

Impact Assessment (IA)	
Title: Byelaw XXXII: Humber Estuary Management (2016)	Date: 13/12/2016
IA No: NEIFCA_16_5	Stage: Consultation
Lead department or agency: NEIFCA	Source of intervention: Domestic
Other departments or agencies: N/A	Type of measure: Secondary Legislation
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Summary: Intervention and Options	RPC Opinion: N/A

Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year	In scope of One-In, Two-Out?	Measure qualifies as
£0	£0	£N/A	N/A	N/A
What is the problem under consideration?				
<p>The Humber Estuary was assigned as a Special Area of Conservation (SAC) and Special Protection Area (SPA) under the EU Habitats Regulations. These designations form the Humber Estuary European Marine Site (EMS).</p> <p>During a review of fishing activities within the European Marine Site, a risk to features was identified as a result of interactions with demersal trawl gear. Although a permit scheme is in place (Byelaw III. Trawling: Prohibition: Exceptions), the number of trawl permits provided by the Authority is not limited. There is potential for effort to increase within the estuary which could have negative impacts on protected EMS features and finfish nursery grounds and stocks established in the Humber.</p>				
Why is government intervention necessary?				
<p>Government intervention is required to redress market failure in the marine environment by implementing appropriate management measures to conserve features and ensure negative externalities are reduced or suitably mitigated. Intervention is also required to support the continued provision of public and common goods. There is little information available to determine a sustainable threshold level for trawl-feature interactions and, as such a pre-cautionary management approach has been proposed. In addition, the Humber Estuary is recognised as both a finfish nursery ground and spawning area, and concerns remain that a significant increase in shrimp trawling activity may have a detrimental impact on juvenile finfish populations.</p>				

What are the policy objectives and the intended effects?

1. To mitigate potential risks to EMS features identified during the review of fishing activities within the Humber Estuary EMS.
2. To protect important nursery areas and spawning grounds for commercial and non-commercial fish species within the estuary.

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

The following policy options have been considered:-

0. Do nothing - maintain the existing management regime.
1. Regulatory management - introduce regulatory management that will gradually decrease trawling effort from current levels, eventually eliminating all trawl activity in the Humber Estuary.
2. Use of non-regulatory measures - request that fishermen abide by a voluntary prohibition on trawling within the estuary.

Option 1 is preferred. The cessation of trawling activity in the Humber will address risks identified to EMS features and also conserve the juvenile finfish nursery grounds.

Will the policy be reviewed? It will be reviewed. If applicable, set review date: 3 years from implementation

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 CO₂ equivalent change in greenhouse gas emissions?
(Million tonnes CO₂ equivalent)

**Traded:
N/A**

**Non-traded:
N/A**

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

Signed by the responsible
SELECT SIGNATORY:



Date: 13 December 2016

Summary: Analysis & Evidence Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2016	Time Period Years 10	Net Benefit (Present Value (PV) (£))		
			Low: N/A	High: N/A	Best Estimate: £0
COSTS (£m)		Total Transition (Constant Price) Years	Average Annual (excluding transition) (Constant Price)	Total Cost (Present Value)	
Low	N/A	1	N/A	N/A	
High	N/A		N/A	N/A	
Best Estimate (£)	£0		£0	£0	
Description and scale of key monetised costs by 'main affected groups'					
None					
Other key non-monetised costs by 'main affected groups'					
A £500 permit charge is being proposed, however the number of vessels who both qualify and would want to retain a permit cannot be predicted, even following consultation with interested parties.					
BENEFITS (£)		Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)	
Low	N/A	1	N/A	N/A	
High	N/A		N/A	N/A	
Best Estimate	£0		£0	£0	
Description and scale of key monetised benefits by 'main affected groups'					
None					
Other key non-monetised benefits by 'main affected groups'					
N/A					
Key assumptions/sensitivities/risks			Discount rate (%)		3.5%
100% compliance					

