Title:
Sussex IFCA Marine Protected Area Byelaw – Utopia Marine Conservation Zone Schedule

Impact Assessment (IA)

IA No:

Date: 19/06/17

Stage: Consultation

Lead department or agency:
Sussex IFCA

Source of intervention:
DOMESTIC

Other departments or agencies:

Natural England, Marine Management Organisation, Defra

Type of measure:
Secondary Legislation

Contact for enquiries:
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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** (EANCB in 2014 prices)	**One-In, Three-Out**	**Business Impact Target Status**
£0m	£0m	£0m	no	N/A

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

This byelaw will help provide appropriate risk-based management and protection across Utopia MCZ where fishing activities are deemed detrimental to achieving the protected features conservation objectives. Implementing this management will support continued provision of public goods in the marine environment and help the government achieve their commitment to providing a well-managed ecologically coherent marine protected area network. The proposed management is in accordance with the duties of the IFCA under sections 125, 126, 153 and 154 of the Marine and Coastal Access Act 2009 and also achieve wider sustainable fisheries benefits.

What are the policy objectives and the intended effects?

- To further the conservation objectives stated for Utopia MCZ
- To ensure compliance with the Marine and Coastal Access Act (MCAA) 2009, and help achieve the government's commitment to a well-managed, ecologically coherent network of MPAs
- To promote sustainable fisheries while conserving the marine environment
- To reduce external negativities and ensure continued provision of public goods
- To fulfil IFCAs duties under Sections 153 and 154 of the MCAA 2009, to manage the sustainable exploitation of sea fisheries resources and further the conservation objectives of MCZs

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 Voluntary agreement
Option 2 Sussex IFCA MPA Byelaw with associated Utopia MCZ Schedule
Option 3 Whole site prohibition of all activities all year round

All options are compared to option 0.The preferred option is option 2 which will promote both sustainable fisheries and conserve the marine environment while ensuring compliance with the Marine and Coastal Access Act 2009.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 4 years					
Does implementation go beyond minimum EU requirements?			N/A		
Are any of these organisations in scope?	**Micro** No	**< 20** No	**Small** No	**Medium** No	**Large** No
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: _____

Summary: Analysis & Evidence

Policy Option 2

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years 10	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	0	0	**0**

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

No trawling or dredging is known to take place within Utopia MCZ, therefore no costs to industry associated with the proposed management are anticipated. Enforcement of the proposed management will be met within the current budget and wherever feasible incorporated into existing business and patrol commitments. Whenever possible Sussex IFCA will work with joint agency partners to conduct land or sea patrols making effective use of resources.

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

Information gathered from fishers and other stakeholders during pre-consultation and Sussex IFCO expert intel has been used to support the evidence base and assumptions. The information received was largely qualitative and anecdotal, thus refinement of the monetised costs for commercial fisheries in Defra's MCZ IA were not possible.

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	0	0	**0**

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

No monetised figures are available for the benefits of the recommended management. However, significant potential benefits are summarised below. It is considered that the potential environmental benefits of introducing the proposed regulatory notice outweigh the possible administrative burden.

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

Introduction of the proposed management will further the site's conservation objectives. Protection of the site will have a range of environmental, sustainable fisheries and ecosystem services benefits – see Section 6.2. Evidence indicates that the management option of 'do nothing' could result in a decline of ecosystem services currently provided by the site and that the existing ecosystem services derived from Utopia MCZ make a contribution to the local economy, primarily through recreation activities.

Key assumptions/sensitivities/risks **Discount** 3.5

That evidence and fisheries models are sufficient to reflect predicted outcomes.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 0	**Benefits:** 0	**Net:** 0	£0m

1.0 Introduction and problem under consideration

1.1 Impact Assessment purpose
This impact assessment (IA) outlines the costs and benefits of the proposed fishing activity management to protect the designated habitats and species of Utopia MCZ and further their conservation objectives. The IA also indicates why the option being recommended is the preferred option for management. A draft of this IA will be subject to public consultation.

1.2 Marine Protected Area network
The UK Government's vision is of 'clean, healthy, safe, productive and biologically diverse oceans and seas'. Under the Marine and Coastal Access Act 2009 (MCAA) the government committed to designating a well-managed ecologically coherent network of marine protected areas (MPAs), which is a key element for achieving this vision. This network will consist of existing MPAs including special areas of conservation (SACs), special protected areas (SPAs), sites of special scientific interest (SSSIs), Ramsar sites, and a new type of MPA called marine conservation zones (MCZs).

Within the Sussex Inshore Fisheries and Conservation Authority's (IFCA) district, Beachy Head West, Kingmere and Pagham Harbour were designated within a first tranche of MCZs in November 2013. Tranche 2 sites were designated in January 2016, and within the Sussex IFCA District include Utopia and a small section of Offshore Overfalls. Consultation on tranche 3 sites is to be confirmed by government.

1.3 IFCAs MCZ duties
IFCAs are responsible for the management of inshore sea fisheries resources out to 6 nautical miles and the protection of the marine environment from fishing impacts within this area, balancing social, environmental and economic benefits.

Under Section 154 of the MCAA IFCAs have a statutory duty to further the conservation objectives of any MCZ and are required to develop fisheries management measures for sites within 6nm to achieve this, as well as the subsequent enforcement. Figure 1 summaries IFCA's duties under MCAA with regards to MCZs. This work has been embedded in Sussex IFCA's annual plans, with development and introduction of management measures for Utopia identified as a priority following Kingmere, Beachy Head West and Pagham Harbour MCZ management formulation.

The development of management for designated MCZs within the Sussex IFCA District is a complex process and requires the Authority to take into consideration: the Authority's legal duties; site conservation advice and objectives; and the socio-economic needs of the community, assessing how these can be accommodated within appropriate, practical and economically feasible management.

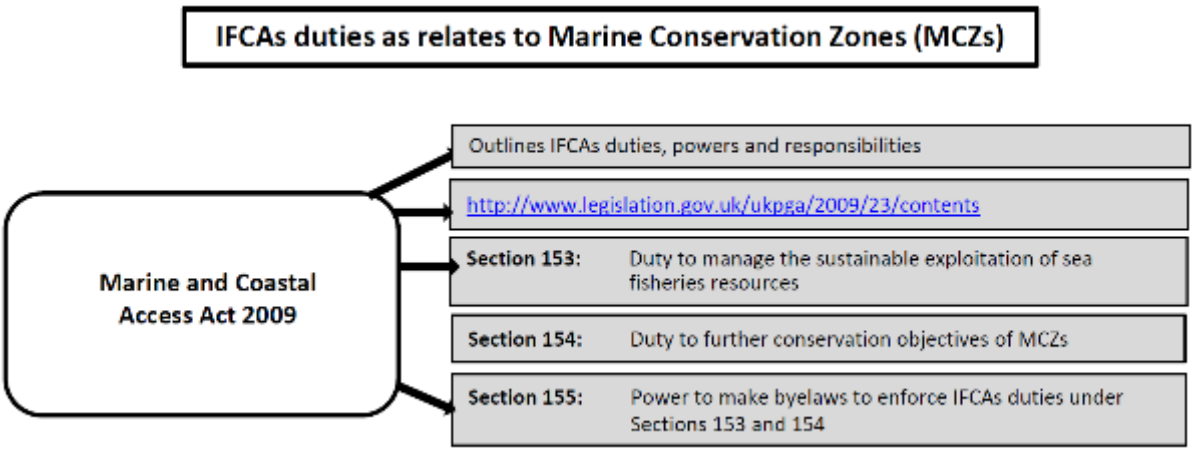

Figure 1: IFCAs duties as relates to Marine Conservation Zones

1.4 Utopia MCZ

Conservation of Utopia MCZ contributes to the delivery of a well-managed ecologically coherent network of MPAs, together with Defra's aim to conserve and enhance the marine environment and promote sustainable fisheries. A site description, the protected features within Utopia MCZ and Natural England's advice on the general management approach for each are summarised in Table 1 below.

Table 1: Utopia MCZ features and importance

Site	Description & Importance	Features for protection
Utopia MCZ	Utopia MCZ is a small inshore site located off the Sussex coast, approximately 10km south of Selsey Bill, and 20km east of the Isle of Wight. The site covers an area of 2.71km^2. The Utopia reef consists of an outcrop of rock with large boulders, creating a reef-like feature that sticks up from the surrounding sediments east of Bembridge and south-west of Selsey (see Annex I). This rocky reef supports rich communities of sponges and anthozoans. Anthozoans are a group of soft animals with feathery tentacles, which includes soft corals, sea-fans, cup corals and anemones. The reef is surrounded by sediment made up mostly of gravel and sand. The animals that live in Utopia MCZ are mainly large, slow growing species such as branching sponges which provide hiding places for small fish, crabs and prawns. Historically, Utopia MCZ was named after the tope shark as information during the site selection stage indicated the area partly makes up a pupping ground for this species. Data from the UK Shark Tagging Programme now	Designated for 6 features: • High energy circalittoral rock • Moderate energy circalittoral rock • Subtidal coarse sediments • Subtidal mixed sediments • Subtidal sands • Fragile sponge and anthozoan communities on subtidal rocky habitats The general management approach is recover to favourable condition for all features. Fisheries activities that triggered the recover objective are dredges and benthic trawling.

Site	Description & Importance	Features for protection
	indicates that the area is a hotspot for large tope. Utopia was designated in January 2016. The site's designated features and Natural England's recommended General Management Approach (GMA) for each are outlined in this table. The GMA required for a feature in an MCZ will either be for it to be maintained in favourable condition (if it is currently in this state), or for it to be recovered to favourable condition (if it is currently in a damaged state) and then to be maintained in favourable condition.	

