Title: **IA No: Emergency Beam Trawling Byelaw 2023** **RPC Reference No:** **Lead department or agency:** NEIFCA **Other departments or agencies: Defra, MMO.**	Impact Assessment (IA) **Date: 17 July 2023** **Stage:** Development/Options **Source of intervention:** Domestic **Type of measure:** Emergency Byelaw **Contact for enquiries:**

Summary: Intervention and Options

RPC Opinion: RPC Opinion Status

Cost of Preferred (or more likely) Option (in 2019 prices)			
Total Net Present Social Value £m	**Business Net Present Value** £m	**Net cost to business per year** £m	**Business Impact Target Status** Qualifying provision

What is the problem under consideration? Why is government action or intervention necessary?

The number of trawlers fishing for King Scallops using standard and modified beam trawls have increased over the past 2 months. The first vessel trialling the use of a beam trawl for catching scallops started in late 2022. Since then, this vessel has modified its gear by attaching N-virodredge tines to a second beam to target and increase its efficiency in catching King Scallops. In the last 2 months, an additional 4 local trawlers have started to fish for King Scallops using their beam trawls and landing their catch into Whitby and Hartlepool. Fishing activity using this method is conducted in areas outside and inside of the permitted area of the seasonal scallop fishery. Therefore, protected stocks that may supply the existing permitted fishery are at risk of being over-exploited. Additionally, this new method of scallop fishing does not protect King Scallop stocks from exploitation during their spawning season (the permitted fishery operates under seasonal restrictions Nov-Apr).

Currently the trawling fishery is managed through a permitting system and the NEIFCA Trawling Byelaw. Any vessel with a length of up to 18.3m and a maximum power output of 400kw can obtain a trawling permit. The only limitations set by the byelaw are MCZs and MPAs where any trawling is prohibited or limited through a permit scheme. The beam trawling fishery is data deficient and has not previously been subjected to exploitation at this intensity. Currently the Authority cannot regulate the number of vessels accessing the fishery via its existing management provisions. Officers have expressed concerns that continuous fishing at this level is unlikely to be sustainable in terms of impacts on target stocks, non-target species such as crabs and lobsters and associated habitat requiring immediate management action.

What are the policy objectives of the action or intervention and the intended effects?

NEIFCA aims to manage the activity of beam trawling for King Scallops on a precautionary basis by closing the district for beam trawling for a fixed period of one year. Intended outcomes for this intervention is a new flexible mobile gear byelaw with management measures in place (e.g. permit system, seasonal and spatial restrictions, landings limitations and prohibition of any gear modifications) to ensure the sustainability of this fishing activity and to complement the current management provisions for the scallop dredge fishery. To achieve this, data on stocks and the fishing activity will be gathered during this intervention to gain a better understanding of the effectiveness and impacts of using this method of fishing for King Scallops.

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

Option 0. Do nothing – allow current fishing activity to continue without any restrictions or management measures in place

Option 1. Total prohibition of beam trawling across the district for a fixed period of 1 year – this is the preferred option, stocks will be protected whilst the Authority will gather the necessary data and develop a sustainable management plan

Option 2. Use of non-regulatory/voluntary measures – engage with industry and introduce a code of conduct to reduce potential impacts

Option 3. Technical Restrictions – introduce landings restrictions and temporal & spatial restrictions

Option 4. Limited permit fishery – introduce a permit system for a fixed period of 1 year to restrict the number of vessels trawling for Scallops

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 07/2024

Is this measure likely to impact on international trade and investment?		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 SELECT SIGNATORY: _____ Date: 17 July 2023

Summary: Analysis & Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year 2023	PV Base Year 3	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	**High:** Optional	**Best Estimate:**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate				

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

Maximum of 5 lines

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

Maximum of 5 lines

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate				

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

Maximum of 5 lines

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

Maximum of 5 lines

Key assumptions/sensitivities/risks	Discount rate (%)
Maximum of 5 lines	

BUSINESS ASSESSMENT (Option 1)

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

Evidence Base

Problem under consideration and rationale for intervention

Current NEIFCA regulations allows any UK registered vessel to obtain a trawl permit within the NEIFCA district. At present the regulated exploitation of King Scallop is limited to a permitted dredge fishery (consisting of 3 vessels) which is managed using spatial and temporal restrictions in order to protect stock during spawning season(s) and prevent overexploitation. Scallop dredging was previously banned prior to 2016 due to stocks collapsing following overfishing. Since it was reopened, management has been tightly regulated and data reviewed annually to determine whether the fishery should remain open for the following season. It has recently been brought to the Authority's attention that 4-5 vessels have begun trawling for scallops in and around the designated scallop fishing areas using a combination of beam and modified beam trawl (N-virodredge spokes attached to second beam) to target King Scallop.

