Strategic Assessment 2024

Executive Summary

Eastern IFCA undertakes an annual Strategic Assessment which seeks to identify high-priority and business critical work areas to inform an annual refresh of the 5-year business plan. The assessment considers both the risks posed to fisheries and to the environment in marine Protected Areas by fishing activity, the extent to which risk is mitigated by external and internal workstreams and the potential implications of any threats to identify workstreams needed to fulfil its duties.

The method for undertaking the assessment has been reviewed and developed this year with the intention of producing a more accessible assessment which still provides a detailed analysis. In particular, the distinction between data derived 'risk' factors and 'contextual risk' has been removed and replaced with a more general approach which leans on consideration of key risk factors (Political, Economic, Social, Technological, Legal and Environmental i.e. a PESTLE analysis format). Importantly, this new approach still provides a means of considering risk comparatively over time including against previous Strategic Assessments.

To reflect the varied finfish catch of Suffolk fishermen and Recreational Sea Anglers (RSA) a change has also been made to the analysis, now categorising these together as 'Key Finfish', to better enable analysis of these fisheries to assess whether there is a need to proactively protect Suffolk and RSA fisheries.

Risk has reduced in relation to the key cockle and mussel fisheries as associated work has progressed although several elements of this high priority workstreams still require completion. In addition, emerging risks relating to the potential for a cockle fishery in other parts of the district are increased and in relation to an enhanced understanding of cockle and mussel 'die-off' in The Wash have led to both new risks and external mitigation which addresses it to an extent, and which requires action from Eastern IFCA, represented by an additional 'high priority' work-stream.

Similarly, risk associated with bass, whelk and crab and lobster fisheries is mitigated to an extent by the publication of associated Fisheries Management Plans (under the Fisheries Act 2021) but which in themselves also pose a risk to be mitigated through Eastern IFCA participation in their implementation and which had previously been considered as a 'high priority' workstream.

A general risk and opportunity is also identified in the announcement of the review of the East Marine Plan and an associated priority has also been established in this regard, primarily concerned with contribution to their development to ensure recognition of the importance of inshore fishing activities.

Management of fishing activities within Marine protected Areas presents the highest risk work area and this is underpinned and highlighted by tight deadlines to contribute to Government targets (set out in the 25-year environment plan and Environmental Improvement Plan 2023). Overall, risk has decreased where workstreams have progressed and emerging threats / opportunities are identified primarily as a consequence of new Government Policy which seeks to replace European equivalents.

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Introduction

Eastern IFCA seeks to deliver effective inshore fisheries management in a complex legislative, natural, and economic environment. Inshore fisheries business models range from single-handed operations prosecuting artisanal fisheries in open skiffs launched from beaches to larger-scale, multi-vessel businesses capable of transiting between IFCA districts. Inshore marine ecosystems host a range of nationally and internationally important protected habitats and species varying from the rugged chalk structures off the North Norfolk Coast to intertidal mudflats of the Wash. In addition, the Government's commitments to well managed fisheries and healthy ecosystems have resulted in the biggest shift in fisheries management in a generation in the form of Fisheries Management Plans in addition to the 2023 Environmental Improvement Plan and other policy and legislation.

As a small organisation with finite resources, the Authority's broad remit and complex operating environment necessitates careful consideration of risks at a strategic level to ensure effective delivery of its duties and other obligations.

Eastern IFCA produces a 5-year rolling Business Plan informed by an annual consideration of priorities via the Strategic Assessment. The Strategic Assessment seeks to identify annual priorities based on risk associated with the key fisheries within the district as well as a broader consideration of potential emerging issues.

Methodology

The Strategic Assessment has been undertaken annually since 2016 and has followed a relatively standardised method consisting of two assessments; a data driven 'initial assessment' supplemented by a 'contextual assessment' which considered drivers arising from policy and engagement with stakeholders. Various refinements in the process have been adopted over this time including, for example, consideration of 'business as usual' workstreams which already mitigate identified risks.

Revisions to the assessment method

As a continuation to the evolution of the assessment, a revised approach has been adopted which essentially combines the two parts of the assessment in a more meaningful way and provide outputs which are more accessible and understandable to our stakeholders. The key changes are as follows:

- Combining of the 'data driven' and 'contextual' assessment – rather than producing data driven indices which reflect 'risk' associated with different aspects of each fishery, data analysis is now used to identify 'key fisheries' in the first instance and then provide context to a wider exploration of factors affecting each fishery.
- Fisheries grouping – the Strategic Assessment historically grouped fisheries primarily by their biology (e.g. 'bivalve shellfish'). However, this had the effect of diluting the headline issues associated with the key fisheries within each group. Instead, key fisheries are now considered in their own right. All fisheries within the district still feature within the strategic assessment, but the new method ensures that the key fisheries, which represent the vast majority of fishing activity, can be considered, and analysed effectively. This further enables grouping fisheries that have diverse targeting, to better account for fisheries such as those in Suffolk and recreational sea angling (RSA).
- Assessment criteria – Historically consideration was provided in relation to four headings; '*evidence base'*, *current regulation'*, '*ecosystem impacts'* and '*fisheries performance'* with wider considerations (such as political and social factors affecting a fishery) being considered as part of a lengthy narrative. The revised method uses the headings associated with a PESTLE analysis (Political, Economic, Social, Technological, Legal and Environmental), considering internal as well as external factors in relation to each and incorporating data driven analysis where relevant in each.

The revised assessment method outputs are comparable to those in historical assessments so as to enable risk management over time. It is also more effective at incorporating factors relevant to the Marine Protected Areas (MPAs) and engagement with stakeholders, both of which had previously been considered in stand-alone sections. Overall, this revised assessment method is considered more effective at considering risk strategically and across the broad remit of the authority and provides detailed outputs which are more accessible than in previous iterations of the Strategic Assessment.

The assessment identifies risks associated with the factors considered, what mitigations are already in place to address these risks and what further mitigation may be required to be considered as new workstreams over the planning period. Typically, where risks are considered 'high', mitigation is likely to be required as a new or existing (not yet completed) 'high priority' workstream. Mitigation associated with 'low' or 'medium' risk may be considered as 'future priorities.'

Limitations

Engagement data is generated primarily through the 'message form' system – an internal system which seeks to capture incidents and issues as well as feedback from our stakeholders to enable analysis and consideration within the planning cycle. However, the key themes raised by our stakeholders often reflect the Authority's engagement priorities for any given year. For this reason, whilst an assessment of message forms is provided (at Appendix 1) and outputs considered within the Strategic Assessment, the data should be considered in that context.

The key limitations with the assessment relate to the data available to the Authority to inform the assessment. In particular:

- Marine Management Organisation (MMO) data releases for 'first sale notes' are used to inform the assessment as they are the only data available to consider economic elements of the fishery. The data set is limited however because certain fisheries (including hand-worked fisheries such as the cockle fishery) do not require the generation of sales notes and further, sales notes are not generated for catches under 30kg weight per species or where fishers sell catch direct to the public. However, the time series is significant, and it provides consistent data capable of identifying trends which is useful to the assessment. The caveat being that many small-scale fisheries may not be well reflected in the economic data.
- The data used does not provide spatial resolution to examine fishing activity only within the Eastern IFCA district. Throughout the assessment, fishing data for ICES statistical rectangles 35F0, 35F1, 34F0, 34F1 and 33F1 have been used. This will include fishing activity outside of the district (particularly that in 33F1 and 35F1). The Eastern IFCA district also extends into 32F1 however, only marginally and so data relating to this ICES statistical rectangle was excluded.
- While the new approach improves the ability to monitor commercial activity in fisheries important to recreational sea angling, recreational activity does not generate sales notes and so is not captured by available datasets. This has

historically made effective analysis of RSA activity difficult, and while this new approach does not solve this problem, it does help to mitigate it and bring the RSA fisheries into better focus.

- Finally, the data for 2023 was, at the time of undertaking the assessment, still provisional and data relating to the later months of 2023 is likely to be subject to change.

The above limitations have existed with relative consistency since the Strategic Assessments begin in 2016 and it is in that context that they continue to be used and are useful, particularly in identifying trends (rather than being relied on to provide accurate absolute totals). A summary of the outputs of data-driven analysis is at Appendix 2.

Fishery assessment summaries

The full analysis for each fishery is at Appendix 3. A summary of the key elements of the analysis is provided below.

General considerations across all fisheries

Analysis identified several elements which are relevant to most or all of the key fisheries in the District as follows:

- *Fisheries Management Plans* – FMPs are evidence-based actions plans developed in collaboration with stakeholders to deliver sustainable fisheries. The Joint Fisheries Statement (under the Fisheries Act 2020) named 43 different fisheries for which an FMP will be produced and four have already been developed, consulted on, and published including in relation to three key fisheries: Whelk, Crab and Lobster and Bass. With the exception of the brown shrimp fishery, all key fisheries within the district will be the subject of an FMP. Contribution to the development and implementation of FMPs is considered crucial to ensuring that inshore fisheries and their regional / local variations are fully recognised.

- *Review of the East Marine Plan* – The Marine and Coastal Access Act 2009 (MaCAA) required the development of Marine Plans – spatial planning at the regional scale in the marine environment. The East Marine Plan was the first to be developed and is now the first to be reviewed. Inshore fisheries are in competition with other sea users for space which is compounded by the designation of MPAs with the effect of restricting fishing grounds. Inshore fisheries also suffer from a paucity of data which can result in their importance and local benefit to coastal communities being underestimated and marginalised, particularly compared to more economically important national infrastructure. Contribution to the review of the East Marine plan is therefore considered crucial to ensuring that inshore fisheries are recognised for their cultural and economic importance to coastal communities.

- *Conservation of Habitats and Species Regulations 2017* – These regulations require that fishing activities must not detrimentally impact the site integrity of MPAs, and government targets set out in the 2023 Environmental improvement plan require all damaging activities to be removed from MPAs by 2024. Whilst the highest risk fishing / MPA interactions have been assessed and relevant management developed (primarily via the prohibition of bottom-towed-gear in certain areas), assessments for so called 'amber & green' risk interactions are yet to be completed. Given that some 96% of the district includes some form of MPA designation, and that the outstanding assessments are relevant to all key fisheries, completion of this workstream is considered crucial to ensuring effective protection of the environment in line with Government objectives. In addition, measures to protect 'red-risk' features in in the process of being implemented (the byelaw making process) and this workstream is not therefore complete. The associated risk is mitigated through two existing high priority workstreams, which remain high priorities as a result of the analysis.

- *Inshore Vessel Monitoring Systems (I-VMS)* – I-VMS is a tracking device which can be affixed to vessel to track its movement at sea and is specifically designed to work on smaller (less than 12m) inshore vessels and provide high resolution data spatial data. Roll-out of the units has taken place over 2023 and it is anticipated that regulation will come into effect during 2024 to mandate that the devices are affixed to all vessels less than 12m in length and report as required (every 3 minutes).

  However, there is uncertainty about a number of factors including whether the regulation will standardise reporting rates for trackers across all vessels inshore (i.e. in relation to vessels 12m and over) to provide a consistent inshore data set and whether the requirements will apply to all inshore fisheries ('hand-worked' fisheries like the Wash cockle fishery, for example, may not be included in the national requirement). Finally, it appears unlikely that the requirement will be enforceable by IFCAs, which is will impact upon the effectiveness of the system in facilitating fisheries management in inshore waters.

  These factors are relevant across all fisheries in the district and the standardisation of reporting rates is considered to be crucial to effective delivery of fisheries management generally and particularly in relation to monitoring closed areas and the shrimp fishery. Therefore, it is considered crucial that consideration is given to the implementation of IFCA byelaws to that effect and particularly to enable the data to be gathered and analysed to inform the completion of 'amber and green' assessments. This workstream is particularly relevant to management of shrimp fisheries in The Wash and North Norfolk Coast, the management of which is underpinned by effective monitoring which will be greatly enhanced by I-VMS and the standardisation of reporting rates across all VMS types.

- *Recreational Sea Angling (RSA)*
  RSA is an important component of fishing activity which contributes to local economies (estimated at £1.5 – 2 billion annually by the 'Sea Angling Diary Project'), to the well-being of those who participate and to the general populations understanding of the environment and environmental protection.

  The National Angling Strategy 2019-2024, which is in its final year, seeks to increase participation, connect more people to nature and increase the economic impact of RSA activities. Many IFCAs also have their own RSA strategies, which typically seek to enhance engagement with RSA to aid compliance with regulations and to ensure that RSA have a means of informing management decisions.

  Whilst Eastern IFCA does not have an active RSA strategy, consideration of other IFCA RSA strategies identifies that most of the aspirations therein fall within other policies (such as the Regulation and Compliance Strategy or the Enforcement Policy) or ither workstreams (such as the Bass FMP workstream). However, it may be beneficial to communication with RSA to consolidate these into a single strategy.