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £:			In scope of OITO?	Measure qualifies as
Costs: £0	Benefits: £0	Net: £0	N/A	N/A

Evidence base

1. Introduction

North Eastern IFCA (NEIFCA) is charged with the sustainable management of fisheries within its jurisdiction, authorised through section 153 of the Marine and Coastal Access Act (2009). Through the process of assessing European Marine Sites within the NEIFCA district, significant data deficiencies were found to exist for demersal trawl fisheries operating in the Humber Estuary. No mechanism is in place to limit trawling effort and a large influx could occur in a short period of time impacting feature condition. Due to lack of data on trawl effort and impacts on designated features a sustainable threshold cannot be determined and therefore Officers have proposed adoption of the precautionary approach.

Officers are recommending that all current commercial operators with a track record of fishing in the Humber (3 year reference period) are afforded access to the site through a permit system. However permits should be non-transferable and surrendered to the Authority following vessel sale or retirement, leading to the longterm cessation of trawling activity in the Humber.

2. Rationale for intervention

Inshore Fisheries and Conservation Authorities have duties to ensure that fish stocks are exploited in a sustainable manner and designated protected areas are maintained in a favourable condition. This is carried out through implementation of appropriate management measures. 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'. The failures in this case relate to public goods and services, negative externalities and common goods.

- 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, means that individuals do not necessarily have an incentive to voluntarily ensure the continued existence of these goods which can lead to under-protection/provision.

- Negative externalities – Negative externalities occur when the cost of damage to the marine environment is not fully borne by the users causing the damage. In many cases no monetary value is attached to the goods and services provided by the marine environment and this can lead to more damage occurring than would occur if the users had to pay the price of damage. Even for those marine harvestable goods that are traded (such as wild fish), market prices often do not reflect the full economic cost of the exploitation or of any damage caused to the environment by that exploitation.
- 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 will further the conservation objectives of the Humber Estuary EMS by ensuring the continued provision of public goods and services and that negative externalities are reduced
- 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.
- 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 key objectives of the proposed management are;

1. Precautionary management of demersal trawling impacts on EMS features in the Humber Estuary.
2. To reduce gear impacts on spawning grounds and nursery areas of commercial fish within the estuary.

The intended effect of this management measure is to ensure appropriate levels of management are provided for the protection of the EMS and important spawning and nursery grounds in the Estuary.

4. Background

4.1 Overview

The Humber is a muddy, macro-tidal estuary, with an approximate total length of 62km, 8km at its widest point and it has a tidal range of 7meters, making it the 3rd largest estuary in Britain. Several studies advocate the importance of estuaries as nursery and feeding areas, and emphasise the support it provides for commercially important fish stocks. In the Humber estuary, a total of 82 species of fish were recorded by the Environment Agency (EA) over a 12 year period, the majority of which are sand and mud dwelling benthic species, including commercially important plaice and sole (Annex II).

4.2 Current Humber Estuary management

The Humber Estuary straddles the boundary between North Eastern IFCA and Eastern IFCA, with approximately 15% of the Humber estuary covered by Eastern IFCA jurisdiction. The Authorities share responsibility for the management of commercial fisheries within the site however NEIFCA was considered the lead Authority for the revised approach assessment process. It was agreed that where disparities in management approach occur, each IFCA will develop their own management, enforceable only in their district.

Trawling within the NEIFCA area of the EMS is currently regulated by **Byelaw III**. Trawling: Prohibition: Exceptions, which requires a permit to trawl in the district and is issued by the NEIFCA. Size and power of the vessel, and raising and clearing of the nets are restricted by the byelaw but there is no limit to the number of permits issued by the authority which means an unlimited number of trawlers could operate in the district and in the Humber Estuary. **Byelaw XII**. Shrimp and Prawn Fishing is also relevant to trawling in the Humber and dictates that while net fishing for shrimp, the net must be raised and cleared every hour (over-ruling the raising and clearing restrictions of Byelaw III). **Byelaw XXIX**. Humber Estuary Fishing Byelaw prohibits all fishing, excluding rod and line fishing, from operating in a specified area around Spurn Point (Annex III).