The impact of this novel method to fish for King Scallops is currently difficult to measure as little is known about the catch composition, catch efficiency, gear footprint (e.g. penetration depth etc) or depletion rate. Provision will be made to enable limited fishing using beam trawls to continue under scientific dispensation, any such activity will be closely monitored with the purpose of research and gathering of necessary data.

Biological impacts:

<u>King Scallop spawning</u>

Spawning events of King Scallop populations rely on a both internal (i.e. genetics) and external (abiotic) factors. Although natural disturbance from wind and tide has also been documented to initiate spawning, the key environmental variable that influences spawning is temperature (Barber & Blake, 2006). A rapid change in temperature has been noted to be a more significant stimuli than a specific temperature or the direction in change of temperature (Barber & Blake, 2006). However, the synchronicity of spawning events across a population of scallops can also be stimulated by the presence of gametes from the opposite sex. Across Europe, various populations of King Scallop have been reported to spawn at low continuously from April to September (Barber & Blake, 2006), with ripe, full gonads recorded throughout the year. However, clear peaks can also occur as reported by Salomonsen *et al.,* (2015) in a study conducted within Welsh waters (Figure 1) which showed major spawning events during May and July but evidenced that continuous spawning occurred until the end of September when all scallops sampled were in a resting state (ripe or developed with none spent). It is important to highlight that within this report the authors also noted the potential that an additional major spawning event may have occurred between July and August though due to issues with sampling there was a gap in data collection at that time (Salomonsen *et al.,* 2015).

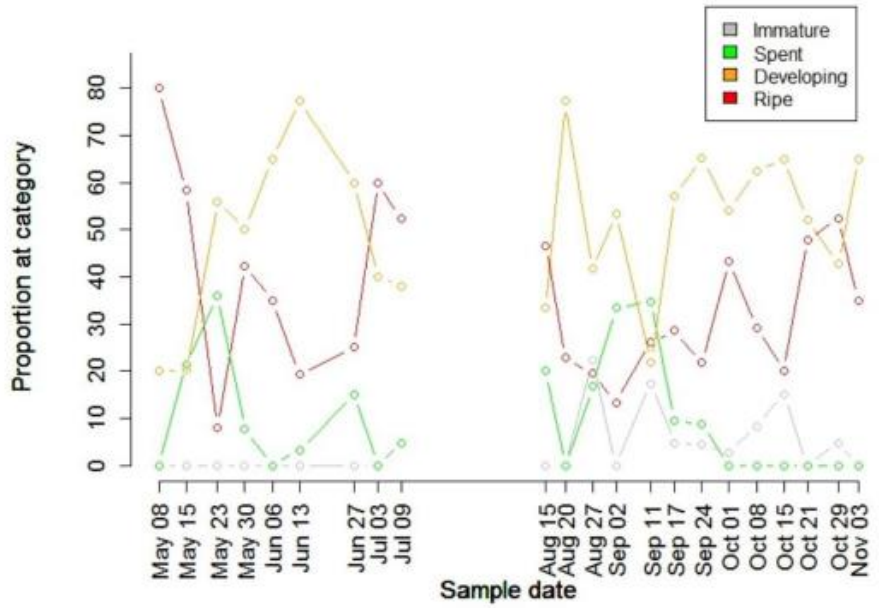

Figure 1. Proportion of King scallops found at each of 4 stages of maturity between May and November in Area A, from a study conducted in Welsh waters by Salomonsen et al., (2015).

At present there are few data on the spawning of King Scallop populations off the Nort East coast of England, where nomadic scallopers target grounds outside 6 nm. However, NEIFCA have begun conducting regular sampling of King Scallop using the *North East Guardian III* in order to collate a dataset that will allow for temporal and spatial comparison of meat yield and gonad index within and around permitted areas open to scallop dredging in the district. The recent increase in beam trawling for king Scallop within the same grounds and surrounding area of the permitted dredge fishery poses a threat to the longevity of this king Scallop population, especially as these stocks have been exploited within areas closed to scallop dredging as well as during the crucial spawning period. At present only two designated boxes (North and South Box) are available to the three permitted vessels which operate with Newhaven dredges under the Scallop Dredging Byelaw XXIII situated between 4-6nm. Scallop stocks are known to extend closer inshore (to ~3nm), as well as north and south of the North scallop box, it is these grounds which are closed to the dredge fishery that officers believe to be targeted by recent beam trawling activity.