Cockle and Mussel Fisheries

The key cockle and mussel fisheries occur within The Wash (Lincolnshire and Norfolk) and support up to 63 vessels annually, three processing factories (within the district) and wider associated employment and trade (lorry drivers, factory workers etc.). The cockle fishery in particular is crucially important to supporting the King's Lynn and Boston fishing fleets. A number of 'business critical workstreams' are in place to manage this fishery (see Appendix 3, table 1).

The high-risk factors identified for these fisheries are:

- *Replacement of the Wash Fishery Order 1992* – This ongoing workstream includes development and implementation of a byelaw and associated policy to manage access to the fishery. The Order expired in January of 2023 and interim measures are currently in place pending the confirmation of a byelaw (the Wash Cockle and Mussel Byelaw 2021) and a new Several Order (Wash Several Order). The byelaw is at the final stages of quality assurance and it is anticipated that it will come into effect during 2024-25. Failure to adopt the byelaw risks inhibiting the Authority's ability to effectively manage the fishery for the protection of the environment, fisheries sustainability, and industry viability. Significant stakeholder dialogue has informed the development of the replacement management measure, however a strength of feeling remains in relation to some parts of industry who are concerned that the management does not provide sufficient surety of access to enable effective business planning. The implementation of the new management system and communication with stakeholders is considered of high priority.

- *Cockle and mussel die-off in The Wash* – these fisheries have suffered from 'atypical mortality' since circa 2007 and various attempts have been made to identify the causes. In 2023, Cefas studies identified a novel pathogen as being the likely cause of the die-off in cockles and contributory to the die-off in mussels. The diseases pose a high risk to the sustainability of the fishery and the Wash MPAs for which cockles is an important component. There is also a risk in the context of both cockles and mussels providing food resources for designated birds – *post*).

- *Wash bird and seal species* – The Wash hosts a range of MPA designations including in relation to internationally important bird species, including the Oystercatcher, and nationally important populations of common seals. Associated risk is generally mitigated through the 'business critical workstream' related to managing the Wash fisheries, however, there is evidence that both common seals and oystercatchers are suffering from population declines despite having established mitigation measures embedded into the management of Wash fisheries. These are being further investigated, including via the Coastal Health initiative pilot which is using The Wash as a case study to inform national roll-out. Contribution to this workstream is considered crucial to ensuring that the investigations are informed by the best available evidence and expert knowledge of the fishing industry in The Wash with a view to ensure outcomes (including potential management measures) are proportionate. This will also to an extent mitigate risks relating to higher *E-Coli* levels in The Wash and the concomitant risk posed to the fishery.

- *Review of bivalve shellfish management outside of the Wash and North Norfolk Coast SAC* – The Authority inherited three byelaws relevant to bivalve shellfish fisheries from its predecessor (Eastern Sea Fisheries Joint Committee). All three require review to ensure that they remain appropriate.

Crab and Lobster Fisheries

Crab and lobster fisheries occur throughout the district, but the North Norfolk Coast fishery constitutes the main fishery. They support generational, culturally important fisheries, contributing to the sense of place and local economy directly (supporting fishing related employment) and indirectly (via tourism, café and restaurants and recreational fishing).

The high-risk factors identified for these fisheries are:

- *Management of fishing Activity within the Cromer Shoal Chalk Beds MCZ* – the associated ongoing workstream was identified as a high priority workstream in 2021 and seeks to manage the fisheries through an Adaptive Risk Management (ARM) approach. This workstream is considered critical to protecting the MPA from potentially damaging fishing activity and prevent the need to adopt a more precautionary management approach which would

likely cause significant impacts to the fisheries' viability and the local coastal economy as a result.

Shrimp Fisheries

The shrimp fishery occurs throughout the district but is primarily located within the Wash and its surrounding area. The fishery constitutes circa 95% of the UK shrimp catch and supports circa 50 vessels annually, with three local processors responsible for processing catch supporting international trade and wider local employment. Shrimp fishing deploys mobile bottom-towed-gear which is typically considered more likely to be damaging to the environment than other gear types. However, shrimp fishing is carefully managed under the Shrimp Permit Byelaw 2018 to ensure it remains within environmental parameters to the extent that it does not impact Wash MPAs (reflected as a business critical workstream). In addition, shrimp fisheries sustainability risks are primarily mitigated through industry led management via the Marine Stewardship Council Accreditation Scheme, the Authority's contribution to which is considered to be a 'business critical' workstream and already imbedded into business as usual. Risks to protected habitats and species outside of The Wash are mitigated through the 'amber and green' workstream (*ante*).

Whelk Fisheries

Whelk fisheries were, prior to 2014, considered to be a marginal fishery with very low activity. Since 2014, whelk fisheries have consistently constituted one of the top three most valuable fisheries in the district. Managed through the Whelk Permit Scheme 2016 is imbedded into business as usual via the associated 'business critical' workstreams which provides the main mitigation for risks associated with the fishery including the implementation of management measures to ensure a sustainable fishery. However, risk has increased in the fishery in 2024 as a result of concerns regarding the accuracy of fishing data, and industry reports of lower stocks.

The high-risk factors identified for these fisheries are:

Stock sustainability and permit conditions review – Under the Whelk Permit byelaw, permit conditions are to be reviewed at least every four years, and such a review is required during 2024. The review coincides with increased stakeholder concerns about stock sustainability and monitoring identifying potential stock sustainability issues although the primary concern relates to compliance with the existing mitigation measures (i.e. particularly the minimum landing size and pot limitation) and the accuracy of, and compliance with, catch reporting to inform our assessments.

Key finfish species

This group contains the key finfish species targeted within the district, namely, herring, sole, thornback rays, bass, plaice whiting, smooth hound, cod and sprat. These species constitute the most commercially and recreationally important finfish species in the district. The group is targeted primarily by small-scale fishing operations in the southern part of the district (Suffolk) although fishing activity occurs throughout the district and at varying scales, and these species are often targeted by

recreational sea anglers. Primarily, the fishery targets catch using set and drift nets although a minority of vessels also deploy mid-water and bottom towed otter trawls also. Whilst fisheries data suggests it is the least economically important of the key fisheries, the true value of these fisheries is not well reflected. This is primarily because the economic value of RSA is not well understood at a local level and is not included in the value estimate (although likely to be high given that nationally, it is estimated to be worth £1.5 -2 billion per annum) and because small-scale fisheries typically go under-reported as a result of the associated legislation.

All fishery-specific high-risk factors are assessed as being mitigated by either the general considerations (*ante*) or ongoing workstreams.

The assessment of this group has however identified the greatest number of opportunities to enhance the fisheries (Appendix 3, Table 5) to be considered as 'future priorities.' This includes further workstreams associated with RSA.

Other fisheries

Other species are caught within the district, for the most part as catch in relation to the 'key finfish species' group but at significantly lower levels with a much lower level of risk associated.

The data for these species was analysed to determine any key emerging fisheries in particular and none have been identified at this time.

The key risk associated with this group relates to potential for impacts on MPAs which is addressed and mitigated by the general 'Conservation of Habitats and Species' priority workstream.

Outputs

The ongoing and new high priority workstreams identified as required to mitigate high risks are set out in Table 1 below. Table 2 sets out the business critical workstreams – work areas which have been embedded as 'business as usual' and which are required to maintain an acceptable level of risk in relation to associated fisheries. Table 3 sets out new and existing 'future priorities' which may be considered as high priority in the future or on the completion of other 'high priority' workstreams or, where there is opportunity, as value added workstreams if they can be incorporated into other 'high priority' or 'business critical' workstreams with limited resource expended.

Priorities

1. To ensure that the conservation objectives of Marine Protected Areas in the district are furthered through:
    a. Implementation of management measures for 'red risk' gear/feature interactions (**carried over**).

    b. Continued implementation of Adaptive Risk Management of fishing activity within the Cromer Shoal Chalk Beds Marine Conservation Zone (**carried over**).
    c. Completion of 'amber/green' gear/fishing interaction assessments and development and implementation of management measures as required (**carried over**).
    d. Participation in the 'Coastal Health' pilot of The Wash (**new priority**).
2. Management of cockle and mussel fisheries (wild capture and private) through:
    a. Confirmation of the Wash Cockle and Mussel Byelaw 2021 to enable management of wild capture fisheries (**carried over**).
    b. Implementation of Wash Cockle and Mussel Byelaw access policies (transition) (**carried over**).
    c. Develop appropriate management of private shellfish aquaculture within The Wash (**carried over**).
    d. A review of relevant byelaws inherited from Eastern Sea Fisheries Joint Committee (**new priority**).
3. Obtaining better fisheries data through:
    a. Facilitating and contributing to the roll-out of I-VMS by the Marine Management organisation (**revised priority**).
    b. Development of measures (through byelaws and / or permit conditions) to implement standardised reporting rates across of VMS units (**revised priority**).
4. Contribute to the development and implementation of Fisheries Management Plans though:
    a. Supporting the planning / preparation phase (**revised priority**).
    b. Supporting the publication phase including by reviewing and evaluation plans (**revised priority**).
    c. Supporting post-publication phase including implementation (**revised priority**).
5. Contribute to the development of second-generation Marine Plans through:
    a. Collaboration with the Marine Management Organisation to seek opportunities to improve data and evidence for inshore fishing activities (**new priority**).
    b. Stakeholder engagement to raise awareness of marine planning and identify key issues (**new priority**).
    c. Contributing to policy development by providing expert advice and relaying information from our stakeholders (**new priority**).

<u>Business critical workstreams</u>

No new 'business critical' workstreams were included as a result of this assessment.

- *<u>Management of shrimp fisheries via Shrimp Permit Byelaw 2018 and associated effort limitation scheme</u>* – includes management within the Wash and North Norfolk Coast SAC which mitigates impacts on the associated MPA.

- *Shrimp fishery management via the Marine Stewardship Council accreditation scheme* – This workstream involves participation and contribution to the industry led management of shrimp fisheries and mitigates risks relating to stock sustainability.
- *Study of the Wash Embayment, Environment and Productivity (Business Critical workstream)* – this workstream involves monthly sampling to monitor 'food availability' to mitigate risks associated with exceeding the carrying capacity of the Wash. The workstream is required to enable private aquaculture in The Wash.
- Wash cockle and Mussel management – this includes annual mussel and cockle stock surveys, assessments to identify and mitigate potential impacts on Wash MPAs and development and implementation of associated management measures annually.
- *Management of Whelk fisheries via the Whelk Permit byelaw 2016* – this workstream includes the monitoring of whelk stock health and development and implementation of management measures via permit conditions as may be required. Whelk permit conditions require review in 2024 and it is likely that permit conditions will be revised as a result. The resource requirement for this workstream is likely to increase this year.
- *Assessments for 'unplanned' fisheries* – this workstream is dependent on the identification of any 'new' fisheries without established management measures. It potentially includes research (stock surveys, impacts etc.), assessment (if within an MPA) and the development and implementation of management measures as required.
- *Advice in relation to sustainable development* – this workstream involves contributing to the Marine Management Organisation's consideration of marine licence applications and advising on potential impacts on inshore fisheries and facilitating dialogue with fishery stakeholders.
- *Compliance monitoring and engagement in accordance with the Compliance Risk Register and TCG* – This workstream involves the effective deployment of the Marine Protection resource to reduce the risk associated with non-compliance.
- *Engagement with Recreational Sea Anglers (RSA)* – this workstream involves engagement with RSA during compliance monitoring and seeks to enhance our understanding of RSA activity and reduce the risk of non-compliance.
- *Monitoring of district-wide biosecurity risk* – this workstream includes the logging and investigation of biosecurity issues detected and consideration of mitigation measures as may be required (including educational engagement and management measures).

Future priorities / value added workstreams

The Strategic Assessment also identifies workstreams which would be of benefit to achieving the Authority's main duties in areas where a lesser risk is identified or one which could potentially represent a higher risk in the future. They are noted annually so as to ensure that they can be considered in future years but also, as some may be achievable in the short-term where they can be addressed alongside business

critical or high priority workstreams as ‘added value’ elements to projects. They do not all necessarily represent workstreams which would be led by Eastern IFCA and may be more feasible as projects run by partners or other groups (community and industry groups for example) facilitated by or with contributions from Eastern IFCA.

Fishing data and evidence gathering

- Collaborative working with MMO to develop a ‘joined up’ approach to gathering fishing data and reduce the burden on fishery stakeholders associated with providing two regulators similar information including potentially through adaptation of the MMO electronic data gathering systems.
- Gather information to improve understanding of wider ‘value’ of crab & lobster, shrimp and key finfish fisheries.
- Gather information on hand-gathering fisheries throughout the district.
- Develop relationships with RSA to obtain better RSA data.
- Explore options to better reflect understand the local ‘value’ (economic, societal etc.) of fin-fish fisheries, including RSA within the district.
- Investigate the economic value of RSA fisheries in the District and consider value in developing a RSA strategy
- Investigate use of drones to gather fisheries data (including stock data)
- Investigate use of Artificial Intelligence to facilitate analysis of ROV data.
- Undertake local crab and lobster stock assessments.
- Collaborate with Cefas to develop effective lobster stock assessment data gathering.
- Assessment and trials of alternative shrimp fishing gears which reduce risk to the Wash and North Norfolk Coast MPAs.
- Investigate disturbance impacts on seals from hand-work cockle fishery.

