Strategic Assessment 2022

Executive Summary

As a small organisation with a large area to cover, a broad remit and finite resources, Eastern IFCA needs to carefully plan and prioritise annual workstreams and ensure that resources are targeted where they are needed most. Each year an assessment is carried out using best available evidence to identify the highest risk elements of all the fisheries in the district, including risks to fisheries (stock) sustainability, ecosystems and industry viability. The Strategic Assessment combines a data-driven analysis (the initial assessment) and the contextual knowledge of officers (the contextual assessment) to identify workstreams and assign a priority based on the risk. This informs the rolling 5-year Business Plan.

Many of the high priorities for the previous financial year have rolled over as high priorities for the 2022-2023 financial year. This includes workstreams relating to the expiry of the Wash Fishery Order 1992 and the transition to the Wash Cockle and Mussel Byelaw 2021 and the ongoing implementation of an Adaptive Risk Management approach in Cromer Shoal Chalk Beds MCZ. The implementation of the Closed Areas Byelaw 2021 which will introduce new restricted areas within five Marine Protected Areas in the district where no bottom-towed fishing will be permitted (undergoing formal consultation) and the Shrimp Permit Byelaw 2018 and associated permit conditions which will update management measures for the nationally significant Wash Brown Shrimp fishery (awaiting Defra sign-off at the time of writing) will also be of high priority.

The Strategic Assessment highlights those workstreams that have become established as business critical annual workstreams, the cessation of which could potentially lead to significant increases in risk to the fisheries and/or areas to which they relate. Potential future workstreams are also identified, recognising that these may inform future assessments and that opportunities or developments may present during the year which would enable their undertaking or increase their priority.

Contents

Abbreviations			
Bass Nursery Area	BNA	Minimum Conservation Reference Size	MCRS
Centre for Environment, Fisheries and Aquaculture Science	Cefas	Minimum Landing Size	MLS
Community Voice Method	CVM	Monthly Shellfish Activity Report	MSAR
Department for Environment, Food and Rural Affairs	Defra	Natural England	NE
Eastern Inshore Fisheries and Conservation Authority	Eastern IFCA	Oslo-Paris Convention for the Protection of the Marine Environment of the North-East Atlantic	OSPAR Convention
Eastern Sea Fisheries Joint Committee	ESFJC	Renaissance of East Anglia Fisheries	REAF
Environment Agency	EA	Relative Fluorescent Unit	RFU
European Marine Site	EMS	Recreational Sea Angler	RSA
European Union	EU	Royal Yachting Association	RYA
Fisheries Improvement Project	FIP	Size of Maturity	SOM
Habitat Regulation Assessment	HRA	Special Protection Area	SPA
International Council for the Exploration of the Sea	ICES	Special Area of Conservation	SAC
Inshore Fisheries and Conservation Officer	IFCO	Site of Special Scientific Interest	SSI
Inshore Vessel Monitoring System	IVMS	Sustainable management of rays and skates	SUMARIS
Length Converted Catch Curve	LCCC	Study of the Wash Embayment, Environment and Productivity	SWEEP
Landing Per Unit Effort	LPUE	Tactical Co-ordination Group	TCG
Maritime and Coastguard Agency	MCA	Vessel Monitoring System	VMS
Marine and Coastal Access Act 2009	MaCCA 09	Wash Fishery Order 1992	WFO 1992
Monitoring and Control Plans	MCPs	Wash & North Norfolk Coast Marine Partnership	WNNCMP
Marine Conservation Society	MCS		
Marine Conservation Zone	MCZ		
Marine Management Organisation	MMO		
Marine Protected Area	MPA		
Marine Strategy Framework Directive	MSFD		

Maximum Sustainable Yield	MSY		
Marine Stewardship Council	MSC		
Minimum Conservation Reference Size	MCRS		
Minimum Landing Size	MLS		
Monthly Shellfish Activity Report	MSAR		
Natural England	NE		
Oslo-Paris Convention for the Protection of the Marine Environment of the North-East Atlantic	OSPAR Convention		
Renaissance of East Anglia Fisheries	REAF		
Relative Fluorescent Unit	RFU		
Recreational Sea Angler	RSA		
Royal Yachting Association	RYA		
Size of Maturity	SOM		
Special Protection Area	SPA		
Special Area of Conservation	SAC		
Site of Special Scientific Interest	SSSI		
Sustainable management of rays and skates	SUMARIS		
Study of the Wash Embayment, Environment and Productivity	SWEEP		
Tactical Co-ordination Group	TCG		
Vessel Monitoring System	VMS		
Wash Fishery Order 1992	WFO 1992		
Wash & North Norfolk Coast Marine Partnership	WNNCMP		

1. Introduction: Requirement for a strategic assessment

The inshore fishing sector is varied and dynamic with many different fisheries targeting a range of species with various gears. The inshore environment is similarly diverse: a hotspot for biodiversity, inshore areas contain important spawning and nursery grounds for numerous marine species, and critical sites for migratory, over-wintering and breeding seabirds. This is true for the Eastern IFCA district which encompasses the counties of Lincolnshire, Norfolk and Suffolk, stretching from Haile Sand Fort in the North to Felixstowe in the South, and extending 6 nautical miles out to sea. Almost all of the Eastern IFCA district (96%) is afforded protection through one or more Marine Protected Area (MPA) designations. This includes Special Protection Areas (SPA), Special Conservation Areas (SACs), Ramsar sites, Sites of Special Scientific Interest (SSI) and Marine Conservation Zones (MCZ).

In this complex environment, ensuring effective regulation of fisheries and conservation requires going beyond simple stock management, and implementing a holistic approach which takes into account environmental, social and economic issues. IFCAs have a statutory responsibility to fully engage with both local and national stakeholders to manage the exploitation of sea fisheries resources in the district, balancing the social and economic benefits of exploiting resources with the need to protect the marine environment, or help it recover from past exploitation. In carrying out these duties, IFCAs must seek to ensure that the conservation objectives of MPAs are furthered and that fishing activity in such areas is managed to avoid an adverse impact upon designated features.

To help meet these objectives, Eastern IFCA undertakes a strategic assessment of all commercial fisheries in the district each year to identify fisheries-related risks to stocks, the environment and industry viability. While the focus is on the commercial sector, recreational fisheries and aquaculture are also taken into account to an extent. The assessment uses best available evidence to identify fisheries, environmental features and areas within the district which may require management and regulation to be implemented or reviewed to maintain an effective regulatory framework capable of ensuring sustainable fisheries, healthy seas, and a viable industry. This is used to identify priority workstreams for the financial year and to inform the rolling five-year Business Plan.

2. Approach

Fisheries within Eastern IFCA's district are identified using Marine Management Organisation (MMO) landings data. Key species for the district are identified within each species group,[1] and a combination of quantitative and qualitative analysis is used to assess fisheries in relation to the following four criteria:

1. *Evidence base* – the assessment identifies and considers the available evidence for each species in relation to fishing effort, landings, stock health and presence of spawning and nursery areas. Limited data and/or low confidence in the data available is associated with higher risk, particularly where landings into the district are high.
2. *Current Regulation* – for each fisheries group and the key species within that group, the assessment identifies and considers any measures currently in place in relation to the protection of pre-spawning individuals, gear management and effort restrictions. While limited measures are generally associated with a higher risk, this is considered in the context of landings in the district and the value of the fishery.
3. *Ecosystem impacts* – the assessment considers the potential ecosystem level impacts of the main gears associated with each species (e.g. by-catch, habitat damage). Typically, higher-impact gear like bottom-towed gears are associated with higher risk.
4. *Fisheries performance* – the assessment considers the landed weight and value of catch from within the Eastern IFCA district, any trends in landed catch, landings from within the district as a proportion of the UK total and available ICES advice. This links to our duties in relation to industry viability.

Each fisheries group is provided a relative 'risk' rank for each criterion to identify specific issues, and these are then combined into an overall score for each fisheries group. Risk ranks and scores are then used to identify and assign levels of priority to workstreams.

[1] Species are grouped based on similarities in biology and fishing methods.

2.1 Initial Assessment

The initial assessment involves a data-driven analysis of MMO landings data. While this currently represents best available evidence, there are some noteworthy limitations. In particular, the data is based on sales notes and does not capture landed fish sold directly to the public (common for inshore fisheries, like the local crab and lobster fishery). Moreover, the data set available to Eastern IFCA at the time of writing only captures landings for the first half of 2021.

The data is examined for any identifiable trends for the period 2010-2021, with a focus on any observable shifts and emerging trends in landings into the district and price-per-kilo. Strong trends are associated with a higher risk and a greater priority.

2.2 Contextual assessment

The initial assessment provides an indication of the risk posed by fishing activities. To more fully explore the risk associated with each fishery, a contextual assessment is undertaken. This considers the presence of fisheries within MPAs (Section 2.2.1 below) which significantly affects the prioritisation of management for those fisheries and areas, as well as additional criteria and drivers (Section 2.2.2) where information is available.

The contextual assessment draws on the knowledge and expertise of officers from the marine science and marine protection teams, intelligence gathered in partnership with the Marine Management Organisation, messages received from the fishing industry and the general public, and research work of relevance undertaken by other organisations.

2.2.1 Fisheries management in Marine Protected Areas (MPAs)

Protection of MPAs from potential impacts of fishing activity is a fundamental obligation of Eastern IFCA outlined in the Marine and Coastal Access Act (2009).[2] Accordingly, this obligation is a key consideration in the assessment of risk for each fishery.

[2] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

The majority (96%) of the Eastern IFCA district is protected by MPAs. These sites contain a range of species and habitat features that require protection, in order to maintain site integrity. An on-going workstream to assess the impacts of commercial fishing activities within MPAs has identified where management is required. Assessments account for the type and current levels of fishing activity but these will potentially change over time. The intention of assessments is to ensure that fishing activities are not having an adverse effect on the overall integrity of the MPAs; this work is guided by conservation advice provided by Natural England.

Eastern IFCA routinely collects data to monitor fishing activity and compliance within managed areas and is required to demonstrate responsive monitoring and management of fisheries in MPAs. Following the completion of fisheries assessments in MPAs, Monitoring and Control Plans (M&CPs) will be developed for each major fishing metier in the district, and where appropriate, MPA-specific controls will be specified. The intention is to implement responsive management.

Table 1 below lists MPAs within the Eastern IFCA district, indicating the key fisheries management issues for each site and the priority associated with management in each site.

Table 2 then assigns a level of priority to the development of M&CPs in relation to the major fisheries in the district based on the level of activity within MPAs, the potential impact on MPA features, and the economic value of the fishery in the district. Work has been carried out during 2020 to complete the Shrimp Beam Trawling M&CP, whist significant progress has been made it is still currently in draft form.

Table 1: MPAs within Eastern IFCA's district and management priority levels

Site name	Key issues for fisheries management	Priority
Humber Estuary Special Protection Area (SPA), Humber Estuary Special Area of Conservation (SAC)	Majority of these two sites are within neighbouring IFCA district. North-Eastern IFCA leading assessment of these two sites. Management measures in place for the protection of eelgrass in Eastern IFCA part of SAC (Eastern IFCA Marine Protected Areas Byelaw 2018). This was reviewed during 2020 and is complete, however the measures are not yet implemented. Potential cockle fisheries (Horseshoe Point) will have to take account of bird food dynamics and disturbance, there are also other significant barriers to opening this fishery. Potential for Eastern IFCA involvement in habitat restoration project at the site.	Low
Gibraltar Point SPA	Has been provisionally assessed; no adverse effects determined at current levels of activity. Stakeholder interest in fishing activity interactions with protected bird species within this site.	Low

The Wash and North Norfolk Coast SAC	Annual cockle and mussel fisheries managed under the Wash Fishery Order (WFO) are assessed and managed in accordance with the site's conservation objectives. Management in place (spatial closures for bottom towed gear) for vulnerable features within The Wash embayment and along north Norfolk coast. Initial closures implemented via Marine Protected Areas Byelaw 2016 and additional closures via replacement Marine Protected Areas Byelaw 2018 (now in force), Marine Protected Areas Byelaw 2019 and Closed Areas Byelaw 2021. Additional measures to manage effort in remainder of site are to be implemented via the Shrimp Permit Byelaw.	Medium
The Wash SPA	Annual cockle and mussel fisheries managed under the WFO are assessed and managed in accordance with the site's conservation objectives. Other, non-WFO fisheries has been provisionally assessed and no adverse effects determined at current levels of activity. A study to review the current 'bird food model' has been commissioned by Natural England, information from this will be used to update HRA's and thresholds could change based on this advice.	Medium
North Norfolk Coast SPA	Has been provisionally assessed and no adverse effect determined at current levels of activity.	Low
Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ)	Measures progressed (to be implemented via Closed Areas Byelaw 2021) to exclude towed demersal gear from vulnerable chalk and peat feature areas of site. The assessment of unforeseen artisanal shrimp fisheries identified through the process has concluded that current levels of activity do not hinder the conservation objectives of the site. Assessment into the potential impacts from potting fisheries on chalk features, specifically in rugged chalk areas, is progressing. To carry out the assessment one of the key requirements is to understand the significance of impacts of potting on rugged chalk as well as activity levels. The MCZ area is of huge importance to the inshore potting fishery and wider North Norfolk communities. Following advice from Natural England there is a requirement to better understand chalk feature characteristics and the extent and frequency to which they are exposed across the site. Eastern IFCA are liaising closely with Natural England and fishermen to improve our understanding of fishing activities and site features and their sensitivities and to implement an adaptive risk management approach to fishing activity on rugged chalk.	High
Breydon Water SPA	Has been provisionally assessed; no adverse effects determined at current levels of activity.	Low
Alde, Ore & Butley Estuaries SAC	Has been provisionally assessed; no adverse effects determined at current levels of activity.	Low
Alde & Ore	Has been provisionally assessed; no adverse effects determined at current levels of activity.	Low