5. Issues with current management

5.1 Trawl activity

There is one active trawl fisherman currently operating a 7m vessel in the Humber Estuary targeting soles through multiple 1 hour tows over muddy ground.

The Humber is a component of the wider UK east coast brown shrimp fishery which is centred in the Wash and extends to Felixstowe on the Suffolk coast. There are currently no shrimp beam trawlers operating from ports in the Humber. Vessels exploiting the fishery are based primarily in Kings Lynn, with some vessels operating from Boston and Lowestoft. Anecdotal reports indicate that vessels fish along the Lincolnshire coast from Mablethorpe into the Humber, as far as Haile Sand Fort using this feature as a turning point. Prior to 2014, a shrimp fishery was active in the Humber Estuary with peak landings in 2009 of over 40 tonnes. Effort gradually reduced to zero landings in 2014 according to MMO data (Annex II).

While it is recognised that the level of risk to features of the EMS and finfish stocks and nursery grounds at current effort levels is low, it is the opinion of NEIFCA that the lack of control mechanisms to restrict access and permit numbers within the EMS requires pro-active and pre-cautionary management to be introduced.

5.2 Humber estuary EMS

The Humber Estuary is a designated European Marine Site (EMS) due to its status as a Special Area of Conservation (SAC) and a Special Protection Area (SPA) under the EU Habitats Regulations. Qualifying features that may be negatively affected by trawling include mudflats and sandflats not covered at low tide, sandbanks which are slightly covered by seawater all of the time, lamprey and grey seals.

5.3 Spawning and Nursery Ground

The Humber Estuary is acknowledged as a spawning ground for multiple finfish species including sole *spp.* Annual fish population surveys by the Environment Agency have identified the regular presence of cod, dover sole, herring, plaice and whiting in juvenile size classes.

More recently, the Humber Estuary has been highlighted as a possible sea bass nursery, with anecdotal reports of juvenile bass shoaling in proximity to Haile Sands and Bull Sands Forts, which the NEIFCA are currently investigating.

6. Policy Options

Option 0: Do nothing - This option would see the continued use of current management in the Humber Estuary, including **Byelaw III**. Trawling: Prohibition: Exceptions, **Byelaw IV**. Seine net, Draw net or 'Snurrevaad': Prohibition of, **Byelaw XII**. Shrimp and Prawn Fishing and **Byelaw XXIX**. Humber Estuary Fishing Byelaw.

Option 1: Trawl management specific to the Humber estuary – Introducing a sunset list, which allows trawl fishermen who can demonstrate a track record of fishing within the Humber Estuary to continue fishing until they retire their licence. This would gradually reduce effort within the EMS site and eliminate impacts of trawl gear on designated features.

Option 2: Use of non-regulatory measures – The Authority could formally request that all fishers who do not currently fish in the Humber Estuary to abide by a voluntary closure of trawling in the estuary. Compliance would not be guaranteed and the redevelopment of the shrimp fishery in the Humber estuary would still be possible if non-regulatory measures were used.

Option 1 is preferred. Regulatory management would allow the NEIFCA to remove trawling activity gradually from the Humber Estuary. Fishers who currently rely on the estuary as a source of income will be placed on a sunset list which ensures that the current low level of trawl effort is maintained and eventually removed, and fishers are not financially impaired by the regulation.

7. Summary of Option 1 impacts on fishery

The Authority recognises that the introduction of a byelaw supporting the delivery of Option 1, as described within this RIA, will result in zero cost for the fishery. Current commercial trawl fishing will continue so that there is no disruption to the livelihoods of any fishermen currently exploiting the area.

