

<b>Title:</b> Sussex IFCA Minimum Size (Fish, Crustacea and Mollusc) Byelaw 2021, Impact Assessment  <b>IA No:</b> SXIFCA008 <b>Lead department or agency:</b> Sussex Inshore Fisheries and Conservation Authority (IFCA) <b>Other departments or agencies:</b> Department for Environment, Food and Rural Affairs (DEFRA), Marine Management Organisation (MMO)	<b>Impact Assessment (IA)</b>
	<b>Date:</b> 27 <sup>th</sup> August 2021
	<b>Stage:</b> Final
	<b>Source of intervention:</b> Domestic
	<b>Type of measure:</b> Secondary Legislation
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<b>Summary: Intervention and Options</b>	<b>RPC Opinion:</b> Opinion Status: N/A

Cost of Preferred (or more likely) Option (in 2019 prices)			
Total Net Present Social Value	Business Net Present Value	Net cost to business per year (EANDCB on 2019 prices)	Business Impact Target Status
£-2.4m	£-2.4m	£0.3m	1.4

**What is the problem under consideration?**

The application of minimum sizes for fish is an accepted, effective tool for the sustainable management of fisheries and enables the sustainable development of fisheries within the district.

**Why is Government intervention necessary?**

Regulation (EU) 2019/1241 (transposed into UK law) establishes that Minimum Conservation Reference Sizes (MCRS) apply only in relation to commercial fishing and removes the existing prohibition on the transshipping, landing, transporting, storing, selling and displaying or offering for sale undersize marine organisms. This regulation stands as part of the post EU exit measures in force. For those species not listed in relevant Sussex IFCA byelaws, there is no effective enforcement regime in respect of undersized fish and shellfish for recreational fishers and no enforcement in respect of transshipment, landing, transporting, storing, displaying and offering for sale of undersized fish and shellfish for commercial fishers. The proposed byelaw intervention will amalgamate minimum sizes measures which currently exist under a range of legislation and apply these to all fishery participants in the Sussex IFC District.

In addition, the byelaw will introduce minimum sizes for a number of species outside the MCRS regulations, to support the sustainable management of these fisheries and to align with neighbouring management measures.

**What are the policy objectives and the intended effects?**

Through the protection of juvenile marine fish of given species, to:

- i) Enhance the sustainability of fisheries in the Sussex IFC District.
- ii) To enhance ecosystem functioning and provision of goods and services.
- iii) Make a contribution to the achievement of sustainable development.
- iv) Balance the different needs of persons engaged in the exploitation of sea fisheries resources in the District.

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

- 0. Do nothing.
- 1. Voluntary measures.
- 2. Create a single Sussex IFCA Minimum Sizes 2021 Byelaw.

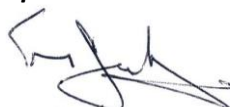
All options are compared to Option 0, the preferred option is Option 2, which will promote both sustainable fisheries and enhance the marine environment while ensuring compliance with the Marine and Coastal Access Act 2009 (MaCAA), the objectives of the South Marine Plan, The Marine Strategy Framework Directive and the Fisheries Act 2020 objectives. This option has been chosen as it enables the protection of natural capital assets (fish populations/stocks) within the Sussex IFC District. It is considered that, on the basis of available evidence, the benefits of this protection outweigh the costs of the measures. Option 2 also encompasses a commitment to continue with a longer-term evidence exercise with a view to revising the byelaw to contain more species and size restrictions in, for example, 2 years.

**Will the policy be reviewed? It will be reviewed. If applicable, set review date: April 2025**

Is this measure likely to impact on trade and investment?		No		
Are any of these organisations in scope?	Micro yes	Small yes	Medium yes	Large no
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)		Traded: n/a		Non-traded: n/a

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

Signed by the responsible Chief Fisheries and Conservation Officer



Date:

27<sup>th</sup> August 2021

# Summary: Analysis & Evidence

# Policy Option 2

## Description:

### FULL ECONOMIC ASSESSMENT

Price Base Year 2019	PV Base Year 2020	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)			
			Low: -2.5	High: 0	Best Estimate: -2.5	
COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant	Total Cost (Present Value)		
Low	Optional		0	0		
High	Optional		0.3	2.5		
Best Estimate	0		0.3	2.5		
<p><b>Description and scale of key monetised costs by ‘main affected groups’</b></p> <p>The total first year and subsequent annual monetised costs for the fishing industry associated with the introduction of the proposed measures are estimated to be £288,000. This is an overestimate due to key assumptions i-iii outlined below.</p> <p>These costs are likely to arise as a consequence of loss of landing catch as a consequence of the increased minimum size for the species identified. It is not anticipated that Sussex IFCA will incur any additional costs associated with ensuring compliance with the new measures.</p>						
<p><b>Other key non-monetised costs by ‘main affected groups’</b></p> <p>There is very low potential for the displacement of fishing effort to other areas, potentially creating additional conflict with other users and reducing the sustainability of fisheries and the marine environment.</p>						
BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant	Total Benefit (Present Value)		
Low	Optional		Optional	Optional		
High	Optional		Optional	Optional		
Best Estimate	0		0	0		
<p><b>Description and scale of key monetised benefits by ‘main affected groups’</b></p> <p>It is not possible to estimate monetised benefits at this point, however medium to long term monetised benefits are expected to significantly exceed short term monetised costs.</p>						
<p><b>Other key non-monetised benefits by ‘main affected groups’</b></p> <p>It is anticipated that the proposed measures will benefit the sustainability of fish and shellfish populations through a reduction in fishing mortality of juvenile species. A reduction in juvenile fish and shellfish mortality will increase the potential for these populations to reproduce, which will benefit the District fisheries, both commercial and recreational. The adoption of minimum size measures for fish and shellfish species in the Sussex IFC District under a single byelaw has the potential to improve the understanding of these measures and as a consequence, compliance with the measures. The proposed byelaw will apply to all persons at all stages of the supply chain, from catch to sale, removing any uncertainty associated with how different minimum size restrictions may apply to different fishery users.</p>						
Key assumptions/sensitivities/risks				Discount rate (%)	3.5%	

- i) That accurate information has been gathered from stakeholders through stakeholder liaison.
- ii) That MMO sub ICES rectangle landing data reflects the District catch.
- iii) That small fish grades are equal in price to larger fish grades.
- iv) That pre-existing minimum sizes reflect the age of maturation of specific species.
- v) That there will be compliance with the measures and that the measures will achieve the policy objective.
- vi) That the proposed measures are in keeping with the former Council Regulation (EC) No 850/98. Minimum sizes established in Regulation (EU) 1241/2019 and under the Orders made under the Sea Fish (Conservation) Act 1967 are appropriate and have a protective effect.
- vii) That although benefits are well understood, they cannot be accurately represented in the monetised figures as they are difficult to quantify.

**BUSINESS ASSESSMENT (Option 2)**

<b>Direct impact on business (Equivalent Annual) £m:</b>			<b>Score for Business Impact Target (qualifying provisions only) £m:</b>
<b>Costs: £0.3m</b>	<b>Benefits: £0</b>	<b>Net: £0.3</b>	n/a

## Contents

<b>1.0 Introduction</b>	<b>5</b>
1.1 Area in question	5
1.2 Impact Assessment purpose	5
1.3 Inshore Fisheries and Conservation Authority duties	5
<b>2.0 Rationale for intervention</b>	<b>6</b>
<b>3.0 Policy objectives</b>	<b>6</b>
<b>4.0 Evidence base</b>	<b>7</b>
5.1 Option 0: Do nothing	17
5.2 Option 1: Voluntary agreement	17
5.3 Option 2: Proposed management	18
<b>6.0 Costs and Benefits of Preferred Option</b>	<b>19</b>
6.1 Key monetised and non-monetised costs	19
6.2 Benefits	20
6.3 One in Three Out (OI3O)	21
6.4 Small firms impact test and competition assessment	21
6.5 Risks and assumptions	21
<b>7.0 Conclusion</b>	<b>21</b>

## 1.0 Introduction

### 1.1 Area in question

This Impact Assessment (IA) is for the Sussex Inshore Fisheries and Conservation Authority (IFCA) District ‘Minimum Size (Fish, Crustacea and Mollusc) Byelaw 2019’. This byelaw will affect all persons who fish for sea fisheries resources in the Sussex IFC District. There is the potential for those fishers who catch species including grey mullet species (*Chelon spp.*), turbot, lemon sole, flounder, dab, conger eel, brill, black seabream and American hard-shelled clam, in the District to incur a monetised cost as a result of the proposed measures.

### 1.2 Impact Assessment purpose

This IA assesses the costs and benefits of the recommended option. It also considers why the recommended option is being recommended rather than others.