Scallop stocks within the NEIFCA district contribute to a larger stock unit assessed annually by Cefas (Figure 2). This stock unit is heavily exploited by nomadic scallop dredging vessels outside the 6nm limit, with no total allowable catch limit set for King Scallop within English water. Anecdotal reports from industry members are that stocks have been heavily depleted in recent years. Therefore, protected scallop grounds within the NEIFCA district support not only the exploited stocks within the permitted boxes but likely provide larval supply and recruitment to scallop grounds beyond 6nm (Beukers-Stewart *et al.,* 2005). This is evidenced in a study conducted by Beukers-Stewart *et al.,* (2005) which compared King Scallop densities between an area closed to fishing for 14 years and a fished area. Results from this study showed that the increased density within the closed area population improved the overall reproductive potential shown by the reproductive biomass of scallops within the closed area being 12.5 times higher than that of the fished area (Beukers-Stewart *et al.,* 2005). This is due to King Scallop reproducing via external fertilisation and as mentioned previously, with peaks in spawning occurring synchronously where high densities occur. The physical impact of bottom towed gears on benthic environments is well documented in that these gear types reduce habitat complexity by impacting epifaunal and infaunal benthic species (De Groot *et al.,* 1994; Rijnsdorp *et al.,* 2018; Sciberras *et al.,* 2018), with the level of impact depending on the intensity, gear penetration and sensitivity of habitats/species present. A study conducted by Bradshaw *et al.,* (2003) investigated whether hydroid colonies effected benthic community composition in the Irish Sea. One of the key findings in their research was that hydroid colonies provide suitable settlement substrate for scallop juveniles (*Pecten maximus* and *Aequipecten opercularis*), and that the 11-year closure of an area to dredging enhances scallop stock as well as increasing biodiversity and habitat complexity (Bradshaw *et a.,* 2003). Reduced bottom fishing disturbance would not only allow for benthic environments to recover but also increases

the necessary structural complexity of habitats to increase the survival and growth rates of juvenile King Scallops (Bradshaw *et al.,*2003; Beukers-Stewart *et al.,* 2005).

The scallop populations outside of the permitted dredge areas are well established as they been effectively protected against targeted fishing since 2014, allowing stocks outside of the permitted areas to recover and continuously supply recruitment to the fished and non-fished areas. These protected scallop population are now under threat of being overexploited and potentially impacting the recruitment of future stocks inside and outside the permitted areas leading to an unsustainable fishery and potential collapse of the stock. Currently there is a lack of data for spawning in NEIFCA's district and the impacts of the recently emerging beam trawling on the Scallop grounds. There is an urgent need to temporarily close the Scallop grounds to avoid any further potential damage and allow to gather the necessary data to develop and implement management measures through a new byelaw to ensure the sustainability of this fishery.