Estuaries SPA		
Orfordness to Shingle Street SAC	Has been provisionally assessed; no adverse effects determined at current levels of activity.	Low
Deben Estuary SPA	Has been provisionally assessed; no adverse effects determined at current levels of activity.	Low
Stour and Orwell Estuaries SPA	Bait digging highlighted as potential cause of disturbance to over-wintering birds; assessment to be updated following NE advice. Natural England lead on management of the bait digging activity at this site.	Low
Inner Dowsing, Race Bank & North Ridge SAC	Eastern IFCA to manage the 0-6nm part of this site, which also extends beyond 12nm offshore. *Sabellaria* reef has had closures implemented (although not currently in force) through the Closed areas Byelaw 2021 for towed commercial gear in areas in which Eastern IFCA are satisfied with the supporting reef evidence. Remaining lower confidence 'red risk' areas to be reviewed/monitored.	High
Haisborough, Hammond & Winterton SCI	Eastern IFCA to manage the 0-6nm part of this site, which extends beyond 12nm offshore. *Sabellaria* reef requires protection from towed demersal gear; measures progressed for areas in which Eastern IFCA are satisfied with the supporting reef evidence and will be implemented through the Closed Area Byelaw 2021 (undergoing formal consultation). Remaining lower confidence 'red risk' areas to be reviewed/monitored.	Medium
Outer Thames Estuary SPA (including extended areas)	MMO undertook assessment of original SPA, which extends from the coast to beyond 12nm. No adverse effects identified at current levels of activity. Site extended in 2018: EIFCA has undertaken preliminary assessment of extension areas within Eastern IFCA district; no adverse effects identified.	Medium
Greater Wash SPA	Site designated in 2018. Extensive site where range of commercial fisheries take place; assessment of commercial fisheries required.	Medium
Southern North Sea SAC	Fully designated in 2019; designated for Harbour porpoise. Extensive site (largest SAC in Europe); small proportion in inshore waters off Norfolk and Suffolk. Assessment of commercial fisheries required. National approach likely to be required given size of site and mobile nature of protected species.	Medium

Table 2: Prioritisation of Monitoring and Control Plans for fisheries in Eastern IFCA's district				
Fishery	**Level of activity within MPAs**	**Economic value of fishery in district**	**Potential impact on MPA features**	**M&CP Priority**
Shrimp beam trawling	High	High	High	High
Demersal towed gears (excluding shrimp beam trawling)	Low	Low	High	Medium
Pelagic towed gears	Low	Medium	Low	Low
Dredging	Low	Low	High	Low
Hand-working (access from land)	Low	Low	Medium	Low
Hand-working (access from vessel)	High	High	Medium	High
Static pots and traps	High	High	High	High
Netting (incl. seine nets and other)	Medium	Medium	Low	Medium
Lines	Low	Medium	Low	Low
Other	Low	Low	Low	Low

2.2.2 Additional drivers

Where information is available, other drivers are considered to inform the risk rank for each fishery. These and the rationale behind their consideration are outlined below.

Spawning and nursery grounds: Inshore fisheries tend to be small-scale, targeted by vessels under 10 metres in length. However, where spawning or nursery grounds occur (as is often the case for inshore areas), even small-scale fishing activities can have a disproportionate effect on the wider stock. The assumption is that there is a greater risk to fisheries sustainability and wider ecosystem impacts where fishing effort overlaps spatially with spawning or nursery grounds. The primary sources of spawning and nursery ground evidence is found within Ellis *et al* 2010[3] and 2012[4] and an Eastern IFCA research report on the composition of commercial catches (2014)[5].

Recreational activity: Data on recreational activity is limited for most species. The outputs of the Angling 2012 project by Armstrong *et al*. 2013[6] have been used to judge important recreational species. Recreational landings are not included in MMO landings figures, but the activity plays an important economic role within the district. Unregulated recreational netting is known to occur in the district and where this overlaps with known spawning and nursery grounds, there is potential for disproportionate effects on wider stocks.

Gear-related impacts: Fishing activity has impacts beyond the effects on the targeted species. Damage to habitats for example varies between gear, some gears have greater ecosystem impacts. This is an important consideration when assessing risk.

Ecosystem functioning: Fishing activities can result in impacts on target species, other marine life and supporting habitats. Indirect impacts could include disruption to food webs, biodiversity loss, changes in the structure of biological communities or a reduced

[3] J.R.Ellis, S.Milligan, L.Readdy, A.South, N.Taylor and M.Brown: 2010. MB5301 Mapping spawning and nursery areas of species to be considered in Marine Protected Areas (Marine Conservation Zones); Report No 1: Final Report on development of derived data layers for 40 mobile species considered to be of conservation importance.

[4] Ellis, J.R., Milligan, S.P., Readdy, L.,
Taylor, N. and Brown, M.J. 2012. Spawning and nursery grounds of selected fish species in UK waters. Sci. Ser. Tech. Rep., Cefas Lowestoft, 147: 56pp

[5] S. Thompson: 2014 Composition of commercial finfish catches. Eastern IFCA Research Report.

[6] M.Armstrong, A.Brown, J.Hargreaves, K.Hyder, S.Pilgrim-Morrison, M.Munday, S.Proctor, A.Roberts, K.Williamson: 2013. Sea Angling 2012 – a survey of recreational sea angling activity and economic value in
England.

resilience to natural or anthropogenic changes. Such impacts are more difficult to detect and manage than direct impacts, but an attempt has been made to consider them when looking at management measures.

General biology: General population dynamics are known for most commercially important species. Aspects of the general biology (for example age at sexual maturity) are assessed in relation to sustainability.

Political/social/legislative context: In addition to prioritising fisheries by risk, there are also political, social and legislative drivers for change which need to be taken into account and which may affect organisational priorities and/or workstreams. This includes Defra's revised approach to fisheries management, and more recently, the Fisheries Act 2020 which sets overarching objectives for fisheries management in the UK. Fisheries Management Plans under the Fisheries Act 2020 are being developed. These will set out the policy framework for securing the long-term sustainability in relation to different stocks based on geography. When adopted, these will necessarily inform management for the Eastern IFCA district and will need to be considered in strategic planning.

OSPAR requirements: Consideration has been given to obligations under the Oslo / Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention). This consideration has been based on species and habitats listed within the "List of Threatened and/or Declining Species & Habitats" in OSPAR Region 2, Greater North Sea. In summary, it is evident that the existing approaches and activities of Eastern IFCA generally satisfy obligations under the OSPAR Convention, and that additional requirements are limited to informing relevant authorities should we become aware of the presence of certain, generally very rare, species or habitats.

2.3 Limitations

The Strategic Assessment has a number of limitations which require reflection.

Firstly, the inshore fishing sector is relatively data limited: i-VMS will only this year be introduced for under-12 metre vessels which make up the majority of the inshore fleet and although under-10 catch recording was implemented in 2020, Eastern IFCA is only this year expected to gain access to this data.

As highlighted in Section 2.1 above, MMO landings data on which the initial quantitative assessment is based is generated through sales notes and does not capture landed fish sold directly to the public. Direct sales to the public are common for inshore fisheries and this

means that there are substantial gaps in landings data for certain significant local fisheries like the local crab and lobster fishery. MMO landings data also does not capture cockles fished using hand raking which is the predominant fishing method for the local Wash-based fishery (though this gap in data is mitigated by Eastern IFCA's own evidence base, discussed in further detail in the Bivalve Mollusc Fishery Assessment under Section 3.1 below). It is also believed that a proportion of economic value in relation to some fisheries is undetected by MMO landings data. For instance, some species like bass and sole are particularly valuable in small quantities, or have a fluctuating value throughout the year, and fishermen in the district are known to have a dependence on these. Thus, the initial assessment cannot fully the capture or detect the economic importance of certain fisheries locally.

Additionally, the MMO data set available to Eastern IFCA at the time of writing on which the 2022 Assessment is based only captures landings for the first half of 2021.

To mitigate these data-related limitations as far as possible, the data-driven analysis which forms the initial assessment is supplemented by a contextual analysis which draws on the knowledge and expertise of officers from the Marine Science and Marine Protection teams, intelligence gathered in partnership with the Marine Management Organisation, messages received from the fishing industry and the general public, and research work of relevance undertaken by other organisations.

Another limitation relates to the emergence of unforeseen issues or events which by their very nature cannot be accounted for in the annual planning cycle which the Strategic Assessment informs. As a public body, it is inevitable that Eastern IFCA will occasionally be influenced by factors beyond our control. As such, while the Strategic Assessment provides a useful fixed overview of priorities for the year, it is possible that these may vary because of changes to best available evidence or social, political, legislative or economic drivers.

3. Results

The combined outputs from the data-driven initial assessment and subsequent consideration of contextual drivers are set out in the sections below.

Section 3.1 outlines the results in relation to fisheries groups and key species within those groups which are identified to ensure that group-based analysis does not dilute the potential issues associated with a single species. Each fishery is given an overall risk rating (low, medium or high) based on its risk rankings for the four assessment criteria – evidence base, current regulation, ecosystem impacts and fisheries performance. Potential work streams are then considered and assigned one of three priority levels – high priority workstream, business critical, or future workstream.

As highlighted in the sections below, high priority workstreams are those which are considered crucial to ensuring that Eastern IFCA is able to meet its statutory duties in relation to maintaining sustainable fisheries, healthy seas and a viable industry. The business critical category relates to established workstreams which have become 'business as usual' for the organisation, the cessation of which has the potential to significantly increase the risk associated with the fisheries and/or areas to which they relate. Future workstreams represent the lowest priority workstreams in terms of targeting organisational resources. These are outlined recognising that they may inform future Strategic Assessments and that opportunities or developments may present during the year which would enable their undertaking or increase their priority.

Section 3.2 outlines the results of an analysis of Eastern IFCA's 'Message System' which records messages from stakeholders. The analysis is carried out as part of the contextual assessment and identifies the key concerns of stakeholders reported to Eastern IFCA during 2021.

Finally, Section 3.3 brings together previous sections to outline workstreams for the 2022-2023 financial year, in order of priority, according to the categories and their definitions as outlined above (high priority, business critical and future).

3.1 Fisheries assessments

The tables below outline the outputs of the Strategic Assessment in relation to the main fisheries groups and key species for the Eastern IFCA district identified within those groups. Key species are identified to ensure that group averages do not dilute the potential issues associated with a single species. Risk ranks for each of the four assessment criteria (evidence base, current regulation, ecosystem impacts and fisheries performance) are combined to produce an overall risk score.

Group: Bivalve Molluscs	**Key Species: Cockles, Mussels**		**Overall risk: Medium**
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **Low**	Risk rank: **High**	Risk rank: **Low**	Risk rank: **High**
Due to Eastern IFCA regulations prohibiting the use of fishing gear without authorisation, we have a good evidence base for key species within this group. This makes the score a low risk. It is noteworthy that the evidence base for fisheries outside the Wash is poor, particularly in regard to recreational fisheries. This does not reflect in the risk on the assessment due to these being marginal fisheries, and recreational fisheries not being recorded.	The dominant bivalve mollusc fisheries have a significant level of regulation in place (WFO and byelaws outside the Wash, as such, the assessment scores the group as a low risk. However, Eastern IFCA byelaws relating to bivalves are yet to be reviewed (since being inherited from ESFJC) and management of	The high initial assessment rank score relates to Mollusc dredges (bottom towed gear) which have a high ecosystem impact rating. A suction dredge fishery is the highest risk fishery. In addition, fishing activity occurs within spawning grounds (although this is less relevant in terms of the biology of this group). Suction dredge cockle fisheries have not been permitted since 2008 in the Wash and regulation prohibits them without	Cockles dominate this category making up a high proportion of UK catch (weight and value). Cockle landings fluctuate depending on the size of the stock. Landings remain consistent for the last 2 years and are at the upper end of the range that we have seen in the last 10 years. In addition, three shellfish processing factories operate within the district which also rely, in part, on catch from this group. As such, catch associated with this group has wider value in providing shore-based jobs.

The main change in terms of evidence base is that a full cockle survey was not carried out during 2020 increasing the risk score due to decreased confidence in the data. However a Survey was conducted in 2021, with capability for reduced capacity due to COVID-19. There is the potential for fewer closures to protect high density cockles in 2022, however, the cockle fishery will rely on the 2018 class of cockles due to poor spat settlement of the 2020 class. Anecdotally it appears that there was a good settlement in 2021. These juveniles have not yet been mapped. Failure to do so would leave high-density patches unprotected from fishery.	fisheries outside of The Wash will be hindered by the wording of these. The WFO 1992 has been subject to review since 2016. Several elements have progressed including the updated licence fees and regulations which were approved by the minister and came into effect in 2021. Progress has been made towards the development of the replacement for the WFO 1992: the Wash Cockle and Mussel Byelaw. The byelaw has been made by the Authority, formally consulted upon and submitted to the MMO/Defra for formal QA. Concerns about the replacement amongst	authorisation from Eastern IFCA (inside and outside of The Wash). Officers have undertaken a review of this fishery which indicates that the ecosystem impacts of such a fishery in The Wash could be mitigated. However, socio-economic impacts of this fishery need to be considered, and are therefore being assessed as part of the economic assessment of Wash fisheries. The revised Cockle Management Plan and the WCMB do not have any provision for a suction dredge fishery, and therefore it is anticipated that a handwork fishery will be the only permitted cockle fishery in the Wash into the future. Given that Eastern IFCA have regulation in place which manages the main fisheries within this group and that use of dredges or other bottom towed gear is not permitted without completion of an appropriate assessment, the risk to ecosystems is effectively mitigated. The dominant fishery is by hand-working (low impact) and this is	Mussel fisheries in the district have previously contributed a significant proportion of national landings (more than 80%) but have declined significantly over the past decade. Officers have identified ‘die-off’ in both cockles and mussels, the cause of which has been investigated but cannot be confirmed. It is likely that in both cases the mortalities are due to a combination of environmental stresses that could include parasitic infestations and the impacts of spawning. While regular settlements are keeping the cockle stocks at healthy levels, the mussel beds are suffering poor recruitment. This, combined with the high mortalities, has resulted in significant decline of the mussel beds. Furthermore the lack of mussel stocks can interact with the bird food model leading to a reduced TAC overall. Eastern IFCA contributed to a multi-disciplinary investigation in partnership with Cefas to gain a better understanding of what is causing mortalities and inform more effective management of the

	industry remain, particularly with regard to future business security and the loss of an entitlement provision. These concerns are strongly understood by Eastern IFCA and work continues in the development of access policies to provide assurance and mitigate risk. Officers are working together with stakeholders through ongoing engagement both with fishermen directly and with their representing solicitor and advisor to reach a satisfactory outcome and develop robust policy to support the viability of the fishery into the future. Further formal consultation is required prior to ensuring the policies are finalised before the first opening of the cockle fishery in 2023.	managed, through byelaws and the WFO. The main fisheries occur within MPAs and have the potential to impact on site integrity without appropriate management and compliance (which is completed and highlighted within the business-as-usual: critical workstreams section). Low yields in open cockle beds and pressures driven by production have encouraged the taking of smaller cockles which is likely to have a cumulative impact on the overall stock. Further research is required to consider the potential for further stock management methods such as an MLS. Engagement with processors and fishermen required to better understand situation and support with information. A mussel relaying fishery has been identified for 2022. Historically these fisheries are not widely targeted, however monitoring and management methods are required to ensure that the fishery will not have	situation. Development of mussel fishery management plans for the WFO 1992 fisheries, pending the outcome from the study. Final samples have been provided by Eastern IFCA in support of the project and results are anticipated. Due to an increase in biomass a relaying fishery will be opened in 2022, however the trend of young die-off remains. In addition, concern has been raised regarding a trend towards smaller (younger) cockles being targeted within the hand-work cockle fishery with impacts on industry viability (due to lower value) and wider stock sustainability impacts. This trend is being addressed and additional stock management methods are being considered. As such, a higher contextual risk is identified than from the initial assessment to reflect the concerns in performance of these two fisheries.