### 1.3 Inshore Fisheries and Conservation Authority duties

The IFCA must manage the exploitation of sea fisheries resources in their Districts as set out in section 153 of the Marine and Coastal Access Act 2009 (MaCAA), <http://www.legislation.gov.uk/ukpga/2009/23/contents>. The Sussex IFCA governing committee consists of members of West Sussex, East Sussex and Brighton & Hove councils, persons appointed by the Marine Management Organisation (MMO), and employees of the MMO, Environment Agency (EA) and Natural England (NE). The appointed members of the Authority must comprise of those acquainted with the needs and opinions of the fishing community of the District, and those with knowledge of, or expertise in, marine environmental matters. The IFCA principal committee and its subcommittees delegates management functions to the Chief Fisheries and Conservation Officer and Senior Management Team.

Section 153 of the MaCAA details the duties of the IFCA, stating that “the authority for an IFC District must:

- (a) seek to ensure that the exploitation of sea fisheries resources is carried out in a sustainable way,
- (b) 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 its recovery from, the effects of such exploitation,
- (c) take any other steps which in the authority’s opinion are necessary or expedient for the purpose of making a contribution to the achievement of sustainable development, and
- (d) seek to balance the different needs of persons engaged in the exploitation of sea fisheries resources in the District.”

In addition, section 154 provides that the authority for an IFC District “must seek to ensure that the conservation objectives of any Marine Conservation Zones in the District are furthered.”

## 2.0 Rationale for intervention

2.1 The nationally agreed vision of the IFCA is that they will:

*“Lead, champion and manage a sustainable marine environment and inshore fisheries within their Districts by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry”*

2.2 Sussex IFCA has a duty to manage the exploitation of sea fisheries resources in the District to ensure that it is carried out in a sustainable manner, whilst balancing the different needs of persons engaged in the exploitation of sea fisheries resources in the District.

2.3 Fishing 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.
- 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.

2.4 This byelaw aims to redress these sources of market failure in the marine environment through the following ways:

- Management measures will support continued existence of public goods in the marine environment (Definition of the marine environment S.186 MaCAA), for example conserving the range of biodiversity in the Sussex IFC 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 Sussex IFC District.

## 3.0 Policy objectives

3.1 The policy objectives of this byelaw are, through the protection of juvenile marine species, to:

- i) enhance the sustainability of fisheries of the Sussex IFC District;
- ii) make a contribution to the achievement of sustainable development; and
- iii) balance the different needs of persons engaged in the exploitation of sea fisheries resources in the District.

These IFCA duties and objectives also support the objectives of the Marine Strategy Framework Directive (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056>), the South Inshore and Offshore Marine Plan 2018, objective 12 for the provision of quality fisheries (<https://www.gov.uk/government/publications/the-south-marine-plans-documents>) and the UK Fisheries act 2020 (<https://www.legislation.gov.uk/ukpga/2020/22/contents/enacted>).

- 3.2 The Sussex IFCA currently has only one minimum size regulation as part of its byelaws, the Oyster Permit Byelaw, which states a minimum size methodology for all oyster species except Pacific or Portuguese oysters, in order to protect stocks of native oysters The Shellfish Permit Byelaw indirectly maintains a minimum size effect by requiring that whelks are passed over a riddle with specific dimensions.
- 3.3 Article 13 of Regulation (EU) 2019/1241 (<https://www.legislation.gov.uk/eur/2019/1241/article/13>) of the European Parliament and of the Council sets out a series of fisheries Minimum Conservation Reference Sizes (MCRS) for the conservation of fisheries resources and the protection of marine ecosystems.
- 3.4 Regulation (EU) 2019/1241 was published by the European Union on 25 July 2019. These regulations deal broadly with managing fishers, applying an ecosystem approach as well as providing for ‘regional’ management of fisheries across Europe. The intentions of this legislation come from the reformed Common Fisheries Policy. Importantly, these regulations revoke and replace the measures implemented through Council Regulation (EC) 850/98. Critically, Regulation (EU) 2019/1241 establishes that the MCRS apply only in relation to commercial fishing and removes the existing prohibition on the transshipping, landing, transporting, storing, selling and displaying or offering for sale undersize marine organisms. Thus leaving a gap in fisheries management measures.
- 3.5 As a result, for those species not listed in relevant Sussex IFCA byelaws, there is no effective management regime in respect of undersized fish and shellfish for recreational fishers and unlicensed fishing vessels, and no enforcement in respect of trans-shipment, landing, transporting, storing, displaying and offering for sale of undersized fish and shellfish. This would cause enforcement issues in circumstances where a licensed fishing vessel is not used or where there is any uncertainty about the origin of the product once it has left a licensed fishing vessel.
- 3.6 The Authority has established priorities for the management of fishing activities in the inshore waters in the Sussex IFC District through an agreed four-year plan. Within this plan it has been agreed that the Authority will formally review its minimum size management. The main role of protecting juvenile fish and shellfish from exploitation is to avoid the impact of growth overfishing; whereby fish are removed before they have an opportunity to reproduce and thus contribute to the stock biomass. Furthermore, larger fish can be associated with more value to the spawning stock biomass, than to the recreational fishing community in terms of sport and in markets.
- 3.7 Due to the clear and present risk posed to the sustainability of fisheries within the Sussex IFC District, particularly associated with the application of Regulation (EU) 2019/1241, there is the need to introduce the proposed byelaw in line with the four-year management plan.

#### 4.0 Evidence base

- 4.1 The removal of fish and shellfish only once they have reached a specified minimum size (ideally related to a breeding size) is a common fisheries management measure used around the world. As a management measure it is relatively cheap, simple and effective to apply and easy for fishers to understand. The measure, applied to all fishery participants and set at an appropriate level, is an effective tool for the

sustainable management of fisheries and enabling sustainable development of fisheries within the District.

- 4.2 The application of minimum size measures across all fisheries, to all participants and throughout the supply chain will ensure continuity and increased understanding of the manner in which fishery management measures are applied in the Sussex IFC District.
- 4.3 It should be noted that the proposed measures are not intended to conflict with the landing obligation (implemented through EU 1380/2013). The Byelaw has been structured so as to not conflict with the landing obligation.
- 4.4 The level of current evidence is presented below, with regard to the species under consideration for inclusion in the proposed byelaw. Nationally held landings data and local information are combined to establish estimates of costs. These estimates err on the side of caution and represent an overestimate, using maximum figures for catch values and proportion of low grade fish.

The Authority will undertake additional research to build upon the existing evidence base and, if necessary, will make additional regulatory changes through a review of the proposed byelaw.

Species are considered case by case below, where data exists. Species are reviewed with detail commensurate with their socio economic importance. Data poor species, i.e. where catches are minimal, are not included.

#### 4.5 Lemon sole

Landings data indicates that catches of lemon sole into Sussex ports have been declining since 2013. Sussex IFCA do not currently have a minimum landing size for lemon sole. Lemon sole are believed to reach maturity around 300 millimetres (mm) (<https://www.fishbase.se/search.php>). A minimum size of 250mm will introduce a regulations in line with neighbouring District Southern IFCA regulations and allow a greater number of fish to survive to maturity (See Southern IFCA 2020).

An immediate step to 300 millimetres is not proposed due to the immediate impact on fishers and inconsistency with existing adjacent Southern IFCA Byelaw regulations.

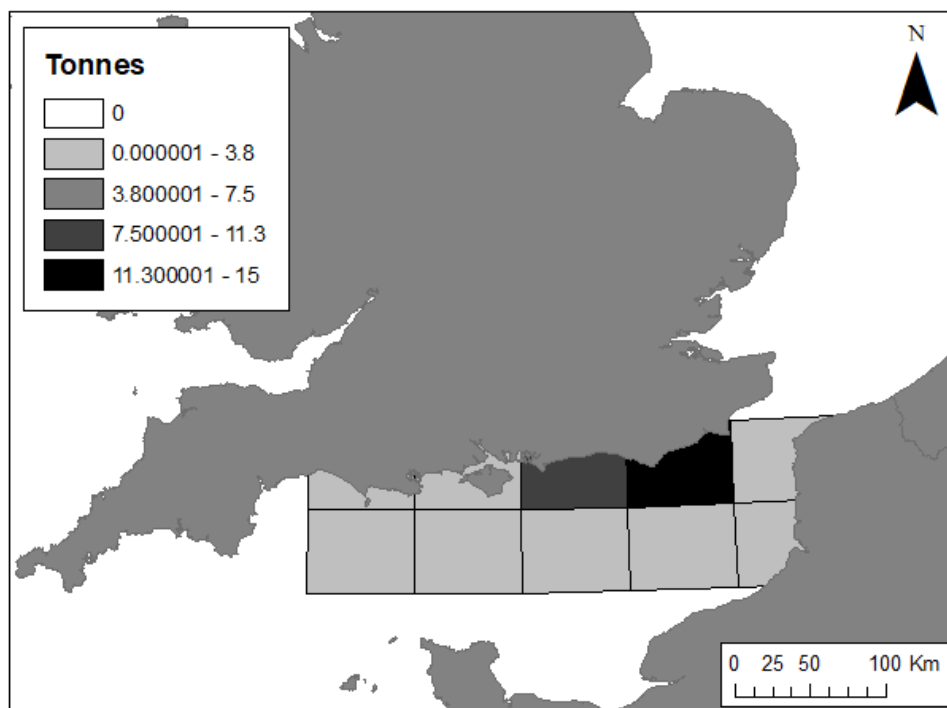


Figure 1. Average yearly landings (2015-2019) of lemon sole from ICES rectangles 30E9 and 30F1 into Sussex ports.