The protection of a site that provides support for commercially important offshore fish stocks and contains features qualifying as significant under EU legislation is considered essential.

There is a deficiency of data on the effects of trawling in the Humber Estuary but inferring from evidence of trawling in other areas, the importance of the estuary for juvenile commercial finfish, its designation as an EMS site and the value of recreational fisheries supported by the estuary provides a strong argument to remove trawl activity from the Humber Estuary.

8. Conclusion

Recommendation: Option 1 - Trawl management specific to the Humber estuary

This Option will fulfil NEIFCA's statutory obligation to further the conservation objectives of the Humber Estuary EMS and protect juvenile finfish nursery grounds. In utilising a sunset list management approach, impacts on operators currently utilising the site are considered negligible.

References

Amara, R., Selleslagh, J., Billon, G. and Minier, C. 2009. Growth and condition of 0-group European flounder, *Platichthys flesus*, as indicator of estuarine habitat quality. *Hydrobiologia*, 627: 87-98. Available online:

<https://www.researchgate.net/publication/225641223> **Growth and condition of 0-group European flounder *Platichthys flesus* as indicator of estuarine habitat quality *Hydrobiologia***

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NEIFCA, 2015. Humber Estuary EMS: *Appropriate Assessment Document HEEMS-AA-01*. Available on shared drive:

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Marine Management Organisation (2014) *UK Sea Fisheries Annual Statistics Report 2014*. Available on shared drive:

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Annex I

Annual profile of monetised costs*

	Y ₀	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y ₆	Y ₇	Y ₈	Y ₉
Transition costs	£0									
Annual recurring cost – Best estimate	£0	0	0	0	0	0	0	0	0	0
Total present value of annual costs*:										£0
*For the estimation the Impact Assessment Calculator (https://www.gov.uk/government/publications/impact-assessment-calculator--3) was used considering a 3.5% discount rate, a 10 years appraisal period and 2014 as the price and present value base year.										

Net Impact*

	Y ₀	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y ₆	Y ₇	Y ₈	Y ₉
Transition Costs	0	0	0	0	0	0	0	0	0	0
Annual Costs	0	0	0	0	0	0	0	0	0	0
Annual Benefits	0	0	0	0	0	0	0	0	0	0
Net Impact	0	0	0	0	0	0	0	0	0	0
*For the estimation the Impact Assessment Calculator (https://www.gov.uk/government/publications/impact-assessment-calculator--3) was used considering a 3.5% discount rate, a 10 years appraisal period and 2014 as the price and present value base year.										

Annex II

Table 1. Abundance and average length of commercial fish species sampled from the 2015 Environment Agency survey in the Humber estuary.

Species	Frequency	Average length (mm)	MLS (mm)
Dover sole	185	85.81	240
Flounder	264	82.06	-
Herring	310	55.81	200
Lesser sandeel	30	117.1	-
Plaice	346	55.49	270
Sea bass	6	100.5	420
Trout	2	116	-
Turbot	10	55.3	460
Whiting	85	103.87	270