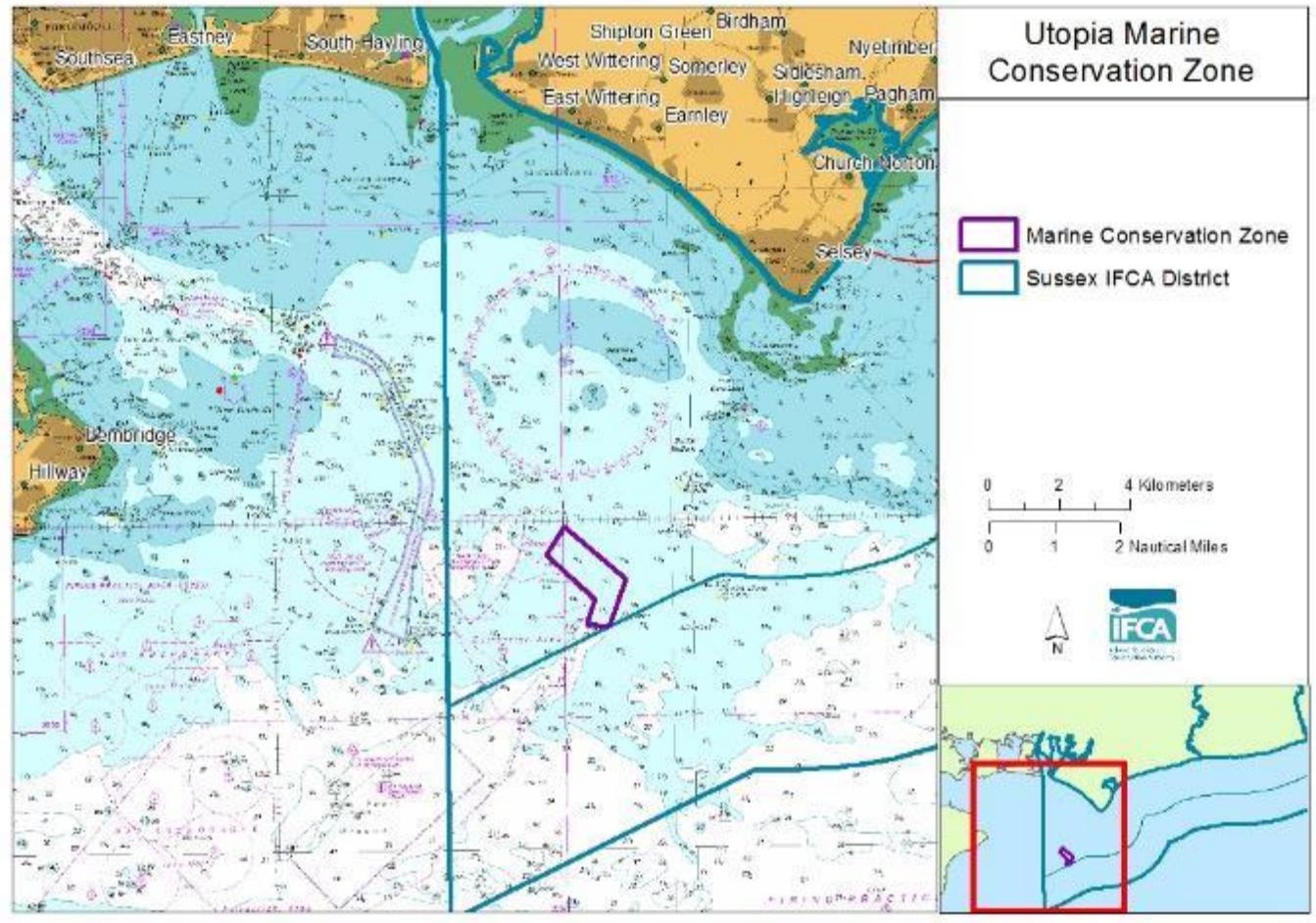

Figure 2: Utopia MCZ location map (chart layer © Seazone Solutions 2013)

2.0 Rationale for intervention

2.1 Overarching rationale for government intervention

IFCAs 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 regulatory notice 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:

- 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. Sussex IFCA must ensure that the exploitation of sea fisheries resources is carried out in a sustainable way.
- 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. Sussex IFCA must seek to balance the social and economic benefits of exploiting the sea fisheries resources of the district with the need to protect the marine environment from, or promote the recovery from, the effect of such 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.

Sussex IFCA must seek to balance the different needs of persons engaged in the exploitation of sea fisheries resources in the district. In summary, 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 EMS and MCZs will ensure negative externalities are reduced or suitably mitigated.
- Management measures will support continued existence of public goods in the marine environment, for example by restricting the catch taken and conserving the range of biodiversity within MPAs in the IFCA District.
- Management measures will also support continued existence of common goods in the marine environment by reflecting the needs of commercial and recreational sectors, for example ensuring the long term sustainability of fish stocks in the IFCA District.

2.2 Natural England Conservation Advice and Conservation Objectives

IFCA's management measures for MCZ sites are guided by Natural England's (NE) conservation advice on what is compatible with site's conservation objectives, together with the outcome of the process to develop and define management measures with the community.

A Conservation Objective (CO) is a statement describing the desired ecological/geological state (the quality) of a feature for which an MCZ is designated – the aspiration for the site. The CO establishes whether the feature meets the desired state and should be maintained, or falls below it and should be recovered to favourable condition. Therefore 'favourable condition' is the overall aim and whether the features requires 'recovery to' or to be 'maintained in' is the action needed to achieve the objective. Protected sites in the UK use the term favourable condition to represent the desired state of their features. A 'feature' is one of the habitats, species or geodiversity interests that the sites are intended to conserve.

For habitats, they should be in good condition, or be brought into and remain in good condition, which means:
(a) Its extent is stable or increasing (where possible)
(b) Its structure and function, its quality and the composition of its characteristic species are such as to ensure that it remains in a condition which is healthy and not deteriorating.

For species:
a) The quality and quantity of its habitat
b) The composition of its population (number, age and sex ration) ensure that the population is maintained in numbers which enable it to thrive.

Utopia MCZ was designated for six features: Moderate energy circalittoral rock; high energy circalittoral rock; subtidal coarse sediment; subtidal mixed sediments; subtidal sand; and fragile sponge and anthozoan communities on subtidal rocky habitats.

Natural England's conservation advice documents, including the site condition assessment, for the Utopia MCZ are not yet published, however the current general management approach advice for the site features is 'Recover to favourable condition', triggered by dredging and benthic trawling activities. This has been inferred from two published conservation advice packages, the Folkstone Pomerania MCZ and the Thanet Coast MCZ. The information inferred from the two existing Conservation Advice packages indicates that features within the site are currently vulnerable to damage from the existing level of these activities within the site, or from the potential increase in their intensity. Thus all designated features have a 'recover' general management approach in order to achieve favourable condition. This advice was based on best available evidence on the sensitivity of the protected features to human activities which can damage them.

3.0 Policy objectives

3.1 Underlying policy objective

One of the underlying policy objectives regarding the proposed Utopia MCZ management is to ensure Sussex IFCA's obligations to further the conservation objectives of MCZ sites are met. IFCAs have a duty under the MCAA to manage the exploitation of commercial and recreational sea fisheries resources in a sustainable way and to protect marine ecosystems from the impact of fishing in the 0-6nm limit off England. Their nationally agreed vision is to: *"lead, champion and manage a sustainable marine environment and inshore fisheries,*

by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry".

Under Section 155 of the MCAA, IFCAs may make byelaws for their district to enforce their duties under Sections 153 and 154, to manage the sustainable exploitation of sea fisheries resources and further the conservation objectives of MCZs respectively. The proposed management is in line with Sussex IFCAs duties outlined under MCAA.

3.2 Sussex IFCA principles underpinning MCZ management

The Authority will:

- Further the conservation objectives of the MCZ, in accordance with the conservation advice from the Government's Conservation Advisor, Natural England
- Reflect the terms of the MCZ site Designation Order
- Base decisions on best available evidence and allow, where possible, for the collection of further evidence
- Take into account site user knowledge and wider stakeholder views, with the IFCA being the ultimate decision making body
- Develop management which is proportionate, adaptive and subject to review
- Strive to introduce management that promotes compliance and support from the community, whilst still adhering to the conservation objectives
- Develop management that is economically viable, aims to minimise enforcement complexity and is sustainable for the IFCA

The above principles will be achieved using the structure of the Authority's Principal Committee and its Technical Subcommittee.

4.0 Rationale and evidence

4.1 IFCA evidence requirements

One of IFCAs success criteria is to make the best use of evidence to deliver their objectives. In order to sustainably manage sea fisheries resources, IFCAs need to gather evidence to inform decisions, evaluate options, propose management solutions and, where necessary, develop and agree byelaws. They also need to evaluate outcomes and review the effectiveness of any action taken.

4.2 Feature extent evidence

There is a high level of confidence in features location evidence for the MCZ features. Refer to Annex I for Natural England's site feature map. The condition of all features is not assessed.

4.3 Fishing activity evidence

4.3.1 General fishing activity understanding

There is a good understanding of fishing activity within the site, generated from IFCA sightings data collected since 2001, IFCO expert intel since 1996 and informal consultation with fishers during the 2017 informal pre-consultation. See Annexes II and III for activity and effort maps for all gear types based on Sussex IFCA sightings data. The site is wholly within the 6 nautical mile limit and is only fished by UK vessels. The only fishing activities known to occur within the site are potting at medium intensity, high intensity angling and

some potential very low level netting. The majority of commercial fishing within the site is from small vessels based in Portsmouth, Gosport, Selsey and Bembridge.

The following sections focus on dredging and trawling as the two gear types identified by Natural England as triggering a recover general management approach, and therefore requiring management by Sussex IFCA.

4.3.2 Dredging

There is no known dredging activity within the Utopia MCZ site (Annexes II & III). However, there is some very low level scallop dredging activity (between 1 and 3 vessels) known to occur in the vicinity, to the south of the site, in the autumn and winter months.

The Sussex IFCA Fishing Instruments Byelaw prohibits scallop dredging within 3nm. The majority of the Utopia MCZ falls within this zone, excluding the very southernmost extent of the site. This limits the amount of dredging activity that could potentially occur within the MCZ. Within the small section of the site where dredging for scallops is permitted, the substratum is largely circalittoral rock (see Annex I), which is not suitable for towed gear.

Sub-activities for dredging include:
- Dredging (non-hydraulic) for shellfish e.g. scallops, oysters, mussels (including seed), clams and cockles.
- Hydraulic/suction dredging for clams, cockles, razor shells.

Dredging for other species cannot occur within the site due to Sussex IFCA management and health classifications from the Food Standards Agency (FSA) to ensure shellfish is safely sold to the public. Under Sussex IFCA's Fishing Instruments Byelaw mussel and clam dredges are not included as permitted instruments. Oyster dredging is permitted west of Bognor Regis pier, however only Chichester Harbour is classified by the FSA for oyster extraction.

4.3.3 Trawling

There is no known trawling within the site (Annexes II & III). However, low level trawling activity occurs in the vicinity of the MCZ, predominantly nomadic beam and otter trawls. Approximately 3 to 5 vessels work this gear type, predominantly catching flatfish and operating randomly throughout the year (IFCO expert intel).

A total of 10 interviews were conducted by means of a questionnaire sent to fishers known to operate in the vicinity of the Utopia MCZ which corroborated IFCAs sighting data, indicating no known trawling activity within the site. Fisher feedback received during informal consultation drop-ins also supported this. An interviewee replying to a questionnaire on 22/03/2017 suggested that the ground was too rough for towing (Fishers Interview, 2017).