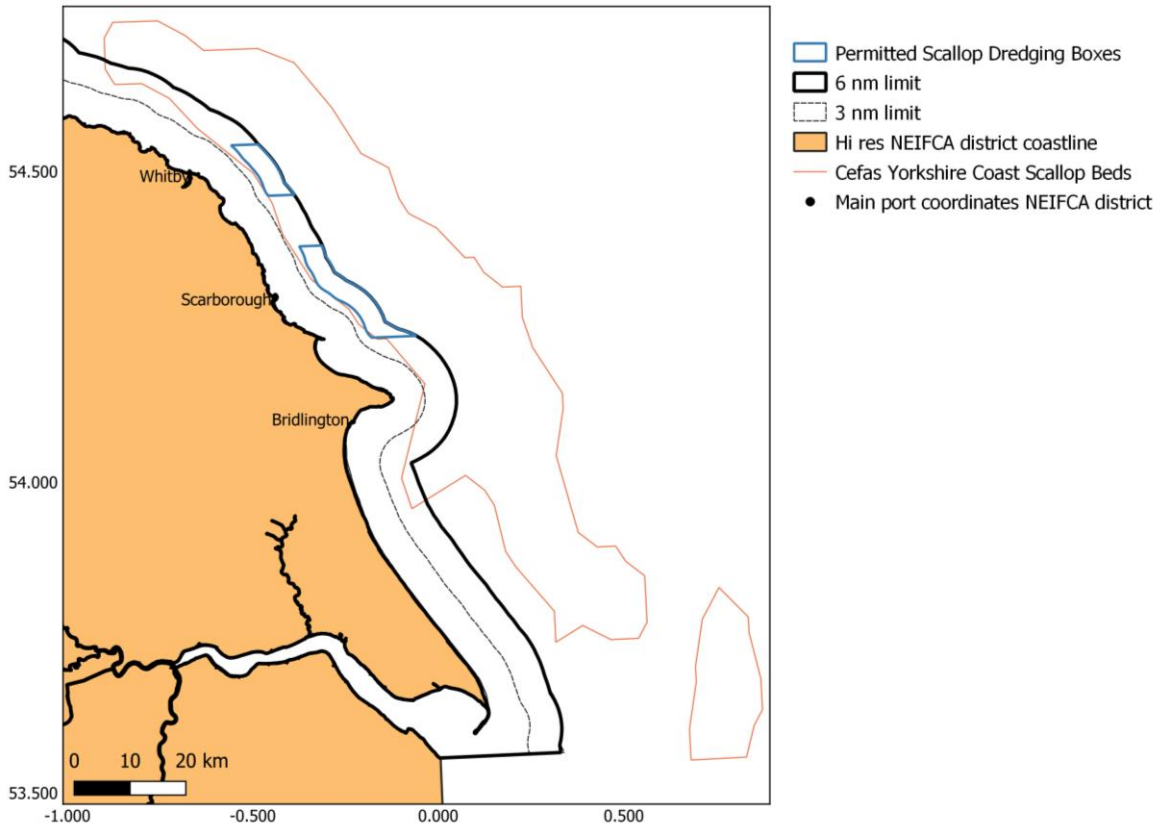

Figure 2: NEIFCA district including the permitted Scallop dredging areas and CEFAS Scallop beds

Current Exploitation of King Scallop by Beam trawlers

Under 'Regulation (EU) 2019/1241 of the European Parliament and the council of 20 June 2019' a 'beam trawl' is defined in item 16 as "gear with a trawl net open horixontally by a beam, wing or similar device". In comparion, under the same regulation in item 'dredges' are defined as "gear which are either actively towed by the main boat engine (boat dredge) to catch bivalves, gastropods or sponges which consist of a net bag or metal basket mounted on a rigid frame or rod of variable size and shape whose lower part may carry a scraper blade that can be either rounded, sharp or toothed, and may or may not be equipped with skids and diving boards. Some dredges are equipped with hydraulic equipment (hydraulic dredges)".

At present a total of five vessels are known to be targetting King Scallop within the NEIFCA district using beam trawls. One vessel has modified it's beam trawl to attach a secondary beam with bespoke spring-loaded spokes to penetrate the seabed at an angle acting in a similar way that the teeth/spokes on an N-virodredge (Figure 3) do. However, unlike the N-virodredge rods which measure approximately 17cm in length, to be able to reach the seabed from their attachment at the beam a secondary metal rod bent at a right angle has been welded to each N-virodredge rod held onto the beam by a coil. The ends of each

rod which make contact with the seabed consists of a socket and metal tip allowing for these tips to be replaced as they wear down. This modified gear, operates with approximately 44 rods attached to a 3.8m beam, the exact angle and depth to which they penetrate the benthos is unknown. Therefore, it is not possible to determine the level of impact that this modified beam trawl may have on benthic environments. Further research would be important to determine the penetration depth and subsequent depletion rate on bethic organisms in order to compare to that of a standard beam trawl or Newhaven dredge (Figure 3).

Figure 3. N-Virodredge design (left) separate from the steel belly bag, with individually sprung tines and side skids; compared to the Newhaven dredge (right) with a fixed tooth bar. Source: Filippi, 2013.

The level of disturbance on the marine environment is not the only concern surrounding the recent activity of these five beam trawl vessels. The most important impact to consider is the level of exploitation of King Scallop from grounds which have been protected against scallop dredging for nearly ten years. After reviewing MMO landings data for 3 out of 5 of these vessels, between January and June 2023 a total of 57 tonnes of Scallops were landed from the inshore grounds with 74 days of fishing (Figure 4). One of the 3 vessels landed so far a total of 52 tonnes in 2023. This is approx. 30% of the total Scallop catch by 3 vessels dredging inside the permitted area between November 2022 to April 2023. Whether the gear efficiency of a beam or modfied beam trawl is similar to a New Haven dredge is not clear at the moment but the current landings data clearly demonstrate the substantial amounts of Scallops being caught and landed. NEIFCA officers are aware that in the past 2 months another 2 local trawlers have started beam trawling for Scallops in the same area (Figure 5) and there is a high risk that trawlers from other ports within and neighbouring IFCA districts could start using a beam trawl to fish for King Scallops in the Authority's district without any restrictions. This would lead to overfishing, potentially impacting the local stocks to the point of collapse. The efficiency of this gear type remains unknown as its proven effectiveness for catching King Scallop in this instance may not solely be due to the design, but may also be influenced by the high density of King Scallop in the areas fished due to long-term closure to dredging. Therefore, the amount of time of using this gear type to fish for King Scallops may be questioned as it is unknown how effective this method may be at lower densities (i.e. comparable to that of the areas currently fished by dredgers). Additionally, seasonal behaviour of King Scallop may influence the effeciency of beam trawling (without modification) for scallops during winter months when they are less active and buried deeper in the sediment, than during spring/summer when they can be found closer to the surface for spawning.