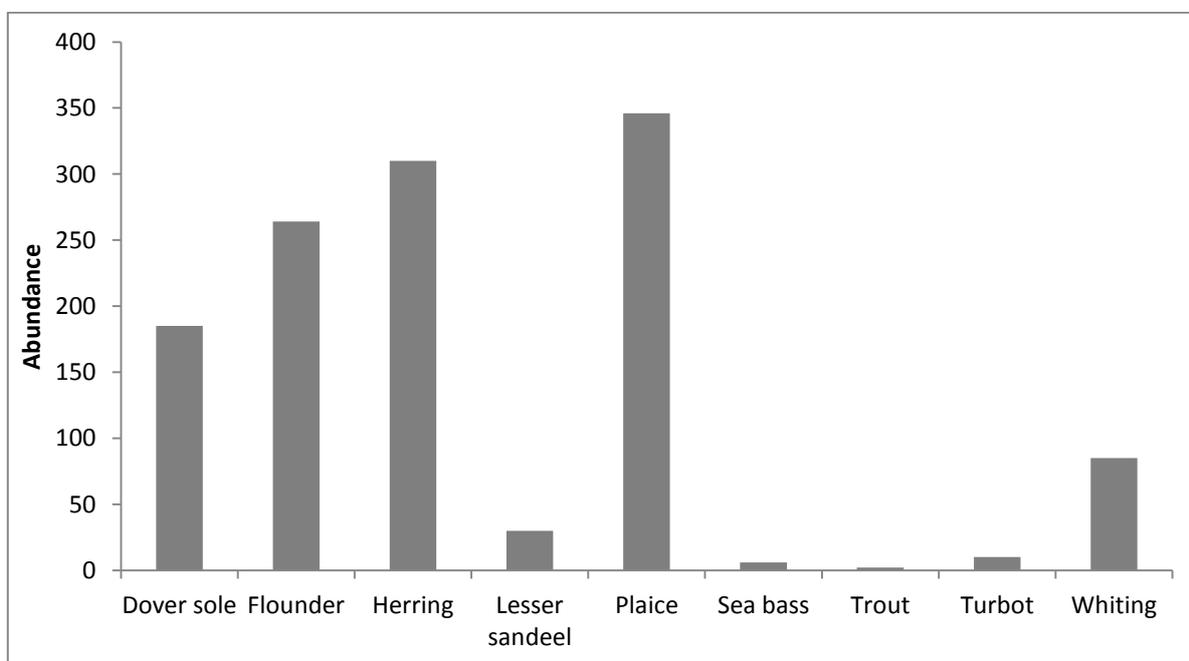


Figure 1. Abundance data of commercial fish species from the 2015 Environment Agency survey in the Humber estuary.

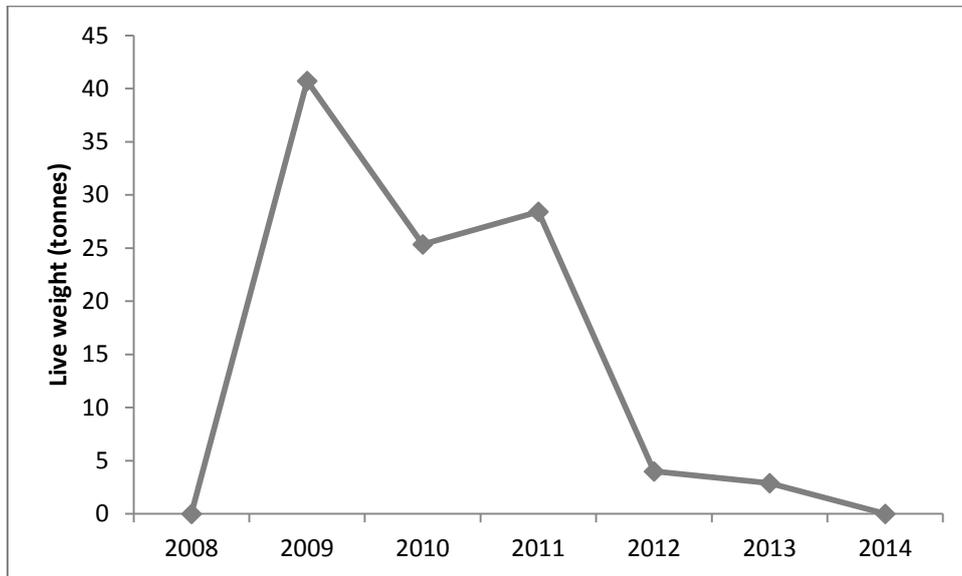


Figure 2. Live weight landings of brown shrimp from the Humber (reporting rectangles 36E9 and 36F0) for the period 2008-2014. (Source: MMO, 2016)

Annex III

Spurn Point Seagrass Conservation Area

