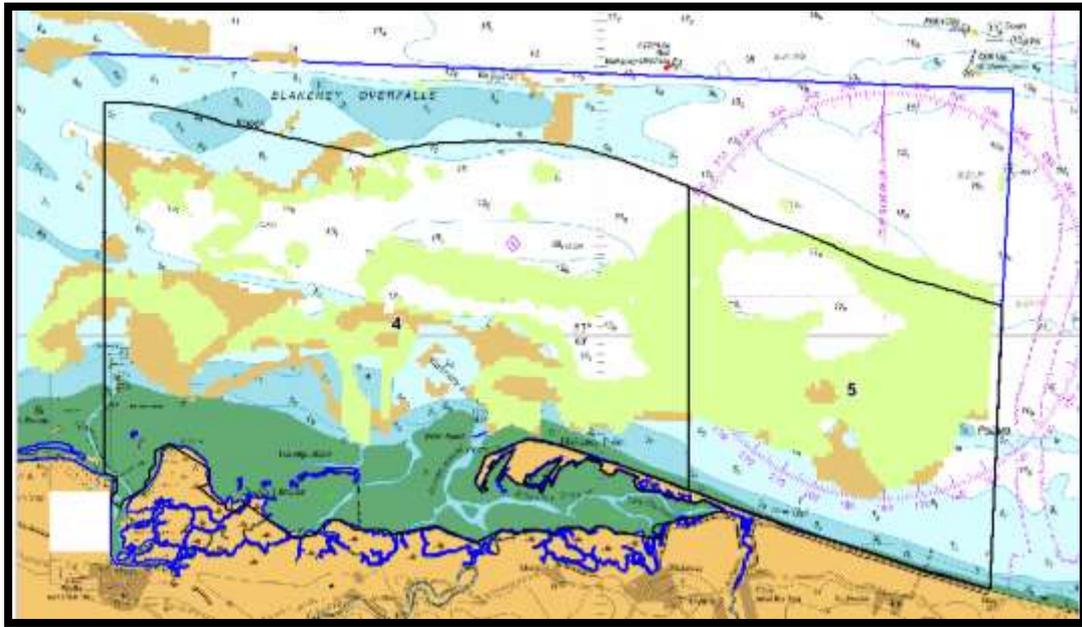


*Area M – Dogs Head* – Left: Natural England data release (NE 2016\_02 National GI release). Right: Eastern IFCA 2013 survey. Subtidal mixed sediment (pale green) and subtidal mud (pale brown).

*Areas N, O, and P, including seasonally restricted area:*

These areas collectively contain 24.95% subtidal mud (brown) and 57.27% of subtidal mixed sediment (pale green) of the whole site feature extent, based on NE 2016\_02 National GI release. They also contain the majority (69.79%) of Subtidal mixed sediment extent with a depth range between 10–50m (NE 2016\_02 National GI release).

EIFCA have no additional data to support the presents or absences of these feature extent as this time.



*Areas N and O (included within box 4 on this chart) and P (box 5) – Blakeney and Cley. Seasonally restricted area not shown on this chart.*

Closures extend to three nautical miles. The northern edge of area N (box 4) follows the 3nm boundary. Areas N and O effectively extend the existing towed gear restriction in Area P (box 4).

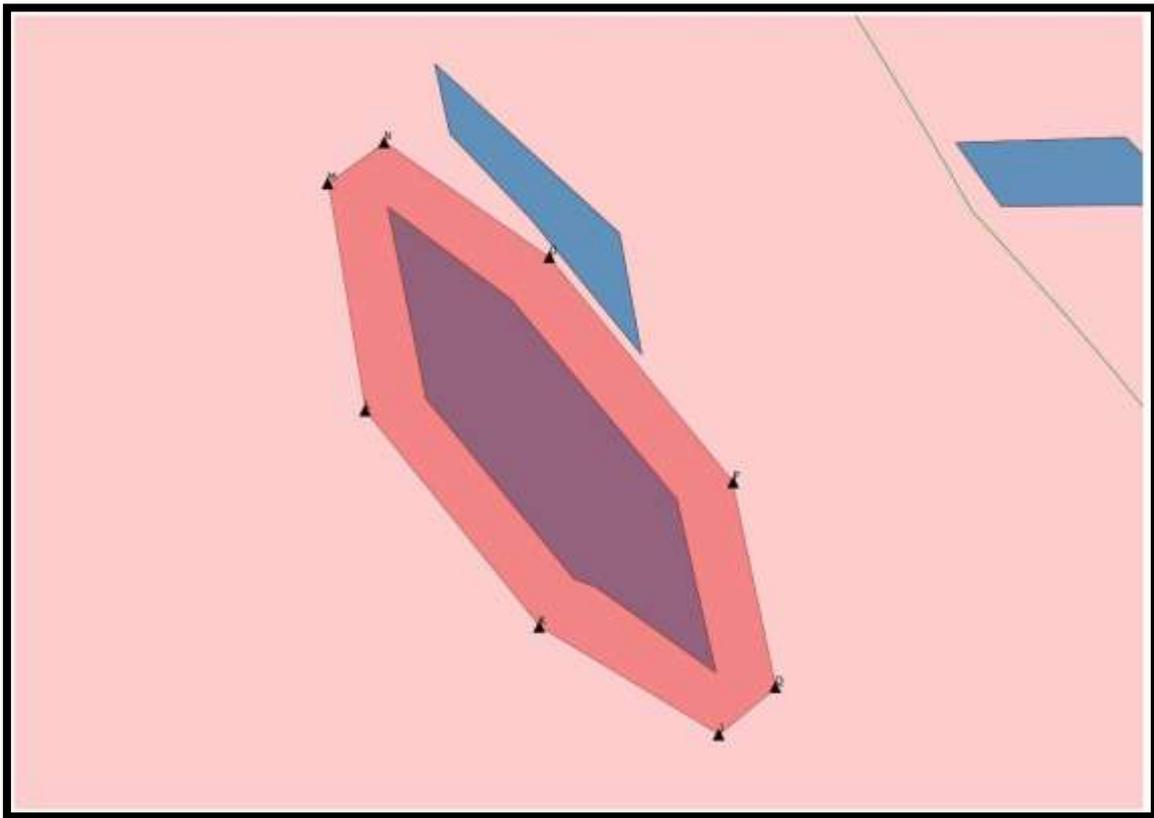
## **Haisborough, Hammond & Winterton Site of Community Importance**