#### 4.6 Black seabream

Black seabream are mainly caught in the Channel and Celtic sea. In Sussex, they are caught from pair and stern trawling, static nets and rod and line. They are also a recreational rod and line target species. MMO landings data show that black seabream are landed into Sussex ports predominantly from the west of the District.



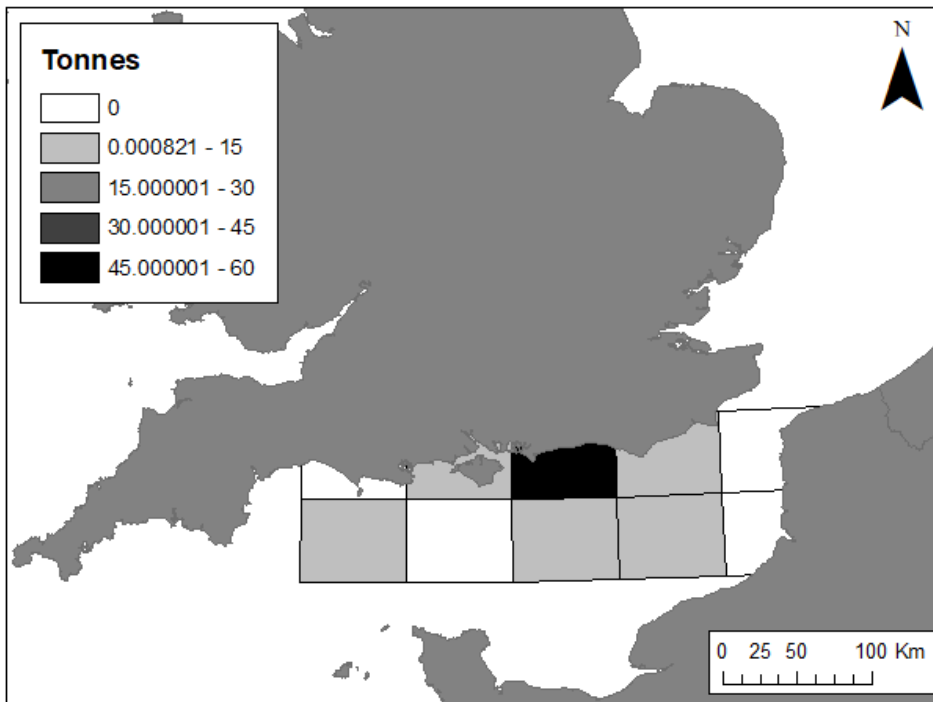


Figure 2. Average yearly landings (2015-2019) of black seabream from ICES rectangles to Sussex ports.

Landings of black seabream into Sussex ports have been declining since 2008 (Figure 3). This is coincident with a reduction in the fleet size. Sussex IFCA currently have a voluntary black seabream minimum size of 230mm. Black seabream are protogynous hermaphrodites, maturing as females around 2-3yrs at 200mm in size and then change to male between 300mm-400mm (<https://www.fishbase.se/search.php>). A minimum size of 230mm will bring the regulations in line with neighbouring Southern IFCA regulations and allow a greater number of fish to survive to maturity. Changes for pair trawl mesh sizes (from 95mm to 110mm) due to amendments to the Sussex IFCA Fishing Instruments Byelaw (as a result of implementation of the proposed Nearshore Trawling Byelaw) are expected to reduce landings of largely immature black seabream in line with the 230mm limit.

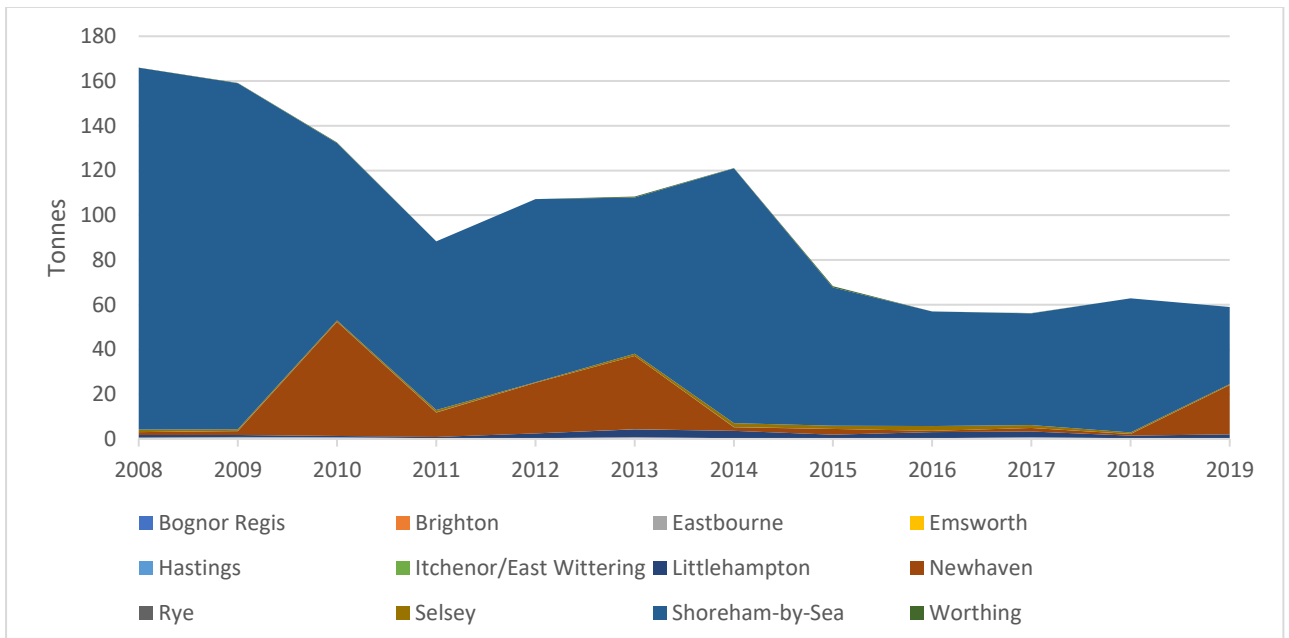


Figure 3. Yearly landings (tonnes) of black seabream into Sussex ports from ICES rectangles 30E9 and 30F1 from 2008 to 2019.

#### 4.7 Dab

Sussex IFCA do not currently have a minimum landing size for dab. Dab are believed to reach maturity around 250mm (Fishbase). A minimum size of 230mm will bring the regulations in line with neighbouring District Southern IFCA regulations and allow a greater number of fish to survive to maturity.

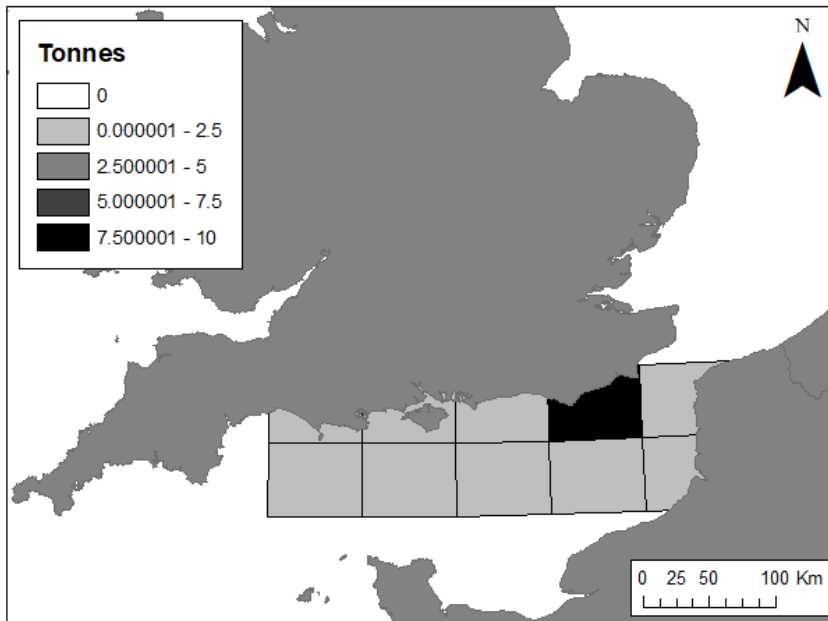


Figure 4. Average yearly landings (2015-2019) of dab from ICES rectangles to Sussex ports.