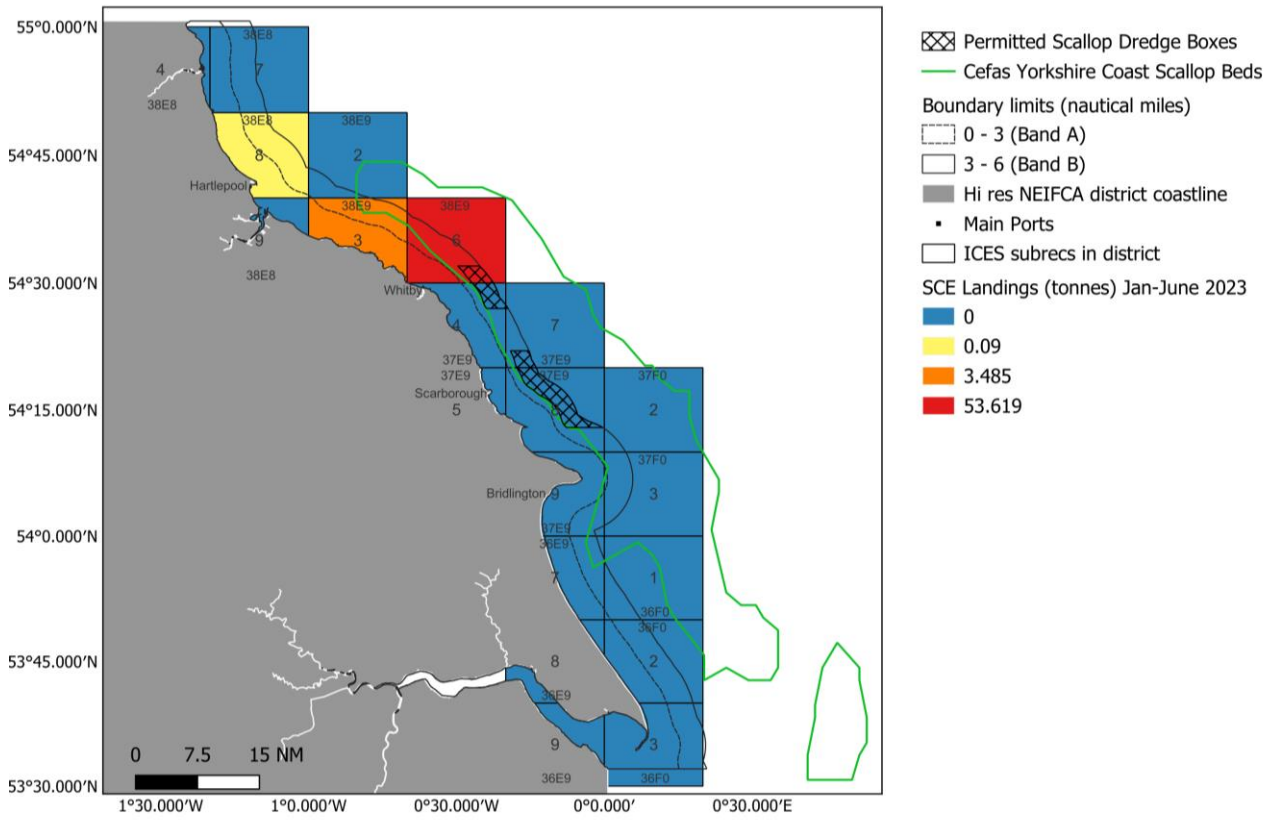

Figure 4: Levels of fishing activity for King Scallops from 3 fishing vessels along the North East coast. Data derived form the MMO under 10m catch app.