	Work on developing new regulation for bivalves across the district has been deprioritized in accordance with the Wash replacement taking priority. Progress has been made in developing the Several Order which is being applied for to manage the private aquaculture areas (lays) in the Wash, which are currently managed under the WFO 1992. A byelaw is not a possible mechanism to manage this activity and therefore a replacement several order is sought. A draft fisheries management plan has been written as part of the application, consultation with	adverse impact on the MPA.	

	stakeholders on this plan has been held as required. Results from the Economic Assessment of Wash Fisheries are anticipated in early 2022 to inform the development of management policies. Ongoing consideration of regulation required to regulate the trend towards small cockles being harvested. A dynamic approach is required due to complexity of issue and therefore the focus will be on monitoring and engagement prior to developing new regulation, if deemed necessary.		
Species trends	Observed trend towards low density larger cockles resulting in higher densities of smaller cockles being fished. Biennial cockle settlement trend appears to have been broken, there was no 2020 settlement resulting in reliance on 2018 cockle for 2021, and 2022 fishery. General trend of higher-than-average TAC with lower proportion of juvenile cockle/accessible cockle. No landings of mussel have occurred in 2021, but there has been an increase in biomass and a relaying fishery is planned for 2022 to maximise outputs. However, unexplained mussel die-off at young		

	age continues. No emerging fisheries are detected in initial assessment. The initial assessment indicates a significant spike in the price per kilo of cockles, from roughly £0.40 in 2019 to roughly £1.90 in 2021. This is of point of interest in relation to the concerns raised about a trend towards smaller (younger) cockles being targeted within the hand-work cockle fishery with impacts on industry viability (due to lower value) and wider stock sustainability impacts
Workstreams 2022/23	**Priority level and status**
Replacement of the Wash Fishery Order/Several Order 1992 with the Wash Cockle and Mussel Byelaw 2021 and the Wash Several Order 2022	**High priority workstream** Underway: WCMB submitted to Defra/MMO for QA, policy development ongoing within involvement from industry. FMP completed and consultation underway to inform the application for the Several Order replacing the management of aquaculture lays under the WFO1992. This workstream is afforded high priority because the WFO 1992 expires in January 2023. If the Wash Cockle and Mussel Byelaw 2021 is not implemented in time, there will be no management in place and the fisheries (which are of significant local and national value) would be interrupted. This would be detrimental to industry viability.
Finalising and implementing Wash cockle and Mussel Byelaw Policies	**High priority workstream** Underway: A final draft of the policies will be considered by the Authority in March 2022, after which Eastern IFCA will launch a formal consultation with industry on the final draft policies. This will include recommendations from the economic assessment and subsequent legal advice. This is a high priority workstream because the policies are an integral part of the replacement of the WFO 1992 management mechanism. The policies are referenced in the Wash Cockle and Mussel Byelaw 2021, providing details to its provisions, and the two are to be read together.
Annual stock assessment	**Business critical** Underway: Annual cockle survey is anticipated to inform the management of the 2022 fishery. This is a critical workstream as the

	assessment is needed to inform the HRA and allow the fishery to be opened each year.
Economic Assessment of Wash Fisheries	**High priority workstream** Underway: Results anticipated early 2022. The Economic Assessment is critical to informing the Wash Cockle and Mussel Policies and ensuring that these promote a sustainable, viable fishery.
Replacement of the Wash Emergency Byelaw 2018: the Wash Restricted Area Byelaw 2019	**High priority workstream** Underway: awaiting ministerial approval.
Engagement with stakeholders in relation to new WFO regulations and fee increases.	**Business Critical** Ongoing: engagement regarding the new Regulations and fees has been undertaken, with Ministerial consent having been provided in the 2021/22 financial year. Further dialogue to continue prior to 2022 cockle fishery opening as part of routine engagement with fishing industry. There are persistent concerns from industry regarding the transition from the WFO 1992 to the Wash Cockle and Mussel Byelaw. Engagement is critical to reassure fishery stakeholders and ensure a smooth transition.
Enforcement of WFO regulations, code of best practice, and Shellfish Lay lease conditions.	**Business critical** **Underway**: part of ongoing enforcement approach to management of the Wash fisheries.
CEFAS collaborative project to study the condition of inter-tidal mussels and identify the cause of their decline.	**Future workstream** Underway: Final samples have been provided by Eastern IFCA in support of the project, results are anticipated. Depending on the outputs of the Cefas investigation, further work may be required. Since 2010 the inter-tidal mussel beds have suffered unusually high-levels of mortality that has led to the decline of the beds and the mussel fishery. The beds are now in a very poor condition and unable to support a viable fishery. The actual cause of the mortalities is currently unknown, making the situation difficult to manage. A multi-disciplinary investigation is ongoing to gain a better understanding of

	what is causing the mortalities, informing more effective management of the situation. Development of mussel fishery management plans for the WFO 1992 fisheries will be informed by outcomed from the atypical mortality study.
Gather information about recreational hand gathering	**Future workstream**
Refined use of data in under 10s reporting app	**Future workstream**
Review Humber Estuary Fisheries Byelaw inherited from North Eastern Sea Fisheries Committee.	**Future workstream**
Review district-wide bivalve management	**Future workstream**
Development of mussel fishery management plans	**Future workstream** Pending the outcome from atypical mortality study.
Development of Monitoring and Control Plans in line with species specific fisheries management plans under the Fisheries Act 2020.	**Future workstream**
Review of cockle fishery management plan in line with WCMB and 2021 regulation changes.	**Future workstream**
Development of engagement plan to educate and inform about small cockles, including engagement with processors to understand market for small cockles. Consideration of a voluntary approach in the first instance, enhancing the existing code of conduct.	**Future workstream**

Group: Crustaceans	**Key Species: Brown Crab, Lobster**		**Overall risk: High**
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **High**	Risk rank: **High**	Risk rank: **High**	Risk rank: **High**
The current evidence base for brown crab and lobster still lacks sufficient spatial resolution to fully inform management. It is also of relatively low confidence due to the data collection methods. Eastern IFCA is expected to gain access to the data from the catch-recording (e-reporting) service for the under-10m fleet in 2022. This e-reporting service (implemented in a phased approach between November 2019 and January 2020) now replaces the previous MSAR	The majority of species in this group are not regulated due to being marginal fisheries. The key species, crab and lobster, are covered by national and IFCA-level management measures (MLS and a limitation on the issuing of new commercial licences). However, current measures are generally insufficient to conclude that exploitation is at MSY levels. Stakeholders (fisheries and others) have indicated the need for additional measures to ensure	Potting fisheries generally score low for ecosystem impacts. However, the contextual risk is high due to the nature of the seabed within Cromer Shoal Chalk Beds MCZ. Ecosystem impacts are higher in rugged chalk areas in the inshore parts of the MCZ, where potting effort is believed to be concentrated. A Project Board, a Research and Development Task and Finish Group, a Management Task and Finish Group and a Stakeholder Group have been established to work together to implement the	The landed weight and value of both crab and lobster is high. The Marine Strategy Framework Directive required that Good Environmental Status (GES) be achieved for all commercially exploited stocks by 2020. GES requirements include that stocks are fished at MSY. However, for most shellfish stocks GES has not yet been achieved or their status is uncertain and Cefas advice indicating that crab [7] and lobster [8] stocks are being

[7] Cefas Stock Status Report 2019: Edible crab (Cancer pagurus), available at: *Edible crab (Cancer pagurus) Cefas stock status report 2019 (publishing.service.gov.uk).
In relation to brown crab in the Southern North Sea region, the report concludes at page 10: Exploitation level of Edible Crab in the Southern North Sea is high for both sexes and, although stable, is above the level required for Maximum Sustainable Yield. The spawning stock biomass is between the reference target and limit for both males and females, increasing in recent years for both sexes. The status of the stock has not changed since the last assessment in 2017. Anecdotal information suggests a recent expansion of fishing activity in both pot numbers and distribution. These factors are likely to be partially responsible for the large increase in landings which the model interprets as an increase in spawning stock. The spawning stock status should therefore be treated with caution.
[8] Cefas Stock Status Report 2019: Lobster (*Homarus gammarus*), available at: CP017-04-F5 Cefas Report Template (publishing.service.gov.uk).

paper method. Work being done in the context of Adaptive Risk Management for Cromer Shoal Chalk Beds MCZ is also expected to significantly improve the evidence base for the crab and lobster fisheries. Research using trackers on fishing vessels was launched in 2021 and is ongoing to inform our understanding of fishing activity on and off the rugged chalk, with 10 vessels currently involved and more anticipated in 2022. Moreover, it is anticipated that i-VSM will be introduced across the under 12m fleet by the end of 2022. A study is being developed to assess the economic value of the rugged chalk for the fishery to better inform our understanding of the potential social and economic impacts of any required management measures on industry. While	sustainability. However, there continues to be no consensus on what these are. Suggestions include a closed season during winter months, effort limitation, and restricting the 3nm zone to beach launched vessels only. There is ongoing consideration of a framework byelaw to allow measures to be introduced and adapted as necessary, in the context of the Adaptive Risk Management Process. A flexible byelaw like this would significantly improve the current gap in regulation. However, it is likely that this would be initiated in 2023. Pursuant to the Fisheries Act 2021, it is also anticipated that a Fisheries Management Plan for crabs and lobsters in English waters will be published by 2023. The FMP will set out the policy framework for securing the	Adaptive Risk Management approach to mitigate risks to the protective chalk feature. Nevertheless, the risk remains high as no new management measures have yet been introduced and consideration of potential gear adaptations to mitigate ecosystem impacts is still ongoing. It is, however, anticipated that limited gear adaption trials will commence in 2022. ROV surveys have been carried out at 87 stations in 2021 and will continue in 2022, to enable mapping out the extent of the rugged chalk feature within inshore areas. Taken together with data from trackers, this will further inform our understanding of the ecosystem impacts of potting on protected features and in relation to the conservation objectives of the site.	exploited at levels beyond MSY has not been updated. Moreover, Eastern IFCA's data indicates that the local fishery is potentially slightly overfished. Pursuant to the Fisheries Act 2021, it is anticipated that a Fisheries Management Plan for crabs and lobsters in English waters will be published by 2023. The FMP will set out the policy framework for securing the long-term sustainability of crab and lobster stocks, including in the Eastern IFCA district. Information has been received about an increase in market demand for crab containing roe and the potential for impacts to stock sustainability, and future fisheries performance. This increases the risk in relation to fisheries performance as individuals are potentially being taken out of the fishery before

In relation to lobster in East Anglia, the report concludes at page 12: The exploitation status of the stock of lobster in East Anglia is high, above the maximum reference point limit for both sexes, although decreasing since 2017. Fishing pressure is particularly high around the Minimum Landing Size. The spawning stock biomass of both sexes is low, below the minimum reference point limit. Low sampling levels make the uncertainty on stock status high for this stock. No assessment is presented for 2015–2016 due to insufficient sampling.

these developments go some way towards mitigating risk, more information is needed on levels and locations of activity throughout the whole district, including unlicensed activity and that of vessels not based in the district (e.g. Grimsby).	long-term sustainability of crab and lobster stocks, including in the Eastern IFCA district. It is anticipated that future regulation will increasingly take environmental considerations into account, and not only stock management. Progress in the adoption of the Fisheries Improvement Plan (FIP) for the fishery has been slow. However, indications have been given that MSC are considering proposing the FIP for Phase 1 Assessment (pre-assessment).		having a chance to spawn once. Officers have also raised concerns about a trend to target crabs at the wrong time of the year for use as cheap bait in the whelk fishery.
Key species trends	Landings of brown crab have been steadily increasing since 2015, peaking in 2019 which appears to correlate with a slow but steady increase in average prices per kilo for that period. Although 2020 saw a slight drop in both landed weight and the average price per kilo, the price per kilo reached its highest peak (over the period 2010-2021) in 20201. However, because the landings data available at the time of writing captures only the first half of the year, it is not possible to identify whether the spike in average price per kilo has been accompanied by an increase in landings (though this is generally expected). Note: the analysis of brown crab trends comes with the caveat that MMO landings data does not capture direct sales to the public which is common for this fishery so landings are expected to be higher than the data suggests. Lobsters saw a sharp downwards spike in landings from 2017 to 2018 and have remained more or less steady since then. Noteworthy is that while landings in 2017 appear to have been at the lowest they have been during the 2010-2021 period, this year presents as the peak in steadily rising average prices per kilo. Since 2010, there appears to be a trend for peaks in landings in one year to be followed by sharp declines the next, with 3-year intervals between peaks. Noteworthy, in view of this		

	trend is that the peak in 2017 was not followed by a peak in 2020. However, 2020 could present as an anomaly year due to the Covid-19 pandemic. As data is not available for the whole of 2021, it remains to be seen whether landings have peaked again as per the relatively stable trend for this fishery. Averages prices per kilo in 2021 saw a record high of £19.80 per kilo, where they have remained relatively stable at between £12 and £14 per kilo between 2016 and 2020. Note: the caveats identified in relation to brown crab apply to lobsters as well.