Engagement and communications

- Develop biosecurity awareness communications.
- Develop communications on the potential for seed (mussel) fisheries outside the Wash.
- Facilitate knowledge exchange between established and new fishers to pass on knowledge of traditional ways of working.
- Review the ARM Engagement Strategy (to include ‘celebrating success’ and a proactive approach)
- Consider benefits of consolidating RSA related actions within an Eastern IFCA RSA strategy

Fishing opportunities

- Explorer potential for a razor clam fishery in the Wash
- Explore opportunities to enhance the value of Crab catches.

- Undertake assessment of the potential for climate change impacts locally, including in relation to new fisheries and threats to existing fisheries
- Review the mussel fishery management policies (2008) and replace with an updated ‘mussel fishery management plan.’
- Explore ways to facilitate industry raising the profile of the local shrimp fishery.
- Explore ways to contribute to delivery of some elements of the National Angling Strategy 2019-2024.

Biosecurity

- Develop local biosecurity action plans.

Conclusions

Overall, the risks identified in the 2024 assessment are consistent with those identified in previous assessments and are mitigated through ongoing high priority workstreams. The key new area of risk relates to the development of the second generation of Marine Plans and new high priority workstreams are identified which will mitigate associated risks.

The risk to Wash MPAs is enhanced as a result of declines in some protected species and although this is mitigated to an extent through business-as-usual workstreams (i.e. annual stock surveys, assessments and management), the complexity of the issues (partiualry in relation to designated oystercatchers and cockle ‘die-off’) necessitates partnership working and additional expertise. Therefore, an additional high-priority workstream has been established to address these additional risks, namely contribution to the ‘coastal health’ pilot / case study in The Wash.

The review of inherited byelaws which manage bivalve shellfish has also been included as a priority workstream although it is considered that it will, in part, be dealt with via the Fisheries Management Plans workstream which includes the development of a cockle FMP.

Focussing available resource into these areas should mitigate the key risks associated with the fishery and represent the key work areas to successfully achieve our main duties and other legislative obligations.

Appendix 1 - data analysis to identify key fisheries

Average landed weight, value, and participating vessels by fishery since 2010

The table below is primarily drawn from MMO landings data from 2010 to the end of 2023, with the exception of data for cockles and mussels, which is drawn from Eastern IFCA catch return data and information from the fishing industry. 2023 data is still provisional for the latter months and so some inaccuracy is to be expected.

	Fishery	Weight (Tonnes)	Trend	Value	Trend	Vessels	Trend	% of National
Key Fisheries	Cockle & Mussel*	3914	-0.43	£ 1,917,945	0.29	50	-0.57	31%
	Shrimp	631	-0.23	£ 1,669,741	0.16	39	-0.53	95%
	Whelk	1181	0.41	£ 1,174,278	0.57	27	0.41	9%
	Crab & Lobster	446	0.70	£ 1,243,827	0.87	62	-0.08	2%
	Key Finfish**	134	-0.61	£ 431,497	-0.72	65	-0.90	*N/A*
Gear Types (Excluding Key Fisheries)	Dredges	27.2	-0.52	£ 42,314	-0.52	2	-0.42	*N/A*
	Gill nets and entangling nets	4.6	0.31	£ 5,814	0.14	32	0.41	*N/A*
	Hooks and lines	5.9	0.79	£ 6,535	0.80	16	0.56	*N/A*
	Miscellaneous gear	1.8	-0.57	£ 1,201	-0.58	1	*N/A*	*N/A*
	Seine nets	0.1	*N/A*	£ 92	*N/A*	2	*N/A*	*N/A*
	Traps	1.7	-0.21	£ 2,983	-0.30	10	-0.57	*N/A*
	Trawls	6.9	0.01	£ 9,656	-0.17	8	0.03	*N/A*

* Value of cockle fishery only, estimated from industry data and returns.

** Herring, Sole, Thornback, Bass, Plaice, Whiting, Smooth hound, Cod, Spurdog, Sprat

Key fisheries have been grouped where appropriate, with cockles & mussels being combined as they are fished from the same areas using the same techniques and are governed under the same regulations. Similarly, crabs and lobsters are targeted together

in their relevant fisheries, and effectively make up a combined catch for industry figures who target them. Finally, the ‘Key Finfish’ is a group formed with a primary focus on the key catch for the Suffolk fishing industry, which is primarily focused on finfish, but each individual species has reasonably small catch numbers. As such, the important species for the Suffolk industry have been grouped together so the fisheries in that area can be better represented in strategic planning.

As the table shows, fishing effort in Eastern IFCA’s district is heavily focused on a handful of species, with most of the landed weight and value coming from four fisheries covering seven species – with the shrimp fishery having historically also targeted pink shrimp, as opposed to the current focus on brown shrimp. Even the Key Finfish category, which combines 10 of the most important species to that fishery, is less than a third of the average landed weight of the next biggest fishery. This is further emphasized by a general under-representation of the crab and lobster fishery in this data, as much of the district’s crab and lobster catch is sold directly to the public from fisher’s own shops, which does not generate sales notes and is therefore not captured in this data.

Together, these figures clearly highlight the fisheries of strategic importance for Eastern IFCA, as across all other species there are less than 50 tonnes landed annually on average. While dredging does show a higher annual average than the other gear types, this is artificially inflated by a single very large scallop fishery in 2012, which if excluded, brings non-key fishery dredging down to one of the lowest average landed weight gear types.

The trends section shows the output of a Pearson calculation across the duration of the entire dataset. A strong upward trend will produce a number closer to 1, a strong downward trend will produce a number closer to -1. While a helpful indicator of general trends, these figures are easily influenced by unusually high or low effort or value in a given year. It is primarily useful here as a marker for potential future considerations of non-key fisheries, with here for example a strong positive trend of both weight and value in ‘hook and line’ fishing indicating that, while not a current priority, there is the potential for significant increases in activity in future, a possibility best addressed by Eastern IFCA’s ongoing data analysis.

Appendix 2 – Engagement assessment

Engagement with all stakeholders, including both commercial and recreational fishers, provides important insight into the fisheries and the environments they operate in. Communications with stakeholders are logged; engagement themes are identified, and detail extracted to identify risks and opportunities to inform the strategic assessment, ensuring that stakeholder views inform the annual planning process. The information gathered is used to inform the analysis of risks and determination of priorities alongside the local knowledge and expertise of Eastern IFCA, providing important context particularly in terms of the wider value of fisheries and the key risks posed to them.

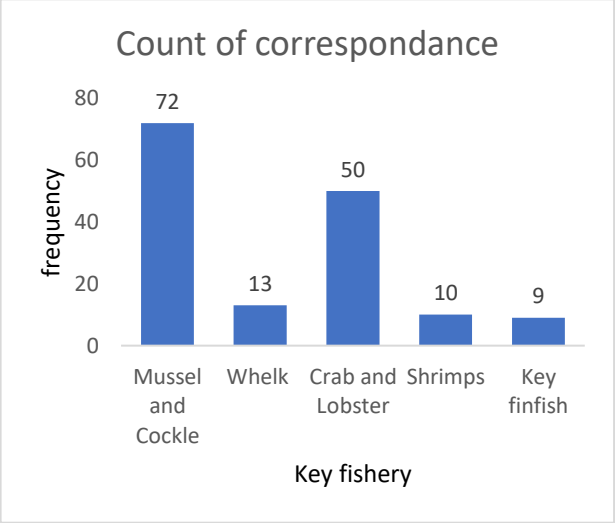
Key Fisheries Analysis

The information analysed in this assessment is the engagement information gathered by officers via direct contact from stakeholders via telephone calls, letter and emails. It excludes intelligence data (i.e. specific reports of non-compliance with fisheries regulation) responses to structured consultation (e.g. written objections to byelaws, completed questionnaires etc.). The data is collated in an internal system (the 'message forms' system) and is analysed by reference to the 'key fisheries' (see methodology section).

Analysis identifies that most engagement related to mussel and cockle fisheries, a large proportion of which related to an engagement exercise undertaken by the Authority regarding wash management measures and the replacement of the Wash Fishery Order 1992.

Similarly, engagement around Crab and Lobster fisheries made up a significant proportion of engagement data which was largely as a consequence of engagement exercises regarding management of fishing in the MCZ including a consultation on proposed permit conditions.

Fishery	Count	Percentage
Mussel and Cockle	72	39%
Whelk	13	7%
Crab and Lobster	50	27%
Shrimps	10	5%
Key finfish	9	5%



Analysis by Key Fishery

Crab and Lobster fisheries

Theme	Count	%	
Commercial Fishing	41	82%	A large proportion of the engagement related to commercial fishing enquiries rather than recreational, the commercial fishing largely concerned the MCZ and consultation feedback.
Recreational Fishing	4	8%	All correspondence regarding recreational fishing was around crab for bait and crab tilling for bait.
MCZ	38	76%	The most common theme concerned management of the MCZ including responses to permit condition consultation and concerns of the impacts of management.
Consultation Feedback	19	38%	This was the second most common theme with the engagement highly contentious and very emotive with evidence of conflict.
Stocks	5	10%	Although there was less engagement on this topic, all such engagement related to concerns about low stocks. This attributed by stakeholders to a number of variables including poor environmental health, shifts in the seasonality of the fishery (which is reportedly starting and finishing earlier purportedly as a result of rising water temperatures) and observations from fishermen that Cromer fishing has been poor, and fishing is 'slow'.
Sustainability	3	6%	Again, this theme overlaps with the stocks theme as concerns of low stocks creates a concern for sustainability of the fishery.

Analysis of crab and lobster engagement themes identifies that most communication was driven by engagement exercises regarding management within the MCZ. Concerns around sustainability made up only a small proportion of the engagement data and represent a potential risk particularly in relation to the potential for these to derive from the consequences of climate change.

Mussel and Cockle fisheries

Theme	Count	%	
Commercial Fishing	71	99%	All engagement surrounding cockle and mussel fisheries related to commercial fishing.
Recreational Fishing	0	0%	No engagement about recreational fishing.
Wash management	50	69%	Most of the engagement was about the wash fishery management. At the start of the year, it was about the WFO transition, towards the end there are concerns that the fishery operating times not being appropriate although there were conflicting views. Some engagement also related to the potential for a cockle fishery at Horse Shoe Point (northern part of the district) which could not be enabled for a variety of factors including the absence of shellfish bed classification for the site to enable a commercial fishery and the lack of management capabilities provided by the inherited byelaw relevant to the area.
Aquaculture	5	7%	A small amount of engagement was about fishermen's lays, mostly linking to Wash management as well some general enquiries and questions about the potential for seed fisheries outside of the Wash and the process for opening such a fishery.
Stocks	18	25%	Mixed views on Mussel and cockle stocks with some concern about cockle stocks and reports of dead cockles washed up and that the fishery opened later than usual. Others of the view that cockle stocks are healthy and are positive about management.
Sustainability	5	7%	A small amount of engagement highlighted a concern from some fishery stakeholders about the sustainability of the fishery which links to the 'Wash management' (above) and concerns around stock levels and viability of the industry.

Given that the Wash cockle fishery is the major fishery in this category, it follows that engagement with stakeholders is dominated by this theme. 2023 included the transition process under the Wash Cockle and Mussel byelaw Eligibility Policy which included a lot of dialogue with stakeholders including assisting them through the application process, which itself generated a lot of communication and engagement. In addition, two structured consultations were held seeking views on annual management of Wash cockle and mussel fisheries which also generated general engagement, and which is reflected in the analysis. Cockle fisheries were most often

the subject of correspondence rather than mussels. Notably however, dialogue regarding the potential for mussel seed fisheries outside of the Wash featured in 2023 and have highlighted industry perceptions of procedural barriers to enabling such.

Whelk Fisheries

Theme	**Count**	**%**	
Commercial Fishing	12	92 %	The majority of engagement related to commercial fishing with some correspondence not fitting into either category.
Recreational Fishing	0	0%	No engagement about recreational fishing.
Regulation	6	46 %	Almost half of the communications received related to concerns about general non-compliance with the Whelk Permit Byelaw 2016.
Sustainability	6	46 %	Almost half also detailed concerns about the fisheries sustainability this included some concerns regarding the use of rotary riddles within the fishery and conversely, that rotary riddles are beneficial to the fishery. In addition, that environmental conditions would have/ have had an impact on whelk stocks.
Stocks	2	15 %	Limited engagement regarding stocks but both surrounding concerns about low stock, which links to the concerns about the sustainability of the fishery.

