

Title: Marine Protected Areas Byelaw 2018 IA No: DRAFT_EIFCA006 RPC Reference No: Lead department or agency: Eastern Inshore Fisheries and Conservation Authority Other departments or agencies:	Impact Assessment (IA)			
	Date: 25/06/2018			
	Stage: Development/Options			
	Source of intervention: Domestic			
	Type of measure: Other			
Contact for enquiries: Julian Gregory - CEO Eastern IFCA (01553 775321)				
Summary: Intervention and Options				RPC Opinion: Not Applicable

Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANDCB in 2014 prices)	One-In, Three-Out	Business Impact Target Status
£-0.69	£-0.58	£0.1	Not applicable	To be determined

What is the problem under consideration? Why is government intervention necessary?
 Shrimp fishing within the Wash and North Norfolk Coast SAC has been assessed and adverse impacts on site integrity cannot be ruled out in relation to certain habitats. Spatial closures are proposed to mitigate the risk to these sub-features. Outside of proposed closures, the site is at risk from impacts resulting from changes in fishing behaviours. There is also a risk of displacement of activity into other marine protected areas. A separate byelaw will mitigate this risk by enabling Eastern IFCA to implement permit conditions and limitations on fishing effort, preventing potentially damaging fishing behaviours. The risk to MPAs dictates that a regulatory approach is required in relation to the protection of designated habitats.

What are the policy objectives and the intended effects?
 Objectives: To manage long-term, sustainable shrimp fisheries within the Eastern IFC District which do not adversely impact the conservation objectives of marine protected areas by prohibiting the use of any bottom-towed-gear (including in relation to fishing for species other than shrimp) over habitats which have been assessed as being vulnerable to this fishery.
 Intended effects: Prevent degradation and /or improve the condition of habitats vulnerable to bottom-towed-gear within the Wash and North Norfolk Coast SAC.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)
 Option 0. Do nothing.
 Option 1. Discrete spatial closures through the Marine Protected Areas Byelaw 2018
 Option 2. Total closure
 The preferred option is option 1 – The proposed byelaw will ensure that fishing activity will not impact negatively on the conservation objectives of the Wash and North Norfolk Coast SAC.

Will the policy be reviewed? It will be reviewed. If applicable, set review date: 07/2024				
Does implementation go beyond minimum EU requirements?			No	
Are any of these organisations in scope?			Micro Yes	Small Yes
			Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded: N/A	Non-traded: N/A

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

Signed by the responsible Chief Executive: _____ Date: _____

Summary: Analysis & Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low: -4.46	High: -0.26	Best Estimate: -0.69

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0.0	£0.0	£0.3
High	0.0	£0.5	£4.5
Best Estimate	0.0	£0.1	£0.7

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

Key monetised costs relate to the loss of fishing grounds to shrimp fishers as a result of spatial closures. The scale of the impact based on the best estimate is likely to be low to moderate in relation to the brown shrimp fishery. The actual scale of impact is likely to vary annually given the spatial variability of the shrimp fishery within the site and the potential for important fishing grounds to cooccur with proposed spatial closures.

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

The closures are thought to effectively rule out any future pink shrimp fishery. There is only a limited pink shrimp fishery at present (as reflected in the monetised costs) although it had historically been worth significantly more. No data is available to accurately monetise this impact.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Unkown	Unkown	Unkown
High	Unkown	Unkown	Unkown
Best Estimate	n/a	n/a	n/a

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

none identified

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

Protection of the habitats identified as 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

Assumptions: Fishing grounds identified through Eastern IFCA catch returns data are accurate.
Sensitivities / risks: Spatial closures cause displacement into other less sensitive areas with the effect of impacting site integrity (unlikely), shrimp population dynamics result in future important shrimp fisheries occur within closed areas with an increased economic impact on the industry.

Discount rate

3.5%

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 0.1	Benefits: 0.0	Net: -0.1	

Evidence Base

Problem under consideration

Defra's revised approach to managing fishing activity in European Marine Sites (EMS) requires Eastern IFCA to ensure that fishing activity does not have an adverse effect on site integrity in marine protected areas (MPA) 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 is 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 as an adverse effect on site integrity resultant of the fishing activity could not be ruled out.

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. Implementing this byelaw will enable Eastern IFCA to 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.

FCA 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 by conserving the range of biodiversity in the sea of the Eastern IFC District.
- Management measures will also support continued existence of common goods in the marine environment by ensuring the long-term sustainability of shrimp stocks in the Eastern IFC District.