#### 4.8 Mullet

Grey mullet reach their northern geographical limit around the coast of the UK and Ireland with three species found in these waters; the thick-lipped grey mullet, the thin-lipped grey mullet and the golden-grey mullet.

Landing of mullet species into Sussex ports has been declining since 2011. Thick-lipped and thin-lipped mullet are believed to reach maturity at 400mm (male) and 470mm (female) (<https://www.fishbase.se/search.php>). A minimum size of 420mm will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity. Golden grey mullet are believed to reach maturity at 340mm (Fishbase). A minimum size of 360mm will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity.

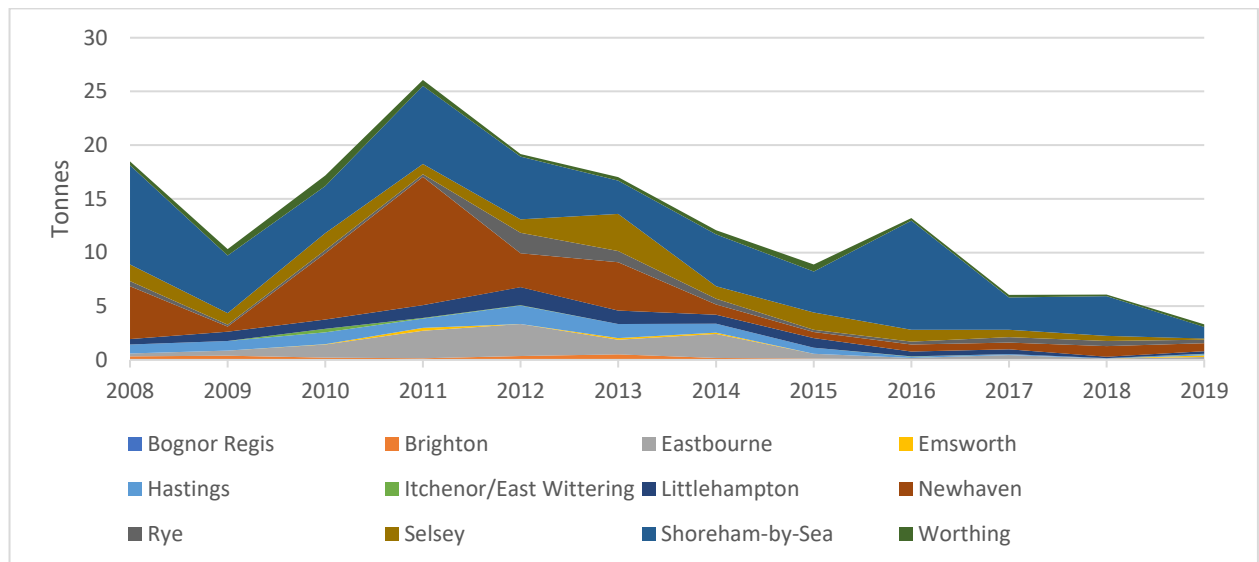


Figure 5. Yearly landings (tonnes) of mullet species into Sussex ports from 2008-2019.

#### 4.9 Turbot

Turbot are believed to reach maturity at approximately 350mm. (<https://www.fishbase.se/search.php>) A minimum size of 300mm will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity.

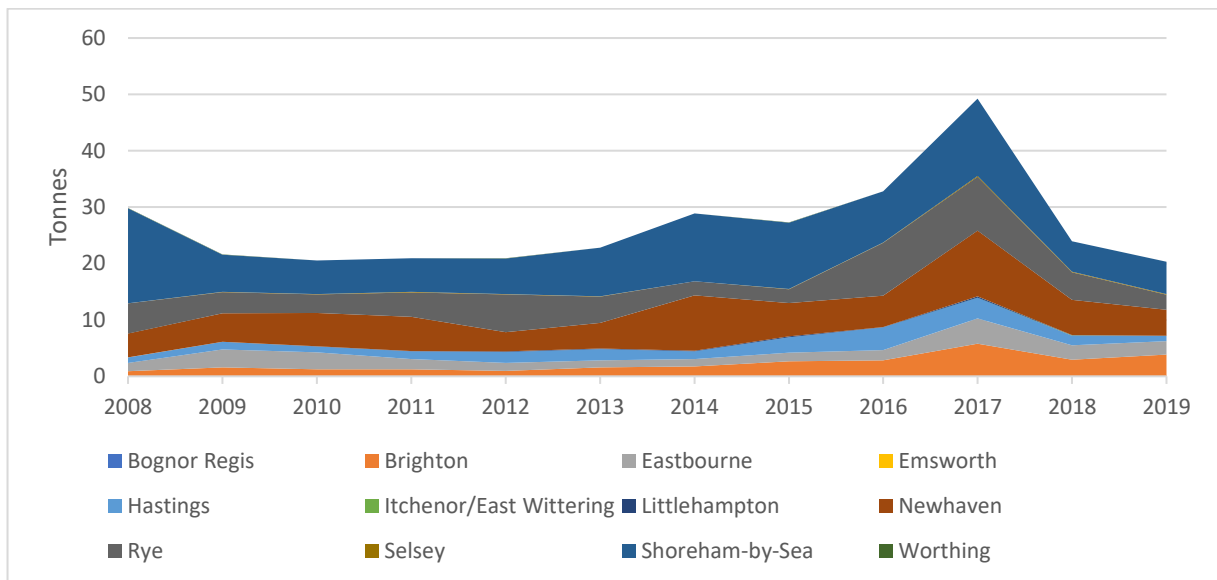


Figure 6. Yearly landings (tonnes) of turbot into Sussex ports from 2008-2019.

#### 4.10 Skates and rays

A minimum size of 400mm (whole) and 200mm (wing) for unlicensed fishers will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity. It should be noted that this category contains within it a number of species, which have a range of sizes of maturity.

#### 4.11 Brill

Brill are believed to reach maturity at 410mm (<https://www.fishbase.se/search.php>). A minimum size of 300mm will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity.

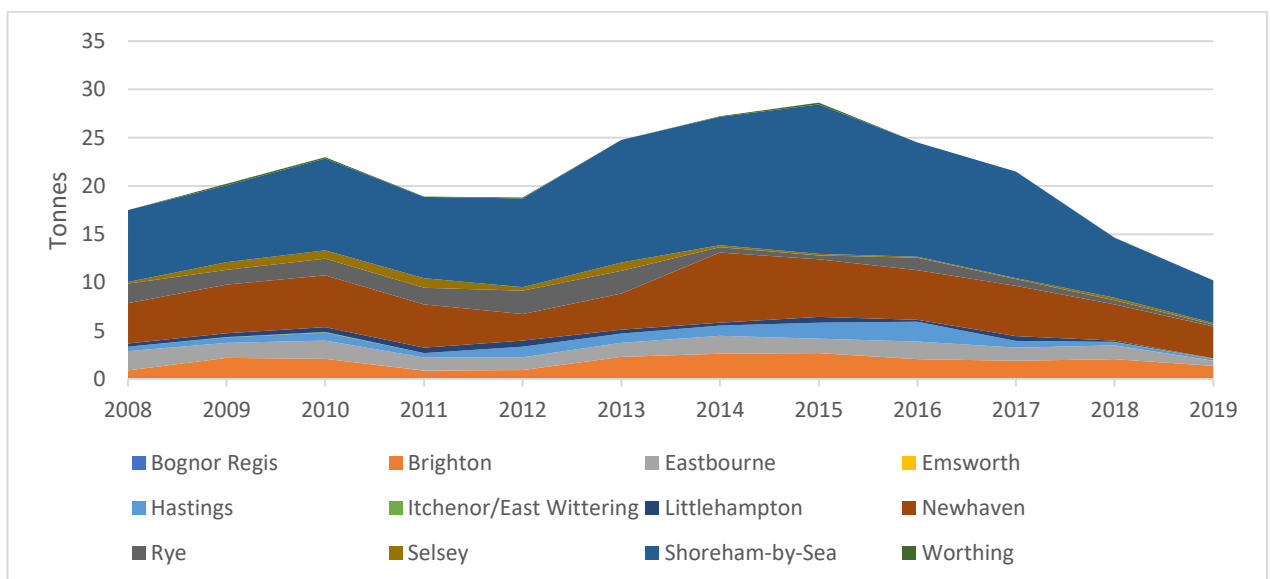


Figure 7. Yearly landings (tonnes) of brill into Sussex ports from 2008-2019.