Engagement around whelk fisheries was limited during 2023 which potentially reflects the lack of engagement exercises undertaken relating to this fishery and the smaller number of fishers involved. However, engagement did identify concerns about the sustainability of the fishery and the introduction of novel technology within the fishery (the rotary riddle) the potential implications of which are not well understood and thus presenting a risk.

Shrimp Fisheries

Theme	Count	%	
Commercial Fishing	9	90 %	Almost all of the shrimp engagement related to commercial fishing. Most related to enquiries regarding permits, some about a change in fishing and some about catch return requirements.
Recreational Fishing	1	10 %	Little engagement regarding recreational fishing, only an enquiry about a permit for trawling with a Shetland pony.
Stocks	5	50 %	Reports that the effect of the landings decreasing has increased the first sale value of catch. Concern that there is a shortage of Brown Shrimp as there is an abundance of Whiting predating on the Brown Shrimp; this is reportedly occurring off the Lincolnshire coast.
Management	5	50 %	Concern that the changes to the wash management are meaning shrimp are being over exploited. Concerns about a lack of fisheries to diversify into (in the Wash) leading to over-reliance on shrimp fisheries and a consequential increase in effort. Fishers concerned that nets only allow 10% of Whiting to be caught (in shrimp nets) whereas before they would catch 50%+ of Whiting. Concern that increase in Whiting will impact Brown Shrimp fishery.
Permit	3	30 %	Some queries from fishers about obtaining various permits to fish for shrimp (new fishermen and new methods).

Engagement around the Shrimp fishery was limited during 2023, again, potentially reflecting from the lack of engagement exercises undertaken. However, engagement identified some concerns about the sustainability of the fishery, both in terms of observations of varying stock levels as well as concerns about the management measures of both the fishery and other knock-on effects from management measures in other fisheries.

Key Finfish Fisheries

Theme	Count	%	
Commercial Fishing	6	67%	Mostly concerned with bass, cod, sole, and sprat
Recreational sea Angling	2	22%	Concerned bass and smoothhound
Bass	4	44%	Almost half the engagement within the key finfish fisheries were around bass fishing, mostly referenced as commercial fishing. Communication mostly concerned fishing for other fish (e.g. sand-eels) which was being sold for bait for bass fishing. All other concerns were in regard to regulation concerns from industry and potential for non-compliance.
Smoothhound	2	22%	Both messages surrounding RSA smoothhound tagging and related to recreational fishing. There have been small environmental concern with correspondence about dead smoothhound and dogfish wash up.
Sprat	3	33%	All of this engagement related to the management measures of sprat. Most of the correspondence were enquiries from the industry about the limits and possibilities within the management measures. Some concern that management measures have 'ended' the fishery.
Sole	2	22%	Limited engagement and mostly regarding queries about management measures as well as regulation enforcement.
Cod	1	11%	Query about net size regulation which was accompanied by other queries about key finfish regulations.

Analysis identified a risk in relation to the sprat fishery, in particular that the current regulations inhibit an effective fishery. RSA dialogue indicated concerns regarding the impact of commercial fisheries in rivers and estuaries . There were also reports of bass being targeted further upriver than was thought possible given the biology of bass with potential implications on management.

Appendix 3 – PESTLE style analysis by fishery

Table 1. Cockle and Mussel Fisheries PESTLE analysis

Factor	Analysis	Risks	Existing Mitigation (workstreams)	Risk & RAG	Potential additional mitigation
Political	Ambitious environmental targets set via the 25 Year Environment Plan and Environmental Improvement Plan 2023. Potential for change in emphasis dependant on and as a consequence of the anticipated general election. The East Marine Plan is under review to inform its replacement.	Cockle and mussel fisheries in the district occur generally in a very highly designated and complex MPA (The Wash) with the potential for pre-cautionary management to detrimentally impact fishing opportunities. Marine spatial planning has the potential to contribute to additional marginalisation of fishing activity across sea users and particularly in the Eastern region given the high level of nationally important infrastructure activity (including offshore windfarm development).	**Wash Cockle and Mussel Surveys and Management (business critical workstream) –** annual, detailed consideration of the fishery's potential to impact associated MPAs is undertaken to ensure no impacts on MPAs. A close working relationship with the SNCB has been established to mitigate necessity of pre-cautionary measures resulting from a lack of evidence. It is unlikely that the recent government policies and targets will not be met by current workstreams. **Advice in relation to risk of conflicts with other marine users (business critical workstream)** – Contribution to the review of the East Marine Plan provides potential for inshore fisheries to be well reflected and given due consideration.	Low	None identified

Economic	Cockles are a high value fishery (£2.3m in 2023) and contribute to a significant proportion of the national catch (circa 30%). Those who participate in cockle fishery are typically highly reliant on this fishery for annual income. Mussels have not been high value for a long time due to low stock levels. Significant employment gained from this fishery: 3 processing factories,~60 vessels Landings are highly variable, depending on stock size and uncontrollable variables, such as atypical mortality. There are a range of business models operating in the fishery, from single handed, independent operators to larger, multi-crew, processor owned vessels. Some reports of the fishery not being economically viable under certain circumstances, usually associated with larger vessels which operate in the fishery with higher over-heads and in the context of the 2-tonne daily quota. Shellfish aquaculture within the Wash is of limited economic value impacted by poor compliance with management measures. However, the fishery has a high economic potential, particularly in the context of the recent regularity of seed mussel available.	Significant contribution to local economy risks job losses and local economic damage if fishery performs poorly, particularly given relatively limited fishing opportunities other than cockles in a poor season. Financial reliance on fishery increases risk of non-compliance with regulation particularly in years of low productivity. Potential for annual management measures to disproportionately impact certain business models. Potential for fees to impact the viability of the fishery (the current fee is circa £1100 annually representing the first sale value of a day in the fishery).	**Implementation of Wash Cockle and Mussel Byelaw and access policy (Ongoing Priority workstream)** – The Byelaw and access policy are intended to enable dynamic management of the fishery to suit the needs of the fishery over time, including to best reflect the capacity of the fishery if needed. The level of access which is economically viable was considered in its own right within the Wash economic assessment. The Eligibility criteria have been developed to provide surety of access to enable effective business planning. **Wash Cockle and Mussel Surveys and Management (business critical workstream)** – annual management measures are carefully considered and consulted on with industry to detect and avoid (so far as is possible) impacts on business models. **Enforcement and Education (Business Critical workstream)** – compliance monitoring and engagement reduces the risk associated with non-compliance. **Develop appropriate management of private shellfish aquaculture in The Wash (Ongoing Priority workstream)-** associated management plan to include requirement to provide economic information.	Low	None identified

	Recent fee increases (albeit later than programmed and at a cost to the Authority) have increased overheads. Fees seek circa 50% cost recovery for managing the fishery – overheads generally have increased due to exceptionally high inflation.				

Social	Multi-generational fishery. High levels of interest in the fishery (particularly cockles given the limited investment cost required to operate in a hand-work fishery) but historically there has been very limited opportunity for new entrants. Shellfish aquaculture in the Wash is historical and many 'lay holders' feel a sense of ownership for areas leased to them. However, many are unused and there is interest from those without lays to be provided opportunity. The expiry of the Wash Fishery Order (WFO) 1992 (Jan 2023) and its planned replacement with a byelaw created a strong sense of feeling initially, with industry preference being for the Order to be replaced with another Order. The replacement caused some uncertainty whilst measures were being developed. This fishery generated the most correspondence in 2023 – primarily in relation not the transition from the WFO to the new byelaw and the applications for permits. Typically highly polarised industry views on management in the fishery, annually and in general. Seed mussel fisheries outside of the Wash and North Norfolk Coast SAC are perceived to be inaccessible as a result of inherited byelaws and the legal requirement to assess the impact	Historic access created a strong sense of entitlement regarding fishery access. This contributed to the strength of feeling regarding the replacement of the WFO and inhibited effective communication throughout the replacement's development. Some stakeholder conflict remains form a highly critical minority with a risk of further impacting effective coms, particularly through distribution of misinformation. Highly polarised views results in dissatisfaction regarding balanced decisions reducing effectiveness of future coms. If fishery stakeholders do not feel invested in the management system for the Wash cockle and mussel fisheries, there may be an increased risk of non-compliance and trivialisation of the management. A procedural barrier to finding and prosecuting seed mussel fisheries outside of the Wash reduces the fishing opportunity with potential economic impacts.	**Implementation of Wash Cockle and Mussel Byelaw and access policy (Ongoing Priority workstream)** – the access policy was agreed and the 'transitional provisions' implemented provisionally and pending the byelaw coming into effect so as to provide surety and enable effective business planning. Policy intended to better enable 'new entrants' compared to WFO. **Wash Cockle and Mussel Surveys and Management (business critical workstream) -** annual development of management measures includes industry consultation and careful consideration of industry views which is published and provided to respondents. **Develop appropriate management of private shellfish aquaculture in The Wash** (**Ongoing Priority workstream**)- The Authority has applied for a Several order (under the Sea Fisheries (Shellfish) Act 1967 to replace that component of the WFO. New Several Order management plan to include consideration for new entrants and lose of a shellfish lay for non-use. **Complete HRAs in relation to 'unplanned' fisheries (business critical workstream) –** Risk associated with lost fishing opportunities (for seed mussels) are primarily mitigated y this workstream. The Authority agreed a process for opening such with the SNCB previously and has the ability to exempt individuals from its byelaws to enable fisheries for 'breeding and cultivating' (i.e. seed fisheries).	Medium	Consider mechanisms to enable more constructive and effective stakeholder engagement to inform annual management of fisheries. Develop coms to inform industry how may be interested in a seed mussel fishery outside of the Wash of the process.

	of such fisheries under the Conservation of Habitats and Species Regulations 2017 which prevent 'prospecting' for mussels.				
Technological	Vessels operating in the fishery vary markedly in their capacity (range in particular) making them more reliant on the area they currently operate within. Inshore Vessel Monitoring Devices have been rolled out nationally and a regulatory requirement to have them fitted and operating is anticipated during the 2024/25 financial year. Annual fishery highly dependant on sea-going capacity of the Authority in order to undertake surveys to inform stock assessments and a Habitat Regulation Assessment.	Limited capacity to prosecute other fisheries where fishery performance is poor. Potential financial implications for vessels which have not installed devices under early roll-out scheme which included a grant for I-VMS. Potential for the fishery to not open on a precautionary basis if there is a lack of survey data to inform an assessment.	*__Maintenance of sea going assets (Business critical Workstream)__ – The Authority has invested in a new vessel capable of delivering annual surveys. In addition, the long time-series of data supports a fishery opening without a survey in a single year. __Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing High Priority workstream)__ – facilitate national roll-out of I-VMS.	Med	Potential to use drones to facilitate mussel and cockle surveys

Legal	The Conservation of Species and Habitats Regulations 2017 oblige the Authority to prevent any fishing activities which may impact site integrity and where there is uncertainty, the pre-cautionary approach applies. The fisheries (including private aquaculture) are presently managed under temporary, interim measures pending the confirmation of the Wash Cockle and mussel byelaw 2021. Management measures are well established and based on years of development and dialogue with fishing industry and SNCB. The Association of IFCAs is developing a cockle FMP, which will be considered and published by Defra. Limited regulatory mechanisms to manage cockle / mussel fisheries outside of the Wash. Many of the cockle fishing vessels 12m and over in length, and there is uncertainty as to whether the IVMS SI will standardise reporting rates for larger vessels who currently operate VMS+.	Conservation legislation poses a risk to the fishery and in particular, the adoption of the precautionary principle where there is uncertainty. In particular, there is uncertainty about the impact of fisheries on oystercatcher (designated birds) and common seals within the Wash MPAs and the extent to which fishing activity has contributed to reported die-offs (oystercatchers) and reduced populations (Seals). The fisheries cannot be effectively managed under the interim measures in the longer-term. Delay in replacement with legislation (WCMB and Wash Several Order) risks impacts to business continuity, particularly with regards to managing access. There is potential for local management to come into conflict with national measures under the cockle FMP. Byelaws inherited from Sea Fisheries Committees are unlikely to be capable of adequately managing cockle & mussel fisheries outside of the Wash. There is a risk of environmental impact as a result and / or that a fishery could not be opened because of an inability to implement required management measures.	**Wash Cockle and Mussel Surveys and Management (business critical workstream) –** annual surveys and the adoption of well-established management measures mitigate risk of the fishery damaging the Wash MPAs and of not opening as a consequence of the precautionary principle. **Confirmation of Wash Cockle and Mussel Byelaw to enable management of wild capture fisheries & Implementation of Wash Cockle and Mussel Byelaw and access policy (Ongoing High Priority workstreams)** – the access policy was agreed and the 'transitional provisions' implemented provisionally and pending the byelaw coming into effect so as to provide surety and enable effective business planning. Policy intended to better enable 'new entrants' compared to WFO. **Fisheries Management Plans (Ongoing Priority workstream)** – Eastern IFCA is contributing to the development and implementation of FMPs and has the opportunity to inform the potential for impacts and benefits arising from the plans. The associated risk is considered to be low at this time as a result of this mitigation. **Develop appropriate management of private shellfish aquaculture in The Wash** (**Ongoing Priority workstream**)- The Authority has applied for a Several order (under the Sea Fisheries (Shellfish) Act 1967 to replace that component of the WFO. However, this workstream is significantly delayed (external factors) although, is also of relatively little economic importance at present (although has high economic potential). **Complete Habitat Regulation Assessments in relation to 'unplanned fisheries' (Business critical workstream)** – where a fishery is identified outside of The Wash, an assessment will be undertaken to determine if a fishery can be opened, particularly in the context of MPAs. The risk is further mitigated by the power to implement emergency byelaws under s.157 of the Marine and Coastal Access Act	High (on the basis of outstanding high priority workstream)	Investigate the disturbance effect of hand-work fishing activity on seals. Review the 'Bird food model' adopted to ensure that oystercatchers have sufficient food resource in The Wash after a fishery. **Review and replace inherited byelaws which manage bivalve shellfish to provide a district wide mechanism for enabling fisheries**. Gather information in hand-gathering fisheries outside of Wash.