4.4 Current management

• Vessel Length Byelaw – prohibits commercial fishing vessels over 14 metres from the Sussex IFCA district. The reduction in vessel size also restricts the type of gear that can be used, with vessels often using lighter towed gear and restricted to carry less static gear.

• Fixed Engine Byelaw - No fixed engines, other than fyke nets, may be used between 1st May to 30th September, in any area of the district.

• Sussex IFCA 'Fishing Instruments' Byelaw - prohibits scallop dredging inside of 3nm at any time of year and restricts what gears can be used inside of the district.

• Other regulations include minimum sizes, mesh sizes, catch composition and total allowable catch as dictated by European legislation.

4.5 Impacts evidence

The environmental impacts of bottom towed fishing gear are complex (Boulcott *et al*., 2014). The extent of disturbance depends on a number of factors including substrate type (Kaiser *et al*., 2002), design, weight and performance of the gear over a particular substrate (Caddy, 1973; Currie and Parry, 1999) and the sensitivity of the benthic community (Bergman *et al*., 2000; Collie *et al*., 2000a; Boulcott *et al*., 2014). Towed demersal fishing gear can alter physical characteristics and structure of the sediment, especially in subtidal muddy sand and mud habitats as a result of the penetration of, and abrasion by, the gear into the sediment (Jones, 1992; Gubbay & Knapman, 1999; Ball *et al*. 2000; Roberts *et al*. 2010).

Refer to the advice in operations documents within Natural England's online conservation advice packages for Folkestone Pomerania and Thanet Coast MCZ, for detailed advice on potential pressures from activities and supporting evidence references:

https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UKMCZ0006&SiteName=&countyCode=&responsiblePerson=

https://www.gov.uk/government/publications/conservation-advice-for-marine-conservation-zone-thanet-coast-ukmcz0017

The following is a review of the potential pressures which could be exerted on the MCZs designated features by bottom towed gear and the marine fauna/infauna that are supported.

4.5.1 Abrasion/disturbance of the substrate on the surface of the seabed/ Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion

4.5.1.1 Dredging

Scallop dredging is considered to be one of the most destructive forms of bottom towed fishing (Kaiser *et al*., 2006; Hinz *et al*., 2011). Scallop dredging is the main threat to the MCZ due to the focus close to rocky reef habitats, whilst light otter trawling is known to fringe areas of rocky reef habitat. A meta-analysis of 101 different fishing impact manipulation concluded that the most severe impact was caused by scallop dredging in biogenic habitats (those constructed or composed of primarily living biota) (Kaiser *et al*., 2006). The main effects of scallop dredging largely relate to the direct physical passage of gear over the seabed (Kaiser, Unpublished). Impacts include physical damage to soft rocky outcrops, soft or fragile and long-lived species are killed or damaged, removal of erect faunal species and large sessile species, reduction in biodiversity and a reduction in structural complexity and subsequent habitat homogenisation (Sewell & Hiscock, 2005).

The tooth bar on the gear is designed to penetrate into the seabed as the target species, Pecten maximus, will generally bury in the seabed so that their shell is level with the sediment surface (Kaiser, Unpublished). The teeth can penetrate up to 12 cm of the seabed (Kaiser, Unpublished). Over harder substrata (i.e. bedrock, cobble or boulder fields) the

teeth are known to scrape the surface and if soft, the rock can be broken up or physically damaged by the passage of the gear (Kaiser, Unpublished), potentially leading to a reduction in complexity (Roberts *et al*., 2010).

The removal of erect faunal species, which increase topographic relief of the habitat, can also lead to reductions in biogenic structure and habitat complexity (Kaiser, Unpublished). Many of these erect faunal species, such as sea fans such as the Pink sea-fan, soft corals and bryozoans such as Ross coral, have slow growth rates, large body sizes and attach to the substratum, making them particularly susceptible to the impacts of bottomed towed fishing gear (Kaiser, Unpublished). Furthermore, the topographic relief and complexity created by these emergent epifauna, support diverse seabed communities and provide shelter for juvenile fish, shellfish and their prey (Kaiser, Unpublished). In a meta-analysis, scallop dredging was reported to cause an immediate reduction in mean abundance of animals from -22% to 98%, with the greatest declines observed for sea-fans and sponges in biogenic habitats (Kaiser *et al*., 2006).

Typically scallop dredging occurs over gravel or mixed substrata, although can occur in areas of mud or harder seabed type which support populations of the target species (Hinz *et al*., 2011). Rocky-reef habitats can also present a considerable risk to dredging gear, with the gear known to come fast (Boulcott and Howell, 2011). As a result, there is a severe lack of impact studies on scallop dredging in areas of rocky reef (Boulcott and Howell, 2011; Hinz *et al*., 2011). Improvements in electronic navigation and bottom discrimination technology have allowed for the expansion of scallop dredging into previously inaccessible areas of the seabed (Boulcott & Howell, 2011).

4.5.1.2 Trawling

The potential effects of demersal trawls over areas of rocky reefs are similar to those caused by scallop dredging (Sewell and Hiscock, 2005). Although a meta-analysis of 39 fishing impact studies revealed dredging had a more negative impact than trawling (Collie *et al*., 2000b). Potential effects include reductions in habitat structural complexity and subsequent habitat homogenisation, reduction in biodiversity, removal of erect epifaunal species and large sessile species some of which are likely to large, fragile and long-lived and physical damage to fragile structures (Sewell and Hiscock, 2005). Such impacts are caused through direct contact with the seabed.

Otter trawl fishing gear has contact with the seabed through ground rope, chains and bobbins, sweeps, doors and any chaffing mats or parts of the net bag (Jones, 1992). Otter door marks are often the most recognisable and commonly observed effects of otter trawls on the seabed. Bridles or sweeps, the cables that connect the trawl doors to the trawl net, can snag on boulders or other obstructions over rough ground (Grieve *et al*., 2014).

A number of studies have reported impacts of otter trawling in areas of reef and where corals are present. In an area of mixed substrata at 50 to 100 m depth in north-western Australia, Moran and Stephenson (2000) reported, on each tow of an otter trawl (dimensions unknown), a 15.5% reduction in benthic organisms that stood higher than 20 cm off the seabed, comprised mainly of gorgonians, sponges and soft corals. Van Dolah *et al*. (1987) reported significant decreases in the density of barrel sponges and damage to finger sponges, vase sponges, whip corals, fan corals, stock corals and stony tree corals after a single pass with an otter trawl in a hard bottom sponge and coral community at 20 m in Grays Reef, Georgia. The otter trawl used had a 40/54 fly net, 12.2-m headrope, 16.5-m footrope with 30 cm rubber rollers and 15-cm rubber discs and 1.8 x 1.2 m China V-doors, recovery was reported to occur within one year (Van Dolah *et al*., 1987).

Kaiser *et al*., (1993) reviewed the impacts of experimental beam trawling over an area with regards to the effect the activity has on macro fauna. His findings included that fishing with a 4m beam trawl decreased both the number and biomass of sessile animals in the experimental area. The findings of this study also noted that the total depth to which the tickler chains and chain mats penetrate depends on the vessel towing speed and the substrate hardness, estimates vary from 3cm on hard sand and up to 8cm in soft mud (Bridger, 1972, Kaiser *et al*., 1993). Further studies in to the effect of bottom towed gear on marine benthos reveal that beam trawling significantly impacted the tightly associated communities of the sand mason worm through abrasion of the sediment. The heavy chain mats penetrating the benthos significantly reducing numbers, although recovery was rapid (Rabaut *et al*., 2008). This recovery rate may not be so rapid when the species impacted are slow growing species (Gubbay & Knapman, 1999).

Deep-water trawling has had a clear and significant impact on deep-water coral reefs (200-1300m) and other organisms, including Lophelia, in the North Atlantic since the 1980s (Sewell and Hiscock, 2005). Halls-Spencer *et al*. (2002) analysed commercial otter trawl catches taken from the West Ireland continental shelf break and West Norway and reported large amounts of coral bycatch in 5 out of 229 trawls, including pieces up to 1m2. ROV video observation revealed sparse living coral, coral rubble and track marks in trawled area.

4.5.2 Removal of non-target species

4.5.2.1 Trawling

Bottom towed fishing gear can cause the mortality of non-target species through direct physical damage inflicted by the passage of the trawl or indirectly through immediate non-lethal damage to the individual, and consequent mortality through exposure and predation (Roberts *et al*. 2010). Decreases in species biomass, species richness, production, diversity, evenness (a result of increased dominance) and alterations to species composition and community structure may lead to long-term changes in the benthic community structure (Tuck *et al*., 1998; Roberts *et al*. 2010). Overall reductions in benthic productivity have been reported in areas where intense bottom trawling takes place (Jennings *et al*., 2001).

The relative impact of bottom towed fishing gear on benthic organisms is species-specific and largely related to their biological characteristics and physical habitat. The vulnerability of an organism is ultimately related to whether or not it is infaunal or epifaunal, mobile or sessile and soft-bodied or hard-shelled (Mercaldo-Allen & Goldberg, 2011). Fragile fauna (i.e. bivalves and sea cucumbers) have been shown to be particularly vulnerable to trawling damage and disturbance, recovery to sedentary and slow moving species can be significantly lower (Gubbay & Knapman, 1999). Motile groups and infaunal bivalves have shown mixed responses to trawling disturbance, with life history considerations such as habitat requirements and feeding modes likely to play a key role in determining a species response (McConnaughey *et al*., 2000; Johnson *et al*., 2002). When fishing over rough ground towing a beam trawl, chain mats tend to be used to prevent rocks entering the net, as well as increase catch, but the chains also increase the bycatch of non-commercial epi- and infaunal invertebrates by scouring them from the subratum (Kaiser *et al*., 1993).