Three closures have been selected, for the protection of *Sabellaria spinulosa* reef.

Natural England and Eastern IFCA independently prioritised potential areas for closure, based on JNCC and Natural England data including modelled reef areas. Confidence in data was considered, for example the extent to which the five models agreed, and whether the model had been ground truthed with grab and/or video data. The prioritisation exercises agreed that four areas should be considered for management as *Sabellaria spinulosa* reef. Eastern IFCA was content that sufficient evidence existed for Area R, Winterton Shoal, so no further verification was required here. However, additional evidence was required for areas S, T and a fourth area. Eastern IFCA undertook analysis of Cefas video data (taken in summer 2016) and carried out video surveys (October 2016) in these three remaining areas. The results enabled officers to recommend closures to protect *Sabellaria* reef in areas S and T but not the fourth area.

### *Area R – Winterton Shoal*

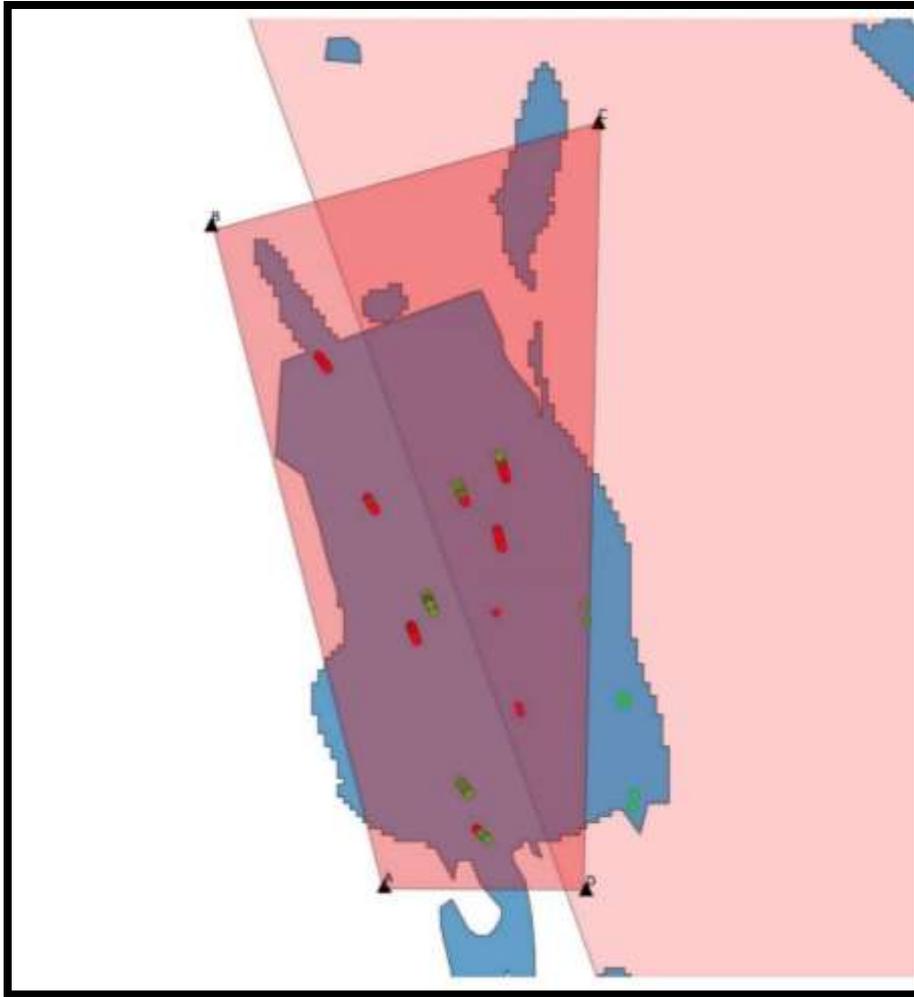
Haisborough Hammond & Winterton cSAC shaded in pink. Modelled *Sabellaria* reef areas identified in blue. Eastern IFCA 6 mile district boundary shown in green. Area R closed box shown as light red overlay.