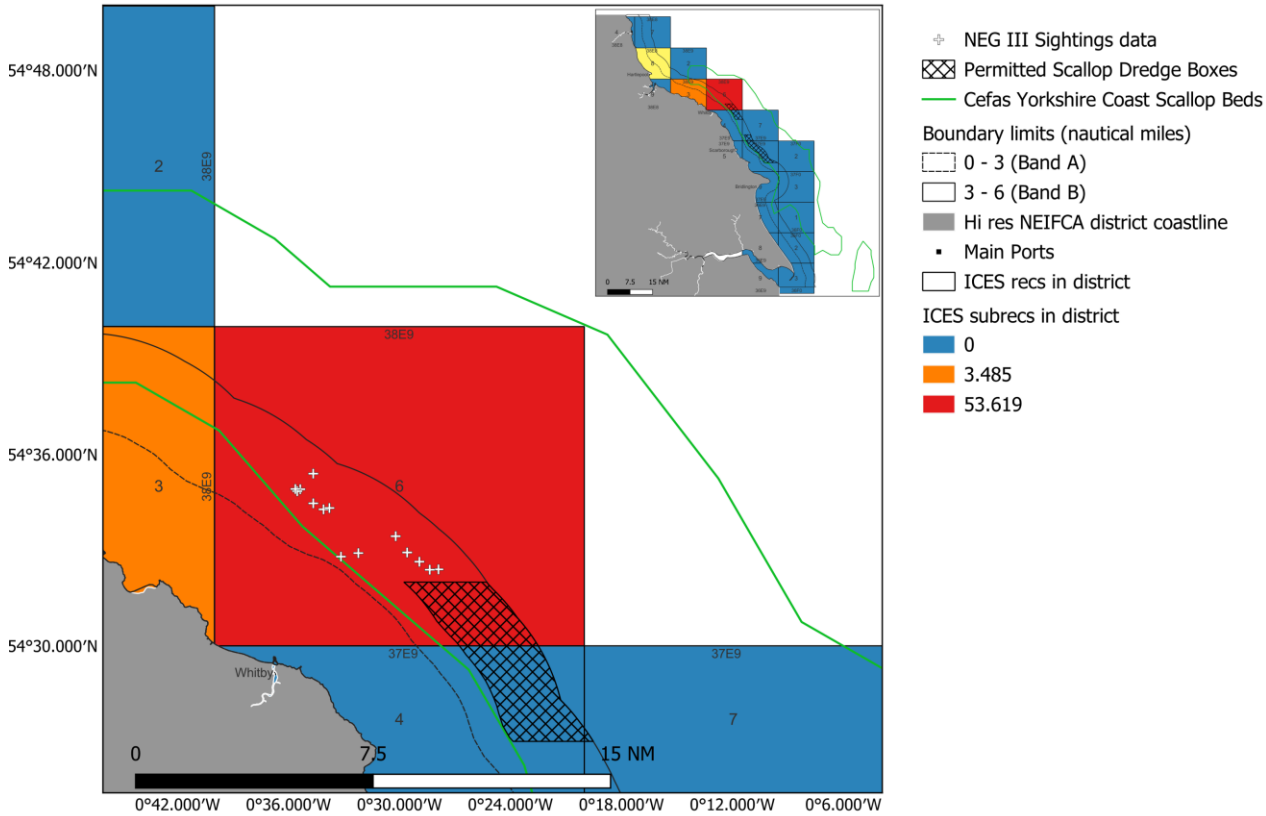

Figure 5: NEIFCA Sightings & AIS data for two beam trawl vessels identifying fishing activity within the NEIFCA district.

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

2.1 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 emergency byelaw will be on a precautionary principle to stop current negative impacts on the fish stocks whilst collecting necessary data to develop and implement a new byelaw to ensure that fishing activities are conducted in a sustainable manner and that the marine environment is suitably protected.

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

- Ecosystem Services – Nature provides components, products and functions to be potential societal goods and benefits (Elliot, 2023). These provisions can be e.g. vertebrates, invertebrates, macrophytes; genetic resources; water and minerals; places and seascape. Regulating processes an ecosystem can provide are e.g. climate regulation; natural hazard protection; waster breakdown and detoxification.
- Societal goods and benefits – For the well-being and fulfilment of basic human needs an ecosystem provides e.g. food, fertilizer, energy (fuel), medicines and biotechnology, climate, sea defences and erosion protection, waste processing, tourism and recreation, mental and physical well being, education and research.
- 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.

2.3 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 European marine site 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.

Description of options considered

The following options have been considered:

Option 0. **Do nothing** – This option would involve allowing the existing NEIFCA management regime to continue unchanged. While this would allow continued fishing at the same levels there is a risk of an increase in effort within the district and potential stock collapse.

Option 1. Total prohibition of beam trawling across the district for a fixed period of 1 year – This option will protect non-fished King Scallop stocks from further exploitation whilst the Authority will gather the necessary data and understanding to develop and implement a new flexible byelaw to ensure the sustainability of the scallop stock.

Option 2. **Use of non-regulatory/voluntary measures** – A voluntary agreement would need a 100% compliance to be effective and ensure a sustainable fishery. We believe that this cannot be achieved across the NEIFCA district, due to the size of it and the potential increase of fishing vessels using a beam trawl for scallops. The tendency within the fishing sector is to exploit it to the maximum if there is an opportunity and financial reward, therefore fishermen would fish regardless of any voluntary agreements. With byelaws a high level of observance of regulation occurs, particularly as there are no ambiguities.

Option 3. Technical Restrictions – This option would introduce landings restrictions for Scallops (maximum allowed weight per day), spatial restrictions (no fishing in certain areas) and total closure to fishing during the spawning season (May to September) for a fixed period of 1 year. However, with the current lack of data, it would be difficult to determine appropriate levels for such restrictions.

Option 4. Limited permit fishery – With this option, a permit system would have to be introduced with a set maximum number of permits to beam trawl within the NEIFCA district for a fixed period of 1 year to restrict the number of vessels trawling for Scallops. Based on track records, the Authority would have to issue permits to all 5 currently active vessels. Together with the currently existing 3 permits for Scallop dredging, this would increase the pressure during the open season on the already exploited stock inside the permitted areas. Additionally, the continuation of fishing outside the permitted area without any control through the Authority would also impact the data collection for fished and non-fished stocks.