#### 4.12 Red Mullet

Red mullet are believed to reach maturity between 150-260mm (<https://www.fishbase.se/search.php>). A minimum size of 150mm will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity.

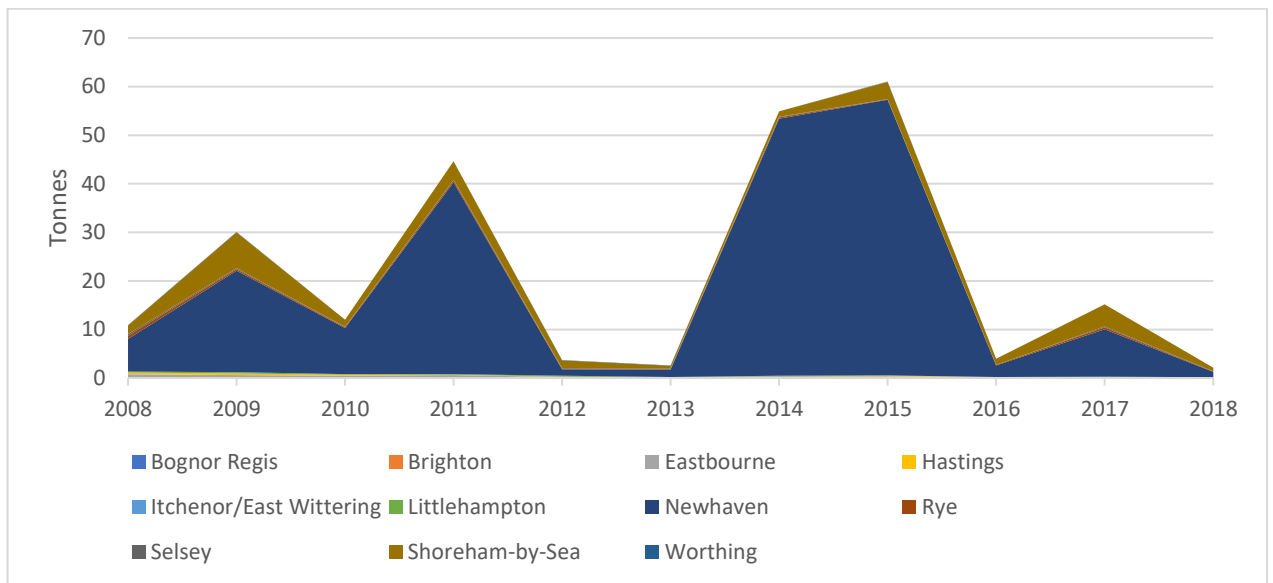


Figure 8. Yearly landings (tonnes) of red mullet into Sussex ports from 2008-2019.

#### 4.13 Flounder

Flounder are believed to reach maturity at 300mm. A minimum size of 270mm (<https://www.fishbase.se/search.php>) will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity.

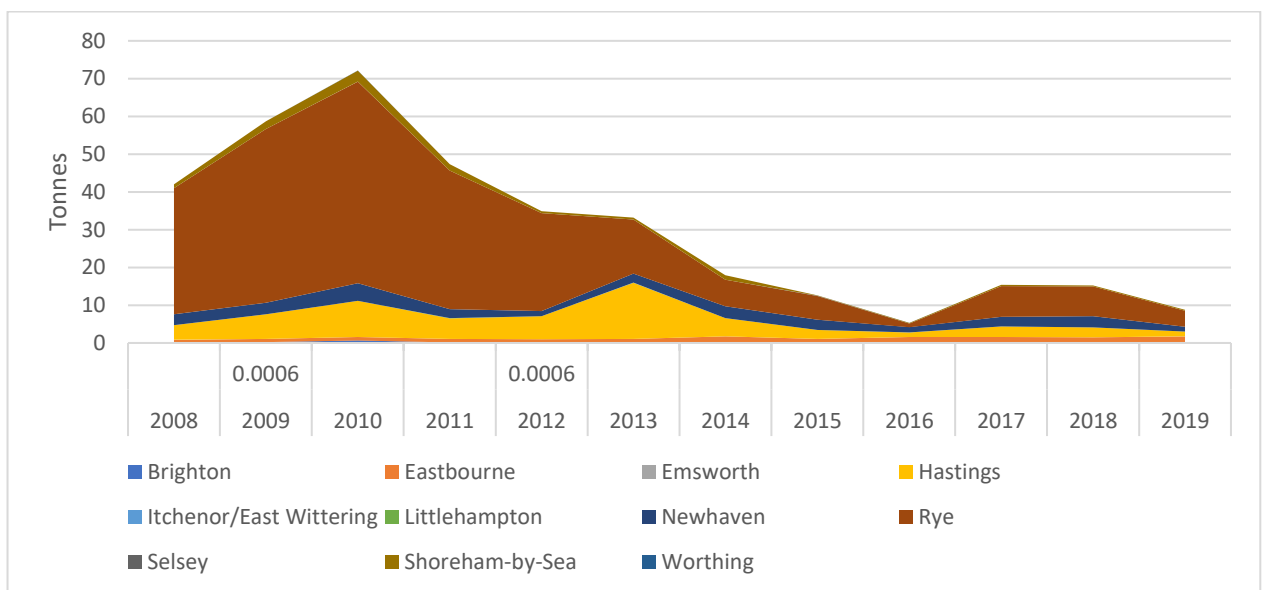


Figure 9. Yearly landings of flounder (tonnes) into Sussex ports from 2008-2019.

#### 4.14 Conger eel

Conger eels are believed to reach maturity at approximately 2 metres in length (<https://www.fishbase.se/summary/Conger-conger.html>). A minimum size of 1 metre (1000mm) will allow a greater number of fish to survive to maturity and will eliminate any accidental landing of European eel (*Anguilla anguilla*).

#### 4.15 Witch

A minimum size of 280mm will bring the regulations in line with neighbouring District Southern IFCA and allow a greater number of fish to survive to maturity.

#### 4.16 Crawfish

Although not currently a fishery in Sussex, crawfish are a very high-value species targeted by pot fisheries, divers (both commercial and recreational) and fishing nets to the west of the Sussex District. In 2018 and 2019 however, there have been increased reports that relatively high numbers of juvenile crawfish being

observed in the Southern IFC District by divers and pot and trawl fishers. These reports correlate with evidence from Devon, Cornwall and the Isles of Scilly where there is a more established fishery. Therefore, it is possible that a crawfish fishery may develop in Sussex in the future.

Within other inshore regions of the south-west, the crawfish fishery is largely managed through the application of a 110mm carapace length measure. This is believed to support the sustainable management of this fishery, furthermore, it is applied to all fishers, including recreational users. Putting in place a minimum size for crawfish to 110mm would serve as a precautionary measure providing protection for any potential breeding population against over-fishing and providing consistency in the wider management of the fishery.

#### 4.17 Wrasse

Table 1 provides a summary of the life history characteristics and reproductive strategies for ballan wrasse, corkwing wrasse, goldsinny wrasse and rock cook wrasse. With the exception of ballan wrasse, the proposed minimum sizes are set at or above the species' estimated size of maturity. Ballan wrasse are protogynous hermaphrodites, which means they are born female and some change their sex to male later in life (as per black seabream). Male fish guard a harem of females and sexual inversion depends on the proportion of the sexes in local populations. The size at maturity for female ballan wrasse is estimated to be between 16cm and 18cm (Darwall *et al.* 1992). Sexual inversion has not been observed below 25cm. The proposed minimum of 28cm for ballan wrasse would protect all sexually juvenile female wrasse and a proportion of male wrasse from fishing mortality.

Live wrasse fisheries (for the supply of salmon farming cleaner fish) operate to the immediate west of the District, making a precautionary approach appropriate.

Table 1: Summary of the life history characteristics and reproductive strategies employed by wrasse species.