Closed area: 73.5 hectares.

*Area S – Barley Picle*

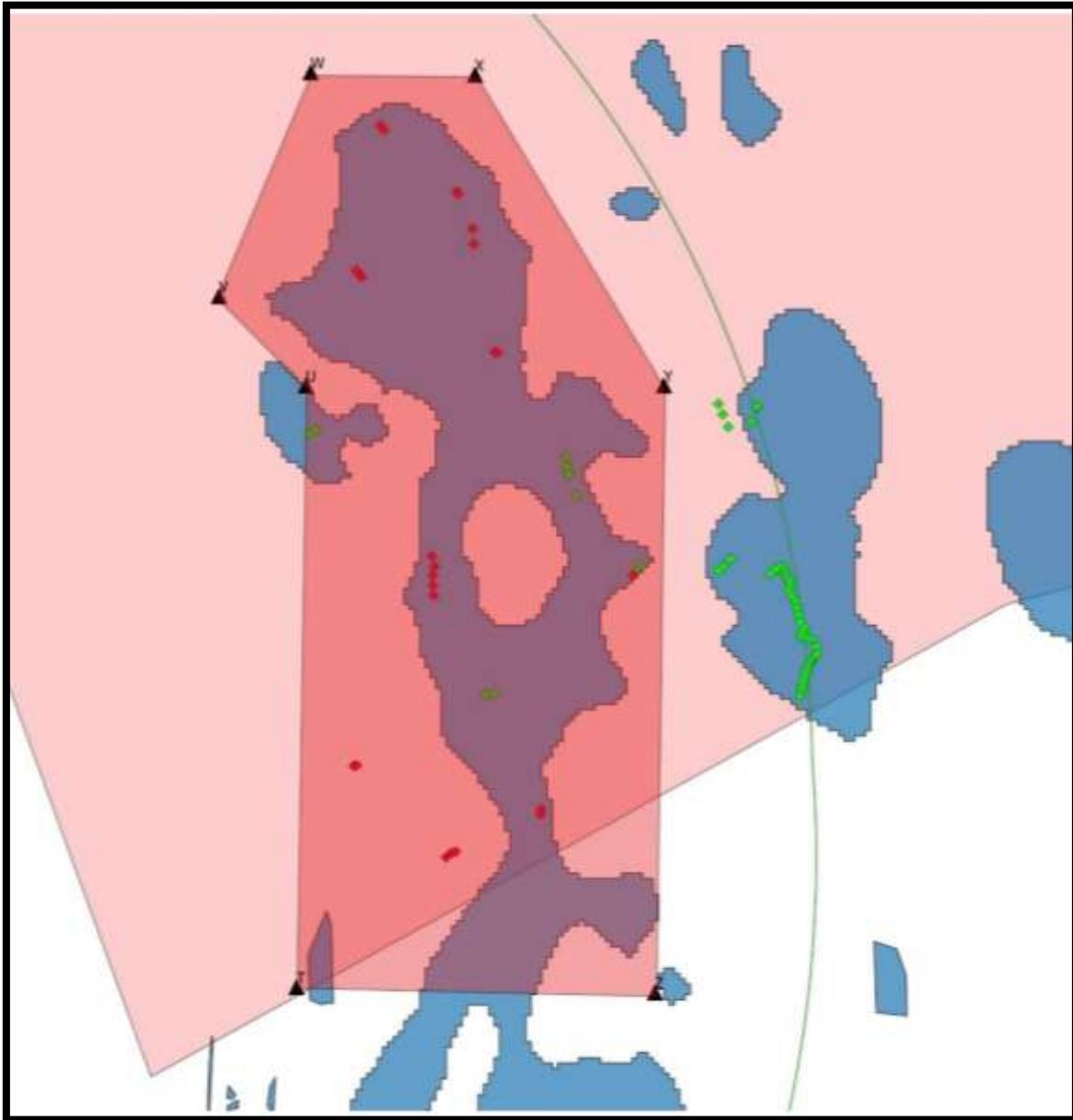
Haisborough Hammond & Winterton cSAC identified in pink. Modelled *Sabellaria* reef areas identified in blue. Area S closure shown as light red overlay. Survey results shown as presence (red) or absence (green) of *Sabellaria* reef, from examination of CEFAS raw data as circles, from Eastern IFCA surveys as diamonds.



Area of closure: 1,327.8 hectares.

Area T – East of Cross Sands

Haisborough Hammond & Winterton cSAC shaded in pink. Modelled *Sabellaria* reef areas identified in blue. Eastern IFCA 6 mile district boundary shown in green. Closed Area T shown as light red overlay. Survey results shown as presence (red) or absence (green) of *Sabellaria* reef from Eastern IFCA surveys.



Closed area T: 2,796.5 ha