Policy objective

The policy objective(s) is as follows:

1. To ensure that the shrimp fishery within the Wash and North Norfolk Coast SAC does not have a negative on site integrity whilst minimising the economic impact on the fishing industry;

The intended effects of the measures are as follows:

1. To prohibit the use bottom-towed-gear in areas which contain habitats which are likely to be damaged by their use;

Description of options considered (including status-quo);

Option 0 (do nothing) – Status Quo

Eastern IFCA has assessed the impacts of shrimp fishing on the Wash and North Norfolk Coast MPA. This assessment has concluded that adverse impacts on site integrity cannot be ruled out in relation to some habitats. In relation to certain areas, any level of fishing activity using bottom-towed-gear is considered likely to have a significant adverse effect.

The 'do nothing' option would have the least economic impact on stakeholders however, is not considered to adequately reduce the risk of impacts from shrimp fishing within Wash and North Norfolk Coast SAC and is therefore not considered a viable option.

Option 1 (preferred option) – Marine Protected Areas Byelaw 2018

The Marine Protected Areas Byelaw 2018 will prohibit the use of bottom-towed-gear through the implementation of discrete spatial closures in relation to certain habitats assessed as being sensitive to this activity. The proposed byelaw includes provision for limited bottom-towed-gear fisheries to cooccur with these habitats as follows:

1. In relation to the use of mussel dredges on mussel beds. An exemption is proposed to allow fisheries which are consented through the Wash Fishery Order 1992 (WFO). No significant adverse effect on site integrity will occur as a result of such fisheries as these are assessed using a Habitats Regulation Assessment prior to commencement.
2. In relation to shrimp fishing on an inshore region of the North Norfolk Coast during the period 1st April to 15th October in any year. This area will be closed seasonally so as to have the required protective effect on juvenile fish which use the area as a nursery ground.

The byelaw will also require fishers to 'lash and stow' bottom-towed gear when transiting closed areas with the exception of shrimp fishing gear in certain circumstances.

In combination with the Shrimp Permit Byelaw 2018 (proposed separately) will mitigate the risk associated with shrimp fishing activity outside of the proposed closures.

Option 2 – Closure of Wash and North Norfolk Coast to shrimp fishing

Closure of the site would meet the conservation objectives of the site but have disproportionate impacts on the industry and effectively end the UK's contribution to the markets in relation to brown shrimp, with circa 90% of the UK's catch coming from The Wash and North Norfolk Coast.

Monetised and non-monetised costs and benefits

Option 0 – Do nothing option

There are no monetised costs associated with the 'do nothing' option.

The key non-monetised costs relate to the impacts on ecosystem functioning resultant of continued fishing activity in the areas proposed to be closed. Impacts on ecosystem function is likely to lead to impacts on the sustainability of the fishery and its productivity.

In addition, the 'do nothing' option is not in keeping with the requirements of the Habitats Directive and as such may lead to infraction proceeding being taken against the UK.

Option 1 – Shrimp Permit Byelaw 2018

Key monetised costs

The key monetised costs associated with the proposed closures are the loss of fishing grounds.

Impacts on Shrimp Fishery

Eastern IFCA requires fishers to submit returns forms for each shrimp fishing trip within the Wash and North Norfolk Coast SAC. This data has been used to estimate the level of fishing activity within each of the proposed closed areas. MMO landings data has been used to determine the monetary impact of the closures.

Fishers provide information regarding the location of each tow during shrimp fishing activity. The resolution of this information does not allow for an exact estimate as the grid against which fishing activity does not correspond with the shape or size of closed areas (with some closed areas being smaller than a single grid box). Eastern IFCA data for 1st January to 31st December of 2016 and 2017 is used. MMO landings data from 2010 to 2016 is used to estimate economic impacts.

The low estimate considers fishing effort within closed areas except those associated with 'mussel bed closures'. Shrimp fishing activity is not thought to occur over mussel beds (except perhaps inadvertently) however, a significant amount of fishing activity occurs within the grid boxes in which mussel beds are found (which accounts for 2.89% of the fishery). The low estimate also takes into account the lowest annual landed value of brown and pink shrimps between 2010 and 2016 (which is £584,525). The low estimate is £16,907.

The low cost estimate is likely to be an overestimate given that the landed value of catch takes into account fishing activity outside of the Wash and North Norfolk Coast but the resolution of the landings data does not allow for excluding other areas from the assessment. Shrimp fishing grounds are known to vary annually as shrimps move to different areas (within the site). As such, it is conceivable that the impact of these closures in some years will be zero.