CHARACTERISTIC / SPECIES	BALLAN WRASSE <i>LABRUS BERGYLTA</i>	CORKWING WRASSE <i>SYMPHODUS MELOPS</i>	GOLDSINNY WRASSE <i>CTENOLABRUS RUPESTRIS</i>	ROCK COOK WRASSE <i>CENTROLABRUS EXOLETUS</i>
PROPOSED SIZE	<b>28cm</b>	<b>14cm</b>	<b>12cm</b>	<b>12cm</b>
MAXIMUM AGE	29 years – Male 25 years – Female (Dipper <i>et al.</i> 1977)	9 years – Male (Darwall <i>et al.</i> 1992) 6+ years – Female (Sayer <i>et al.</i> 1996)	14 years – Male 20 years – Female (Sayer <i>et al.</i> 1995)	8 years – Male 9 years – Female (Darwall <i>et al.</i> 1992; Treasurer, 1994)
MAXIMUM LENGTH	65.9 cm (IGFA, 2001)	28 cm (Quignard & Pras, 1986)	21 cm (Halvorsen <i>et al.</i> 2016)	19 cm (Skiftesvik <i>et al.</i> 2015)
AGE AT MATURITY	6-9 years – Female 6-9 years -Male (Darwall <i>et al.</i> 1992)	2-3 years – Female (Darwall <i>et al.</i> 1992) 1-3 year – Male (Uglen <i>et al.</i> 2000; Matland, 2015*)	2-3 years – Female (Darwall <i>et al.</i> 1992) 3 years – Male (Matland, 2015*)	2 years – Female (Darwall <i>et al.</i> 1992; Matland, 2015*) 2 years – Male (Matland 2015*)
SIZE AT MATURITY	16-18 cm – Female 28 cm – Male (Darwall <i>et al.</i> 1992)	7-10 cm (Fishbase; Darwall <i>et al.</i> 1992) 9 cm – Female 14 cm – Male (Matland, 2015*)	9.5 cm (Darwall <i>et al.</i> 1992) 8 cm – Females 9 cm – Males (Matland, 2015*)	9 cm – Males 8.5 cm – Females (Matland, 2015*)
GROWTH RATE	5cm / year (Darwall <i>et al.</i> 1992)	4cm / year (Darwall <i>et al.</i> 1992)	3cm / year (Darwall <i>et al.</i> 1992)	3cm / year (Darwall <i>et al.</i> 1992)
SPAWNING PERIOD (ATLANTIC)	April – August (Darwall <i>et al.</i> 1992); peaking in June (Dipper <i>et al.</i> 1977)	April – September (Darwall <i>et al.</i> 1992)	April – September (Darwall <i>et al.</i> 1992)	May – August (Darwall <i>et al.</i> 1992)
REPRODUCTIVE STRATEGY	Hermaphrodite (Darwall <i>et al.</i> 1992)	Gonochoristic (Darwall <i>et al.</i> 1992)	Gonochoristic (Darwall <i>et al.</i> 1992)	Gonochoristic (Darwall <i>et al.</i> 1992)

\* Figures reported from Matland (2015) represent 'critical age' and 'critical length' which is the point at which 50% of the sample are sexually mature.

#### 4.18 Spider crab

Male spider crabs are subject to a higher minimum size in England of 130mm under the Undersized Spider Crab Order 2000<sup>1</sup> (compared to 120mm under 2019/1241 and previously 850/98). The prohibitions afforded under 850/98 in relation to undersize spider crab were greater than those provided under the Undersized Spider Crab Order 2000 (and the Sea Fish (Conservation) Act 1967), specifically, in relation to 'remove from the fishery', 'retain on board', 'tranship', 'transport' (except when this is in their possession as per section 2(1) of the Sea Fish (Conservation) Act) and 'store' (except when this is in their possession as per section 2(1) of the Sea Fish (Conservation) Act). The byelaw seeks only to redress the loss of protective effects which were afforded by 850/98 whilst maintaining the larger 130mm size for male crab in the domestic legislation.

#### 4.19 Other species

All other minimum sizes for species noted in the proposed byelaw are aligned with neighbouring IFCA regulations (see section 5.3.20).

#### 4.20 Removal of whole fish, crustacea and molluscs

Subject to the named exemptions for both crab claws (taken by netters) and ray, all fish, crustacea and molluscs for which a size is specified in schedule 1a and 1b of the byelaw may only be retained on board whole and may only be landed whole. This provision ensures that all species can be measured correctly to ensure compliance with the specified minimum sizes.

The effectiveness of enforcing minimum sizes on crustaceans is greatly diminished without a prohibition on landing whole because undersize crustaceans can be part processed and the size of the individual would not be detectable.

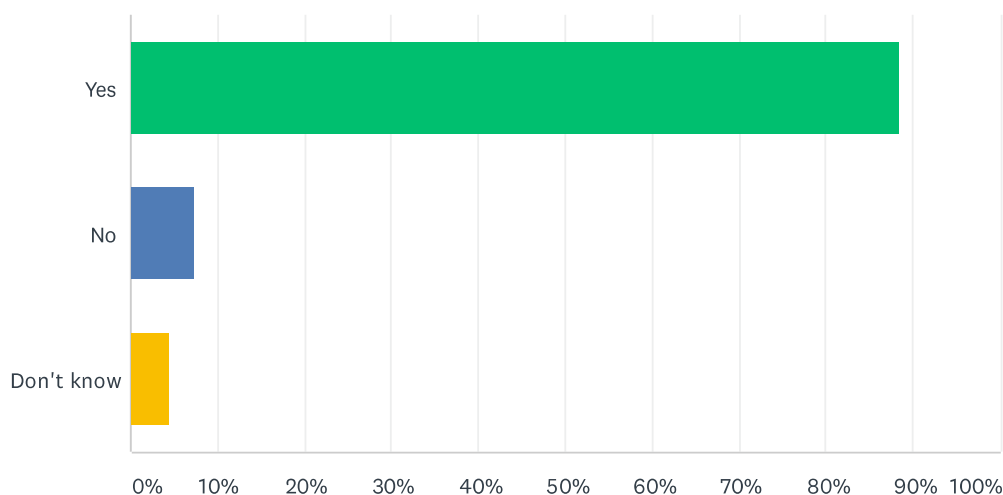
The removal of parts of fish (e.g. the head) or the filleting of fish is a simple means of preventing the correct measurement of recreationally caught species. Bass are particularly susceptible to beheading due to the relatively large minimum size and their desirability.

#### 4.21 Evidence from public consultation

##### Online survey

An online survey was performed using the Survey Monkey platform over December and early January 2021. A total of 73 stakeholders completed the survey. 16 commercial fishers, 49 recreational fishers and 12 other stakeholders took part. A total of 18 questions were posed. These questions asked whether minimum sizes were needed in general terms, and specifically related to each species not already part of EU derived regulations. Questions were also asked with regard to live bait capture and crab claw landings. The majority of respondents supported the proposals in general terms and specifically for the species highlighted. Figure 2 below shows the overall support for minimum size regulation in Sussex District.

Figure 10. Survey response to the question 'Do you think minimum sizes regulations are needed in Sussex IFCA District?'. 69 responses.



## Fisher interviews

Additional Information from commercial fishers was collected as part of the informal consultation. This information was collected in order to understand the proportion of current catches that would fall under the new proposed minimum sizes. The current available MMO landings data was studied and the top five fishing vessels, with the highest recorded landings of individual species that are in the proposed minimum sizes byelaw, were extracted. These included grey mullet, black sea bream, brill, turbot, lemon sole, dab, conger eel, witch and flounder.

From this data, 37 fishing vessels were identified and targeted to ask questions regarding the proposed minimum sizes in the Sussex IFCA Minimum Size (Fish, Crustacea and Mollusc) Byelaw 2021. Fishers were asked about the cost and gear used to catch these species, and any comment they had about the potential financial impact the proposed minimum sizes byelaw would have on them. Fishers were also asked to provide estimates on the percentage of their catches of certain species, that were landed below the proposed minimum sizes.

As well as direct telephone conversations, shore patrols were conducted to Selsey, Littlehampton, Bognor Regis, Worthing, Shoreham, Newhaven, Hastings and Rye during adverse weather days to try to make contact these and other fishers not on the list that might be available to make comment. Phone calls were attempted over five days. 14 successful conversations were had with fishers, whilst another 15 phone calls were attempted with no answers. The road patrols and phone calls were made within the eight-day period between 9 and 16 February 2021.

### Summary of further discussions with fishermen:

After discussions with fishers across the District, all were supportive of the overall Sussex IFCA Minimum Size (Fish, Crustacea and Mollusc) Byelaw 2021. It was felt that the introduction of minimum sizes for most of the species listed, would have little or no impact on their catches and income. All fishermen stated that they try not to land small fish as it is not worth a lot of money anyway. It was relayed that any small fish that is landed, has come up from the gear dead. Fishers highlighted some of their concerns regarding catches below the proposed minimum sizes for some of the species. Only two fishers gave information on the percentage of catches estimated to be affected by the proposals (see Section 6, Table 3).

### Mullet

Golden grey and thin and thick lipped mullets aren't distinguished between each other by the fishers or the markets. With these two species having different minimum sizes, this could result in compliance issues. Education will be important for distinguishing between the two species. There was concern over the size limit for golden grey mullet from a couple of fishers in Newhaven and Littlehampton, stating that a lot of the fish are small; approximately 1 pound (lb) – 1lb 1/2.