Disturbance from repeated trawling incidences can select for more tolerant species, with communities becoming dominated by smaller-bodied infaunal species with fast life histories, juvenile stages, mobile species and rapid colonists (Gubbay & Knapman, 1999; Kaiser *et al*. 2000; Jennings *et al*. 2001; Kaiser *et al*. 2002). Many studies have observed a shift in benthic community structure from one dominated by relatively high biomass species to one dominated by a high abundance of small-sized organisms (Collie *et al*.,

2000). Furthermore, the predicted change in shallow water communities, as a result of trawling disturbance, is an increase in r-strategists (i.e. polychaetes) and decrease K-strategist (i.e. molluscs and crustaceans) (Jones, 1992). A shift towards small-sized species has the potential to alter benthic productivity as body mass is negatively correlated with individual production to biomass ratio (Jennings *et al*., 2001). In areas of natural disturbance, the dominance of smaller bodied fauna may be a general adaptation to such a dynamic environment and therefore the community may seem relatively unaffected by trawling (Queirós *et al*., 2006). The impacts on densities of small individuals may however be greater if the larger animals in question live deeper in the sediment, in addition to their potentially more efficient escape possibilities (Gubbay & Knapman, 1999). Populations of larger, longer-lived species are less resilient to fishing impacts than smaller, short-lived species as they are able to compensate for any increases in mortality (Roberts *et al*., 2010). In addition, lighter animals are often pushed aside by the pressure wave in front of the net (Gilkinson *et al*., 1998). Larger fauna are mainly affected through direct physical contact with the gear and may be removed from the community (Bergman & van Santbrink, 2000; Queirós *et al*., 2006). Studies have shown that trawling impacts on meiofuna (animals that pass through a 500 µm mesh sieve but are retained in a 63 µm mesh sieve) are relatively limited (Brylinsky *et al*., 1994; Scratzberger *et al*., 2002).

4.5.2.2 Dredging

There are significant concerns over the impacts of discards on marine ecosystems, including changes in population abundance and demographics of affected species and altered species assemblages and food web structures (Alverson 1994; Kaiser *et al*., 2003). However, discards also provide important food resources for some scavenging species, including seabirds (Heath *et al*., 2014; Jennings and Kaiser 1998). Dredging can result in bycatch of fish, crustaceans and other invertebrates, turtles and even marine mammals (Gubbay and Knapman 1999; Sewell and Hiscock 2005; N.O.A.A 2012; Hinz *et al*., 2012; Craven *et al*., 2013). Of all the fishing gears, scallop dredges are considered to be the most damaging to non-target benthic communities (Howarth and Stewart 2014).

Most studies show that in general shellfish dredging is usually accompanied by a significant fall in species numbers, population density and biomass of benthic organisms (Newell *et al*., 1998; Veale *et al*., 2000; Cook *et al*., 2013). Alterations in particle size and texture can lead to alterations in the type of organisms present in benthic communities (Pranovi and Giovanardi 1994; Skilleter *et al*. 2006), and removal of bioturbator species can have indirect ecological effects on the stability and maintenance of biodiversity due to a reduction in habitat complexity (Nilsson & Rosenberg, 2003; Widdicombe *et al*., 2004). Epibenthic animals in the path of a dredge can be damaged, buried or removed, while infauna can be excavated and exposed on the seabed. Most studies agree that dredging methods examined cause some mortality to small and large infaunal and epifaunal organisms in the direct path of the device (Godcharles 1971, Kyte *et al*. 1975, Kyte and Chew 1975, Vining 1978, Meyer *et al*. 1981, Mackenzie 1982, Peterson *et al*. 1987, Barnes *et al*. 1991). Specific impacts from fishing depend on the life history, ecology and physical characteristics of the biota present (Bergman and Van Santbrink 2000).

However, whilst research shows that dredging causes direct mortality to small and large infaunal and epifaunal organisms, many small benthic organisms such as crustaceans, polychaetes and molluscs, have rapid generation times, high fecundities and excellent recolonization capacities, thus in such instances the community effect may only be short-term (e.g., Godcharles 1971, Peterson *et al*. 1987, Bennett *et al*. 1990, Hall *et al*. 1990).

4.5.3 Changes in suspended solids/siltation rate changes

4.5.3.1 Trawling

The resuspension of sediment, nutrients and contaminants, and relocation of stones and boulders, can change the sediment structure in the locality of the trawling activity (ICES, 1992; Gubbay & Knapman, 1999). The impact of the physical contact of the trawl with the sea floor releases a cloud of sediment (Main & Sangster, 1979; 1981) and nutrients into the overlying water (Durrieu de Madron *et al*., 2005). Suspended solids can be transported and redistributed into adjacent areas (Vining, 1978). Resuspension of sediments reduces water clarity. As a result of the suspended solids, siltation rates can be altered from natural levels (Roberts *et al*., 2010) and benthos may be smothered when the sediment settles out (Jones, 1992). Trimmer *et al*. (2005) reported significant correlations between fishing intensity and sediment silt content. It is thought that continual sediment resuspension, as a result of trawling, can lead to the accumulation of fine sediments in the superficial layers of sediment in areas that are trawled, if there is an absence of significant advective transport (Jennings & Kaiser, 1998; Trimmer *et al*. 2005). The resuspension and dispersal of fine particles can lead to long term effects on particular sieve fractions (Pranovi & Giovanardi, 1994); potentially decreasing the clay portion of the sediment (Maier *et al*., 1998). Larger sand particles are redeposited near the dredge whilst measurable amounts of fine silt and clay particles remain in suspension and are potentially transported away by currents (Tuck *et al*., 2000).

The resuspension of sediment can impact upon benthic communities through smothering, burial and increased turbidity. These effects may extend to organisms living a distance away from the fished area (Kyte & Chew, 1975). If high levels of sediment are resuspended and exposure to such events is regular, impacts may be severe (Mercaldo-Allen & Goldberg, 2011). Increased turbidity can inhibit respiratory and feeding functions of benthic organisms, in addition to causing hypoxia or anoxia (Morgan & Chuenpagdee, 2003). Sediment resuspension can jeopardise the survival of bivalves and fish as a result of clogged gills and inhibition of burrowing activity (Dorsey & Pederson, 1998). Small organisms and immobile species are particularly vulnerable to smothering (Manning, 1957). A redistribution of finer sediment can also hinder the settlement of organisms if shell or cultch material is buried (Tarnowski, 2006). The severity of such impacts are largely determined by sediment type, the level of sediment burden and the tolerance of organisms which is largely related to their biology (i.e. size, relationship to substrate, life history, mobility) (Coen, 1995). The effects of sediment plumes and enhanced turbidity levels appear to be temporary, with the majority of sediment plumes disappearing within hours of dredging (Maier *et al*., 1998). In areas of tide and current, the effects of sediment resuspension are short in duration and the effects of redeposition are not permanent, particularly with respect to those adapted to storm events and sediment transport by currents (Jones, 1992).

4.5.3.2 Dredging

These pressures may result from physical disturbance of the sediment, along with hydrodynamic action caused by the passage of towed gear, leading to entrainment and suspension of the substrate behind and around the gear components, and subsequent siltation (Lart *et al*., 2012; Gubbay and Knapman 1999; Kaiser *et al*.,2002; Rieman and Hoffman 1991; O'Neill and Summerbell 2011; Dale *et al*., 2011). The quantity of suspended material, its spatial and temporal persistence, and in the case of siltation changes its subsequent patterns of deposition, will depend on factors associated with the gear (such as type/design, weight, towing speed), sediment (particle size, composition, compactness), the intensity of the activity, water depth, hydrological conditions, sensitivity of fauna, currents, tides and water mass properties (Hayes *et al*., 1984, LaSalle, 1990; Barnes *et al*., 1991; Coen, 1995). Larger sand particles are redeposited near the dredge.

With regards to siltation rate changes, sediment remobilisation and deposition can affect the settlement, feeding, and survival of biota through smothering of feeding and

respiratory organs, and effect the feeding and metabolic rates of organisms (Johnson, 2002). Prolonged exposure of an area to the pressure may result in changes in sediment composition (Kaiser *et al*., 2003; Sewell *et al*., 2007; Gubbay and Knapman 1999; Kaiser *et al*.,2002; O'Neill and Summberbell, 2011). Communities associated with subtidal mixed sediment are likely to have a high resistance and high recovery to low siltation events, although some physiological effects on species may occur. However, these effects tend to be more significant in waters that are normally clear than waters that are naturally turbid (Kaiser 2000).

4.6 Community engagement

4.6.1 Balanced Seas - site selection

After over two years of discussion, taking into account social and economic factors alongside the best available scientific evidence, stakeholders passed 127 final site recommendations to Government advisory bodies in September 2011. All the MCZ sites went out for public consultation between December 2012 and March 2013, enabling further input from the community into the sites to be designated.

For more information on the Balanced Seas project visit:
http://webarchive.nationalarchives.gov.uk/20120502155440/http://www.balancedseas.org/page/home.html

4.6.2 Defra - proposed MCZs consultation

The summary of responses from Defra's consultation on tranche 2 MCZ sites between January and April 2015, outlined that the main issue raised in relation to the Utopia MCZ site was from the aggregates industry with regards to the low estimated costs provided. Two requests to amend the boundary of the site to include a buffer zone around the MCZ were also submitted and concerns raised regarding anchoring management.

For more information see:
https://www.gov.uk/government/consultations/marine-conservation-zones-second-tranche-of-designations

4.6.3 Sussex IFCA – informal consultation

All fishers known to utilise the site and the vicinity were contacted directly by IFCOs to better understand site use. Two informal consultation drop-in sessions were also held on Tuesday 6th June and Thursday 8th June 2017 for recreational anglers and commercial fishers respectively. Twenty-three attendees were offered information on the proposed management measures and invited to comment. Feedback was also sought from all members of the Sussex Marine and Coastal Forum, which comprises representatives from a range of organisations involved in the local marine environment, including NGOs, conservation bodies and the local water company.

In addition to the proposed towed gear exclusion, in line with Natural England's conservation advice, the Authority explored the potential for elasmobranch management within the site, specifically a year-round retention prohibition for all gear types and a closed season over the tope pupping season for anglers. This equated to a proposed ban on netting within the site, a requirement for pots to return any elasmobranch bycatch uninjured, and catch and release management for anglers as well as a closed season.

Historically, Utopia MCZ was named after the tope shark as information during the site selection stage indicated the area partly males up a pupping ground for the species. Data

from the UK Shark Tagging Programme now indicates that the area is a hotspot for large tope (James Thorbun, Scottish STP & Ken Collins UKSTP, pers comm). As a group elasmobranchs are particularly at risk to overfishing due to their life-history traits, and the management proposals would extend protection for all elasmobranchs.

There was unanimous support for the proposed ban on towed gear throughout the site, in addition to the clear legal steer. However, apart from greater support for a netting ban than no ban, the majority of respondents opposed site elasmobranch management proposals for other gear types. Due to the level of community resistance against elasmobranch protection measures within the site and supporting site based evidence gaps, the Authority is instead considering a voluntary code of conduct for fishers and exploring elasmobranch management district-wide outside of Utopia MCZ management development.

Informal consultation questionnaires are included in Annex IV.