Workstreams 2022/23	**Priority level and status**
Conduct further surveys in relation to potting activity to map the distribution and intensity of potting in the MCZ and throughout the district	**High priority workstream** Underway: Ongoing research using trackers to inform our understanding of fishing effort and where fishing is concentrated in the MCZ. More information is needed on levels and locations of activity throughout the whole district, including unlicensed activity and that of vessels not based in the district. This workstream is afforded high priority as it is integral to the ongoing Adaptive Risk Management approach to this fishery and the ongoing development of measures to ensure that risks to the conservation objectives of the site are being effectively mitigated.
Habitat mapping to understand the location and extent of rugged chalk in the MCZ	**High priority workstream** Underway: Ongoing habitat mapping work using BlueROV 2. As above, this workstream is a high priority as it is integral to the ongoing Adaptive Risk Management approach to this fishery and the ongoing development of measures to ensure that risks to the conservation objectives of the site are being effectively mitigated. Mapping the extent of chalk features alongside potting features will inform more appropriate management as well as our understanding about the impact of potting on the chalk.
Assess the environmental impacts of current potting activities	**High priority workstream** **Underway**: More BlueROV surveys planned for 2022. Analysis ongoing of video footage will take place throughout the year.

	The assessment is a high priority workstream as there is very little literature about the impacts of static gear on chalky seabeds. This is necessary in the context of the ongoing Adaptive Risk management approach to the MCZ.
Trail potential mitigative measures for reducing the impacts of the potting fishery on chalk features	**High priority workstream** Upcoming: Research & Development Task & Finish Group to identify potential ground-rope adaptations for trial during the 2022 fishing season. Gear innovation is a high priority workstream to identify adaptations which may limit the impact of potting gear on the chalk. ROV footage collected so appears to show ground ropes cutting into chalk features. To ensure the risks to the site are being mitigated, trials on potential adaptions need to begin this year.
Monitor effort levels to assess if increases are occurring	**High Priority Workstream** Implementation of management to monitor fishing activity levels is required to manage the risk of potting on the MCZ. This is likely to be achieved via the implementation of I-VMS requirements nationally but additional measures to monitor and manage numbers of pots would further reduce risk.
Continue (and possibly revise) crab and lobster bio-sampling regime. Potentially include the collection of information about catches (rather than landings) and about weight and the length/weight relationship.	**High priority workstream** Upcoming: Need to devise a methodology to assess value on and off the rugged chalk. It appears that potting activity in the MCZ tends to be concentrated inshore and linked to the rugged chalk. Information received from industry suggests that these areas a more productive and further research into this is required as a high priority in the context of the ongoing Adaptive Risk management Approach.

Develop and introduce management for stored and lost pots	**High priority workstream** Underway: A code of best practice for lost and stored gear has been developed and is undergoing informal consultation. A gentlemen's agreement on recovery and disposal is under development. Both are anticipated to be implemented in time for the 2022 fishery. This is a high priority workstream as the conservation advice of Natural England flags lost gear as posing a high risk to protected features.
Development of crab and lobster permitting byelaw (framework byelaw) and permit conditions (effort limitation/technical requirements/gear tagging etc)	**High priority workstream** **Upcoming:** Development of byelaw and permit conditions anticipated to begin in the second quarter of 2022. The development of a framework byelaw is a high priority workstream to enable responsive management as our understanding of the interaction between potting and sensitive features and mitigative measures develops. This is critical to the effective implementation of the Adaptive Risk Management approach.
Engagement to gather information for the MCZ assessment and to develop management measures (including education and engagement in relation to any new measures)	**Business critical** Engagement with industry is a business critical workstream as industry participation and collaboration is essential to the development and implementation of effective management of the site.
Continue routine engagement and compliance checks	**Business critical**
Acquire additional length frequency data for lobsters	**Future workstream** Note: This could potentially be incorporated into the study on the value of crab on and off the rugged chalk
Development of Monitoring and Control Plan	**Future workstream**
Refined use of data in under 10s reporting app	**Future workstream**

Assess and where possible mitigate for impacts from cross-over from MSARs to catch returns in order to minimise data loss	**Future workstream**
Continue to support any progress and developments with the Fisheries Improvement Plan	**Future workstream**

Group: Shrimp / Prawns	**Key Species: Brown Shrimp**	**Overall risk: High**	
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **High**	Risk rank: **Medium**	Contextual Rank: **Medium**	Contextual Rank: **Medium**
Eastern IFCA has access to higher spatial resolution shrimp activity data, including VMS data which has supported the assessment of fishing effort levels within The Wash and North Norfolk Coast SAC. Of those vessels operating in the district which are currently required to carry VMS, it is understood that all are using VMS plus. This substantially mitigates risks previously identified. Moreover, i-VMS is expected	The Shrimp Permit Byelaw 2018 has gone to Defra for sign-off. Since formal submission of the Byelaw to the MMO, we have further developed the permit conditions using the process under the Byelaw so that these are ready to come into effect when the Byelaw does. New returns forms have been rolled out and new returns requirements formally came into effect on 1 January 2022. Returns must now be submitted	Shrimp trawling gear presents a high risk in relation to both habitat damage and by-catch impacts, especially in nursery areas. Potential impacts on MPAs in the district have been mitigated in part through the continued development of restricted areas to protect designated features and sub-features that are at risk for this activity. The Closed Areas Byelaw 2021 (undergoing formal	Landings of Pink shrimp have shown a strong negative trend over the last 7 years. This is in part thought to represent the lack of market demand. However, pink shrimp are also strongly associated with Sabellaria reef which has been protected with restricted areas by Eastern IFCA. This effectively rules out a potential fishery. The Wash brown shrimp fishery is a nationally significant fishery which accounts for 95% of the brown shrimp fished in UK waters.

to be installed on all vessels over 6m by August 2022. As part of the MSC accreditation for the brown shrimp fishery, a provisional agreement is also in place for processors to provide us with processing data. The previous Strategic Assessment (2021) identified that further data is required, particularly relating to the Swept Area, to inform effort management models and ensure that the fishery does not impact on site integrity. New returns forms came into effect on 1 January 2022. Under the new requirements returns must be submitted for every day of the year, even where no fishing has occurred, and information must be provided for each tow undertaken per trip. Weekly returns will be required for shrimp fishing in the Wash and North Norfolk Coast, otherwise, monthly returns are required. This development will	even where no fishing has occurred, and every day of the year must be accounted for on a return form. Fishermen fishing in the Wash and North Norfolk Coast must submit weekly returns. Otherwise, return forms must be submitted monthly.	consultation) will introduce new restricted areas within 5 MPAs in the district, where no bottom-towed fishing will be permitted. Whilst many of the restricted areas are yet to be implemented (subject to the byelaw making process), this does represent a significant mitigation of risk. However, a review of the effectiveness of the implemented restricted areas has not been carried out. The Shrimp Permit Byelaw 2018 (awaiting Defra sign-off) and associated permit conditions which will come in effect will enable Eastern IFCA to implement both effort limitations and gear restrictions to further mitigate risks to species and habitats. The MSC accreditation further mitigates risk. Officers have reported recreational beam trawling activity in estuaries around Suffolk which increases the contextual risk. Where fishing	Landings of brown shrimp have fluctuated greatly in the last 6 years, with peaks in 2018 and 2020. This is thought to be a result of market demands as well as the biology of the species. Consequently, there are no apparent strong trends, and changes are thought to be within the normal range. The 2020 fishery was reported as good in terms of both productivity and market value despite the COVID-19 pandemic having a negative impact on processing factories. Landings in 2021 were the lowest they have been since 2010. Officers believe this year to be an anomaly and largely the result of very limited market demand and competition from Dutch fleets. In general, fluctuations are also believed to be influenced by the availability of other fisheries (primarily cockles). If MSC accreditation requirements are adhered to, it is expected that good fisheries performance will be maintained in the brown shrimp

significantly mitigate risk as it will allow us to monitor effort in relation to the threshold. It will also mitigate the risk previously identified in relation to very small-scale shrimp fisheries along the North Norfolk and Suffolk coast, some of which target shrimp only as bait. A new returns database is currently under development. Although there will be lag to some extent as returns will only be received as the season progresses, weekly returns from the Wash and North Norfolk Coast SAC are expected to minimize that. There remains a persistent need for information about activities throughout the district. Limited information about the artisanal shrimp fishery in Cromer Shoal Chalk Beds MCZ, for instance, resulted in delays to the Closed Areas Byelaw 2021.		activity, even at a recreational scale takes place in known spawning and nursery grounds, there is an increased risk for a disproportionate impact on ecosystems.	fishery. However, officers have concerns about compliance with these which increases the contextual risk.
Key species trends	Data for the period 2010-2021 shows peaks in landings of brown shrimp to be followed notable declines. These fluctuations are believed to be the result of market demands as well as the biology of the species and changes are thought to be within the normal range.		

Workstreams 2022/23	**Priority level and status**
Monitor the uptake of new catch returns requirements	**High priority workstream** Underway: New catch returns forms came into effect on 1st January 2022. The uptake of new returns forms is critical to enabling Eastern IFCA to effectively monitor fishing effort within the Wash and North Norfolk Coast SAC. Monitoring the uptake of the new returns forms to ensure compliance with new requirements is critical to ensuring their effectiveness. This is a high priority for this year as the new forms came into effect in January.
Development of a new returns database for collating and interpreting new returns forms in real time	**High priority workstream** **Underway** This is a high priority workstream to ensure that data from the new returns forms is usable and to allow for real-time monitoring of effort. The new database will be a critical tool for the assessment of fishing effort levels within The Wash and North Norfolk Coast SAC to ensure that these do not surpass limits.
Implement Shrimp Permit Byelaw 2018	**High priority workstream** Underway: The Byelaw is awaiting sign-off by Defra. This is a high priority workstream because the Byelaw and associated permit conditions are the key mechanisms for managing the fishery.
Implement Shrimp Permit conditions	**High priority workstream** Underway: The permit conditions have been developed using the process under the Byelaw so that these are ready to come into effect when the Byelaw does. This is a high priority workstream because the Byelaw and associated permit conditions are the key

	mechanisms for managing the fishery.
Continue to implement management measures to protect MPA features and mitigate ecosystem impacts	**High priority workstream** Underway: Closed Areas Byelaw 2021 is undergoing formal consultation. The Byelaw will introduce restricted areas in 5 MPAs within the district where no bottom-towed fishing will be permitted. Additionally, much of the required management has been covered through the implementation of the MSC accreditation in the Wash.
Implementation of i-VMS throughout the shrimp fishing fleet	**High priority workstream** i-VMS is expected to be installed on all vessels over 6m by August 2022. The data from i-VMS will significantly improve our evidence base. Depending on how the I-VMS is implemented nationally, additional measures may need to be implemented by Eastern IFCA to ensure we can enforce the measures and there are consistent reporting times across all vessels engaged in the fishery.
Gather information about levels of activity outside of the Wash (focus on Suffolk estuaries)	**Future workstream** Reports received by officers indicate previously unknown recreational beam trawling activity in estuaries around Suffolk. Where fishing activity, even at a recreational scale takes place in known spawning and nursery grounds, there is an increased risk for a disproportionate impact on ecosystems. Further information is critical to better understand activity levels and ecosystem impacts. This will in part be addressed through the implementation of the new shrimp return forms and I-VMS roll-out.
Monitor effort in line with effort limitation model	**Business critical** This is a business critical workstream to ensure that effort does not surpass limits necessary to ensure that the fishery does not

	pose a risk to site integrity (Wash and North Norfolk Coast SAC).
Engagement and enforcement in relation to new shrimp measures	**Business critical** This is a business critical workstream to ensure that new measures and their rationale are understood by fishery stakeholders.
Routine engagement and compliance checks in accordance with the Compliance Risk Register and TCG	**Business critical** This is a business critical workstream, in line with Eastern IFCA's Regulation and Compliance Strategy and Enforcement Policy.
Continue MSC accreditation gear inspections and effort calculations/ Maintain Eastern IFCA involvement in the MSC accreditation scheme	**Business critical** This is a business critical workstream in line with Eastern IFCA's commitments to facilitate the MSC accreditation.
Development of Monitoring and Control Plan	**Future workstream**
Development of fisheries sustainability management measures (including consideration of impacts on nursery areas)	**Future workstream**
Refined use of data in under 10s reporting app	**Future workstream**
Continue engagement with industry on MSC endangered, threatened and protected species list for the fishery	**Future workstream**

Group: Whelks	Key species: Whelk	Overall risk: High	
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **High**	Risk rank: **Medium**	Risk rank: **Medium**	Risk rank: **High**
Whelk fisheries data has been collected over the last five years. However, the evidence base for this fishery remains relatively limited. This is in part due to limitations which have emerged both with respect to data collection, and data entry. Two projects, one relating to Landings Per Unit Effort (LPUE) and another to Size of Maturity (SOM), are currently underway to improve the evidence base for this fishery. LPUE is being monitored to assess the fishery against MSY. While this is based on whelk returns data which is district wide, shortcomings were highlighted in the	A permit mechanism is in place which enables the introduction of measures as required. Effort, gear and MLS are all currently managed and permit conditions are currently under review. Responses from stakeholders to the formal consultation have been considered. However, the outputs from the ongoing research studies (see Evidence Base section) are required to ensure that the conditions are effective to address sustainability concerns linked to this fishery. It is anticipated that further effort restrictions will be required, particularly in view of the poor compliance with existing measures. Suffolk fishermen have raised	Generally, potting fisheries represent a relatively low risk in relation to ecosystem impacts. Assessments in relation to potting activity within Cromer Shoal Chalk Beds MCZ are required. However, this is largely in relation to the crab and lobster fishery, as areas likely to be used for whelk fishing are mostly characterized by soft substrate. The MCZ potting assessment has attempted to assess the amount of whelk potting activity in the area as this is less well known than for crab and lobster. However, more information is still needed.	The landed weight of whelk is significant within the Eastern IFCA district where one of the major whelk processing factories is situated. The landed weight of whelks has remained consistently high since 2014, peaking in 2016 and later in 2019 (a year which also saw additional fishing effort due to improving market conditions and a lack of other fishing opportunities). Although landings in 2020 saw a slight decrease from the 2019 peak, this is not enough to conclude that risks to the fishery are decreased, and a stock assessment is still required. Moreover, LPUE has started to decline since 2020 which can be a cause for concern as the low mobility and reproductive trends of whelk makes them vulnerable

data set as a result of human error (fishermen incorrectly filling out returns forms and transcription errors when inputting returns form information to the electronic system). Moreover, although Eastern IFCA has LPUEs for the district and various areas within in, LPUE has limitations as a proxy for stocks on the ground. This is mainly due to LPUE being based on long-term trends and there being a lag between actual impact and the emergence of a downward trend/decrease in LPUE. LPUE is not as robust as CPUE (catch per unit effort) and we will not be able to get a full picture of what is happening to the whelks from this metric. CPUE would take into account all the undersized whelks that are riddled out and would give a better understanding of the	concerns that the MLS is too high, effectively making the inshore fishery in that part of the district unviable.		to over-fishing and slow to recover.

stocks/future stocks. More data is still required for the SOM study to inform appropriate Minimum Landing Sizes (MLS). As a result of difficulties in procuring samples from more than a dozen stations, the data set is still insufficient. A significant education/engagement drive continues to be required to improve the accuracy of fisheries-dependent data.			
Species trends	The data for the period 2010-2021 shows a strong upward trend in averages prices per kilo for whelk, with a peaks in 2017 and 2018. An initially strong upward trend in landings between 2011 and 2012 has been followed by relatively steady annual range between 2013 and 2017. Landings peaked in 2019 and 2020 with an increase in landed weight of around 800 tonnes more than average annual landings for the period 2013-2017.		