Most fishers keep all red mullet that comes aboard, stating that they are a very fragile fish and are often dead when removing them from gill nets. One trawler fisher estimated about 1% of their landed catch was below the proposed minimum size.

### Dab

One trawler fisher stated 2% of the landed dab was below the proposed minimum size, whilst another stated 50% were under approximately 200mm.

### Brill and Turbot

Most fishers agreed with the size limit for turbot however one stated that they land turbot from approximately 10 inches (250mm) which makes them good money (£4-6/kilogram (kg)). No percentage estimate was given for those landed below the proposed 300mm in their catches. Other fishers stated

only 1% or less of their catch was under the proposed minimum size for turbot. Approximately 1% or less of the brill caught is below the proposed minimum size.

#### A note on Brill and Turbot sizes in Sussex markets

The most popular size of turbot is 2-3kg, followed by larger 1-2kg. 4-5kg is not as popular, possibly due to the price. Where 5kg+ turbot are concerned, there are generally very few individual fish per week landed of that size. This sells very quickly to Central London restaurants. The 2-3kg turbot will always sell out first, the largest 1-2kg fishes are then utilised in their staid. The 0-1kg range fish is not very popular.

There was generally 50-60% less brill than turbot. Brill is measured using the same scale as turbot. The plate size is more popular with brill, that being the 0-500g. Again, the most popular size is the 2-3kg. However, the demand for brill is much less than the demand for turbot.

The smaller size ranges in both fish, those being the 0-500g & 500g-1kg were usually sold as daily specials for less cost. Dover sole & plaice were by far the most popular plate-sized fish, as well as being the highest selling by quantity of all whole fish sold.

#### Lemon sole

One trawler stated approximately 33% of the catch was below the proposed minimum size costing ~60p/kg post-Brexit.

#### Black seabream

Approximately 5-10% is under the proposed 230mm for one trawler at £1/kg. However most stated the bream was 230mm plus due to the gear they use.

#### Flounder

Flounder was not considered a target species and generally bycatch only. Flounder has a low value (30p-£1/kg) and there were no concerns over the minimum size.

#### Other species

Conger eel, velvet crabs, spider crabs and American hard shelled clam were not of any concern stating either the fish was not caught, known or worth anything.

- 4.22 The risk of undersize fish being taken by recreational anglers can be seen in the following summary table. However, it could be noted that the only species with a minimum size for recreational fishers at present is bass.

YEAR	IRS TOTAL	OF THOSE: BASS RELATED IRS	ENFORCEMENT SANCTIONS
2021	14	2	0
2020	51	10	2xVW (bass)
2019	28	4	2xVW (Bream), 1xVW (Fishing Instruments), 1xVW (SFP), 1xVW (Bass)
2018	25	10	1xVW (Kingmere), 1xVW (Bass spear fishing), 2x (Obstruction), 2xFAP (Fixed Engines), 1xVW (SFP)
2017	38	16	0

Table 2, Recreational fishing activity Intelligence Reports (IRs), where VW=verbal warning, SFP=Shellfish Permit Byelaw, FAP=Financial Administrative Penalty.

#### 4.23 References for evidence

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Phenotypic variation between dimorphic males in corkwing wrasse

## 5.0 Options

Management Options are derived from considering the best available evidence, committee discussions and consultation with stakeholders.

### 5.1 Option 0: Do nothing

Under this option it is likely that Sussex IFCA would not fully meet its duties under the Marine and Coastal Access Act 2009 as grey mullet species, crawfish and wrasse would be potentially vulnerable to over-exploitation through fishing mortality.

Regulation (EU) 2019/1241 had the effect of changing minimum fish and shellfish size provisions as they had been under Regulation (EC) 850/98. In particular, the amended provisions do not apply to non-commercial fishers or commercial fishers operating from shore or from unpowered vessels and remove the prohibition on transshipping, landing, transporting, storing, selling, displaying or offering for sale undersize marine organisms. This option is not considered appropriate as it will not effectively protect pre-spawning individuals from fishing mortality and will not enable effective enforcement of the minimum sizes.

### 5.2 Option 1: Voluntary agreement

The principles of Better Regulation require that statutory regulation is introduced only as a last resort. Due to the range of species that the proposed measures serve to protect and the financial value of these populations it is unlikely that voluntary measures would be successful in achieving compliance in this situation. Furthermore, the risk posed to the sustainability of fish and shellfish populations in the event of non-compliance with voluntary measures would be high and the effects potentially considerable to the sustainability of the District's fisheries, the health of the marine environment and the economy of the local society.

### 5.3 Option 2: Proposed management

5.3.1 This is the recommended option. Under this option a new Sussex IFCA Minimum Size (Fish, Crustacea and Mollusc) Byelaw 2021 would be created to introduce a minimum size for species previously managed through EU regulation and additional species for the District. The proposed byelaw will apply for the taking, retention on board, transshipping, landing, transport, storage, sale, display or offering for sale of species. The species and associated sizes are described in two separate schedules 1a and 1b. Those described in schedule 1a are neither subject to the landing obligation or listed in Regulation (EU) 2019/1241. Those described in schedule 1b are subject to the landing obligation and listed in current Regulation (EU) 2019/1241. An exemption applies for those species listed in schedule 1b, and that 'are caught under the authority of a fishing vessel licence issued by the Marine Management Organisation or other devolved UK fishery administration'. Thus, the clause in paragraph 3b, addresses the legal requirements to commercial fishers created by the present landing obligation.

5.3.2 The full list of species and their associate minimum sizes is presented as follows:

Anchovy ( <i>Engraulis encrasicolus</i> )	120mm
Ballan wrasse ( <i>Labrus bergylta</i> ) *	280 mm
Black seabream ( <i>Spondyliosoma cantharus</i> ) *	230 mm
Brill ( <i>Scophthalmus rhombus</i> ) *	300 mm
Cod ( <i>Gadus morhua</i> )	350 mm
Conger eel ( <i>Conger conger</i> ) *	1000 mm
Corkwing wrasse ( <i>Symphodus melops</i> ) *	140 mm
Dab ( <i>Limanda limanda</i> ) *	230 mm
European bass ( <i>Dicentrarchus labrax</i> )	420 mm
Flounder ( <i>Platichthys flesus</i> ) *	270 mm
Grey thick-lipped mullet ( <i>Chelon labrosus</i> ) *	420 mm
Grey thin-lipped mullet ( <i>Chelon ramada</i> ) *	420 mm
Golden grey mullet ( <i>Chelon aurata</i> ) *	420 mm
Goldsinny wrasse ( <i>Ctenolabrus rupestris</i> )*	120 mm
Haddock ( <i>Melanogrammus aeglefinus</i> )	300 mm
Herring ( <i>Clupea harengus</i> )	200 mm
Horse mackerel ( <i>Trachurus trachurus</i> )	150 mm
Lemon sole ( <i>Microstomus kitt</i> )*	250 mm
Mackerel ( <i>Scomber scombrus</i> )	200 mm
Plaice ( <i>Pleuronectes platessa</i> )	270 mm
Pollack ( <i>Pollachius pollachius</i> )	300 mm
Red mullet ( <i>Mullus surmuletus</i> ) *	150 mm
Rock cook wrasse ( <i>Centrolabrus exoletus</i> )*	120 mm
Sardine ( <i>Sardina pilchardus</i> )	110mm
Skate or ray ( <i>Rajidae spp.</i> ) – whole *	400 mm
Skate or ray ( <i>Rajidae spp.</i> ) – wing *	200 mm
Sole ( <i>Solea solea</i> )	240 mm
Turbot ( <i>Scophthalmus maxima</i> ) *	300 mm
Whiting ( <i>Merlangius merlangus</i> )	270 mm
Witch flounder ( <i>Glyptocephalus cynoglossus</i> ) *	280 mm

#### Named Mollusc Species and Minimum Sizes

American hard-shelled clam ( <i>Mercinaria mercinaria</i> ) *	63 mm
Carpetshell clam ( <i>Venerupis pullastra</i> )	38 mm
Grooved carpetshell clam ( <i>Ruditapes decussatus</i> )	40 mm
Short necked/Manila clam ( <i>Ruditapes philippinarum</i> )	35 mm
Queen scallop ( <i>Chlamys spp.</i> )	40 mm

Razor clam ( <i>Ensis spp.</i> )	100 mm
Scallop ( <i>Pecten maximus</i> )	110 mm
Surf clam ( <i>Spisula solida</i> )	25 mm
Warty Venus clam ( <i>Venus verrucosa</i> )	40 mm
Whelk ( <i>Buccinum spp.</i> )	45 mm

#### Named Crustacea Species and Minimum Sizes

Crawfish ( <i>Palinurus spp.</i> ) *	110 mm
Edible crab ( <i>Cancer pagarus</i> )	140 mm
European lobster ( <i>Homarus gammarus</i> )	87 mm
Spinous spider crab ( <i>Maja squinada</i> ) Female	120 mm
Spinous spider crab ( <i>Maja squinada</i> ) Male*	130 mm
Velvet swimming crab ( <i>Necora puber</i> ) *	65 mm

\* Species not covered by existing National or European Common Fisheries Policy derived regulation.