5.0 Description of options considered

5.1 Evidence-based decision making cycle

IFCAs must have a consistent approach to their decision making and be able to articulate clearly to stakeholders why they have chosen a certain approach. An evidence-based decision making cycle approach provides a common framework for decision making by IFCAs and has been adopted in the current management options consideration for features and fishing activities within Utopia.

Sussex IFCA aims to ensure that appropriate risk based management is implemented within Utopia where activities are deemed detrimental to achieving the sites conservation objectives, in order to comply with Sections 125, 126, 153 and154 of the Marine and Coastal Access Act (2009) (see Annex V for further details). It is the expectation of Defra that appropriate management measures could involve both statutory and non-statutory measures to ensure adequate protection is achieved.

Management decisions should be based on the best available evidence, but using a precautionary approach where necessary. Management will be applied on a risk-prioritised, phased basis, with management implemented at MPA sites most at risk of damage first. Figure 3 describes the management cycle to evaluate sites and assess the need for potential management measures to further site's conservation objectives.

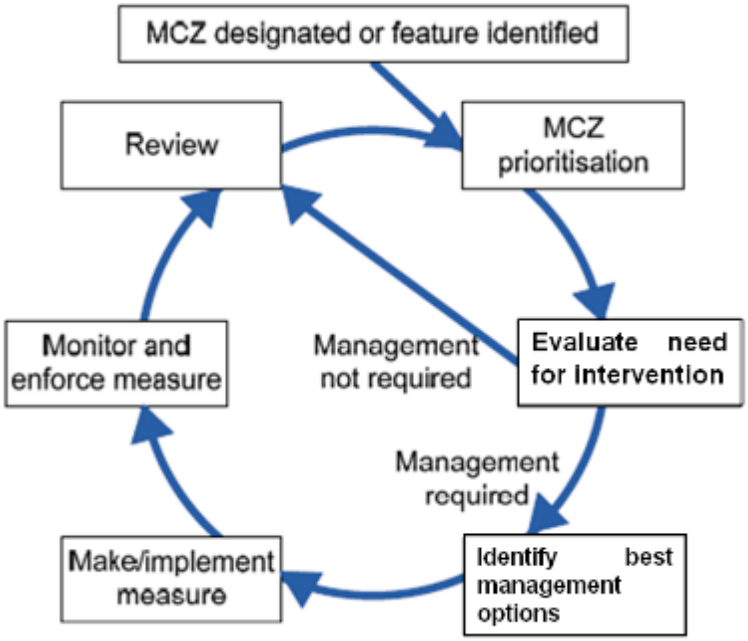

Figure 3. Management cycle

5.2 Option 0: Do nothing

Due to the sensitivity of features and the level of potential impact on protected features from towed gears, management is required to prevent damage from potential future increases in activity. As such, Option 0 has been rejected.

5.3 Option 1: Voluntary agreement

Solely voluntary measures are not deemed appropriate for the management of fishing activity within the site due to the sensitivity of features. Where existing activities are having an impact on the achievement of a site's conservation objectives or where there is significant risk that they may do so either now or in the future, government indicates that statutory measures are likely to be required. The likelihood of compliance in any management arrangement and the risk associated with non-compliance also needs to be considered. As such, Option 1 has been rejected.

5.4 Option 2: Sussex IFCA MPA Byelaw with associated Utopia MCZ Schedule

Option 2 is considered the most appropriate and proportionate management method to address risk to features and move towards achieving their conservation objectives, while balancing the needs of fishers in the area.

Formulation of a new Schedule, associated with Sussex IFCA's Marine Protected Area Byelaw, is recommended. The proposed management will fulfil the Authority's wider fisheries management remit, as well as encompassing MCZ management needs. Sussex IFCA aims to introduce regulation of towed gears that promotes compliance and support from the community, whilst meeting the conservation requirements of Utopia MCZ. Solely voluntary measures are not deemed appropriate for the management of towed gear due to the sensitivity of features to this gear type. Refer to Table 2 for a summary of recommended management options.

Table 2: Recommended management options

Gear grouping	Management	Rationale
Towed gear	Whole MCZ, year round prohibition. 0.5nm buffer zone around site in which need VMS.	Protection of designated habitat types, including rocky reefs and their associated fragile sponge and anthozoan communities, and subtidal sediment habitats.

Due to the absence of current known towed gear activity within the site, it is anticipated there will be no impact on the fleet. Proposals provide protection against any future incursion into the site.

5.5 Option 3: Whole site prohibition of all activities all year round

The government's steer for MCZs is for them to be multiple use MPA sites, as opposed to no take zones. Full site closure to all fishing activities within the site is considered too conservative and cannot be justified. This option would go beyond Natural England's conservation advice. Such a management measure would not be in line with IFCAs duty to sustainably manage the inshore marine environment 'ensuring healthy seas, sustainable fisheries and a viable industry'. As such, Option 3 has been rejected.

6.0 Costs and benefits

6.1 Key monetised and non-monetised costs

6.1.1 Lost revenue
The best available evidence has been used to assess the impacts of the proposed management measures, taken from:

- Defra MCZ consultation on proposals for designation in 2015. 30th January 2015 to 24th April 2015. Annex I2 Option 2, Site Specific Impact Assessment
- Defra MCZ consultation on proposals for designation in 2013. 12th December 2012 to 1st April 2013. Annex I1, Impacts of individual recommended MCZs (Option 1 Balanced Seas)
- Information gathered from fishers during informal consultation engagement by Sussex IFCA
- Local IFCA officers' expert knowledge

No known towed gear operators currently utilise the site. Thus no associated socio-economic impacts of proposals are envisaged.

Monetised costs estimated in Defra's MCZ consultation IA for Utopia suggest that the potential annual value of UK bottom trawls an dredges landings affected was £0.001m/yr and £220/yr respectively (MCZ Fisheries Model). Both values should be treated with caution as they reflect landings from a wider area than just the MCZ and are based on an unknown number of vessels utilising the site. Sussex IFCA and fishing community activity information indicate the site is not currently utilised by these gear types.

There is no proposed management of other commercial gears within the site, thus no associated costs to business.

6.1.2 Displacement
No displacement is anticipated as there is currently no known towed gear activity within the site. Potting is known to occur at medium intensity, netting at a very low level and angling at high intensity. None of these activities will be impacted by regulatory proposals.

6.1.3 Administrative burden
Sussex IFCA will regulate and monitor the site through the use of:

- Education/Communication Strategies – provide advice and information on Utopia MCZ. This can be done via information packages, public events, community groups, festivals and/or signage, which can be delivered during specific meetings or whilst conducting routine land or sea patrols.
- Land based patrols – mobile land patrols conducting inspections on landings, premises, vehicle's and person's. Intelligence gathering, sightings and key communication messages delivery to the community.
- Sea based patrols – mobile sea patrol conducting boarding inspections, intelligence gathering, vessel sightings and key communication messages delivery to the fishing community.
- Joint agency working – working with joint agency partners in order to conduct land or sea mobile patrols utilising effective use of resources to achieve common objectives and deliver key communication messages.
- Monitoring and research - conducting regular research and gathering data to support the enforcement efforts within the site.

Through regular enforcement patrols (land and sea) and partnership working the Authority will monitor fishing activity and develop a thorough understanding of permissible activities following the introduction of management. Compliance activities will reflect the developed risk based approach for MPA management.

Enforcement of the proposed byelaw and regulatory order will be met within the current budget and wherever feasible will be incorporated into existing business and patrol commitments. Whenever possible, Sussex IFCA will work with joint agency partners to conduct land or sea patrols making effective use of resources to achieve common objectives and further reducing estimated costs.

Using fully developed costings and an unconstrained model, a best current estimate of £1k for sea and land patrol costs, monitoring/research and communications is calculated for Utopia MCZ management.

It is important to highlight that low community support and resulting poor compliance will incur greater costs, thus Sussex IFCA has strived through pre-consultation work with the community to generate good support for management.

6.2 Benefits

Ecosystem services
The habitats, species and other ecological features of the site contribute to the delivery of a range of ecosystem services. Designation of the MCZ is helping to protect its features and the ecosystem services that they provide against the risk of future degradation from pressures caused by fishing activities. Potential improvement in the quantity and quality of the beneficial services they provide may increase the value (contribution to economic welfare) of them. Examples of the ecosystem services Utopia MCZ provides include:

- Commercial fisheries: Subtidal rock and sediments support high biodiversity within the site which help support potential on-site and off-site fisheries, contributing to the delivery of fish for human consumption and recreation services.

- Angling: Utopia is a popular location for recreational anglers. Those who use this location, greatly appreciate it because of the rich wildlife below water.
- Nutrient cycling: Marine sediments have an important role in the global cycling of many elements including carbon and nitrogen. Nitrogen and phosphorous remineralisation provide a significant contribution to the nutrients required by primary producers in the water column.
- Environmental resilience: The features of the site contribute to the resilience and continued regeneration of marine ecosystems.
- Regulating services: Prohibition of any future towed gear activity could increase the site's benthic biodiversity and biomass, improving the regulating capacity of habitats.
- Diving: Proposed management will help protect the site features and the ecosystem services they provide again future degradation. High biodiversity associated with the features may attract further divers to the area.

The management option of 'do nothing' would result in a decline of ecosystem services currently provided by the site.

Environmental benefits
The proposed management of Utopia MCZ will help achieve the site's conservation objectives. Management of the site has a vast range of environmental benefits, including:

The protection of fragile coral and sponge communities found here, as well as the important habitat this and the surrounding sediments provide. The Utopia reef consists of an area of bedrock and large boulders that host rich communities of sponges, stony corals and anemones. The animals that live here are mainly large, slow growing species such as branching sponges and ross coral, a type of sea-moss that has hard, crinkly 'petals' that in turn provides hiding places for many small fish, crabs and prawns. Over 15 species of sponge have been recorded here with many more yet to be identified. Corals, such as dead man's fingers, and white striped anemones are also common within this area. Utopia has been recommended as an MCZ on the grounds that it hosts one of only two regional examples of these fragile sponge, coral and anemone communities.

Research and education
Monitoring of the site may help inform current understanding of how the marine environment is impacted by anthropogenic pressures and management intervention.

Intrinsic value
Protection of the site will benefit the proportion of the UK population that values conservation of the site's features (existence value), the ecosystem services they provide, conservation of habitats and species for use by others in the current generation (altruistic value) or future generations (bequest value) and the site's contribution to an ecologically coherent network of MPAs.

6.3 One In Three Out (OITO)

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

6.4 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.

7.0 Risks and assumptions

Key assumptions and that evidence and fisheries models are sufficient to reflect predicted outcomes.