			2009 in order to manage a fishery if the need to do so was urgent and not reasonably foreseen. **Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing High Priority workstream)** – consideration of implementing higher reporting rates for vessels 12m.		

Environmental	Cockle and mussel fisheries primarily take place in the highly designated and complex Wash MPAs. The fishing methods (hand working for cockles and mussel dredges) are generally considered to be of low environmental impact however non-compliance can cause significant damage and potentially impact the MPA. Both cockles and mussels in The Wash have been exhibiting atypical mortality which has changed the dynamic of the cockle fishery and it thought to be contributing to poor mussel stocks. The Wash is likely to have a limited carrying capacity and capable of supporting a finite amount of bivalve shellfish however this is unknown. There have historically been concerns that food availability (for bivalves) has not been able to support wild cockle and mussel populations. Water Framework Directive measures have, in general, led to less organic matter being washed into the Wash embayment potentially reducing the carrying capacity. A trend towards landing small (pre-spawning) cockles has been observed in recent years in conflict with the code of best practice. Mussel fisheries operate under the 2008 fishy 'management policies'.	The fishery potentially poses a risk to the MPAs it operates in and particularly with regards to designated bird species and common seals (both of which include features which are in decline). The complexity of the Wash MPAs necessitates a significant evidence gathering to avoid adopting a pre-cautionary approach, failure to secure adequate evidence risks closure or significant restriction of the fishery. If food availability is limited, and private aquaculture or invasive species (such as slipper limpets and American razor clams which cannot be fished) are reducing the food available to wild commercial shellfish, this poses a risk to the long-term sustainability of the stocks. The presence of diseases in cockles and mussels poses a risk to the long-term sustainability of the fishery and impacts of the MPA features reliant on cockles. The mussel fishery management plan (management policies) were developed prior to the understanding of mussel mortality as it is now and potentially warrant review however, the policies are primarily based on achieving conservation targets set by the SNCB and so review may be of limited benefit especially in the context of the poor stock productivity at present. The cause of high E-Coli levels in The Wash are not understood and there is a risk that failure to identify such could result in high levels occurring more often	**Wash Cockle and Mussel Surveys and Management (business critical workstream) –** annual surveys and the adoption of well-established management measures mitigate risk of the fishery damaging the Wash MPAs and of not opening as a consequence of the precautionary principle. The workstreams also includes consideration of management in the context of the atypical mortality. **Study of the Wash Embayment, Environment and Productivity (Business Critical workstream) –** monthly monitoring of phytoplankton levels and meat yields are undertaken to monitor food availability and inform management of private aquaculture to mitigate risks relating to food availability. However this does not reduce the risk associated with invasive non-native species (including razor clams and slipper limpets). **Investigation into cockle & mussel die-off (Future Priority acted on within 2023/24 financial year)** – The Authority has been facilitating a Cefas led investigation into cockle and mussel mortality including contribution to the newly established 'Coastal Health' programme. **Monitoring of district-wide biosecurity risk (Business Critical Workstream)** – A Wash Biosecurity plan is in place which is specifically relevant to the management of the Several fisheries and seeks to avoid introduction of invasive and non-native species and diseases. National measures (coordinated by the Fish Health Inspectorate) also mitigate against associated risks.	High	**Contribute to the 'Coastal Health' pilot in The Wash and seek further opportunities to investigate die-off to inform management.** Seek to investigate the disturbance effect of hand-work fishing activity on seals (seal disturbance) Investigate and reconsider the 'Bird food model' adopted to ensure that oystercatchers have sufficient food resource in The Wash after a fishery. Investigate potential for removal of invasive Razor Clams in The Wash. Review mussel fisheries management plan **Contribute to investigation of high E-Coli levels in The Wash (via collaboration with 'coastal health' pilot in The Wash).**

	High E-Coli levels have been detected in The Was and new measures have been brought in (by the Food Standard Agency) to protect public health.	with impacts on the fishery and industry viability. The Coastal Health intuitive is using the Wash as a case study to inform national roll-out and is seeking to address this issue as part of that work.			

Table 2. Crab and Lobster PESTLE analysis

Factor	Analysis	Risk	Existing Mitigation (workstreams)	Risk & RAG	Potential additional mitigation
Political	There have been a number of negative articles and negative media coverage surrounding management within the MCZ. Ambitious environmental targets set via the 25 Year Environment Plan and Environmental Improvement Plan 2023. Potential for change in emphasis dependant on and as a consequence of the anticipated general election. The East Marine Plan is under review to inform its replacement.	Polarised stakeholders are dissatisfied by a balanced approach to managing the fishery (particularly in the Cromer Shoal MCZ) leading to reputational risk – potential to impact relationships with governing bodies/ partners / funders. Risk of impactful pre-cautionary management measures for the protection of the environment at the expense of the fishery. Marine spatial planning has the potential to contribute to additional marginalisation of fishing activity across sea users and particularly in the Eastern region given the high level of nationally important infrastructure activity (including offshore windfarm development).	**Adaptive Risk Management (ARM) of Cromer Shoal Chalk Beds MCZ (High Priority)** – collaborative which lends itself to the 'co-management' objective in the Fisheries Act 2020 which is also aligned with s.154 of the Marine and Coastal Access Act 2009 and SCNB advice. ARM includes adoption of an engagement strategy to mitigate risks regards polarised stakeholders so far as possible. **Advice in relation to risk of conflicts with other marine users (Business critical)** – Contribution to the review of the East Marine Plan provides potential for inshore fisheries to be well reflected and given due consideration.	Medium	Proactive dialogue and engagement with community leaders Evidencing success in delivering ARM – published updates, reports etc.

Economic	The landed weight and value of both crab and lobster is high* although it is also known to be an under-representation of the true total because of reporting criteria. Fishers targeting crab and lobster tend to be reliant on this fishery for the majority of their economic income. Known data gaps in economic importance of fishing grounds within MCZ – national data sets do not provide sufficient data (economic & spatial). Information received about an increase in market demand for crab containing roe. Rising overheads including the price of bait. North Norfolk Coast fisheries contribute to 'sense of place' and culture of the area – coastal communities have economic reliance on fishing culture (e.g. tourism). Natural Capital contribution of Cromer Shoal Chalk Bed habitats are unknown. Marine Conservation Society's 'good fish guide' rates the fishery as 'needs improvement' and does not take into account local conditions of the fishery relying on the stock assessment for the Southern North Sea. Edible crab and lobster have shown a steady increase in price per kilo annually.	Financial reliance on fishery increases risk of non-compliance with regulation which is compound by rising overheads. Risk of non-compliance creates risk to the fishery, the environment, economy and socially. Increased demand for crab containing roe increases the risk to fisheries performance and long-term sustainability. 'Good Fish Guide' rating potentially impacts the marketability of local crab catches, reducing its value.	**Adaptive Risk Management (ARM) of Cromer Shoal Chalk Beds MCZ)** – seeks to mitigate risks to the environment and limit economic impacts on local fishing industry. Includes a potential workstream to determine economic importance of inshore MCZ areas and wider societal value of the MCZ. **Enforcement and Education** – compliance monitoring and engagement to build qualitative evidence on the importance of inshore fishing grounds. Targeted information gathering regards 'roe crab' within engagement framework. **Crab and Lobster Byelaw 2023** – includes provision to permit edible crab waste (i.e. cooked offal) to be used as bait to reduce bait costs (lobsters, whelks).	Medium	Explore potential to enhance the value of landed catch (facilitate or contribute to Fisheries Improvement Plan and / or trademarking 'Cromer Crab') or as added benefit to delivery of ARM **Collaboration with Marine Management Organisation to develop spatially relevant datasets for economic data** Undertake local stock assessments to inform 'Good Fish Guide' rating within Eastern IFCA district.

Social	The crab and lobster fishery on the North Norfolk Coast and within the Cromer Shoal Chalk Beds MCZ is of cultural importance to coastal communities. Societal value of the Cromer Shoal Chalk Bed MCZ is broadly unquantified however. Multigenerational fishery with an aging demographic (many reportedly retiring in next 5-10 years) – industry concern regards lack of small scale fishing industry coming through to replace resulting in larger scale operations over traditional grounds. Highly polarised stakeholders in relation to management of potting fishery within the Cromer Shoal MCZ leading to dissatisfaction with 'balanced approach'. Information received from industry suggests that inshore areas in the MCZ (linked to the rugged chalk) are more productive and crucially important to smaller scale fishing activities. New regulation as a result of ARM and national FMP workstreams in combination with anticipated enforcement of I-VMS within the same financial year could lead to 'consultation fatigue' and confusion.	Loss of traditional / small scale fishing knowledge and skills. Less ownership / husbandry of the fishery potentially resulting in increased risk of impacts (sustainability / habitats). Conflict with and between stakeholders can cause negative media coverage (reputational risk) and impinge on ARM within the Cromer Shoal Chalk Beds MCZ. Management decisions not informed by broader understanding of societal value of the fisheries and the MCZ risks unintentional social impacts. Fishery stakeholders become dissatisfied with extent of regulations and / or find it difficult to come to terms with cumulative changes to the detriment of compliance which increases the risk of damage to the environment and fisheries sustainability.	**Adaptive Risk Management (ARM) of Cromer Shoal Chalk Beds MCZ)** Collaborative and balanced approach to managing the fisheries within the MCZ supported by an Engagement Strategy. Also includes management measures (Cromer Shoal Chalk Beds MCZ) which could enhance / inhibit new entrants – the matter to be considered during consultation on relevant measures under the byelaw. Also includes potential for a societal value study to inform ARM and wider management. **Enforcement and Education** Provides routine engagement with potentially impacted fishery stakeholders and supported by engagement / reference materials as required.	Medium	Explore potential for knowledge exchange to capture traditional ways of working and pass on knowledge to new starters. Review of ARM Engagement Strategy to ensure effectiveness (potentially including more proactive engagement).

Technological	Vessels operating in the fishery vary markedly in their capacity (range in particular) making them more reliant on the area they currently operate within. Smaller inshore operators often do not have electrical generators or navigational equipment. Inshore Vessel Monitoring Devices have been rolled out nationally and a regulatory requirement to have them fitted and operating is anticipated during the 2024/25 financial year. Evidence gathering within MCZ reliant on under-water ROV operation, which is impacted by weather and sea going capability and highly resource consuming video analysis. Limited technological opportunities to reduce impacts of potting on Cromer Shoal Chalk Beds MCZ identified.	Potential for smaller scale operators to be disproportionately impacted by new regulation as a result of limited capacity and range. Inshore vessels are less capable to adapt to comply with new regulations, including those associated with ARM. Non-compliance risks increases impacts on the MCZ and conflict with other stakeholders. Evidence gathering using under-water ROV detracts from delivery in other workstreams with various associated risks. Timescales to analyse data potentially not compatible with delivery of ARM. If fishing gear modifications are required to reduce impacts to the MCZ, but cannot be identified or are too costly to action (by the industry), the MCZ is at risk of damage and the fishery is at risk of closure.	**Adaptive Risk Management (ARM) of Cromer Shoal Chalk Beds MCZ)** – Includes implementation of a byelaw which can require gear modifications to minimise damage to MCZ. Gear modification trials to be undertaken through this project. Project has also obtained navigational aids for fishers within MCZ to aid compliance. **Implementation of I-VMS requirements for all fisheries –** continued facilitation of the I-VMS roll out including distribution of information and dialogue with MMO (lead organisation for I-VMS).	Low	Explore use of AI to analyse ROV video evidence to reduce resource requirement.