Workstreams 2022/23	**Priority level and status**
Increase scope of SOM research project and voluntary gathering of whelk samples. Develop appropriate minimum size and effort management (focusing on sampling from a variety of different locations to ensure the MLS is appropriate)	**High priority workstream** Underway: engagement is ongoing with fishermen. This is a high priority workstream as it is necessary to ensure that management measures are effective and proportionate.
Continue stock assessment due to incorrect returns and assessment of size at sexual maturity (continue monitoring of LPUE data to determine trends)	**High priority workstream** Underway: 2021 analysis to be completed within first quarter of 2022.

	This is a high priority workstream as it is necessary to inform the review of whelk permit conditions. We have increasing evidence that whelk stocks are crashing and that there is a high risk to the sustainability of the fishery. The low mobility and reproductive trends of whelk makes them vulnerable to over-fishing and slow to recover.
Revise permit conditions	**High priority workstream** Upcoming: To be informed by stock assessment and minimum size review. As above. This is a high priority workstream due to evidence of a high risk to the sustainability of the fishery.
Engagement, enforcement intel gathering and partnership working with MMO	**Business critical** Any new measures are likely to increase enforcement issues. Moreover, compliance with whelk measures has generally been low and enforcement is a high priority for this fishery.
Development of Monitoring and Control Plans	**Future workstream**
Review of Byelaw 5: Prohibition on use of edible crab (*Cancer pagurus*) for bait	**Future workstream**
Refined use of data in under 10s reporting app	**Future workstream**

Group: Demersal	**Key Species: Bass, Cod; Flatfish: Sole, Plaice, Flounder, Dab**		**Overall risk: Medium**
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **Medium**	Risk rank: **Medium**	Risk rank: **Medium**	Contextual Rank: **Medium**
The evidence base for demersal fisheries in the district is limited, particularly in relation to effort data. However, many of the species represented have ICES stock assessments which provide a strong evidence base overall. ICES advice for bass, sole, plaice and flounder is generally favourable. Conversely, the advice for cod indicates that this is an at-risk species. Finfish fisheries in the district are generally undertaken by small scale operators and as a result, activity often passes under the radar. MMO landings data also tends to be unrepresentative of activity in the district. However,	Eastern IFCA has only limited management measures in place, in particular the Minimum Sizes Byelaw 2019 which came into effect on 1st March 2021 (applicable to both commercial and recreational fishing). However, demersal fisheries are heavily regulated through national and European measures. Pursuant to the Fisheries Act 2021, it is expected that Fisheries Management Plans will be published for bass in English waters by 2023, for Southern North Sea and Eastern Channel Mixed Flatfish fisheries (including plaice, sole, flounder and dab) by 2024. A regulation gap continues to persist with respect to the lack of designation of Bass Nursery	Demersal fishing gear includes bottom-towed gears which score highly for ecosystem impacts, particularly in relation to habitat damage. Moreover, species impacts are high due to the ability of nets to remove large numbers of fish very effectively. Where such gear types are deployed within nursery or spawning areas there is a risk for disproportionately large impacts on stocks. Bottom-towed gears represent a risk not only to targeted species (including their young) but also to many other species and habitat features. The local risk is compounded by the known occurrence of unregulated and recreational	While demersal fisheries are low risk according to the initial assessment, it is believed that a proportion of economic value is undetected by the MMO landings data used to inform the assessment. Moreover, some species like bass and sole are particularly valuable even in small quantities and this is especially relevant for Suffolk where many small-scale fishermen land small amounts and sell directly to the public. As such, the economic importance of these fisheries locally is potentially underestimated. The Eastern IFCA district is also an important area for recreational fishing. However, available data does not include

it is anticipated that under-10m catch recording will mitigate this data gap and Eastern IFCA is expected to gain access to this data in 2022. Further activity data is required to inform an understanding of the levels of gear use in relation to ecosystem impacts and the protection of MPA features, though this is also partially mitigated by under-10 catch recording. Netting activity data is potentially needed at a higher resolution in relation to bycatch of porpoises, seals and seabirds. Assessments of impacts to cetaceans and birds tend to only be done on a case-by-case basis A further data gap exists in the context of unregulated and recreational netting in the district. However, this is routinely monitored and reported by officers, so Eastern IFCA does have some information as to the local	Areas (BNAs) in the district, despite their presence being known. Additionally, gaps in national legislation have also resulted in the occurrence of unregulated netting activity.	netting activity in the district. Moreover, officers have reported recreational beam trawling activity in estuaries around Suffolk which increases the contextual risk. In this context, the lack of progress to designate BNAs within the district further increases risk, particularly as the importance of the district in providing nursery grounds for juvenile fish is well known. The designation of such areas is likely to result in a positive environmental spill-over effect due to areas where the species tends to be found (inshore and estuarine areas which are the most sensitive). Potential impacts to MPAs will be mitigated significantly by the Closed Areas Byelaw 2021 (undergoing formal consultation) which will introduce restricted areas in 5 MPAs within the district where no bottom-towed fishing will be permitted. However, some of these restricted areas are yet to be implemented.	recreational activity which has wider benefit to the local economy. Furthermore, the value of these species tends to increase at certain times of the year which may mean that they are hugely important on an individual basis, if not in a broader economic sense. Officers have noted that sole often presents as the most reliable source of income for East coast fishermen in the summer. Concerns have been raised about pressure to this fishery and the local impacts of a boom-and-bust fishery. In particular, stocks appear to face periods of sudden, heavy pressure which result in noticeable drops in catches after a 2-week period and push fishermen to fish further out from the shore. It is believed that this trend is local and not a wide-scale issue (favourable ICES advice for sole),

extent of this activity.		Risk of ecosystem impacts still exists in relation to impacts to birds and cetaceans as these are yet to be assessed.	potentially requiring a consideration of local management. Temperature change and overfishing have removed the presence of Cod from the district, driving the species further North and effectively ruling out a local fishery.
Key species trends	Bass landings in the district fluctuate while generally exhibiting an upward trend, alongside the stronger upward trend for prices per kilo. Noteworthy is that peaks in average prices per kilo appear to correlate with downward spikes in landings. Cod exhibits a strong negative trend in landings despite a steadily increasing average price per kilo over the years. This is thought to be driven in part by EU and national level quota management, however warming temperatures have also driven cod further north, effectively ruling out a local fishery. There is a very strong downwards trends for sole landings. As identified in relation to fisheries performance, this is potentially a local issue rather than a wide-scale indication of stock health as ICES advice is favourable for this species. Dabs show a strong negative strong in landed weight since a peak in 2014. However, landings in the district are low for this species. Other key species do not appear to exhibit strong trends.		

Workstreams 2022/23	**Priority level and status**
Re-assessment of amber/green impacts in all MPAs (including an analysis of gaps in fishing activity data relevant to assessing fishing impacts on SPA bird species and porpoises)	**High priority workstream** Underway: The re-assessment is ongoing. The re-assessment is a high priority workstream in the context of Eastern IFCA's statutory duties to ensure the protection of MPAs from potential impacts of fishing activity.[9]

[9] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

Implementing management measures for 'red-risk' gear/feature interactions within MPAs	**High priority workstream** Underway: Closed Areas Byelaw 2021 is undergoing informal consultation. The Byelaw will introduce restricted areas in 5 MPAs within the district where no bottom-towed fishing will be permitted. This is a high priority workstream in the context of Eastern IFCA's statutory duties to ensure the protection of MPAs from potential impacts of fishing activity.[10]
Engagement on and monitoring compliance with the Minimum Sizes Byelaw 2019 (for both commercial and recreational fishing)	**Business critical** This is a business critical workstream, particularly in view of the popularity of the district for recreational fishing to ensure that stakeholders are aware of the applicable minimum sizes in the Eastern IFCA district.
Bass-related engagement with fishers regarding BNAs and other bass measures	**Business critical** This is a business critical workstream, part of routine engagement with stakeholders, in view of known existence of important but still undesignated BNAs in the district and the increased risks to ecosystems posed by netting.
Bass-related enforcement and intel gathering and partnership working with the MMO (bass and landing obligation)	**Business critical** This is a business critical workstream that is an important part of partnership working and information sharing to ensure compliance with measures.
If required, we will provide evidence and support in relation to the designation of BNAs in the district	**Future workstream** Note: BNAs have been proposed for the district but not designated.
Collect fit-for-purpose data and assess the needs for 'unregulated netting' measures (including all potentially commercial-level activity)	**Future workstream**
Obtain further information on the scale of non-commercial	**Future workstream**

[10] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

activity and investigate the need for increased minimum sizes for fish and shellfish and the application of net mesh requirements for non-commercial fishers	
Development of Monitoring and Control Plans	**Future workstream**
Engagement with RSA to obtain fisheries data	**Future workstream** Note: Engagement in the past but the data has not be obtained
Refined use of data in under 10s reporting app	**Future workstream**
Continue to support REAF project	**Future workstream**

Group: Dogfish and Sharks	**Key Species: L.S.D.**	**Overall risk: Low**	
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **Medium**	Contextual Rank: **Low**	Contextual Rank: **Low**	Risk rank: **Low**
Fisheries evidence is poor including effort and catch data. Under-10 catch recording will mitigate this to an extent and Eastern IFCA expects to gain access to this in 2022. However,	Some species within the group are subject to no-take restrictions (i.e. most sharks). Dogfish have limited regulation and are thought to be biologically vulnerable to recruitment over-fishing	Most fishing is conducted via longlines and nets which have limited ecosystem impacts although some are caught as unintended by-catch via trawls. Given the small proportion of UK landings taken from within the	ICES advice is generally favourable for dogfish but poor for sharks (sharks are however generally subject to no-take restrictions). Due to limited data, ICES has not been able to assess the stock and exploitation status for lesser spotted

the level of catch retained for the purpose of using it as bait is not well understood and as such a risk remains	although it is recognised that they have a higher survivability than other species. Fishing mortality is thought to be relatively low within the district, according to landings data. Eastern IFCA byelaw 14 prohibits the removal of Tope. Pursuant to the Fisheries Act 2021, a Southern North Sea Non-Quota Demersal Species Fisheries Management Plan will be published by 2024. This will cover the key species for the Eastern IFCA district – lesser spotted dogfish.	district, impacts on spawning and nursery areas are likely to be limited, relative to other target species.	dogfish relative to maximum sustainable yield and precautionary approach reference points because these reference points are undefined. None of these fisheries are particularly important from an economic perspective and, with the exception of lesser spotted dogfish represent less than 0.02% of UK total catch. Many dogfish species are likely to be more important as bait for other fisheries (and may be under recorded as a result). Fishermen from the district have made representations to Eastern IFCA that catches of spurdog are very high and they should be able to land them. However, this species is very susceptible long gestation period for this species (up to 22 months) and late sexual maturity (around 10 years for males and 15 years for females).

Key species trends	Following a peak in 2015, landings of LSD have declined back to levels seen in 2010 with circa half a tonne landed between 2018 and 2020. Whilst this is a modest annual landed weight (and circa 1% of UK landed weight). It is also important to note that a certain amount of catches of this species will not be reported due to its use as bait in potting fisheries. Smoothound landings are the other species of note within this group. Landings have been consistent with no strong trend. However, this is likely to be due to quota/fisheries management rather than species trends.