Reputational risks are a potential hazard with management introduction at this site, in terms of being:

- Negatively perceived by fishing community and wider stakeholders due to restrictive measures
- Negatively perceived by stakeholders for not protecting the site
- Negatively perceived by government for not implementing legislation and statutory failure of duty

8.0 Summary and preferred option

It is considered that the environmental benefits of introducing the proposed management outlined in Option 2 outweighs the potential monitoring, administrative and enforcement burden and costs to industry.

This work contributes to the fulfilment of Sussex IFCA's responsibility to ensure the sustainable management of inshore fisheries, balancing environmental, social and economic costs and benefits.

The proposed management to protect the designated habitats and species of Utopia MCZ is a key component in Sussex IFCA carrying out its role locally in providing a well-managed network of MPAs around the coast of England.

Sussex IFCA Utopia MCZ management will be defined within a structured Site Management Plan that will reflect principles of a defined management cycle describing implementation, monitoring, review and refinement. A review period of four years will be set for the management plan and assessing the effectiveness of the recommended MPA Byelaw and associated Utopia MCZ management measures.

In developing management measures for Utopia MCZ, the Authority is fulfilling its obligations and commitments outlined in its Annual Plan for achieving the government's vision for clean, healthy, safe, productive and biologically diverse oceans and seas.

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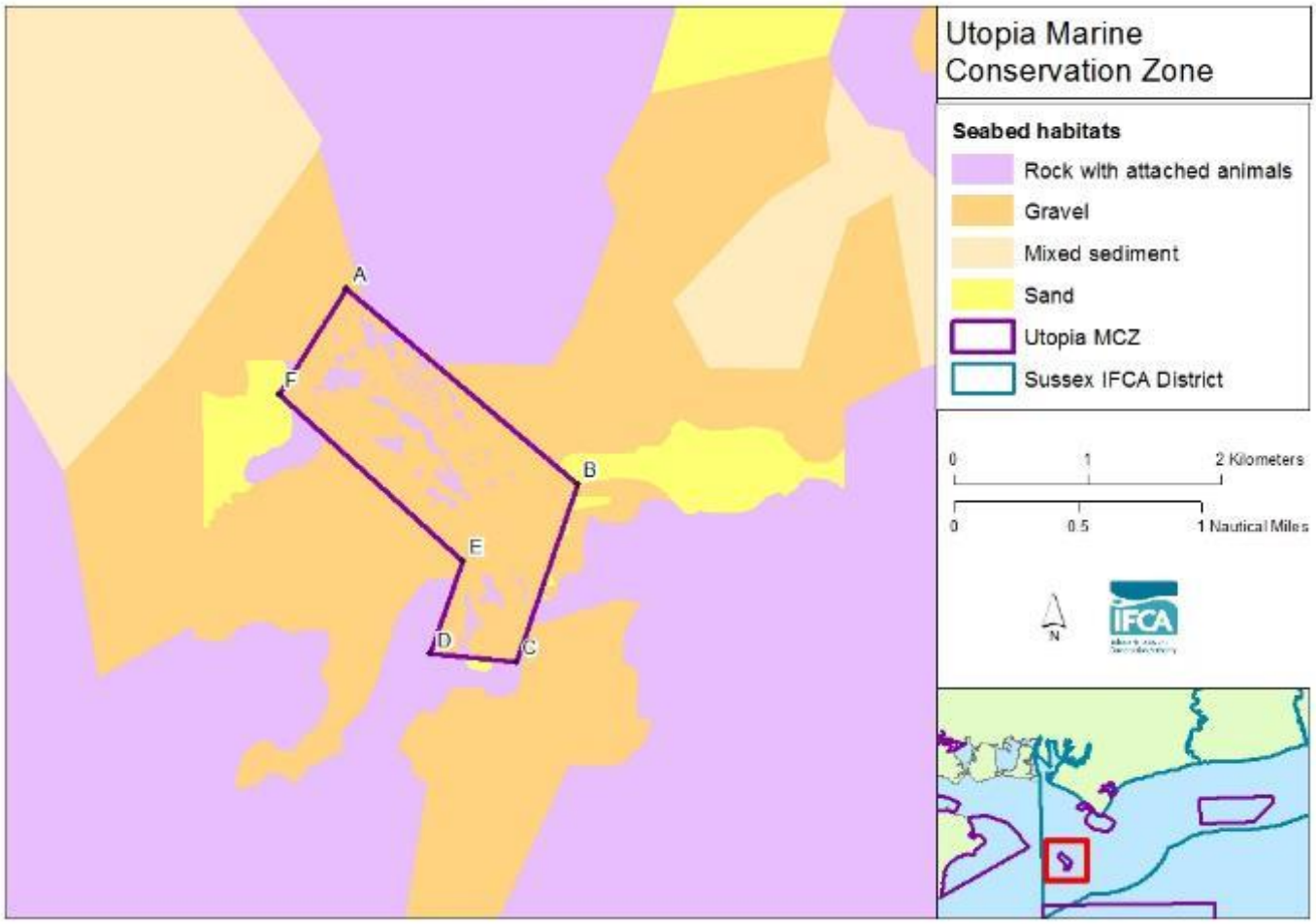
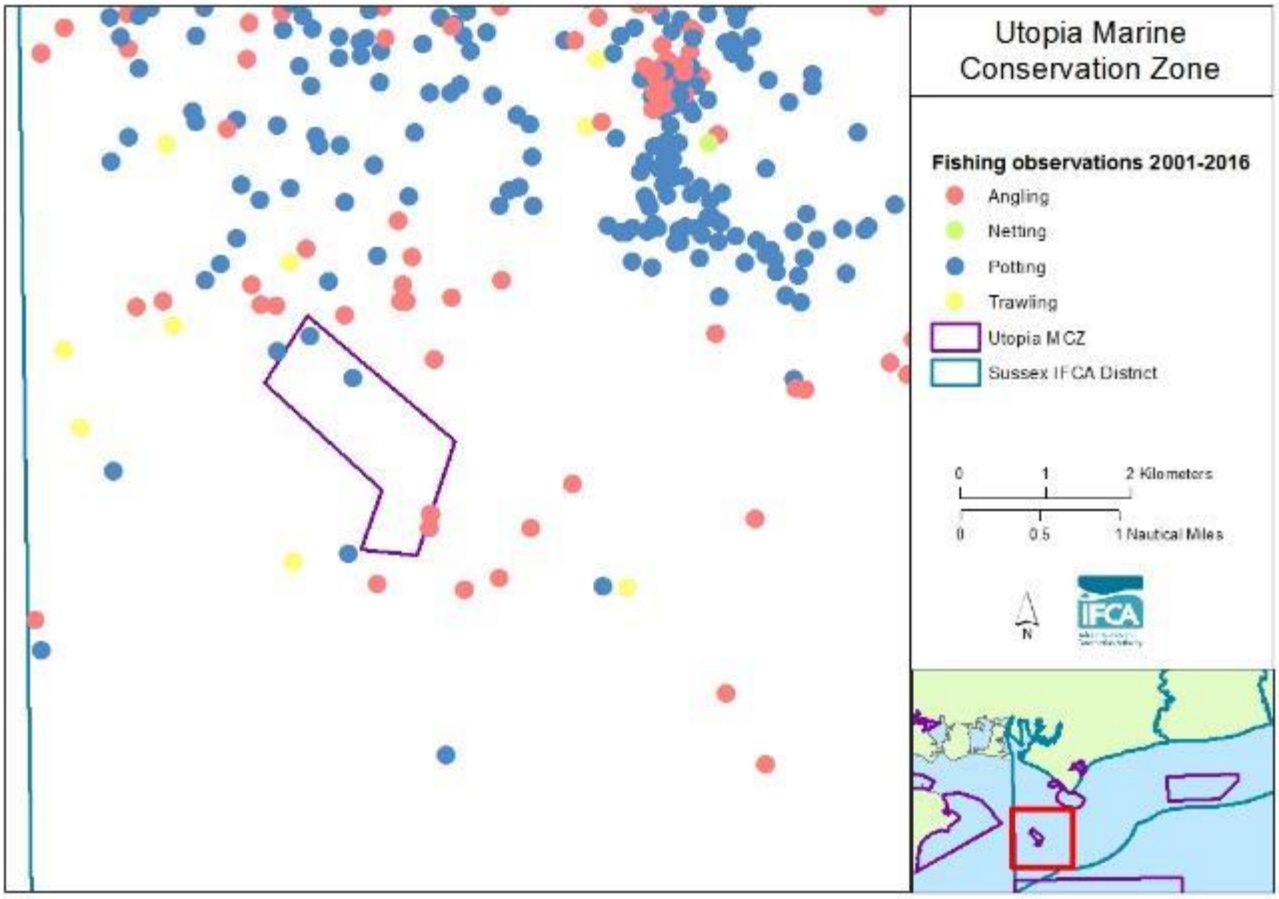
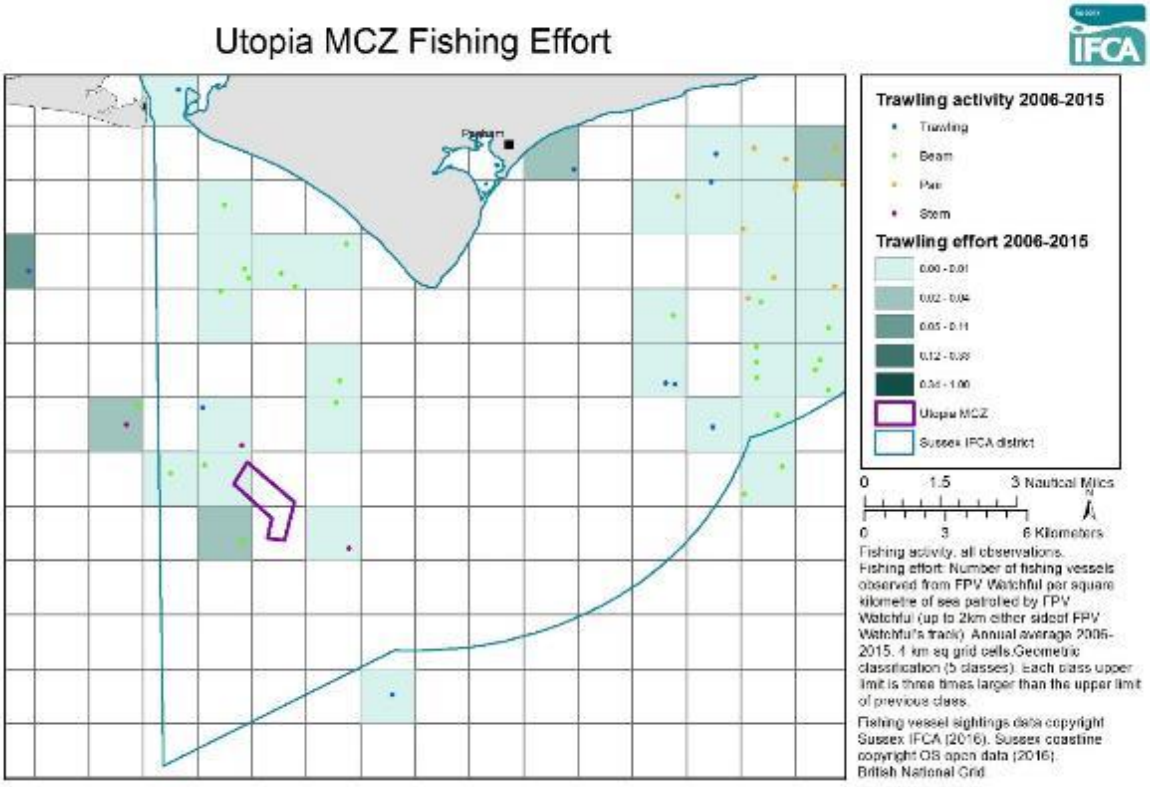
Annex I: Feature map