As options 0, 2, 3 and 4 are not suitable in this instance, option 1 is therefore considered in the costs and benefits analysis.

Policy objective

The policy objective pertinent to this IA is to ensure that stocks are exploited in a sustainable manner, that the regulations are easier to navigate for resource users and to increase the levels of compliance. The outcomes for this Emergency Byelaw are for NEIFCA to complete a management plan for the sustainable exploitation of the Scallop stock using this fishing method and to submit a new mobile gear byelaw for approval before. The aim is to limit levels of this fishery in the NEIFCA District in the interest of conservation of the marine environment and allow a flexible more proactive fisheries management.

Summary and preferred option with description of implementation plan

Option 1 was determined to be the preferred option to prohibit beam trawling across the district for a fixed period of 1 year. This secondary legislation is expected to be implemented in July 2023 and resources are already in place at the Authority to actively enforce its provisions and collect the necessary data during the closure of this fishing activity. Closing this fishery will allow the Authority to have better control over the data collection whilst working in collaboration with the fishing industry to inform and build the necessary evidence for a sustainable management plan. Although no additional implementation costs are expected the wider application of the regulations could increase the number of formal enforcement actions taken (but this cannot be estimated accurately at this stage). Any subsequent changes in compliance and enforcement actions, progress of the data collection and development of the management plan will be monitored by the Authority through the Post Implementation Review Plan and adjusted if necessary.

Monetised and non-monetised costs and benefits of each option (including administrative burden)

Administrative costs are not expected for the implementation of this Emergency Byelaw.

The cost associated with scientific monitoring work required to support the development of the management plan and new mobile gear byelaw is estimated to be a total of £ 30,000. This is comprised of the operational costs for the *North Eastern Guardian III* (£3,000 day rate) vessel operating 10 Scallop dredge and video sledge survey days.

The introduction of a 1-year prohibition for beam trawling within the NEIFCA district could result in the displacement and increase in effort outside the 6NM. This could potentially cause increased gear conflict with potting and scallop dredging vessels and an increase of pressure on the stock outside the NEIFCA district. However, it is unlikely vessels will be using beam trawls to target Scallops as dredging would be more efficient and is permitted outside the 6NM.

Direct costs and benefits to business calculations

N/A

Risks and assumptions

The proposed intervention is based on a precautionary principle using the following evidence:

- **MMO under 10m catch up data for landings** – between January and June 2023, 3 local vessels landed a total of 57t of King Scallops using a beam/modified beam trawl
- **NEIFCA sightings & AIS data** – although this data source is limited there is a clear indication of increased activity outside the permitted Scallop dredge areas (Figure 5).
- **Sighting of modified beam trawl** – NEIFCA officers were able to see the modified gear and confirm the setup.
- **Literature** - peer reviewed articles and personal conversation with experts at the University of York and CEFAS suggest the potential impacts of this fishing activity not only on the stock itself but also on the recruitment

Assumptions	Risks	Mitigations
Current levels of fishing in the previously non-fished grounds outside the permitted Scallop dredging areas especially during the spawning season will impact the spawning capacity of the stock and its recruitment	Medium	Closure for 1 year will protect the stock whilst collecting the necessary evidence and developing the appropriate sustainable management plan for the new byelaw with potential temporal and spatial closures
If additional fishing vessels from within and outside the NEIFCA district join this fishery, exploitation levels and impacts on habitats will reach unsustainable levels leading to a stock collapse	High	Closure for 1 year will stop any additional fishing vessels joining this fishery whilst collecting the necessary evidence and developing the appropriate sustainable management plan for the new byelaw with possible limited number of permits
Modification on the beam trawl causing more damage to the habitat than regular beam trawls	Medium	Closure for 1 year will protect the stock whilst collecting the necessary evidence and developing the appropriate sustainable management plan for the new byelaw with possible prohibition of any type of modifications to a beam trawl

Small and micro business are not viable due to intervention	Low	During the proposed closure, NEIFCA will be working in collaboration with the fishing industry on the base of scientific dispensations to collect data. Fishing vessel with dispensations will be still allowed to fish and sell their catch, however this will be limited. Most vessels only recently started to beam trawl for Scallops inside 6nm therefore the affected fishing vessels will still be able to return to their previous fishing activities (i.e. beam trawling outside 6nm and potting etc).