Workstreams 2022/23	**Priority level and status**
Re-assessment of amber/green impacts in all MPAs (including an analysis of gaps in fishing activity data relevant to assessing fishing impacts on SPA bird species and porpoises)	**High priority workstream** Underway: The re-assessment is ongoing. This is a high priority workstream in the context of Eastern IFCA's statutory duties to ensure the protection of MPAs from potential impacts of fishing activity.[11]
Conduct engagement and compliance checks in accordance with the compliance risk register and TCG	**Business critical** This is a business critical workstream in line with Eastern IFCA's Regulation and Compliance Strategy and Enforcement Policy.
Implement management measures for 'red-risk' gear/feature interactions within MPAs	**High priority workstream** Underway: Closed Areas Byelaw 2021 is undergoing informal consultation. The Byelaw will introduce restricted areas in 5 MPAs within the district where no bottom-towed fishing will be permitted. This is a high priority in the context of Eastern IFCA's statutory duties to ensure the protection of MPAs from potential impacts of fishing activity.[12]
Partnership working with Cefas to explore the possibility of a "sentinel fishery" approach to spurdog	**Future workstream** Note: Spurdog catches can be very high at certain times of the year, in certain locations (currently a zero TAC species). Fishers

[11] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

[12] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

	have reported that they have to discard large amounts, and this is both time consuming and makes long lining unfeasible at certain times of the year. The high abundance of spurdog is a phenomenon local to the south east of the North Sea, with overall low stocks.
Raise industry and IFCA concerns regarding the impacts of windfarm cables on certain species in this group (affecting their migration patterns) with wind farm developers	**Future workstream**
Develop mechanism to monitor levels of LSD use as bait to gain better understanding of overall fishing mortality	**Future workstream**
Partnership working with CEFAS re shark / dogfish research where possible	**Future workstream**
Development of Monitoring and Control Plans	**Future workstream**
Review/development of voluntary landings data	**Future workstream**
Refined use of data in under 10s reporting app	**Future workstream**

Group: Pelagic	**Key Species; Herring, Mackerel, Sprat**	**Overall risk: Low**	
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **Low**	Risk rank: **Low**	Risk rank: **Low**	Contextual Rank: **Low**
These are marginal fisheries locally and the evidence base for them is limited. However, this will be mitigated by data from under-10 catch recording which Eastern IFCA is expected to receive in 2022. ICES advice is favourable for both herring and sprat. Netting activity data is required in relation to bycatch of porpoises and SPA bird species, however, low levels of activities reduce the associated risk.	Eastern IFCA has only limited management measures in place, in particular the Minimum Sizes Byelaw 2019 which came into effect on 1st March 2021 (applicable to both commercial and recreational fishing). It has emerged that many minimum sizes originally set out in European legislation have only a limited protective effect as they do not represent the size at which species are mature. However, generally low activity levels for species in this group lowers the associated risk.	Associated gear is generally not considered to have impacts on MPA features as gear is in the water column. However, the development of MCPs will be necessary as will assessments of potential impacts in relation to porpoises and SPA bird species. Spawning aggregations can be targeted very effectively in these fisheries and this does represent a potential risk.	None of the species landed represent nationally important landed weights and the value of catch is relatively low. Officers have indicated that the local herring fishery tends to fluctuate both in activity and in availability, with greater availability observed south of Lowestoft. The herring fishery is exploited far below MSY due to the low market demand and value of the fishery. It is the only fishery in this group that has landed weight of any note. Fishermen have reported high levels of disturbance caused by seals which has

			the potential for significant impact on fisheries performance. An increase in colonies establishing/spreading has the potential to significantly impact on fishing habits. ICES advice for horse mackerel is for a precautionary approach to be applied in 2022 and 2023.
Key species trends	Herring landings are relatively stable but have been higher for the last 3 years. They represent less than 1% UK total landings but are the dominant landed weight within the group in the Eastern IFCA district. Horse mackerel show a strong negative trend, but landings are negligible (reduced from .8 of a tonne in 2010 to 2kg in 2019). Mackerel landings have remained low in the last 4 years following a peak in landings in 2015.		

Workstreams 2022/23	**Priority level and status**
Re-assessment of amber/green impacts in all MPAs (including an analysis of gaps in fishing activity data relevant to assessing fishing impacts on SPA bird species and porpoises)	**High priority workstream** Underway: The re-assessment is ongoing The re-assessment is a high priority workstream in the context of Eastern IFCA's statutory duties to ensure the protection of MPAs from potential impacts of fishing activity.[13]
Conduct engagement and compliance checks in accordance with the compliance risk register and TCG	**Business critical** This is a business critical workstream in line with Eastern IFCA's Regulation and Compliance Strategy and Enforcement Policy.
Implement management measures for 'red-risk' gear/feature interactions within MPAs	**High priority workstream** **Underway:** Closed Areas Byelaw 2021 is undergoing informal

[13] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

	consultation. The Byelaw will introduce restricted areas in 5 MPAs within the district where no bottom-towed fishing will be permitted.
Development of Monitoring and Control Plans	**Future workstream**
Continue dialogue with recreational fishers to identify fishing trends and raise awareness about minimum sizes	**Future workstream** Note: Previous years have shown that recreational fishers are often unaware of larger minimum sizes in the North Sea ecoregion, therefore there is a requirement for a greater amount of engagement.
Continue to support the REAF project	**Future workstream**
Explore initiatives to invigorate the herring fishery through participation in promotional/awareness raising campaign	**Future workstream** Note: Certain fishers rely almost entirely on a limited number of species (cod, bass, sole, skate) which are presently either in a poor state or heavily regulated. Any potential works which could reduce reliance on these few species would likely be of benefit to the viability of the industry and the fisheries in the long-term. In particular, there is significant latent capacity in the herring fishery of East Anglia which was once a prominent fishery.
Refined use of data in under 10s reporting app	**Future workstream**

Group: Skates and Rays	Key Species: Thornback	Overall risk: Medium	
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: **Medium**	Risk rank: **Medium**	Risk rank: **Medium**	Risk rank: **Medium**
Poor identification of species means that they are often reported as 'skate or ray' or unintentionally misreported as the wrong species. Under-10 catch reporting potentially mitigates the risks from the data gap in relation to these species. Risk is in theory mitigated further as the quota system distinguishes between some species, requiring catches of blonde ray, cuckoo ray, thornback ray and spotted ray to be reported separately. However, this will likely be hampered by identification issues. ICES advice is limited due to a paucity of data.	Eastern IFCA has no regulation in place specifically in relation to this group. Management is primarily through negotiated quotas with the EU and Norway. Kent & Essex IFCA (neighboring district) have MLS in place for skates and rays which increases risk as effort could potentially be displaced to the Eastern IFCA district where no minimum sizes apply. Pursuant to the Fisheries Act 2021, a Southern North Sea and Channel Skates and Rays Fisheries Management Plan will be published by 2024. This will cover a number of species including thornback ray, blonde ray, undulate ray, skates and rays, small-eyed ray, spotted ray, cuckoo ray, and starry ray	Skates and rays are primarily targeted using long-lines but also gillnets and demersal trawls. MMO landings data suggests an increase in the use of gillnets to land Thornback Ray since 2017. This needs to be monitored as gillnets and trawls have greater ecosystem impacts and the risk is increased where this type of fishing occurs in sensitive areas like nursery and spawning grounds. Moreover, a recent EU-funded project (fishPi project, 2016) analysed risk from various gears to seabirds and marine mammals and determined that observations were most needed in fisheries using set gillnets, trammel nets, driftnets, and bottom trawls.	Due to a paucity of data, ICES has not been able to assess the stock and exploitation status relative to maximum sustainable yield (MSY) and precautionary approach (PA) reference points because the reference points are undefined for most species. Populations of smaller skate and ray species are concentrated primarily in the Southern North Sea and skates are very susceptible to fishing pressure. However, landings of these species in the district are very low which minimises associated risk. As a group, skates and rays are of limited economic value but some smaller scale fishermen are known

			to have a dependence on them as a supplementary fishery.
Key species trends	The majority of species within this group are marginal with less than 1 tonne average landed per year over the last 9 years. An exception to this is thornback ray for which an average of 54 tonnes is landed per year. This species shows a marginal negative trend. Eastern IFCA landings as a proportion of UK landings is 2.09%.		

Workstreams 2022/23	**Priority level and status**
Re-assessment of amber/green impacts in all MPAs (including an analysis of gaps in fishing activity data relevant to assessing fishing impacts on SPA bird species and porpoises)	**High priority workstream** Underway: The re-assessment is ongoing. The re-assessment is a high priority workstream in the context of Eastern IFCA's statutory duties to ensure the protection of MPAs from potential impacts of fishing activity.[14]
Implementation of management measures for any relevant 'red-risk' gear/feature interactions within MPAs	**High priority workstream** Underway: Closed Areas Byelaw 2021 is undergoing informal consultation. The Byelaw will introduce restricted areas in 5 MPAs within the district where no bottom-towed fishing will be permitted. This is a high priority workstream in the context of Eastern IFCA's

[14] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

	statutory duties to ensure the protection of MPAs from potential impacts of fishing activity.[15]
Actively monitor for the potential increase in the use of gillnets (Thornback Ray fishery)	**High priority workstream** Upcoming: To be carried out in the context of routine engagement/enforcement. MMO landings data suggests an increase in the use of gillnets to land Thornback Ray since 2017. This needs to be monitored as gillnets and trawls have greater ecosystem impacts and the risk is increased where this type of fishing occurs in sensitive areas like nursery and spawning grounds.
Engagement and enforcement, intel gathering and partnership working with MMO in accordance with Compliance Risk Register and TCG	**Business critical** This is a business critical workstream as partnership working and information sharing is key to meeting Eastern IFCA's Regulation and Compliance Strategy and Enforcement Policy.
Review need for minimum size for 'skates and rays' as part of wider review of minimum sizes	**Future workstream**
Development of Monitoring and Control Plans	**Future workstream**
Refined use of data in under 10s reporting app	**Future workstream**
Actively liaise with partner organisations in relation to planned research projects	**Future workstream**
Engagement with RSA clubs to gather evidence/data on recreational fishing activity	**Future workstream**

[15] Marine and Coastal Access Act 2009 (c.23) s.153 and 154.

Group: Cephalopods		**Overall risk: Low**	
Evidence base	**Current Regulation**	**Ecosystem impacts**	**Fisheries performance**
Risk rank: Low	Risk rank: **Low**	Risk rank: **Low**	Risk rank: **Low**
Marginal fishery with very limited landings (less than 300 kg combined per annum).			
Species trends	None identified due to either no or very small landings of all species across this group		
Future workstreams			
Monitor for any increase in interest in fishing for cuttlefish by fishermen. Cuttlefish are likely to be fished using pots, in areas like Cromer where there is ongoing research into the impacts of potting on the ecosystem.			

3.2 Consideration of Eastern IFCA Message System (Stakeholder Engagement during 2021)

Eastern IFCA uses a message system to log officer engagement with stakeholders so that key concerns and information are recorded and considered. A consideration of the messages logged in 2021 is summarised in the table below by topic (e.g. fishery) and key themes or issues and shows that stakeholder concerns mostly align with the priorities identified in the previous section.

It is noteworthy however, that the message system does not reflect the full range and extent of stakeholder engagement that occurs throughout the year. Rather it is most commonly used by officers to record information that is considered of particular importance. This may be affected by officer bias including a tendency to report on issues generally agreed to be high priority, as informed by the Strategic Assessment. As such, there is a risk of creating a positive feedback loop and de-emphasising other issues which needs to be acknowledged.

Topic	**Key themes and issues:**
Cockles	There was extensive engagement with stakeholders about The Wash cockle fishery throughout 2021. The replacement of the Wash Fishery Order 1992 was the dominant issue, particularly in relation to how access to the fishery will be managed under the Wash Cockle and Mussel Byelaw 2021 and how business continuity and security would be achieved for the range of business models operating in the fishery. Other key issues concerned the sustainability of the fishery and industry viability. In particular, a lot of engagement focussed on the increased tendency to land small cockles and how this could be managed, including proposals for a minimum landing size to be introduced.
Crab and lobster	Engagement was focused on management measures and stock sustainability. Key issues included the implications of a permit system as well as management of Cromer Shoal Chalk Beds MCZ. Concern has been expressed about perceived increases in fishing effort throughout the district but particularly in North Norfolk and Suffolk, and the potential for MCZ management measures to displace effort into other areas. Additionally, stock sustainability has been a key issue with reports of declines in sizable lobster and crab and poor catches in Suffolk. There has also been engagement around the potential need to review and amend Byelaw 5 on the prohibition to use edible crab for bait in the whelk fishery.

Whelk	A key issue has been stock sustainability, with concern about effort levels being too high to sustain stocks and leading to increased gear conflict. There has also been some confusion over some of the proposed new permit conditions (still under review).
Bass	Stakeholders have raised concerns about bass management measures being ineffective to ensure stock sustainability and industry viability. The Minimum Conservation Reference Size is considered by some to be too low and by others too high.
Industry viability	Industry viability is a recurring theme in engagement with fishery stakeholders. On a general level, there is a concern about local industry decline due to the lack of species in the Eastern IFCA district, limiting the options of inshore fishermen to diversify. There are also fishery-specific concerns.
Seals	Some reports of dead seals washing up on coasts throughout the district. Increasing population numbers have resulted in more
Communication	There is frequent engagement regarding communication. This generally relates to confusion over proposed measures (e.g. experience requirements for shrimp and other WFO fisheries) and frustration that communication is not as frequent as some stakeholders would like.
Miscellaneous	Includes reports on disturbance as a result of bait digging, planning permission issues, health and safety and navigation issues.

3.3 Additional considerations: Recreational Sea Angling and Aquaculture

Although the Strategic Assessment is focused on commercial fisheries, other activities are taken into consideration to the extent possible. Two significant activities outside of commercial fisheries but involving the exploitation of sea fisheries resources have been identified as recreational sea angling and aquaculture. These are considered in brief below and potential workstreams are identified.