Legal	Legal obligation to ensure sustainable fisheries and further the conservation objectives of MCZs (S.153 & 154 of Marine and Coastal Access Act 2009). Eastern IFCA has submitted the Cromer Shoal Chalk Beds Byelaw 2023 and the Crab and Lobster Byelaw 2023 for confirmation (via the MMO formal quality assurance process). The former will represent a significant shift in management of crab and lobster fisheries on the North Norfolk Coast. Defra have published the Crab and Lobster FMP which is seeking to harmonise management and ensure the fishery meets the objectives set in the Fisheries Act 2020, the 25 Year Environment Plan and the Environmental Improvement Plan 2023. This is likely to result in regulatory changes. Some crab and lobster vessels are over 12m in length, and there is uncertainty as to whether the IVMS SI will standardise reporting rates for larger vessels who currently operate VMS+.	The Authority's legal requirement to further the conservation objectives of the MCZ override the general duties of fisheries management. Ultimately, if ARM does not provide mitigations in the form of technical measures, and research identifies that the site's conservation objectives are being hindered, more impactful management measures may be required which risks detrimentally impacting the fishery significantly across a number of factors. Byelaw provisions risk impacting the economic viability of the fishery. Harmonisation of minimum conservation reference sizes for crabs will be economically detrimental to the crab fisheries in the Eastern IFCA district which has been internationally recognised as justifying a smaller MCRS (of 115mm) including via an exemption to European measures historically.	**Adaptive Risk Management (ARM) of Cromer Shoal Chalk Beds MCZ) (Ongoing High Priority Workstream)** – ARM reduces the risk of implementing disproportionately impactful management measures on a precautionary basis. Includes implementation of a byelaw which enables the Authority to implement flexible management measures after undertaking an impact assessment and consultation with industry to mitigate the risk of unintended or excessive impacts where not required. **Fisheries management Plans (Ongoing High Priority Workstream)** – Eastern IFCA is contributing to the development and implementation of FMPs and has the opportunity to inform the potential for impacts and benefits arising from the plans. **Implementation of I-VMS requirements for all fisheries (Ongoing High Priority Workstream) –** consider implementing regulation to standardise VMS reporting rates.	High (on the basis of outstanding high priority workstreams)	None identified

Environmental	The potting fishery within the Cromer Shoal MCZ is not considered likely to hinder conservation in the short-term but impacts cannot be ruled out over time. The evidence base informing the associated assessment and SNCB advice is very limited. Cefas stock assessments indicate that the Southern North Sea stock of crab is being exploited beyond the associated maximum limits to achieve MSY but stable and there is noted uncertainty noted in the model and data used. There is a strong upward trend in crab landings since 2010 although this is partly driven by a peak in 2019. Landings into Cromer specifically show a steady decline since 2019. Lobster data is significantly lacking and associated stock assessments carry high uncertainty. Landed weights of lobster show a downward trend over time, driven primarily by reductions in landed catch into Wells, Cromer and Grimsby. It is noteworthy also that the number of vessels operating form Grimsby and catching lobsters have conversely increased significantly although catch landed into this port will primarily come from outside of the Eastern IFCA district. Eastern IFCA has not been able to conduct a local assessment since the transition between data gathering forms (issued by the MMO) due to a lack of data. Fishery stakeholders have reported shifts in the timing of the starting of the crab season indicating that it is starting sooner than is ordinarily expected. Engagement with stakeholders also identifies concerns about poor stock performance (crabs) and that increasing water temperatures, potentially as a consequence of climate change, is changing the seasonality of the crab fishery and the ultimate consequence of this is not well understood. Crab and Lobsters are generally caught with pots and traps at a commercial scale within the district (with crab tiling for bait being the only other form of fishing known within the district) and which are typically considered to be of low impact with the exception of within the Cromer Shoal Chalk Bed MCZ. However, the MMO have	There is the potential that the fishery will hinder the conservation objectives of the MCZ which also risks implementation of a more precautionary approach (potentially to the detriment of the viability of the fishery). In lieu of local stock assessments, and better fisheries data (including effort estimates), the fishery appears to be operating at a level beyond Maximum Sustainable Yield, although this was not reflected in previous local assessments undertaken. Taking action to manage the fishery (including on a pre-cautionary basis), risks economic impacts which are potentially not proportionate. A shift in the start of the season could indicate the effects of climate change given that the crabbing season is strongly associated with water temperature. Potting is not currently considered likely to impact *Sabellaria* features within MPAs, however, recent MMO assessments have concluded the potential for impacts and which may necessitate management within the district, particularly in the context of the target to remove all damaging activities from MPAs by end of 2024.	**Adaptive Risk Management (ARM) of Cromer Shoal Chalk Beds MCZ) (Ongoing high priority workstream) –** includes research projects to determine the extent of damage caused by potting and whether it is sufficient in scale to hinder the conservation objectives of the MCZ. Management measures are adopted as voluntary measures or flexible permit conditions which can be revised dynamically on the basis of new evidence. **Completion of amber/green gear/feature interactions and development / implementation of management measures where required** (**Ongoing high priority workstream**)– In particular in relation to the impacts of potting on *Sabellaria* reef. **Monitoring of district-wide biosecurity risk (Business Critical Workstream)** – to identify emerging risks and potentially mitigate against them collaboratively with stakeholders. Does not fully mitigate biosecurity risks as it does not include consideration of actions to address the risks. **Fisheries management Plans (Ongoing High Priority Workstream)** – an important component of FMPs is mitigating the impacts of climate changes and seeking to ensure fisheries are	High (on the basis of outstanding high priority workstreams)	Undertake local stock assessments to inform Cefas stock assessments and potential future management measures. Include consideration of climate change (water temperature in particular) impacts on the crab and lobster fisheries as part of local stock assessment. Collaboration with Cefas / industry to inform development of alternative assessment methods for lobster. Research and develop biosecurity action plan including potential solutions to known non-native species which could threaten local fishers.

	recently consulted on the prohibition of potting over the biogenic reef feature *sabellaria sp.* reef within the inner Dowsing, Race Bank and North Ridge SAC. Reports have been received of spider crabs being present within edible crab fishing grounds.	Climate change driven changes to the ecosystem risk detrimentally impacting and displacing naturally occurring systems and potentially risk the established fisheries.	resilient to such, potentially mitigating the associated risk.		

Table 3. Shrimps PESTLE analysis

Factor	Analysis	Risk	Existing Mitigation (workstreams)	Risk & RAG	Potential additional mitigation

Political	Ambitious environmental targets set via the 25 Year Environment Plan and Environmental Improvement Plan 2023. Potential for change in emphasis dependant on and as a consequence of the anticipated general election. The East Marine Plan is under review to inform its replacement. The Joint Fisheries Statement did not include reference to shrimp fisheries as requiring a Fisheries Management Plan.	Risk of impactful pre-cautionary management measures for the protection of the environment at the expense of the fishery. Particularly outside of the Wash and North Norfolk Coast SAC where there are limited management measures in place. Marine spatial planning has the potential to contribute to additional marginalisation of fishing activity across sea users and particularly in the Eastern region given the high level of nationally important infrastructure activity (including offshore windfarm development). The UK shrimp fishery is almost exclusively within the Wash and North Norfolk Coast, diminishing the need for a national plan. However, there is the potential that the fishery becomes marginalised from a policy perspective as a result. The risk is particularly high with respect to consideration of the fishery with regards to the Marine Spatial Prioritisation programme and Marine spatial planning generally.	**Effort monitoring within the Wash SAC and North Norfolk Coast including, and permit scheme administration (business critical workstream) –** The Authority manages Shrimp fishing within the Wash & N. Norfolk Coast through a flexible permit byelaw which enables the introduction, variation or revocation of management measures to address the needs of the fishery and the environment and enables adaption in the context of policy change. **Completion of amber/green gear/feature interactions and development / implementation of management measures where required (Ongoing High Priority Workstream) –** Completion of the outstanding assessments within the district will mitigate this risk although could result in additional management measures and restrictions on the fishery. **Advice in relation to risk of conflicts with other marine users (business critical workstream)** – Contribution to the review of the East Marine Plan provides potential for inshore fisheries to be well reflected and given due consideration.	Low	Consider raising profile of shrimp fishery to mitigate marginalisation compared to other fisheries in UK policy including via the marine spatial prioritisation programme.

Economic	Wash brown shrimp is nationally significant, accounting for ~95% of shrimp fished in UK waters. The shrimp fishery supports between 30 and 58 vessels annually although showing a general decline since 2010. Shrimp is processed by three local factories supporting tertiary employment. First sale value of catch was £2.7m in 2023 across 34 vessels. The fishery supports diversification of Wash fishing business models to maintain business continuity where other fisheries perform poorly (particularly cockles). Increased overheads and operating costs were impactful during 2021 to 2023, in particular, fuel and energy costs. The price per kilo of shrimp has shown a gradual increase over time and a significant increase in 2023 (almost twice the average price per kilo). The main fishery is reportedly reliant on retaining the MSC accreditation to provide access to markets. Landings are highly variable year-to-year, depending on shrimp populations and market demand. Shrimp catch represents, on average, circa 45% of annual landed catch of those who target it. There are few other species to target in poor performance years (cockles and whelks primarily).	The relative importance of the fishery to Wash-based industry is significant and poor performance risks significant impacts to livelihood and maintaining the infrastructure to facilitate the fishery (i.e. processors). The natural variability of the fishery and the increased overheads represents a risk to business continuity, particularly in the context of there being very few other available target species locally. Management measures or poor fisheries performance which doesn't enable inshore fishers to diversify into the fishery as needed risks impacting business models, particularly if the Wash cockle fishery performs poorly. Poor fisheries performance could drive non-compliance given economic reliance of most business models, particularly with regards to the Shrimp Effort limitation scheme. Failure to adhere to MSC requirements could result in loss of accredited status, damaging the reputation and economic viability of the fishery.	**Shrimp Fishery Management (MSC accreditation) (business critical workstream)** – The industry led management plan which secured shrimp accreditation from the Marine Stewardship Council includes management of the stocks to reduce the risk of continued poor performance as a result of fishing activity and monitoring and analysis of fishing data which mitigates economic risk to an extent. **Effort monitoring within the Wash SAC and North Norfolk Coast including, and permit scheme administration (business critical workstream)** –The shrimp effort limitation scheme seeks to not limit access to the fishery so as to enable diversification of inshore fishers but is a flexible management mechanism which can be amended to suit the particular needs of the fishery as informed by routine monitoring.	Medium	Economic assessment of shrimp fishery to determine extent of economic reliance and better understand the different business models which rely on access to the shrimp fishery, including outside of The Wash and North Norfolk Coast.

	There is little information about the economic importance of shrimp fishing outside of the Wash and North Norfolk Coast SAC.				

Social	The fishery is, to an extent, self-regulated via the MSC shrimp accreditation, with measures primarily implemented by processors refusing to purchase shrimp from non-compliant vessels. Whilst self-regulation via market control is often seen as preferable to implementing regulation, there is concern from some stakeholders that buyers have significant control of the fishery. A range of business models exist within the Wash shrimp fishery; some are wholly reliant on the fishery, others rely on it very occasionally as something to diversify into if other fisheries perform poorly. Outside of The Wash, the fisheries are very small scale, some operating hand-deployed shrimp trawls. The effort limitation scheme (implemented by Eastern IFCA) also intends to utilise co-management to manage effort within environmental parameters in the first instance. The fishery is of national importance given that it represents circa 95% of UK shrimp landings. Environmental NGOs typically regard any bottom towed gear as a threat to marine habitats. The fishery is of local, cultural importance and historically included a pink shrimp fishery which is no longer present due to market conditions and restrictions on fishing over areas of *Sabellaria* reef,	Where fisheries performance is poor, the self-regulatory system could favour certain business models over others. Additional restrictions, partiualry on access to the fishery, could impact business continuity of stakeholders who rely on shrimp as a fishery to diversify into rather than on a regular basis. As a consequence of the range of business models within the fishery, measures which restrict the fishery are likely to result in uneven impacts across the different business models. Small scale fisheries outside of the Wash and North Norfolk Coast risk being marginalised and impacted by other sea use developments, particularly because they do not typically generate fishing data as a consequence of their small scale.	**Shrimp Fishery Management (MSC accreditation) (business critical workstream)** – Eastern IFCA works collaboratively with the industry led accreditation scheme and isa member of the Shrimp Fisheries Assessment Working Group. Where market failures are detected which inhibit the fishery with respect to the Authority's main duties, management measures (byelaws) may be considered). **Effort monitoring within the Wash SAC and North Norfolk Coast including, and permit scheme administration (business critical workstream)** – Management of shrimp fishing in accordance with the effort limitation scheme will include consultation with wider industry and consideration of impacts across business models to seek to minimise impacts on any one in particular. **Advice in relation to risk of conflicts with other marine users (Business critical)** – Contribution to the review of the East Marine Plan provides potential for inshore fisheries to be well reflected and given due consideration.	Low	Non identified

	further diminishing the species available to inshore fishermen in the area.				
Technological	Inshore Vessel Monitoring Devices have been rolled out nationally and a regulatory requirement to have them fitted and operating is anticipated during the 2024/25 financial year. Alternative fishing gears are known to exists which potentially reduce the extent of the interaction with sensitive habitat but previous attempts to investigate such have been unsuccessful. Fishing vessel life pans vary, but there is a general trend for vessel sizes to increase once replaced.	Potential financial impact if eligible shrimp fishermen have not installed I-VMS via the national roll out grant scheme at the time associated regulation comes into effect. Failure to harmonise reporting rates between I-VMS and VMS+ will limit the benefit of I-VMS generally, as a significant proportion of fishing activity within inshore region is undertaken by vessels larger than 12m and will not have I-VMS. A lack of data presents a significant risk to the continuation of the fishery in The Wash given the highly sensitive habitats and requirement to monitor, to a very high spatial resolutions, fishing activity over these habitats. Gear modification or alternative gear types could reduce the need for effort limitations. Increased vessel size and capacity could increase the impact of the shrimp fleet overall on sensitive habitats.	**Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing Priority workstream) –** The situation with the roll out of I-VMS is being followed and the Authority is working collaboratively with the MMO to facilitate the SI coming into effect. **Effort monitoring within the Wash SAC and North Norfolk Coast including, and permit scheme administration (business critical workstream) –** Monitoring of shrimp fishing effort includes monitoring vessel and gear replacement to mitigate the risk of technological creep increasing the impact (footprint) of the fishery. The byelaw which underpins the effort limitation scheme includes a provision which enables the Authority to harmonise VMS reporting rates as necessary. **Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing Priority workstream) –** continue facilitation on national roll-out of IVMS.	Low	Investigate potential gear modifications or alternative gear types which reduce interaction with sensitive features.