The high estimate considers closures over mussel beds in addition to other areas (which equates to 17.45% of the fishery in the Wash North Norfolk Coast SAC) and the highest annual value of landed catch (£2,668,788). The high cost estimate is therefore £465,734 per year. This is likely to be an overestimate because fishers are not thought to fish over mussel beds and because it includes landed value associated with shrimp fishing outside of the site whereas the fishing activity data only relates to fishing within the site. As above, shrimp grounds are thought to move during and between years. As such, the potential cost of the measures could be more if shrimps were to relocate into a closed area.

The best estimate takes into the average (during 2016 and 2017) fishing effort within closed areas except over closures associated with mussel beds. It also takes into account the average annual landed value of shrimps (between 2010 and 2016 inclusive). The best estimate is therefore £66,069 per year.

Impacts on 'other' fisheries

Use of bottom-towed-gear within the Wash and North Norfolk Coast is thought to be very limited except in relation to shrimp fishing.

MMO landings data shows that between 2010 and 2016, 42 different species were caught within ICES rectangles 34F0, 34F1, 35F0 and 35F1. Excluding scallops and mussel (which are regulated through the Wash Fishery order within the MPA) and whelks (which are not caught with bottom-towed-gear – their inclusion in the MMO data is assumed to be a mistake), the average annual landed value is £21,341. The site is within these ICES rectangles although the site makes up only a small proportion of the site. The vast majority of this activity is associate with ICES Rectangle 35F0 which is likely to be a reflection of activity along the Lincolnshire Coast and outside of the site. This is consistent with anecdotal reports of fishing activity.

As such, the high estimate annual cost is £39,010 which corresponds with the highest recorded annual landed value of 'other species' within associated ICES rectangles for the period 2010 to 2016 inclusive.

The low cost is zero which reflects that it is unlikely that the MPA represents important fishing grounds for these species and that the majority are thought to be caught on the Lincolnshire coast.

It is most likely that landings of 'other' species from within the MPA are actually only by-catch of the shrimp fishery. This cannot be distinguished from that which is caught intentionally however using the MMO landings data. As such the best estimate takes into account the average annual landed value (£21,341) for these ICES rectangles and applies the same fishing activity assessment as for the shrimp fishing impacts above (i.e. the average percentage of fishing activity effected, the average of which is 4.1%) with an estimated cost of £874 annually.

Costs to Eastern IFCA

Eastern IFCA is likely to incur a cost associated with enforcing the new measures. Costs associated with minor non-compliance are considered in the non-monetised costs section below.

Additional Enforcement activities will be required in addition to education and engagement. The cost of these are estimated to be £10,208 based on six additional sea patrols and 4 additional shore patrols. This is likely to be an underestimate with regards to the initial implementation of the measures during which time the risk of non-compliance is higher. In addition, the number of patrols will increase if risk associated with the fishery increases as directed through the Tactical Coordinating Group.

Taking enforcement action in relation to more serious or persistent non-compliance will also incur additional costs. In the period 2015 to 2018 (4 years) Eastern IFCA has issued 5 Financial Administrative Penalties and taken court proceedings in relation to non-compliance of the Whelk Permit Byelaw 2016. The cost associated with producing a case file for the issuing of a FAP or court proceeding is estimated at £2,995 per case. The best estimate for this cost therefore takes into account the average number of case files per year (1.5) and the cost per file. Therefore, the best estimate is £4,492 per annum.

Therefore, the total estimated monetised cost to Eastern IFCA is £13,203 annually.

Non-monetised costs

Pink shrimp fishery

Pink shrimp fisheries are anecdotally thought to have been worth as much as brown shrimp fisheries previously. At present, there is only a limited market and pink shrimp are landed as bycatch of the brown shrimp fishery and have limited value.

Fishers have indicated that the proposed closures effectively rule out any targeted pink shrimp fishery in the future as the closures coincide with what were important pink shrimp fishing grounds. This cannot be monetised as data for this historic fishery is not available.

Changes in fishing behaviours

Displacement from the proposed closed areas may have the effect of intensifying effort on other shrimp grounds with an impact on the ecological functioning and sustainability of the shrimp fishery and associated habitats. Given that the level of fishing activity over the proposed closures is considered to be relatively low (circa 4%), displacement is likely to be limited as will be the associated impacts.