1. Recreational sea angling:	
Key considerations:	The 'Participation, Effort and Catches of Sea Anglers Resident in the UK in 2018 and 2019' report published by Cefas in 2021[16] highlights that recreational sea anglers fished for over 6 million days each year in 2018 and 2019, contributing to the economic and material health and wellbeing of the individual anglers and the communities that their activity supports. Recreational sea angling is a popular and economically important activity in the Eastern IFCA district, particularly along the North Norfolk and Suffolk coasts. However, data on recreational activity is limited for most species.[17] As the regional inshore fisheries and conservation manager, Eastern IFCA needs to understand the patterns and trends of recreational sea angling in the district, particularly where recreational activity happens in MPAs or sensitive areas like known spawning and nursery grounds. This is because in these areas even recreational activity has the potential for significant impact including to non-target species. For example, unregulated recreational netting is known to occur in the district and where this overlaps with known spawning and nursery grounds, there is potential for disproportionate effects on wider stocks. Understanding recreational targeting of key commercial stocks would be valuable to help stock assessments of key species and significantly improve our evidence base in relation to those species to ensure that exploitation levels are sustainable. Eastern IFCA previously had a Recreational Sea Angling Strategy seeking to promote RSA in the district, recognising its economic and social value as well as its potential environmental impacts. However, the strategy

[16] Hyder, K.; Brown, A.; Armstrong, M.; Bell, B.; Hook, S.A.; Kroese, J. Radford, Z.; 2021, Participation, effort and catches of sea anglers resident in the UK in 2018 & 2019, Cefas.
[17] The outputs of the Angling 2012 project by Armstrong *et al*. 2013[17] have been used to judge important recreational species in the district.

	had limited effect and was consequently lapsed. Some other IFCAs do maintain such strategies, however, similarly to Eastern IFCA's past strategy, these tend to centre on broad commitments rather than specific actions in relation to engagement, data collection and identifying potential conflicts with the commercial sector and/or MPA management. Eastern IFCA routinely engages with recreational fishers in the district, with a focus on educating fishers on applicable minimum sizes, and other relevant local and national regulation as well as developing our understanding of RSA activity. It is unlikely that we will have the capacity this financial year to undertake workstreams in relation RSA beyond our routine engagement with fishers.
Workstreams:	**Priority level and status:**
Engagement and education with RSAs on minimum sizes and applicable local and national regulation	**Business critical** Underway: This part of the routine engagement and compliance checks by IFCOs.
Establish a mechanism to collect data on recreational fishing in the district	**Potential future workstream** Refer to key considerations for rationale.
Consider the need for developing an RSA Strategy	**Potential future workstream** The key focus would be on what added value a formal strategy would bring.
2. Aquaculture	

Key considerations:	In 2019, the MMO published a document identifying areas of aquaculture potential in English waters,[18] matching the physiological and environmental requirements of species of fish, molluscs, crustaceans and plants (seaweeds) with the environmental and habitat conditions of the sea. One of the outcomes of the report was the production of habitat suitability maps for the various species, including seaweeds for which areas in East Anglia have been identified as suitable. Eastern IFCA has since seen an increasing number of requests for comments on applications for MMO licences in connection with seaweed aquaculture, where prior to 2019 there was none.[19] Other IFCAs have been seeing a similar trend and it is generally anticipated that this will continue. Eastern IFCA has a statutory duty to manage the exploitation of sea fisheries resources in the district, seeking to balance the different needs of persons engaged in the exploitation of sea fisheries resources in the district. Sea fisheries resources include those that are cultivated in the sea, and as such it is considered that the management of aquaculture activities would also fall within out remit. To that end, Eastern IFCA has agreed an internal position on the issue of the development of seaweed farms and how we should respond in general to commentary on MMO licence applications and other related matters.
Workstreams	**Priority level and status:**
Consider formalising the internal Eastern IFCA position into an Aquaculture Strategy	**Future workstream** Consider the added value of a public facing document to help guide stakeholders to the key considerations we take into account when consulting on aquaculture licencing applications.

[18] MMO, Identification of areas of aquaculture potential in English waters (MMO 1184, 2019), available at: MMO1184_AquaPotential_forPub_191210.pdf (publishing.service.gov.uk).

[19] One application was received in 2019, one in 2020 and three in 2021.

3.4 Eastern IFCA Priorities 2022-2023

As a small organisation with a large area to cover and finite resources, Eastern IFCA needs to carefully prioritise workstreams and ensure that resources are targeted where they are needed most. The tables below bring together and organise the workstreams identified in Section 3.1 (Fisheries Assessments) into the same three distinct categories indicating levels of priority: high priority, business critical and future workstreams.

3.4.1 High Priority Workstreams 2022-2023

The workstreams outlined in Table 4 below represent those workstreams that are considered as high priority according to the outputs of the Strategic Assessment. These workstreams are recognised as being crucial to ensuring that Eastern IFCA is able to fulfil its statutory duties and maintain an effective regulatory framework capable of ensuring sustainable fisheries, healthy seas, and a viable industry. A failure to carry out these workstreams is believed to be potentially detrimental to the fisheries and areas to which they relate.

Table 4 – High priority workstreams for 2022-2023			
Category	**Work**	**Fisheries**	**Comments / Rationale**
To ensure that the conservation objectives of Marine Protected Areas in the district are furthered	Implementation of management measures for 'red-risk' gear/feature interactions.	All Species	Relates to shrimp trawling (although all bottom-towed-gear fisheries will be affected). 'Red-risk' interactions require immediate management. Impacts to MPAs are mitigated through the continued development of restricted areas to protect designated features and sub-features that are at risk from bottom-towed gears. These will be implemented through the Closed Areas Byelaw 2021 (undergoing formal consultation) which will introduce new restricted areas within 5 MPAs in the district, where no bottom-towed fishing will be permitted. Engagement with stakeholders is ongoing and will be a high priority as the Byelaw comes into effect to ensure compliance and that the new measures are well understood.
	Continued implementation of an Adaptive Risk Management	Crustaceans, Whelks, Shrimp and prawns,	Research priority areas for the year include conducting further surveys in relation to potting activity to map the distribution and intensity of potting in the MCZ (including whelk potting), habitat mapping to understand the location and extent of rugged chalk, assessing the environmental impacts

	approach for Cromer Shoal Chalk Beds (MCZ).	bivalve molluscs	of current potting activities (including whelk potting) and trialling gear adaptations to mitigate impacts. An important aspect of this work will be to expand the current research involving trackers on fishing boats and to encourage more voluntary uptake by the industry. Management priority areas for the year include implementing the industry Code of Best Practice for lost and stored gear and the agreement on recovery and disposal of lost and snagged gear and developing a crab and lobster framework byelaw and permit conditions to enable responsive management, including implementing a gear tagging regime. Maintaining communication and engagement with all stakeholders through the Stakeholder Group is of high priority, in line with the participatory nature of the Adaptive Risk Management approach. For e.g. industry participation and collaboration is essential to the development and implementation of the Adaptive Risk Management approach and the delivery of certain workstreams (e.g., tracker research, gear adaptation trials), and participation by divers in the agreement on recovery of lost and snagged gear will be essential to the identification and removal of such gear from the MCZ. More information is needed on levels of whelk potting in the MCZ, and the levels of any unregulated (recreational) potting activity in the MCZ.
	Development of priority Monitoring and Control plans.	Shrimp and prawns; Crustaceans, Whelk	The highest priority Monitoring and control plans relate to Shrimp beam trawling and pots and traps. Where these occur in MPA's the risk is increased, and this will be the focus of monitoring and control plans. Work has been carried out during 2020 to complete the Shrimp Beam Trawling M&CP, whist significant progress has been made it is still currently in draft form.
	Completion of amber/green gear/feature interactions and development /	All species	The re-assessment of amber/green impacts in all MPAs (including an analysis of gaps in fishing activity data relevant to assessing fishing impacts on SPA bird species and porpoises) is ongoing. Completion of this is a high priority workstream to ensure the protection of MPAs from potential impacts of fishing activity in line with Eastern IFCA's statutory

	Implement of management measures where required.		duties.
	Effort monitoring within the Wash SAC including, including implementation of new catch returns system.	Shrimps and prawns	New returns forms have been rolled out and new returns requirements formally came into effect on 1 January 2022. Returns must now be submitted even where no fishing has occurred, and every day of the year must be accounted for on a return form. Fishermen fishing in the Wash and North Norfolk Coast must submit weekly returns. Otherwise, return forms must be submitted monthly. The uptake of new returns forms is critical to enabling Eastern IFCA to effectively monitor fishing effort within the Wash and North Norfolk Coast SAC. Monitoring the uptake of the new returns forms to ensure compliance with new requirements is critical to ensuring their effectiveness. This is a high priority for this year as the new forms came into effect at the start of the year. Following sign-off by Defra, the Shrimp Permit Byelaw 2018 and associated permit conditions will need to be implemented which will assist in the implementation of the new returns system.
To develop management of the fisheries regulated under the WFO 1992(regulated and several fishery)	Replacement of the Wash Fishery Order/Several Order 1992 with the Wash Cockle and Mussel Byelaw 2021 and the Wash Several Order 2022	Bivalve molluscs	WCMB submitted to Defra/MMO for QA, policy development ongoing within involvement from industry. FMP completed and consultation underway to inform the application for the Several Order replacing the management of aquaculture lays under the WFO1992. This workstream is afforded high priority because the WFO 1992 expires in January 2023. If the Wash Cockle and Mussel Byelaw 2021 is not implemented in time, there will be no management in place and the fisheries, which are of significant local and national value, would be interrupted. This would be detrimental to industry viability.
	Implementation of Wash Cockle and Mussel Byelaw access policies	Bivalve molluscs	A final draft of the policies will be considered by the Authority in March 2022, after which Eastern IFCA will launch a formal consultation with industry on the final draft policies. This will include recommendations from the economic assessment and subsequent legal advice. This is a high priority workstream because the policies are an integral part

			of the replacement of the WFO 1992 management mechanism. The policies are referenced in the Wash Cockle and Mussel Byelaw 2021, providing details to its provisions, and the two are to be read together. A key priority is continued engagement with industry throughout the formal consultation to provide reassurance and clarity to stakeholders.
Obtaining better fisheries data	Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project).	Shrimp & prawns	The national roll-out of I-VMS began in Jan 2022. Once drafted, the national legislation to require use of I-VMS will be considered to identify if any additional requirements need to be implemented by Eastern IFCA to ensure coverage of all vessels operating within the Wash and North Norfolk Coast shrimp fishery.

3.4.2 Business Critical Workstreams

The table below outlines business critical workstreams. These constitute ongoing, long running workstreams which have become established and represent business as usual from an organisational perspective. Although they constitute business as usual, these workstreams are critical to mitigating risks in relation to certain fisheries or species and their cessation has the potential to significantly increase the risk associated with the fisheries to which they relate.

Table 5 – Business Critical Workstreams			
Category	**Work**	**Fisheries**	**Comments/rationale**
To ensure that the conservation objectives of Marine Protected Areas in the district are furthered; Industry viability; Stock sustainability;	SWEEP Study of the Wash Embayment, Environment and Productivity	Bivalve molluscs	A long-running research project established in 2009, SWEEP aims to ensure that mussels farmed on private lays in The Wash do not cause food limitations for wild beds and to identify environmental factors that may influence the physiological processes of bivalves. Monitoring continues utilising new sondes that have been purchased to facilitate this monitoring regime. This business critical workstream is required for the Habitat Regulation Assessment (HRA) to ensure that activities do not have an adverse effect on site integrity.
	WFO surveys and Management	Bivalve molluscs	Annual surveys of cockle and mussel stocks within The Wash are a significant undertaking, providing a level of fisheries evidence which is not reflected in any other fishery within the district. There is currently a review ongoing regarding the type and extent of sampling regime required. Extensive HRAs are also completed annually and are a business critical workstream necessary in order to open these fisheries. Reports have been received about an increased targeting of small cockles which threatens fishery sustainable and industry viability in the long term. It will likely become to develop an engagement plan to educate and inform about small cockles, including engagement with processors to better understand the market for small cockles. A voluntary approach could be considered in the first instance, enhancing the existing code of conduct.
	MSC Wash Brown Shrimp	Shrimps and prawns	Eastern IFCA has agreed to facilitate certain aspects of the MSC accreditation for the Wash brown shrimp fishery, recognizing its importance as a nationally

	accreditation commitments		significant fishery (accounts for 95% of the brown shrimp fished in UK waters). Work includes gear inspections and effort calculations to assist industry with continuing to meet the requirements MSC accreditation. As such this is a business critical workstream relating to industry viability.
	Development of measures to address the sustainability of whelk stocks	Whelk	Adapting fisheries management measures to reflect changing circumstances, including to best available evidence is a business critical workstream for Eastern IFCA. Although a full stock assessment is pending, there is strong evidence that whelk stocks are experiencing significant decline and that the risk to the sustainability of the fishery (and industry viability) is high. The landed weight of whelk is significant within the Eastern IFCA district where one of the major whelk processing factories is situated. Completing the stock assessment is necessary to inform the review of whelk permit conditions. The priority of this workstream is increased in the context of the low mobility and reproductive trends of whelk which makes them vulnerable to over-fishing and slow to recover. Completing the SOM study is also a priority in relation to industry viability to ensure that minimum sizes are appropriate.
	Complete HRAs in relation to 'unplanned' fisheries	Bivalve molluscs	Mussel fisheries (sub-tidal seed mussel fisheries in particular) have the potential to occur throughout the year. Where such a fishery is detected by fishers, officers have a limited amount of time to develop management measures and an HRA for the fishery (particularly in sub-tidal fisheries which are ephemeral). This constitutes a business critical workstream as in the event that a fishery does occur, the economic benefit is relatively high (as mussel is usually used in local aquaculture).
	Advice in relation to the risk of conflicts with other marine users	All species	The present assessment focusses on sustainability issues which are within Eastern IFCA's sphere of influence. However, other marine users also compete for space and resource within the marine environment and such activity is increasing over time. Eastern IFCA is a statutory consultee within the Marine Licencing System. Where

			new plans or projects are proposed within the district, Eastern IFCA highlights potential conflicts. Providing advice on new plans and projects is a business critical workstream and related both to the protection of MPAs from anthropogenic activities as well as industry viability. For example, one conflict which Eastern IFCA regularly reports relates to the impacts of windfarm cables on electrosensitive species and sensitive habitats. There is also an emerging trend for an increase in licencing applications for aquaculture activities.
Enforcement; Engagement	Compliance checks and engagement in accordance with the Compliance Risk Register and TCG	All species	Enforcement activity is primarily driven through the Compliance Risk Register and Tactical Coordinating Group meetings (which considers intelligence, emerging issues, fishing trends and the monthly risk profile). Enforcement activity is influenced by the outputs of the Strategic Assessment as this identifies the fisheries most at risk of sustainability issues (and by extension, those potentially most vulnerable to negative impacts through non-compliance). Engagement with stakeholders is a business critical workstream with the intention to foster compliance by ensuring that management measures and the reasons behind them are well understood.
	Engagement and education with RSAs on minimum sizes and applicable local and national regulation	All species	Recreational sea angling is a popular and economically important activity in the Eastern IFCA district, particularly along the North Norfolk and Suffolk coasts. Eastern IFCA needs to understand the patterns and trends of recreational sea angling in the district, particularly where recreational activity happens in MPAs or sensitive areas like known spawning and nursery grounds, where even recreational activity has the potential for significant and disproportionate impact to wider stocks. Eastern IFCA officers routinely engage with RSAs on minimum sizes, applicable local and national regulation and wider sustainability issues as an established part of our work.
Biosecurity	Monitoring of district-wide biosecurity risk	Bivalve molluscs	The Wash Fishery Order and The Wash Restricted Area Biosecurity Plan 2020 – 2025 has now been implemented and officers are briefed regarding reporting biosecurity concerns. Furthermore, officers undertake engagement with stakeholders to increase awareness and understanding as appropriate. It is

			recognised that the spread and control of Invasive non-native species is outside of Eastern IFCA's remit and we may be limited to reactionary actions only, but this is not a primary function. Work in relation to ensuring compliance with WFO lease conditions primarily putting on and removing shellfish and education and engagement work is going in relation to biosecurity and the transfer of Invasive non-native species.
Partnership working	Continue and expand collaborative work with partner organisations	All species	Working in close collaboration with partners like other IFCAs, Natural England, Cefas, the MMO, local police forces and district councils enhances our capacity to undertake research, allows us to share expertise and experience, increases the reach of projects and helps to deliver impactful outcomes. Moreover, the Strategic Assessment shows that the outputs of partnership working mitigates risk in relation to many fisheries. For instance, partnership working with the MMO in the context of the national intelligence project is critical to developing our evidence-base and understanding of risk to various species. Partnership working is also critical in the context of delivering the Adaptive Risk Management approach to the Cromer Shoal Chalk Beds MCZ and the investigation into mussel die-off in the Wash, and these are only some examples.