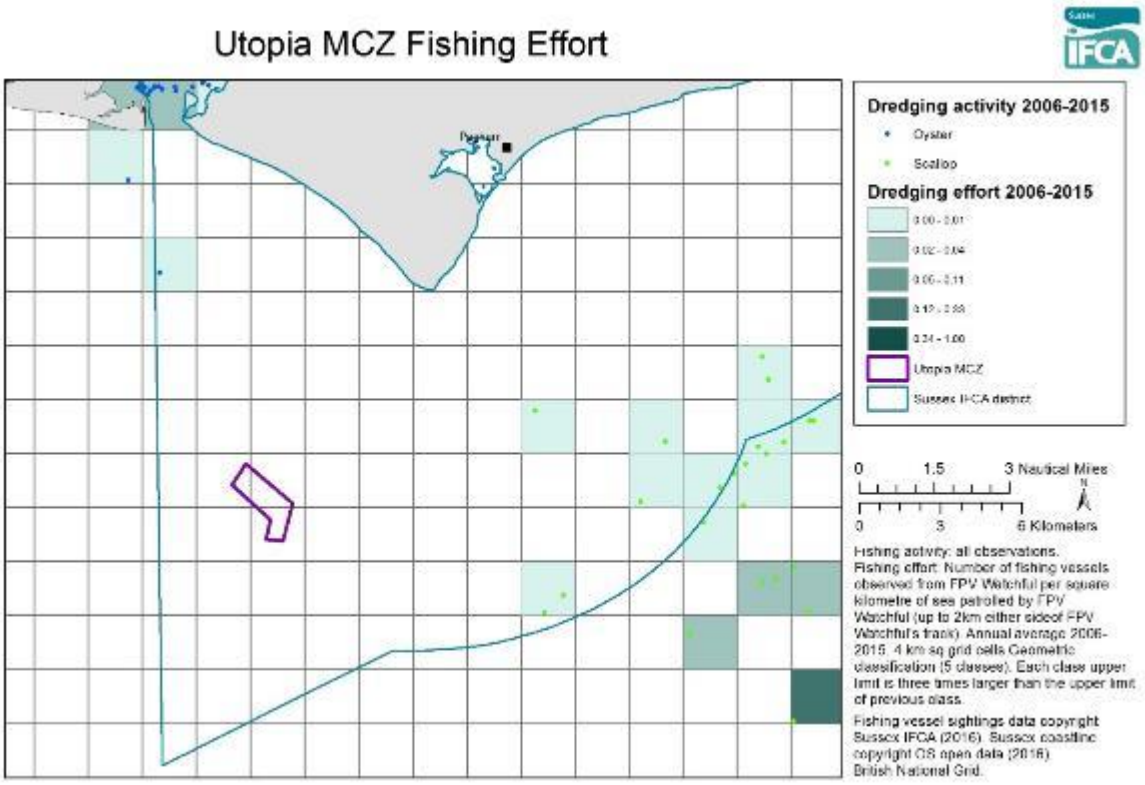


Annex II: Fishing activity map: Sussex IFCA sightings data 2001-2016

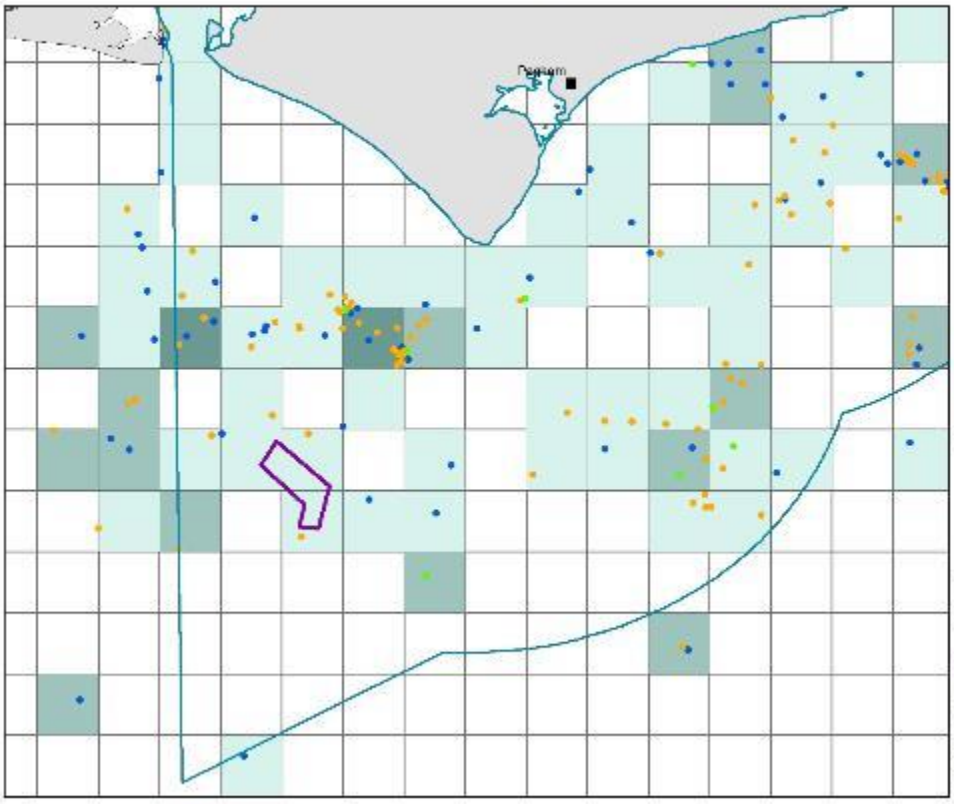


Annex III: Fishing effort maps: Sussex IFCA sightings data 2006-2015





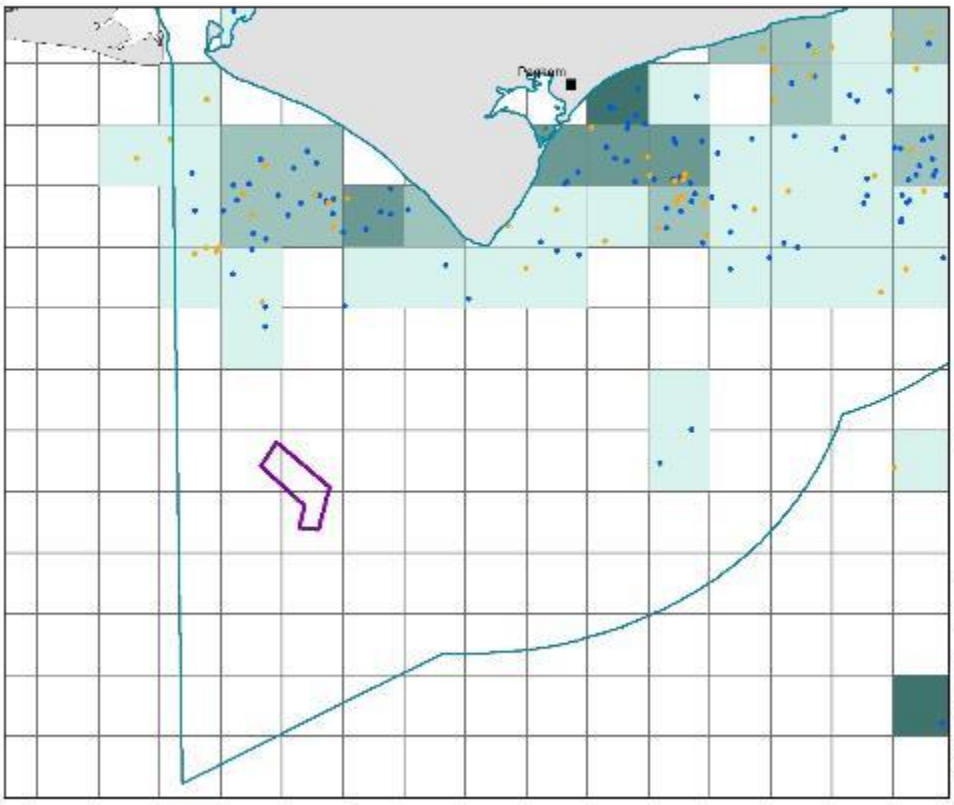
Utopia MCZ Fishing Effort



Fishing activity, all observations.
Fishing effort: Number of fishing vessels observed from FPV Watchful per square kilometre of sea patrolled by FPV Watchful (up to 2km either sideof FPV Watchful's track). Annual average 2006-2015. 1 km sq grid cells.Geometric classification (5 classes). Each class upper limit is three times larger than the upper limit of previous class.

Fishing vessel sightings data copyright Sussex IFCA (2016). Sussex coastline copyright OS open data (2016). British National Grid.