Evidence gaps

The following data gaps need to be addressed:

- Spawning cycles of King Scallops in the NEIFCA district
- Differences in size frequency, meat yield and gonad development between fished and non-fished stocks
- Spatial distribution and level of fishing activities for the beam trawlers
- Bycatch of standard and modified beam trawling gear
- Effort levels of beam trawlers
- Comparison of habitat impacts between permitted Scallop dredging area, beam trawling and non-fished areas.
- Impact levels on the habitat of the modified beam trawling gear

Scientific Dispensation(s) to address evidence gaps

Under the preferred Option (1) of total prohibition of beam trawling within the NEIFCA district for a fixed 1 year period, there remains the possibility of providing scientific dispensation(s). The purpose of issuing a scientific dispensation would be to address the evidence gaps highlighted above whilst also mitigating the economic impact of the prohibition of this gear type on industry members. Consideration of track record and modification of gear will determine which vessel may be provided a scientific dispensation, in order to effectively address the selected area of research. One key evidence gap that may be addressed using a scientific dispensation will be to identify the spawning patterns for local populations of King Scallops, by permitting the use of a beam trawl vessel to fish for King Scallop through the Spring and Summer months, retaining a subsample of King Scallop over 90mm for meat yield and staging of gonads. These data can then be collated and analysed to detect peak spawning events and estimate when spawning season starts and ends. The use of local commercial beam trawl vessels for this type of survey work would prove beneficial to the Authority as the Spring/Summer period of 2024 will be exceptionally busy with the running of well-established annual survey programs and additional survey work will be restricted by the capacity of the current NEIFCA vessel. It is important to note that such survey work to understand the spawning behaviour of King Scallop (within NEIFCA district) would require high intensity sampling (weekly) sampling in order to best observe the presence of peak and synchronised spawning events as evidenced by Salomonsen *et al.,* (2015). An added economic benefit to the selected industry vessel(s) would be the permitted landing and sale of King Scallop (over the MLS) outside of the permitted scallop dredge fishery season.

The second key evidence gap that may be addressed by issuing a scientific dispensation would be investigating and building an understanding of the efficiency, depletion rate and footprint of a modified

beam trawl. This could be answered using a Before-After-Control-Impact (BACI) Paired-Series approach of deploying modified gear and comparing the impact to benthic habitats before and after, as well as a comparison with a control which in this instance would be an unmodified beam trawl. It would also prove of interest to compare the impact of the modified beam trawl to that of a traditional Newhaven scallop dredge in order to determine whether this novel method provides a less destructive and efficient alternative to dredging for King Scallop.

Impact on small and micro businesses

Currently there are 5 fishing vessels known to target scallops using a beam trawl. One of these fishing vessels has been fishing since 2022 whilst the other 4 vessels only started in April and June 2023. At the time of producing this IA, it was only possible to source landings data from the MMO for 3 vessels between January 2022 and June 2023 (Table 1). The fishing vessel that has been fishing since 2022 landed 38t of Scallops in 2022 with a market value of around £74k. In 2023 this vessel started using the modified beam trawl (N-viro spokes attached to a second beam) and landed 52t of Scallops between January and June 2023 with a market value of around £103k. The other 2 vessels landed together a total of 4.7t between April and June 2023 with a market value of around £9k using a standard beam trawl. The financial impacts on the more recent active vessel will not be as substantial as to the one which has been fishing for Scallops inside the district since 2022. However, in 2022 this vessel has been fishing outside the NEIFCA district as well as potting and used also a N-Viro dredge outside the 6NM at times. Since it started using the modified beam trawl in 2023 it has been fishing predominantly inside the NEIFCA district. These fishing vessels are not established yet as this method of fishing inside the 6NM emerged recently, therefore if the Authority closes this fishery for a fixed period of 1-year the fishing vessels will be able to return to their previous fishing activities and operating inside and outside the 6NM.

Table 1: Landings, days fished and market value of King Scallops for fishing vessels using beam trawling inside the NEIFCA district in 2022 and 2023. Data derived from the MMO under 10m catch app.

	2023			2022		
Vessel	days fished	landed weight t	value £	days fished	landed weigh t	Value £
1	50	52.665	102876.5	48	38.288	73983.10516
2	5	1.295	2529.67			
3	19	3.388	6618.162			

Wider impacts (consider the impacts of your proposals)

Wider impacts are not expected as this fishery has only emerged recently.

A summary of the potential trade implications of measure

N/A

Monitoring and Evaluation

The existing NEIFCA's stock monitoring program for Scallops will be enhanced through additional surveys in collaboration with the fishing industry under a scientific dispensation scheme. Stock assessment will be extended to a wider area of Scallop grounds in the district, assessing size frequency and estimating biomass of the stock. Throughout the spawning season (May to September), weekly meat yield and gonad stage surveys will assess seasonality and timing of spawning events and additional habitat surveys will assess and compare impacts of Scallop dredging, beam trawling and modified gear. Scientific dispensation will be limited to a small number of vessels with strict spatial and temporal restrictions. Any vessel with a scientific dispensation will be required to transmit AIS at all times when operating inside the NEIFCA district, submit catch returns and facilitate access for NEIFCA officers for observation at sea when requested. Compliance will be ensured through regular enforcement

activities and data collection will be continuously analysed informing the ongoing development of the management plan and new mobile gear byelaw.

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