5.3.3 Certain small pelagic species, caught in very large numbers will have a percentage allowance of undersized individuals. Anchovy, herring, horse mackerel and mackerel, have a proposed limit of 10 % by live weight of the total catches for commercial fishing retained on board. The percentage of sardine, anchovy, herring, horse mackerel or mackerel less than the minimum size will be calculated as the proportion by live weight of all marine organisms on board after sorting or on landing.

In addition, the following named species below the minimum sizes specified may be used as 'live bait'

- (i) Anchovy (*Engraulis encrasicolus*)
- (ii) Herring (*Clupea harengus*)
- (iii) Horse mackerel (*Trachurus trachurus*)
- (iv) Mackerel (*Scomber scomber*)
- (v) Sardine (*Sardina pilchardus*)
- (vi) Whiting (*Merlangius merlangus*)

5.3.4 Named fish, crustacea and molluscs for which a size is specified in the byelaw must be retained on board whole and may only be landed whole with the exception of any species of skate or ray (*Rajidae* species) of which wings can be landed without the skin removed.

5.3.5 A maximum of 75 kg of detached crab claws may be landed per fishing trip from netting vessels.

## 6.0 Costs and Benefits of Preferred Option

### 6.1 Key monetised and non-monetised costs

The implementation of the proposed byelaw may result in the following costs:

- direct costs to the fishing industry as a result of reduced grey mullet catches;
- direct costs to the fishing industry as a result of new gear purchases;
- indirect costs to the fishing industry associated with displacement to other fisheries; and
- costs to Sussex IFCA associated with compliance.

Costs to recreational fishers as a result of reduced access to fish and shellfish catches are non-monetised.

Costs to the fishing industry as a result of reduced catches can be monetised and these estimated values have been collated and presented below.

Species	5-year landings total (£)	5-year mean (£)	Proportion potentially undersize (%)	Value potentially undersize (£)
Mullet (all grey spp.)	295,716	59,143	10	5,914
Turbot	2,444,666	488,933	1	4,889
Lemon sole	1,633,190	326,638	33	107,791
Flounder	122,337	24,467	2	489
Dab*	93,091	18,618	50	9,309
Conger eel	46,203	9,241	1	92
Brill	1,288,386	257,677	1	2,577
Sea breams (inc black)**	-	-	-	155,000
Red mullet	1,057,231	211,446	1	2,114
Total				288,176

Table 3. Landing values (MMO data) and estimated costs (see section 4.23) of the proposed management. \*limited to three years available data. \*\*data from local merchant estimate received during formal consultation.

Costs as a result of new gear purchases and social costs due to the displacement of fishing activity to other fisheries are difficult to value and are therefore described here as non-monetised costs.

Costs represent an overestimate due to three key assumptions:

- i) That accurate information has been gathered from stakeholders through stakeholder liaison.
- ii) That MMO sub ICES rectangle landing data reflects the District catch.
- iii) That small fish grades are equal in price to larger fish grades.

## 6.2 Benefits

It is anticipated that the proposed measures will benefit fish and shellfish populations through a reduction in fishing mortality of juvenile marine species. A reduction in juvenile fish and shellfish mortality will increase the potential for these populations to reproduce, which will benefit adjacent fisheries, both commercial and recreational, through two mechanisms: net emigration of adults and juveniles, across borders, termed 'spill over', and the export of an increased volume of pelagic eggs and larvae. Anticipated benefits to commercial and recreational fisheries include an increase in fishing opportunities and catches as a result of larger, more healthy and sustainable fish populations and larger fish within these populations. This has the potential to increase the value of catches, leading to an increased first-sale value in commercial fisheries and a greater level of participation in recreational sea fisheries. Within carefully managed, sustainable fisheries additional fishing opportunities may potentially offer employment opportunities, thus supporting the local economy.

Benefits of the management measures are summarised as follow:

- environmental benefits from an increase in fish and shellfish populations;
- direct benefits to the fishing industry as a result of increased catches and the increased size of fish and shellfish caught;
- direct benefits to the fishing industry as a result of increased values of species;
- direct benefits to recreational fishers as a result of an increase in species population sizes and the size of individual fish;
- social benefits related to increased participation in recreational angling and diving;
- social benefits related to an increase in the reputation of the fishing industry; and
- social benefits related to an increased understanding and compliance of regulations.

These benefits are difficult to value and are therefore described here as non-monetised benefits.

Recreational sea angling is a popular pastime in the Sussex IFC District. It is estimated that there are 884,000 sea anglers in England, with 2% of all adults going sea angling. These anglers make a significant contribution to the economy – in 2012, sea anglers resident in England spent £1.23 billion on the sport, equivalent to £831 million direct spend once imports and taxes had been excluded. This supported 10,400 full-time equivalent jobs and almost £360 million of gross value added (GVA). Taking indirect and induced effects into account, sea angling supported £2.1 billion of total spending, a total of over 23,600 jobs, and almost £980 million of GVA. Sea angling also has important social and well-being benefits including providing relaxation, physical exercise, and a route for socialising.

The consolidation of minimum sizes measures for all fish and shellfish species in the Sussex IFC District under a single byelaw has the potential to improve the understanding of these measures and as a consequence, compliance with the measures. Additionally, the proposed byelaw applies to all persons at all stages of the supply chain, from take to sale, removing any uncertainty associated with how different restrictions may apply to different fishery users.

### 6.3 One in Three Out (OI3O)

OI3O is not applicable for byelaws implemented by the IFCA for their respective districts 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, therefore 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.

### 6.5 Risks and assumptions

Cost estimates are based on estimates of UK landings values derived from landings into ports within the Sussex IFC District using ICES sub rectangles, and it is therefore not possible to ascertain what precise proportion of the total landings value was actually derived Directly from district itself.

Grey mullet landings are not broken down by species but are instead grouped for each of the three grey mullet species and, less relevantly, red mullet. For the purpose of this IA it has been assumed that all 'Mullet – other' recorded as being landed in ports within the Sussex IFC District are grey mullet caught from fisheries within the District. Due to the catch method and seasonality of these landings it is likely that a high percentage of the fish recorded as being caught are grey mullet from inshore waters. In the same manner sea breams landings data includes black seabream and gilthead bream. Our assumption is that the vast majority of this catch is black seabream.

Landing values are not broken down by fish grade, so the cost impact in this IA is an overestimate.

Potential displacement of fishing effort is difficult to quantify, and impossible to predict where exactly activities will be displaced to. However, given that small fish represent a component of the catch, displacement is not anticipated.

Estimated costs to the fishing industry are likely to be an overestimate, as fishers are likely to adapt their practice and gear to avoid interaction with smaller fish.

## 7.0 Conclusion

- 7.1 Sussex IFCA has a duty to manage the exploitation of sea fisheries resources in the District to ensure that it is carried out in a sustainable manner, whilst balancing the different needs of persons engaged in the exploitation of sea fisheries resources in the district.
- 7.2 A new Sussex IFCA Minimum Size (Fish, Crustacea and Mollusc) Byelaw 2021 would be created to introduce new increased minimum sizes for a number of species. Existing (European Union related) Minimum Conservation Reference Sizes for other fish and shellfish species will be included under this single byelaw and will apply for the taking, retention on board, transshipping, landing, transport, storage,

sale, display or offering for sale of species. These measures will be applied to all participants within the fishery.

- 7.3 It is anticipated that the cost to the fishing industry in the first year following the introduction of the proposed measures will be a maximum of £288,000. As described, this is an overestimate.
- 7.4 It is anticipated that the proposed minimum sizes measures will benefit fish and shellfish populations through a reduction in fishing mortality of juvenile marine species, thus contributing towards the sustainable development of fisheries within the Sussex IFC District and an associated increase in catch per unit effort.

**Recommended option:**

**The establishment of a Sussex IFCA Minimum Size (Fish, Crustacea and Mollusc) Byelaw 2021, and a planning commitment to maintain long term evidence gathering in collaboration with adjacent IFCA's intended to support a byelaw review in not more than four years. This review process will examine the existing species and sizes specified, and seek to increase the scope of the byelaw to further species caught and retained by commercial and recreational fishers.**