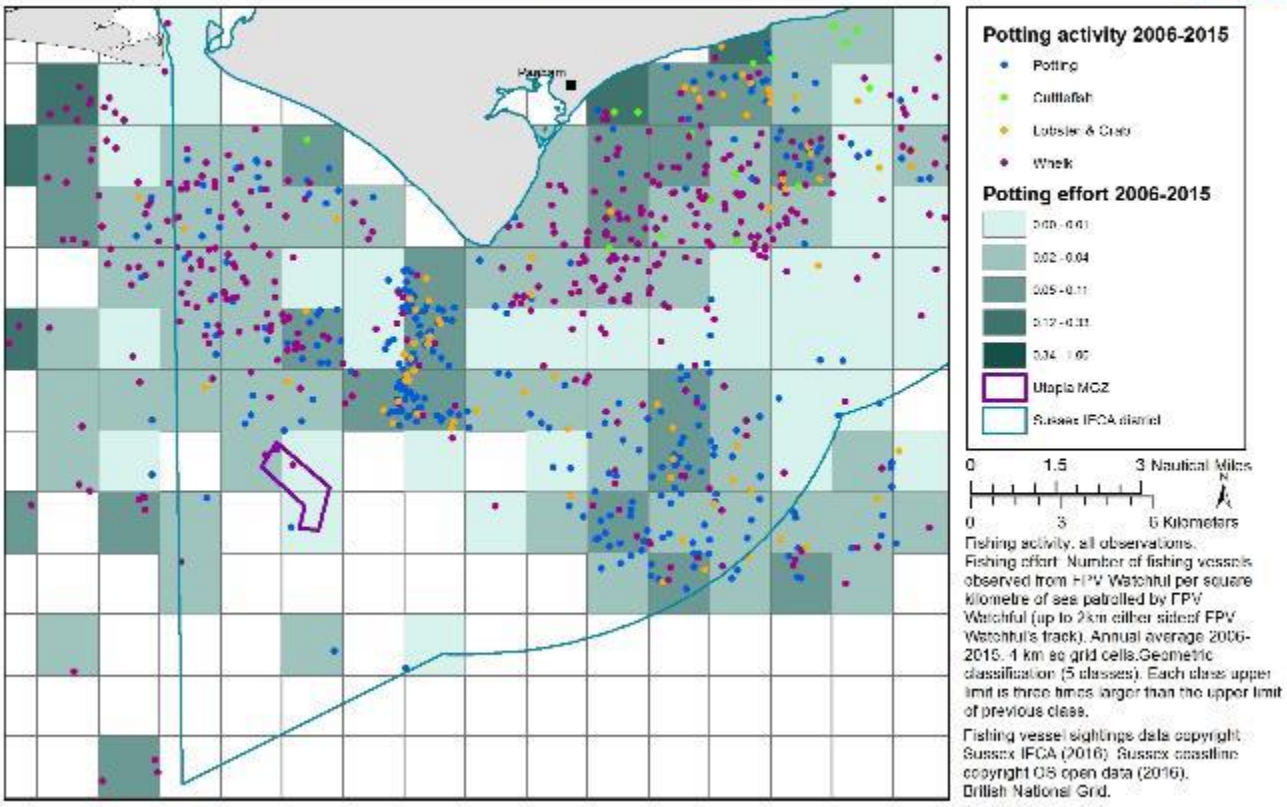
Utopia MCZ Fishing Effort



Fishing activity, all observations.
Fishing effort: Number of fishing vessels observed from FPV Watchful per square kilometre of sea patrolled by FPV Watchful (up to 2km either sideof FPV Watchful's track). Annual average 2006-2015. 1 km sq grid cells.Geometric classification (5 classes). Each class upper limit is three times larger than the upper limit of previous class.

Fishing vessel sightings data copyright Sussex IFCA (2016). Sussex coastline copyright OS open data (2016). British National Grid.

Utopia MCZ Fishing Effort



Fishing activity: all observations.
Fishing effort: Number of fishing vessels observed from FPV Watchful per square kilometre of sea patrolled by FPV Watchful (up to 2km either sideof FPV Watchful's track). Annual average 2006-2015. 1 km sq grid cells.Geometric classification (5 classes). Each class upper limit is three times larger than the upper limit of previous class.

Fishing vessel sightings data copyright Sussex IFCA (2016). Sussex coastline copyright OS open data (2016).
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Annex IV: Informal consultation questionnaires

UTOPIA MCZ SITE USE DETAILS:
Information Gathering Questionnaire

Sussex IFCA would like to better understand the number of vessels, quantity of gear and the importance of the Utopia MCZ site for users. We would greatly appreciate your input on how you use the site and what you know about the site.

Site user name:

Email:

1. What gear type do you use?
   Specifics of gear used

2. What time of year do you mainly use Utopia MCZ?

3. Where do you fish within the site and for what species? (describe)

4. How often do you, or the individuals you are representing, use the site and how long for?

5. How much / what size of gear do you deploy at the site? (If applicable)

6. What proportion of your income do you estimate comes from the Utopia MCZ site?
   Help us understand your economic take from the site and the cost of restrictions to your business

7. If restricted from using this area, are there alternative areas nearby or methods you could use? *Please provide details – including why not an option, if applicable, and if there would be additional travel to use an alternative area*

8. How important would you rate the site is to you?
Low, Medium or High importance

9. What number of vessels of your gear type are you aware of which use the site?

_____

_____

SUSSEX
Inshore Fisheries and Conservation Authority

COMMENTS SHEET

Utopia MCZ Informal Consultation
Location:
Date:

Sussex IFCA has prepared some potential management proposals for Utopia MCZ. We would like to get your input and opinion on these before further developing proposals and consulting formally.

Thank you for taking the time to comment.

Name: _____
Contact details: _____

1. Do you support the following Utopia MCZ fisheries management proposals?

   a. Towed gear: Whole site, year round prohibition
   Yes ___ No ___

   b. Netting: Whole site, year round prohibition
   Yes ___ No ___

   c. Potting: Year round elasmobranch retention prohibition
   Yes ___ No ___

   d. Sea Angling: Year round elasmobranch retention prohibition
   Yes ___ No ___

   Closed season over tope or wider elasmobranch species spawning seasons
   Yes ___ No ___

2. Do you have any comments on a specific management proposal, or any management recommendations for the site? (for towed gear / netting / potting / sea angling)

_____
_____
_____
_____
_____

Unit 12a, Riverside Business Centre, Brighton Road, Shoreham-by-Sea, West Sussex, BN43 6RE

Tel: 01273 454407 Fax: 01273 464668 Email: admin@sussex-ifca.gov.uk Website: www.sussex-ifca.gov.uk

3. Does Sussex IFCA's understanding of fishing activity within the area accurately reflect your knowledge of activity? If not, please detail.

4. What species of elasmobranch have you encountered within the Utopia MCZ area when fishing?

5. Are you aware of elasmobranch species which are using the Utopia MCZ area as a pupping/spawning ground?

6. What are your views on broader, district-wide management measures for elasmobranch species, rather than site specific measures? For example, minimum sizes or restrictions on removal of vulnerable species.

7. Do have any additional comments you would like to provide?

Thank you for your input. Your comments will be taken into consideration when formulating final proposals for formal consultation.

Unit 12a, Riverside Business Centre, Brighton Road, Shoreham-by-Sea, West Sussex, BN43 6RE

Tel: 01273 454407 Fax: 01273 464668 Email: admin@sussex-ifca.gov.uk Website: www.sussex-ifca.gov.uk

Annex V: Marine and Coastal Access Act obligations

- Duty in relation to MCZ implementation

  The duty in section 125 requires public authorities, so far as is consistent with the proper exercise of their functions, to exercise their functions:

i. in the manner which the authority considers best furthers the conservation objectives for the MCZ; or, where this is not possible;
ii. in a manner which the authority considers least hinders the achievement of the conservation objectives.

Section 126 applies to all public authorities with responsibility for authorising applications for activities (such as shellfish extraction) capable of affecting:

i. a protected feature of an MCZ; or,
ii. any ecological or geomorphological processes on which the conservation of an MCZ feature is partially or wholly dependent.

The duty in section 154 requires IFCAs to further the conservation objectives of MCZs.

- Provisions for management

Sections 129 to 132 of the Act give MMO the power to make byelaws, including emergency and interim byelaws, for the purpose of furthering the conservation objective of an MCZ.

Section 140 of the Act makes it an offense for any person to intentionally or recklessly damage the protected features of an MCZ in such a way that the conservation objectives have, or may have, been significantly hindered.

The purpose of this section is intended to prevent:
i. Acts of environmental vandalism – intentional acts where the purpose is to damage the designated feature of an MCZ;
ii. Reckless damaging behaviour – where the person was aware (or should reasonably be expected to have been aware) that damage was a likely consequence of their actions, but they continued regardless.

Sections 155 to 157 of the Act give IFCAs the powers to make byelaws, including emergency byelaws, for the purpose of furthering the conservation objectives of an MCZ.

Section 156 sets out a non-exhaustive list of the types of activities for which IFCAs may make byelaws (including emergency byelaws) to manage sea fisheries resources in their district. Provisions that may be made by a byelaw under this section include prohibiting or restricting the exploitation of sea fisheries:

i. in specified areas or during specified periods;
ii. limiting the amount of sea fisheries resources a person or vessel may take in a specified period.

The provisions cover:
i. permits (including conditions for the issue, cost and use of permits);
ii. vessels;
iii. methods and gear, (including the possession, use, retention on board, storage or transportation of specified items).

- Risk and uncertainty

In carrying out their duties under Part 5 of the Act, it is inevitable that public authorities will be required to take decisions on the basis of incomplete or uncertain information. For example, it will sometimes be impossible or impractical to establish with certainty:

i. whether an activity or proposed development is capable of affecting an MCZ, and whether the impact is insignificant;
ii. whether or not a proposed development may 'hinder the achievement' of an MCZ's conservation objective;
iii. the extent of any damage to the environment;
iv. or whether equivalent environmental benefit measures will secure the desired outcome.

Decision-making should be reasonable and proportionate to the level of risk and potential impact. Decisions should be based on the balance of best available evidence and have regard to any advice from Statutory Nature Conservation Bodys (SNCBs). In cases where the risk to the conservation objectives of the site could be high, it may be appropriate to follow a precautionary approach. Where evidence is inconclusive, regulators should make reasonable efforts to fill evidence gaps but will also need to apply precaution within an overall risk-based approach. This means that if the risks from an activity are uncertain preventative measures may be required.

- Monitoring in regard to MCZ reporting

Section 124 requires an assessment every 6 years, outlining the extent to which conservation objectives have been achieved across the MCZs, and the contribution of sites towards achieving an ecologically coherent network of MPAs.

Subsection 3 directs the appropriate SNCB to carry out the monitoring of MCZs.

The report should contain:
i. the number of MCZs which the authority has designated during the relevant period;
ii. in relation to each such MCZ.
    - the size of the MCZ, and
    - the conservation objectives which have been stated for the MCZ;
iii. the number of MCZs designated by the authority in which the following activities are prohibited or significantly restricted;
    - any licensable marine activity;
    - fishing for or taking animals or plants from the sea.
v. information about any amendments which the authority has made to any designation orders;
vi. the extent to which the conservation objectives stated for each MCZ which it has designated have been achieved;
vii. any further steps which are required to be taken in relation to any MCZ in order to achieve the conservation objectives stated for it.