Costs to Eastern IFCA

Eastern IFCA is likely to incur a cost associated with the enforcement of the measures. Enforcement of new measures includes a significant allocation of resources to engagement and education in the first instance in line with Eastern IFCA's Enforcement Policy. During the period May 2015 to June 2018, Eastern IFCA has taken enforcement action up to a formal written warning on 18 occasions in relation non-compliance with the Whelk Permit Byelaw 2016 (and the original Emergency Byelaw). The cost of education, engagement and minor enforcement actions have not been monetised because of the difficulties in estimating the actual cost however the cost is considered to be significant.

Option 2 – Total closure of Wash and North Norfolk Coast MPA to bottom-towed-gear

Key monetised costs

The pink and brown shrimp fisheries in the Eastern IFCA district are worth between £584,525 and £2,668,788 per annum. The vast majority of these fisheries are thought to occur within the Wash and North Norfolk Coast although other notable areas are off the Lincolnshire coast and north of the MPA.

Eastern IFCA has undertaken an assessment of the impacts of shrimp fishing within the MPA and found that some habitats are very sensitive to shrimp fishing activity and require closure (to all bottom-towed-gear). Other habitats are found to be less sensitive although it is thought that fishing activity could impact these habitats if activity increased.

The potential impact of this option is likely to be underestimated by the landed value of catch. The factories which process the shrimp caught (both of which are based in King's Lynn) rely to a large degree on the shrimp market. The market price for the processed shrimp is likely to be much higher than the landed value and which includes a significant amount of export to foreign markets (primarily Holland). There are a significant number of tertiary jobs associated with this fishery and these processing factories (i.e. engineers, factory workers, delivery drivers).

Only a minor increase in fishing effort is anticipated as a result of displacement from the closed areas and fishing at the current levels is assessed to be in keeping with the conservation objectives of the site. Closure of the whole site would meet the conservation objectives however, it is likely to cause a large impact on stakeholders with little or no additional benefit to site integrity. As such, it is considered disproportionate to close the entire site to shrimp fishing activity as the associated risks to site integrity can be adequately mitigated through effort limitations as required.

Rationale and evidence that justify the level of analysis used in the IA (proportionality approach)

This assessment has used the following information:

- MMO landings data (2010 to 2017 inclusive)
- Eastern IFCA shrimp fishing database (based on returns data)
- Anecdotal information provided by fishers (during informal engagement)

The analysis has considered the best available evidence to estimate monetised costs where the data will allow such. This has included extensive consultation with stakeholders who are likely to be impacted. Concerns have been raised by the shrimp fishing industry in relation to the closures and in particular, the closures associated with the North Norfolk Coast and central part of the Wash as these include some important shrimp fishing grounds. The shape and size of closures have taken the informal consultation into account where possible whilst ensuring that the mandated protective effect of the measures are not diminished.

Risks and assumptions

There are limitations in relation to the data used in the above analysis. Eastern IFCA requires shrimp fishers to provide certain fisheries data for each fishing trip however there is known to be a level of non-compliance with this requirement. This is mitigated to a degree given that the assessment only uses this information to estimate relative importance of certain areas as shrimp fishing ground (i.e. number of tows as a proportion of the total) rather than relying on the data to estimate the actual fishing effort in an area.

In addition, as set out above, shrimp fishing grounds are known to move within and between years. As such, the importance of the areas closed to fishing are likely to change over time. The data available to determine the importance of fishing grounds only relates to 2 years (2016 and 2017) and has its own limitations (as set out above) and as such the actual cost to the industry may change.

Summary and preferred option with description of implementation plan

The preferred option is Option 1 – Marine Protected Areas Byelaw 2018. This would close certain areas to use of bottom-towed-gear and require this gear to be lashed and stowed when transiting restricted areas with an exception in certain circumstances. This option would permit a mussel fishery in The Wash using dredges under the Wash Fishery Order 1992 (which would be subject to a Habitat Regulation Assessment and as such would not have an impact on site integrity) and use of bottom-towed-gear in part of the North Norfolk Coast during less sensitive periods (April to October).

These closures are in addition to the closures already implemented in the Marine Protected areas Byelaw 2016.

The proposed measures will have the effect of protecting the Wash and North Norfolk Coast SAC from the effects of shrimp fishing activity but minimise the impact on industry by closing only those areas which will be impacted. Fishing within the rest of the site will be managed through the use of a separate proposed byelaw (Shrimp permit Byelaw 2018) which will ensure there are no impacts on site integrity in relation to habitats and species outside of the restricted areas.

To implement these measures, fishers would be made aware of the additional closures. Officers will engage with the industry to educate and engage as per Eastern IFCA's Enforcement Policy and Regulation Strategy.