Legal	It is anticipated that I-VMS will become a legal requirement for all vessels less than 12m in length during 2024. Many of the shrimp fishing vessels are greater than 12m in length, and there is uncertainty as to whether the SI to require use of I-VMS will standardise reporting rates for larger vessels who currently operate VMS+. The Shrimp Permit Byelaw 2018 is in effect and has been fully implemented. The Conservation of Habitats and Species Regulations 2017 requires that fishing activity does not detrimentally impact site integrity of MPAs.	Failure to harmonise reporting rates between I-VMS and VMS+ will limit the benefit of I-VMS generally, as a significant proportion of fishing activity within inshore region is undertaken by vessels larger than 12m and will not have I-VMS. A lack of data presents a significant risk to the continuation of the fishery in The Wash given the highly sensitive habitats and requirement to monitor, to a very high spatial resolutions, fishing activity over these habitats. Restrictions which may have economic impacts on the fishery may have to be imposed to prevent impacts to site integrity of associated MPAs.	**Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing Priority workstream) –** The situation with the roll out of I-VMS is being followed and the Authority is working collaboratively with the MMO to facilitate the SI coming into effect. Where the SI does not address harmonisation of reporting rates this can be achieved through the shrimp Permit Byelaw 2018. **Effort monitoring within the Wash SAC and North Norfolk Coast including, and permit scheme administration (business critical workstream) –** the fishery is managed via the Shrimp permit Byelaw and associated effort limitation scheme to ensure compliance with the Habitat Regulations.	Low	None identified

Environmental	Shrimp stocks are highly variable annually but stable over-time and very resilient to long-term impacts of overfishing. Shrimp fishing effort is not managed by Eastern IFCA but is self-regulated via an industry led accreditation Scheme. Shrimp beams (a type of bottom towed gear) interact with the seabed and have the potential to detrimentally impact seabed habitats. The main shrimp fishery operates in a heavily designated MPA (The Wash). VMS+ data provides some awareness of trawling, but limited resolution (1 report every two hours) diminishes its usefulness in monitoring impacts . Reports of recreational beam trawling in Suffolk	Highly resilient stocks supported by harvest control rules (implemented by the industry in relation to the accreditation) presents very low risk to stocks. Interaction between bottom-towed shrimp nets and seabed has potential to damage protected habitats within MPAs, particularly in the Wash Special Area of Conservation (SAC) and cause damage through by-catch. Adequate fisheries data to inform continuous monitoring of the effects of shrimp fishing on the associated MPAs is required to meet the obligations under the habitats Regulations and ensure the integrity of MPAs. Failure to secure this data risks the requirement to adopt a precautionary approach and implement further restrictions the fishery, impacting industry viability. Recreational shrimp fishing using towed gear has the potential to impact the integrity of MPAs. This is of particular risk given that the Shrimp Permit Byelaw 2018 is not applicable to recreational fishing and because the scale of the activity is unknown.	**Shrimp Fishery Management (MSC accreditation) (business critical workstream)** – Eastern IFCA works collaboratively with the industry led accreditation scheme and isa member of the Shrimp Fisheries Assessment Working Group. Where market failures are detected which inhibit the fishery with respect to the Authority's main duties, management measures (byelaws) may be considered. **Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing High Priority workstream) –** The situation with the roll out of I-VMS is being followed and the Authority is working collaboratively with the MMO to facilitate the SI coming into effect. Where the SI does not address harmonisation of reporting rates this can be achieved through the shrimp Permit Byelaw 2018. **Effort monitoring within the Wash SAC and North Norfolk Coast including, and permit scheme administration (business critical workstream) –** the fishery is managed via the Shrimp permit Byelaw and associated effort limitation scheme to ensure compliance with the Habitat Regulations. **Completion of amber/green gear/feature interactions and development / implementation of management measures where required (Ongoing High Priority Workstream) –** Completion of the outstanding assessments within the district will mitigate this risk although could result in additional management measures and restrictions on the fishery, including on recreational fishing activity.	High (on the basis of outstanding High Priorities)	None identified

Table 4. Whelk Fisheries PESTLE analysis

Factor	Analysis	Risk	Existing Mitigation (workstreams)	Risk & RAG	Potential additional mitigation
Political	Ambitious environmental targets set via the 25 Year Environment Plan and Environmental Improvement Plan 2023. Potential for change in emphasis dependant on and as a consequence of the anticipated general election. The East Marine Plan is under review to inform its replacement.	Risk of impactful pre-cautionary management measures for the protection of the environment at the expense of the fishery. Marine spatial planning has the potential to contribute to additional marginalisation of fishing activity across sea users and particularly in the Eastern region given the high level of nationally important infrastructure activity (including offshore windfarm development).	**Advice in relation to risk of conflicts with other marine users (Business critical)** – Contribution to the review of the East Marine Plan provides potential for inshore fisheries to be well reflected and given due consideration. **Completion of amber/green gear/feature interactions and development / implementation of management measures where required (Ongoing High Priority Workstream) –** Completion of the outstanding assessments within the district will mitigate the risk of disproportionate pre-cautionary measures to an extent although could result in additional management measures and restrictions on the fishery. In particular, with respect to use of whelk pots over biogenic reef habitats.	Low	None identified

Economic	Fishery is of high economic importance locally, supporting 32 vessels in 2023, with an average total annual first sale value of £1.6m. Whelks are also processed within the district with tertiary local economic benefits. The fishery in its current form is relatively novel, having previously been a more marginal fishery prosecuted only during winter months. Vessels which target whelk are typically highly reliant on whelk landings as a proportion of their total income (on average, 67%). The Landings per Unit Effort (LPUE) of catch has been reducing, and there are concerns that the data supporting this is masking a greater decline in productivity although reports from whelk fishermen are mixed with regards to the fisheries sustainability. The increased minimum landing size for whelk within the Eastern IFCA district is potentially impacting the viability of the fishery in Suffolk, where it is reported anecdotally that the size of maturity is less than within Norfolk and Lincolnshire. Eastern IFCA has submitted an amendment to the byelaw prohibiting the use of edible crab for bait which would permit the used of cooked offal.	Given the high reliance on the fishery and its contribution to supporting local processing facilities, poor productivity could have significant local economic impacts and the loss of local processing infrastructure. A decline in LPUE will reduce the profitability of catch, (particularly in the context of higher overheads a as result of inflation etc.) and increase the risk of non-compliance with measures (particularly the pot limitation and the minimum size). A disproportionately high minimum size for whelk potentially limits the local inshore fleet from diversifying into the fishery and detrimentally impacts business continuity and reduces resilience of associated business models. Use of cooked edible crab offal as bait will potentially reduce bait costs and increase catches, potentially increasing LPUE.	**Development of measures to address the sustainability of whelk stocks (Business critical workstream)** – whelk fisheries are monitored routinely to inform the need for management measures which can be implemented via the Whelk Permit Byelaw 2016. The management mechanism enables flexible management measures to meet the needs of the fishery and mitigates the risk associated with impacts arising from declines in stocks. However, in lieu of an effective stock survey, the monitoring relies primarily on monitoring LPUE which can cause a lag between identifying an issue and the stocks having been over fished. The above workstreams includes investigation into the size of maturity of whelks to determine its appropriateness.	Medium	Consider alternative methods for monitoring whelk stocks Seek out opportunities to identify and promote markets for other available species (e.g. herring) within the district to reduce reliance on key species.

Social	Non-compliance within the whelk fishery is one of the key concerns of industry. Mixed views on the sustainability of the whelk fishery from the perspective of industry. Concerns raised about the minimum size for whelk and the impact on fishers in Suffolk. Conflict between fishermen, particularly over whelk fishing grounds and in relation to disturbing fishing gear.	Compliant fishers may become dissatisfied if they perceive non-compliance to go undetected and without recourse. Increases likelihood of conflict and non-compliance. Inability to reassure stakeholders that the fishery is sustainable risks disenfranchising stakeholders, reducing buy-in to existing measures and increasing the likelihood of impacts from non-compliance. Conflict between stakeholders increases the likelihood of economic impacts (lost gear, lost fishing grounds etc,) and reduces likelihood of collaborate approach to managing fisheries. Increases tendency towards market failures and increased likelihood of impacts on fisheries sustainability.	**Development of measures to address the sustainability of whelk stocks (Business critical workstream)** – whelk fisheries are monitored routinely although the outputs rom monitoring are not routinely published. Publishing outputs may increase stakeholder confidence in the measures and the compliance activities which support them.	Medium	Engagement plan to include whelk fishery component.
Technological	Inshore Vessel Monitoring Devices have been rolled out nationally and a regulatory requirement to have them fitted and operating is anticipated during the 2024/25 financial year. Engagement has identified that rotary riddles are now being deployed within the fishery.	Potential financial impact if eligible fishermen have not installed I-VMS via the national roll out grant scheme at the time associated regulation comes into effect. The use of rotary riddles presents a risk primarily because of conflicting evidence regarding the potential impact of their use, with some evidence to suggest they increase mortality of bycatch conflicting with evidence that they are beneficial overall. The level of risk is mitigated at this time by the low level of adoption of the technology, with only one vessel thought to be using it at this time.	**Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing Priority workstream) –** The situation with the roll out of I-VMS is being followed and the Authority is working collaboratively with the MMO to facilitate the SI coming into effect.	Medium	Investigate the potential for rotary riddles to impact the whelk fishery.

Legal	Defra have published a Whelk FMP which will potentially result in novel management regimes to manage whelks at a national level. It is anticipated that I-VMS will become a legal requirement for all vessels less than 12m in length during 2024. A minority of the whelk fishing vessels are greater than 12m in length, and there is uncertainty as to whether the SI to require use of I-VMS will standardise reporting rates for larger vessels who currently operate VMS+. The Conservation of Habitats and Species Regulations 2017 requires that fishing activity does not detrimentally impact site integrity of MPAs. Whelk permit conditions are due for review in 2024. Increased levels of non-compliance detected.	Whelk stocks are thought to be highly localised and benefit from a regional / local level of management. National level management risks causing unintended economic or environmental impacts if management is harmonised without considering the local context. Failure to harmonise reporting rates between I-VMS and VMS+ will limit the benefit of I-VMS generally, although to associated risk with respect to the whelk fishery is limited compared to shrimp (for example) as most vessels will be covered by I-VMS. Potting is not currently considered likely to impact *Sabellaria* features within MPAs, however, recent MMO assessments have concluded the potential for impacts and which may necessitate management within the district, particularly in the context of the target to remove all damaging activities from MPAs by end of 2024. Non-compliance with permit conditions risks impacting the sustainability of the fisheries and impacting the environment.	**Development of measures to address the sustainability of whelk stocks (Business critical workstream)** – Whelk fishery permit conditions are to be reviewed during 2024 and the recent concerns regarding sustainability and non-compliance lend themselves towards considering additional measures. **Fisheries management Plans (Ongoing high priority workstream)** – Eastern IFCA is contributing to the development and implementation of FMPs and has the opportunity to inform the potential for impacts and benefits arising from the plans. This may include implementing addition regulatory measures to meet the aims of the FMP. **Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing high priority workstream) –** Consider standardising the reporting rates for VMS units (using Whelk permit Byelaw)	High	**Whelk permit conditions review**