3.4.3 Future and potential workstreams

Table 6 outlines future and/or potential workstreams which are considered of lower priority in comparison to the works outlined in Tables 4 and 5 above, based on their association with risks to fisheries. These workstreams are identified as they may inform future Strategic Assessments, and in recognition that opportunities or developments may present during the year which would enable their undertaking or increase their priority.

Table 6 – Identification of future and/or potential priorities

Category	Work	Fisheries	Comments / Rationale
Obtaining better fisheries data	Development of relationships with RSA to obtain more fisheries data, including consideration of the added value of developing a RSA Strategy	All (focus on finfish species)	Finfish species are relatively data poor within the district, but RSA data will be useful in determining trends to detect issues. Development of Eastern IFCA's relationship with the RSA sector will further our available evidence and enable better integration of RSA activity into the Strategic Assessment.
	Investigation into mussel die-off	Bivalve molluscs	Since 2010 the inter-tidal mussel beds have suffered unusually high-levels of mortality that has led to the decline of the beds and the mussel fishery. Eastern IFCA has been working in partnership with Cefas on a multi-disciplinary investigation to gain a better understanding of what is causing the mortalities. Final samples have been provided by Eastern IFCA in support of the project and results are anticipated. It may be necessary to collect further samples for statistical certainty.
	Continue dialogue with MMO and other partner organisations to develop 'joined-up' approach to gathering fisheries data from	Demersal, skates and rays, flatfish, dogfish	In order to obtain better fisheries evidence without duplicating effort on the part of the fishers, a collaborative approach is required. In particular, MMO data requirements do not have the spatial resolution needed to undertake HRAs. Furthermore, effort data is rarely collected.

	fishers.	and sharks	
	Gather information regarding recreational hand gathering.	Bivalve Molluscs	This is identified as a data gap throughout the district and may have an impact on stocks in certain areas.
	If required re-assess need to deliver 'unregulated netting' measures in the context of BNAs.	Demersal, flatfish, skates and rays, dogfish and sharks	The assessment of the potential impacts and scale of 'unregulated netting' was undertaken in the 2020-2021 financial year as a priority. Subsequently, BNAs have been proposed and Eastern IFCA has provided evidence towards the development of these. However, the proposed BNAs are still undesignated and this may require a re-assessment of the need to implement independent 'unregulated netting measures' in most areas.
	Implementation of electronic/app based returns system (to be incorporated with MMO under 10's catch returns if possible).	Cockles, Whelks, Shrimps	Industry members have raised that they would prefer to submit returns on an app-based system. Whist this would take significant investment from Eastern IFCA it could bring long term benefits in relation to data input.
	Investigate requirement/applicability of Netting permit.	All finfish species	Changes in national regulation have left a gap within the mesh size requirements, for which a local regulation may be required. Furthermore, there is the potential for unregulated to have a disproportionate negative impact if occurring in nursery areas. Eastern IFCA may require more data on levels of this activity in the future.
	Develop mechanism to monitor levels of LSD use as bait	Dogfish and sharks	This may be necessary to gain a better understanding of overall fishing mortality.
	Investigate shrimp fishing activity outside of Wash and	Shrimp and	Related to and likely to be resolved via other priority and business critical workstreams.

	North Norfolk Coast SAC	prawns	
Delivering fisheries management in relation to fisheries in MPAs	Review the Humber estuary cockle byelaw (inherited from North Eastern Sea Fisheries Committee)	Bivalve molluscs	Fishing opportunities within this fishery have previously been limited by an unfavourable stock assessment (e.g., 2020 survey did not find enough stock to support a commercial fishery), the lack of an up-to-date shellfish water classification and difficulties relating to access via the land. The byelaw requires review to make it more transparent and to enable a fishery from the sea. Fishers have more recently indicated a desire to fish the area and there may be a relatively simple solution to enable this to be explored. In order for the area to get water classification the local council have indicated that they would need a call from industry directly, rather than through Eastern IFCA.
	Development of Monitoring and Control Plans	All species	Following the completion of fisheries assessments in MPAs, Monitoring and Control Plans will be developed for each major fishing metier in the district, and where appropriate, MPA-specific controls will be specified. The intention is to implement responsive management. Work has been carried out during 2020 to complete the Shrimp Beam Trawling M&CP, whist significant progress has been made it is still currently in draft form.
To ensure that sea fisheries resources are exploited sustainably	Assessment of and development of management measures in relation to crab and lobster fisheries sustainability	Crustacea (edible crab and lobsters)	The crab and lobster fisheries are of high economic and cultural value and represent nationally important fisheries. The immediate risk to the fishery is moderate in relation to crabs but higher in relation to lobsters, however neither are thought to be operating at MSY. Work includes a significant amount of informal consultation to develop measures, collection and analysis of relevant evidence (including fisheries data and economic impacts) including development of data collection mechanisms from

	Review Byelaw 5: prohibition on the use of edible crab (*Cancer pagarus*) for bait		fishers. Work to support industry in developing a Fisheries Improvement Plan is complete, however progress for its adoption has been slow. Indications have been given that MSC are considering proposing the FIP for Phase 1 Assessment (pre-assessment) and should this happen, Eastern IFCA may be involved in a supporting/facilitative role as with the Wash Brown Shrimp MSC accreditation. Fishers have made representations that a review of Byelaw 5 is necessary, particularly with regards to the prohibition on the use of cooked offal from processed crabs as bait for the whelk fishery. Such a review would be tied into sustainability assessments for both crab and whelk stocks which are to be completed.
	Consider formalising the internal Eastern IFCA position into an Aquaculture Strategy	Aquaculture species	In view of the emerging trend for an increasing number of aquaculture licencing applications (seaweed farms in particular), it would be desirable to consider the added value of a public-facing document to help guide stakeholders to the key considerations we take into account when consulting on aquaculture licencing applications.
	Explore initiatives to invigorate the herring fishery through participation in promotional/awareness raising campaign	Pelagic	Certain fishers rely almost entirely on a limited number of species (cod, bass, sole, skate) which are presently either in a poor state or heavily regulated. Any potential works which could reduce reliance on these few species would likely be of benefit to the viability of the industry and the sustainability of other fisheries in the long-term. In particular, there is significant latent capacity in the herring fishery of East Anglia which was once a prominent fishery.

4. Principles applied in undertaking identified priorities

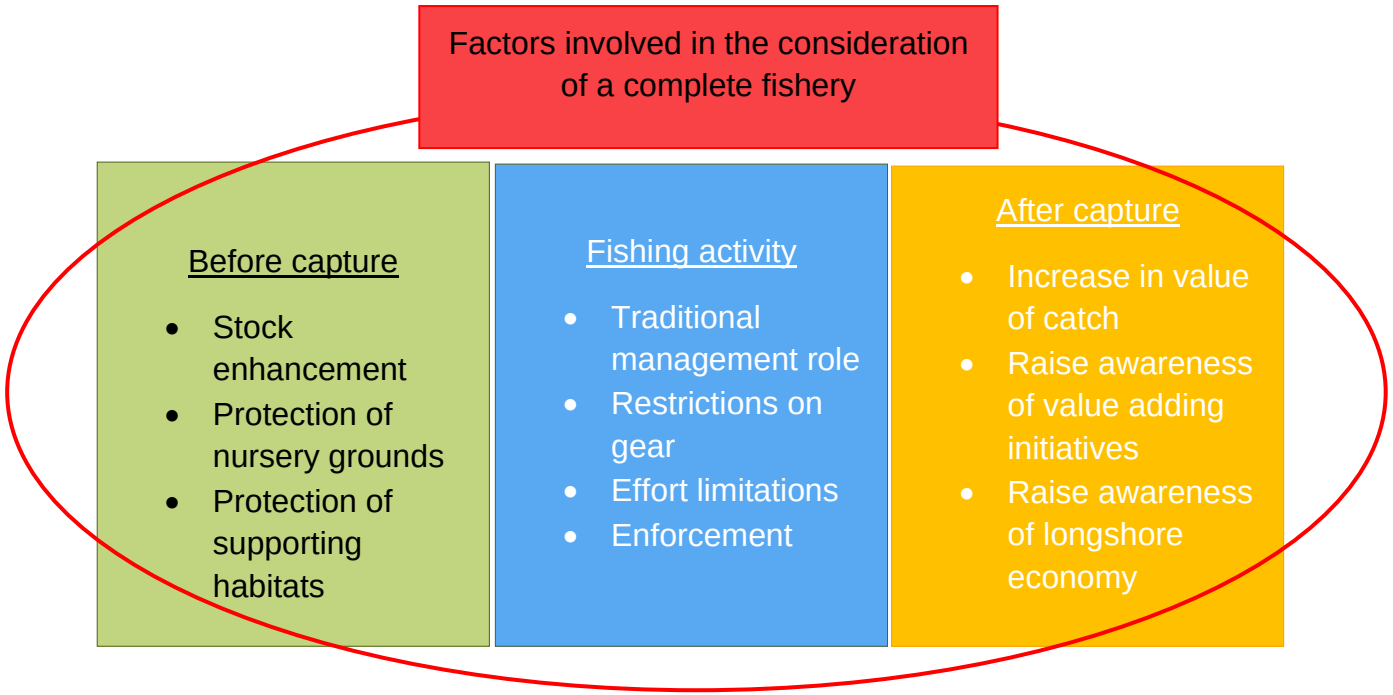
The Strategic Assessment focuses on what actions are required to further fisheries sustainability and the conservation objectives of MPAs. How these actions are undertaken is guided by our published policies and strategies which are underpinned by our vision statement and two overarching principles: consideration of the 'complete' fishery and the Community Voice Method (CVM). The importance of these two principles in undertaking identified priorities is considered below.

4.2 Consideration of the 'Complete' Fishery

The principle of giving consideration to the complete fishery involves a more holistic approach to fisheries management, recognising that fisheries consist of more than just the fish and fishing gear which capture them. For example, the productivity and sustainability of a fishery can be influenced by the protection of habitats associated with the prey of a target species or by the strength of the market into which they are sold. Delivering effective fisheries and conservation management is challenging in complex multi-species, multi-gear fisheries that define the inshore sector and requires the consideration of environmental, social and economic factors.

While Eastern IFCA regulations tend to focus on the mechanisms of catching fish and shellfish, like restrictions on the number of whelk pots and daily quotas of cockles for example, our management of these fisheries considers the complete fishery and wider contextual issues. Where it is achievable and appropriate, Eastern IFCA endeavours to get additional benefit from management measures by considering how management can move closer to a more holistic approach that goes beyond traditional stock management of target stocks.

The diagram below illustrates some of the factors involved in the consideration of a complete fishery.



4.2 Community Voice Method

Community Voice Method (CVM) is a relatively novel approach to conducting public consultation and finding solutions for natural resource conflict among stakeholders and industries. CVM focuses on engaging stakeholders more effectively in decision-making and the development of management on issues that are of importance to them and their local communities. By enabling stakeholders to have a voice in shaping local management, the process builds trust and respect between managers and stakeholders and between stakeholders with different and sometimes polarising views.

CVM was identified as a useful mechanism to support IFCAs in the development of management measures, particularly in the context of the designation of Marine Conservation Zones. In 2016 Eastern IFCA and the Marine Conservation Society's Agents of Change partnered in the delivery of the Common Ground project with the support from Community Voice Consulting. Common ground was a

CVM-based project to emphasise the values that connect the diversity of Eastern IFCA stakeholders across the district and was regarded as a successful example of the benefits that CVM can bring.

Recognising that engagement with our broad base of stakeholders is critical to the development and success of management measures, Eastern IFCA endeavours to apply lessons learned from the Common Ground project wherever possible to ensure that management is effective and that as managers we continue to develop our understanding of the different ways in which people use and value the coast and sea.

5. Conclusions

The overall priorities for 2022-23 have been identified by the annual Strategic Assessment. Annual priorities reflect the work which is the focus during the financial year rather than distinct, annual projects. Whilst the priorities identified during the 2021 Strategic Assessment have progressed, most of these work-streams require continued development and completion. This is reflected in the 2022 assessment which indicates that the key priorities are those carried over from 2021-22. In some cases, the wording is revised to reflect a development in the priority as the workstream has progressed. No 'new' priority workstreams were identified.

The key change to the priorities is the removal of the 'industry viability' priority relating to investigating mussel die-off in The Wash to reflect that the Eastern IFCA contribution to this workstream is complete. It is noteworthy that the outcomes of the investigation (which Cefas are undertaking currently) may lead to additional priorities within the year. In addition, only 'priority' Monitoring and Control Plans are now included as an annual priority, with the Strategic Assessment identifying the fisheries which pose the highest risk to MPAs. Other Monitoring and Control Plans are now referred to as a future priority to highlight the priority given to certain plans. It is also noteworthy that the whelk fishery in The Wash potentially represents a risk to industry viability (given it is potentially in decline) but this is intended to be addressed via the 'associated business critical' workstream.

Eastern IFCA participation to the Wash Marine Stewardship Council Accreditation is now included as a business critical workstream to reflect the importance of the fishery locally and in a national context. In addition, engagement with recreational sea anglers is now included as a stand-alone business critical workstream. This highlights the local importance of the sector and paucity of available information about it.