Environmental	Stakeholder concerns have been raised regarding stock sustainability, and recent monitoring indicates that the stocks may be declining. The confidence in catch return data is reduced however due to suspected non-compliance and overall landings are showing a general increase. Potting fisheries may impact biogenic reef features within MPAs although no such assessment has been undertaken within the district as of yet. Reports of the whelk fishing season starting later in the year, potentially due to unseasonably high water temperatures.	Whelks are particularly sensitive to over-fishing being slow growing and of low mobility – stock replenishment can be slow and has historically resulted in a 'boom and bust' fishery, prior to the introduction of management measures to control effort. Stock collapse would have large scale impacts on fishing livelihoods and the associated tertiary employment (lorry drivers, processors, bait providers etc.). Impacts on biogenic reef can have dipropionate large impacts on general biodiversity and the integrity of associated MPAs. The potential impacts of climate change are generally unknown with regards to whelks.	**Development of measures to address the sustainability of whelk stocks (Business critical workstream)** – Whelk fishery permit conditions are to be reviewed during 2024 and the recent concerns regarding sustainability and non-compliance lend themselves towards considering additional measures. This may include spatial closures over areas of *Sabellaria* reef.	High	**Whelk permit conditions review**

Table 5. Key Finfish Fisheries (Herring, Sole, Thornback, Bass, Plaice, Whiting, Smoothound, Cod, Sprat) PESTLE analysis					
Factor	**Analysis**	**Risk**	**Existing Mitigation (workstreams)**	**Risk & RAG**	**Potential additional mitigation**
Political	Ambitious environmental targets set via the 25 Year Environment Plan and Environmental Improvement Plan 2023. Potential for change in emphasis dependant on and as a consequence of the anticipated general election. The East Marine Plan is under review to inform its replacement.	Risk of impactful pre-cautionary management measures for the protection of the environment at the expense of the fishery. Marine spatial planning has the potential to contribute to additional marginalisation of fishing activity across sea users and particularly in the Eastern region given the high level of nationally important infrastructure activity (including offshore windfarm development) and the low economic value (first sale value) of this group in particular.	**Advice in relation to risk of conflicts with other marine users (Business critical)** – Contribution to the review of the East Marine Plan provides potential for inshore fisheries to be well reflected and given due consideration. This will include consideration of economic & wider benefits of the associated fisheries not captured by economic fisheries data presently and contribution to the review and development of a replacement East Marine Plan. **Completion of amber/green gear/feature interactions and development / implementation of management measures where required (Ongoing High Priority Workstream) –** Completion of the outstanding assessments within the district will mitigate the risk of disproportionate pre-cautionary measures to an extent although could result in additional management measures and restrictions on the fishery. In particular, with respect to use of whelk pots over biogenic reef habitats.	Low	Explore options to better reflect the 'value' (economic, societal etc.) of fin-fish fisheries, including RSA within the district.

Economic	The value of landed catch shows a marginal downward trend since 2010 (primarily as a consequence of a sharp decline between 2010 and 2014) although a year on year increase in 2023 of nearly 20% driven primarily by increased landed weight. Fishing data relating to this group potentially under-represents the actual landing and economic value given that many operators are small scale and sell directly to the public and do not therefore generate economic fisheries data. Conversely, it may also represent some larger scale fishing operations occurring offshore which are not relevant to the district. As such there are noted limitations to this dataset and the outputs for this part of the assessment. Key finfish species price per kilo typically fluctuates seasonally but generally show an upward trend over time and a partiualry strong increase during 2023. In Suffolk particularly, these fisheries also contribute to the sense of place and is of cultural importance, likely generating economic benefits (e.g. from tourism) as a result although these are poorly understood. Herring catch showed a significant (10 fold) increase in price per kilo during 2023 and it is likely that the North Sea herring quota will increase in 2024. This is thought to be as a consequence of a secondary, higher value market having been identified which is relevant only to a small proportion of the catch. The species within this group also represent important Recreational fisheries (particularly	The general downward trend in vessels operating in the fishery and catch indicates that the fisheries may generally be in decline, however the reasons for this are not well understood. Limited economic understanding of the fishery presents a risks that future management may have unintended consequences. Increased value of herring catch could lead to sudden increases in effort and potentially increases risk of non-compliance with fisheries legislation.	**Compliance monitoring and engagement in accordance with the Compliance Risk Register and TCG (business critical workstream)** – Compliance activities reduces the risk of non-compliance through monitoring to inform targeted enforcement action and engagement with industry to ensure buy-in with management measures. **Engagement and education with RSAs (business critical workstream)** – compliance activities and management with RSA inform the general understanding of the fisheries and mitigate the associated risk to an extent in combination with national RSA studies (e.g. the 'Sea Angling' projects including the 2012 and 2021 reports). **Fisheries management Plans (ongoing high priority workstream) –** given that all the associated species feature in a current or future FMP (as listed within the Joint Fisheries Statement), risks associated with the fisheries generally can be mitigated against through collaboration on the development of associated FMPs.	Medium	Detailed analysis of fin-fish fisheries and report on reasons for general decline. Explore options to better reflect the 'value' (economic, societal etc.) of fin-fish fisheries within the district. Explore potential for increasing the value of local catch. Undertake a more detailed economic assessment of these fisheries.

	Bass) although the extent of the activities and the contribution to the economy are not well understood at a local scale.				

Social	Whilst the finfish fisheries are of lower total economic value compared to other key fisheries, they support on average more vessels (67 on average annually since 2010) and business models can be highly dependent on relatively low catches of high value species (particularly Sole and bass). The number of vessels operating in this fishery shows a strong downward trend. In Suffolk particularly, the local fishing industry is also thought to contribute to the sense of place and is of cultural importance. Environmental NGOs typically regard any bottom towed gear as a threat to marine habitats – use of demersal otter trawls represent circa 22% of the catch associated with this fishery, albeit by 6 vessels on average. RSA contributes to the well-being of those involved and the sense of place, particularly around rivers and estuaries. Message form analysis identified some concerns that RSA's contribution in this way is not fully recognised. The national Sea Angling Strategy 2019-2024 sets out the following headline aims: increasing participation in angling, connecting more people with nature through angling for their well-being and to improve the environment, and increase the economic impact of angling and in particular deliver economic benefits in rural and coastal communities and revenue to clubs, fisheries and businesses.	Relatively economically small fisheries risk becoming marginalised in policy and national management with the potential for detrimental impacts on a high number of business models reliant on the small-scale fisheries. Disproportionality negative characterisation of fin-fish fisheries in the context of using bottom-towed-gear and partially in the context that associated Habitat regulation assessments have yet to be completed. Increased participation in RSA activity has potential benefits for environmental protection, well-being and contribution to local economies, particularly in coastal communities. Increased RSA activity also increases the need for engagement activity to promote compliance with byelaws.	**Fisheries management Plans (ongoing high priority workstream) –** given that all the associated species feature in a current or future FMP (as listed within the Joint Fisheries Statement), risks associated with the fisheries generally can be mitigated against through collaboration on the development of associated FMPs and in particular, by ensuring that the business models which operate in this fishery are recognised therein. **Completion of amber/green gear/feature interactions and development / implementation of management measures where required (Ongoing High Priority Workstream)** – Completion of the outstanding assessments within the district will mitigate the risk of disproportionately negative perceptions about bottom-towed fishing gear. **Compliance monitoring and engagement in accordance with the Compliance Risk Register and TCG (business critical workstream)** – Compliance activities reduces the risk of non-compliance through monitoring to inform targeted enforcement action and engagement with industry to ensure buy-in with management measures.	Medium	Explore options to better understand the local 'value' (economic, societal etc.) of fin-fish fisheries, including RSA within the district. Explore ways to contribution to delivery of the National Angling Strategy 2019-2024. Consider development of an Eastern IFCA RSA strategy if benefits can be identified beyond that provided in other areas (e.g. gathering better data about stocks in rivers)

Technological	Inshore Vessel Monitoring Devices have been rolled out nationally and a regulatory requirement to have them fitted and operating is anticipated during the 2024/25 financial year.	Potential financial impact if eligible fishermen have not installed I-VMS via the national roll out grant scheme at the time associated regulation comes into effect.	Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing Priority workstream) – The situation with the roll out of I-VMS is being followed and the Authority is working collaboratively with the MMO to facilitate the SI coming into effect.	Low	None identified

Legal	The fisheries are regulated nationally including through technical conservation measures and TACs and quota legislation, with limited IFCA management. All species are to be considered via an FMP. Bass FMP has been published. The Conservation of Habitats and Species Regulations 2017 requires that fishing activity does not detrimentally impact site integrity of MPAs. It is anticipated that I-VMS will become a legal requirement for all vessels less than 12m in length during 2024. There is uncertainty whether the reporting rates of VMS will be harmonised across the different types within the inshore region this year. Mesh size requirements for sprat fishing are considered to be impacting the viability of the fishery.	Small-scale, artisanal fisheries risk being marginalised at a EU / national level when considering management measures. The bass FMP is unlikely to result in changes to management in the short-term with more exploratory actions set out for the immediate future. Failure to contribute to the implementation of the plan risks a lack of representation from the small-scale fisheries within the district and potentially impactful outputs as a result. There is a legal requirement that fishing activities must not detrimentally impact the conservation objectives of MPAs. Application of the precautionary principle with regard to low evidence fisheries potentially risks disproportionate detrimental impacts (costs) to small-scale fishing operations. Failure to harmonise reporting rates between I-VMS and VMS+ will limit the benefit of I-VMS generally, particularly with respect to managing mobile gear within MPAs (potential to led to disproportionately impactful pre-cautionary measures). Sprat landings have increased, potentially as a reflection of the performance of the fishery although there is limited understanding of this fishery within the district given its small scale. If there is the potential for a viable fishery, this could present an additional species for inshore fishers to diversify into and dipropionate prohibitive mesh sizes	**Fisheries management Plans (ongoing high priority workstream)** – Eastern IFCA is contributing to the development and implementation of FMPs and has the opportunity to inform the potential for impacts and benefits arising from the plans. This may include implementing addition regulatory measures to meet the aims of the FMP and facilitation of evidence gathering to ensure that the local / regional bass fisheries are taken into account. The Sprat FMP is also in development which will mitigate associated risk. **Completion of amber/green gear/feature interactions and development / implementation of management measures where required (Ongoing High Priority Workstream)** – Completion of the outstanding assessments within the district will mitigate the risk to an extent (dependant on available data) of disproportionate pre-cautionary measures to an extent although could result in additional management measures and restrictions on the fishery. **Implementation of I-VMS for all fisheries specifically the Wash Shrimp fishery (dependent on partnership working with MMO led project) (Ongoing Priority workstream**) – Consider standardising the reporting rates for VMS units (using a new byelaw).	High (on the basis of outstanding High Priority Workstreams)	None identified

		presents a risk to the associated fishing opportunities.			

Environmental	The majority of catch is taken using midwater otter trawls (49%) and demersal otter trawls (22%). However, the vast majority of vessels operate in the fishery using nets (gill nets, drift nets) and longlines, with only 6 vessels on average deploying bottom towed otter trawls. In general, the gear deployed in these fisheries have limited impact on habitats, with the exception of bottom-towed otter trawls. Thornback ray have shown a strong declining trend in landed weight since 2010, with only 7 tonnes reported as having been landed in 2023, down from 41 tonnes in 2014. Herring, cod and smoothound landings increased significantly in 2023. Use of rivers as nursery areas in the District is not well understood, particularly bass which are likely to now use some rivers and estuaries as nursery areas as the population appears to have shifted north following the northward progression of the thermocline, presumably as a consequence of climate change.	Bottom-towed-gear has the potential to impact habitats within designated MPAs and impact biodiversity generally. Nets and long-lines have higher potential for bycatch including of bird species. Assessments to determine the level of impact are not complete. Failure to undertake assessments and implement management measures during 2024 risks the fishery not meeting Environmental Improvement plan targets. Sudden increases in in landed weight of herring, cod and smoothound indicate greater availability (particularly for cod) and better market conditions which may lead to further increases in effort and risks to sustainability of the fisheries. Potential for commercial and non-commercial netting activity to impact marine mammal populations through by catch (particularly in the Southern North Sea SAC) and impact stocks of species which use rivers (e.g. bass nursery areas) – netting activity in rivers has the potential to have a disproportionately negative impact on wider fish stocks.	**Completion of amber/green gear/feature interactions and development / implementation of management measures where required (Ongoing High Priority Workstream) –** Completion of the outstanding assessments and implementation of relevant management measures within the district will mitigate the risk for impacts on the environment. **Fisheries management Plans (ongoing high priority workstream) –** given that all the associated species feature in a current or future FMP (as listed within the Joint Fisheries Statement), risks associated with the fisheries generally can be mitigated against through collaboration on the development of associated FMPs. This includes in relation to bass nursery areas in rivers for which there are specific actions.	High on the basis of outstanding High Priority Workstreams)	Develop relationships with RSA to obtain more fisheries data, including consideration of the added value of developing an RSA strategy.