Strategic Assessment

2018-19

Executive summary

An annual assessment of Eastern IFCA fisheries is undertaken each year. The Strategic Assessment is used to identify the highest risk elements of all the fisheries in the district, including fisheries sustainability, viability and environmental impacts.

The Strategic Assessment draws on a data driven analysis (the initial assessment) and contextual knowledge of officers (the contextual assessment) to objectively identify potential work-streams and assign a priority based on the risk. This is used to inform the annual priorities set out in the rolling five-year Business Plan.

The 2017-18 Strategic Assessment included three new criteria to the data driven, initial assessment; i) presence or absence of spawning and nursery areas, ii) EIFCA landings in a UK context and iii) fisheries trends. No further criteria were added for 2018-19.

The initial assessment indicated similar risk scores as were found in the previous assessment. This reflects that work in relation to these priorities is still underway and that risk associated with these work-streams is still of priority. These include delivery of management in MPAs (including 'red-risk' features, 'Amber and Green' features and in particular shrimp management in the Wash and North Norfolk Coast SAC and within the Cromer Shoal MCZ), delivery of fisheries sustainability in the crustacean and shrimp fisheries, biosecurity planning and a review of the Wash Fishery order 1992.

Potential works are considered as an output of the initial and contextual assessments. An addition category of work has been added to the 2018-19 Strategic Assessment – 'viable industry'. This reflects Eastern IFCA's role in assisting the industry in developing to meet the demands of contemporary fisheries and issues. All high priorities roll over from 2017-18, these relate to management of fisheries in Marine Protected Areas including the development of Monitoring and Control Plans which follow from the 'Amber and green' assessments. Investigation into mussel die-off in The Wash was also identified as a high priority. The outputs of the 2018-19 Strategic Assessment also include the identification of established work-streams which contribute to maintaining a lower risk in certain fisheries. These are highlighted to inform decisions related to resource allocation. In addition, future priorities are indicated which may reflect longer-term risk. Where value can be added to existing work-streams or partnership working, the work-streams identified in the high and lesser priorities are considered.

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1.0 Introduction

1.1 Requirement for a strategic assessment

The inshore fishing sector is varied and dynamic with many different fisheries targeting a range of species using a spectrum of fishing gears. The inshore environment is also varied; the Eastern IFCA district hosts an array of marine protected areas (MPAs); it contains important spawning and nursery grounds for a variety of species and supports a wide range of industries in addition to the fishing sector. Effective fisheries regulation requires more than simple stock management – it needs a holistic approach encompassing environmental, social and economic issues.

IFCAs strive to maintain an effective regulatory framework capable of ensuring sustainable fisheries, healthy seas and a viable industry. This Strategic Assessment is conducted to identify fisheries related issues using a risk-based approach. The focus is on commercial fisheries, although recreational fishing activity is recognised for its importance in the district and issues relating to recreational fisheries have been incorporated into the assessment. Best available evidence is used to prioritise fisheries and environmental features which may require management measures and regulations which need further development.

The inshore fishing sector is relatively data-limited – the under-ten metre fishing vessels, which make up the majority of the inshore fleet, are exempt from completing log books and carrying vessel monitoring systems. In addition, unforeseen issues or events often occur outside of the annual planning cycle which cannot be accounted for in preparation. As such, this assessment is intended to be a live, dynamic document which may be reviewed and reissued in accordance with the best available evidence and with changing social and political drivers.

The Strategic Assessment provides an annual opportunity to identify any emerging issues and to assign priority to identified work streams. In the context of finite resources, this is required to ensure effective planning and delivery of associated tasks. This assessment informs the 5-year business plan and the Compliance Risk Register.

1.2 Approach

Fisheries were identified within Eastern IFCA's district using Marine Management Organisation (MMO) landings data. Each species landed was assessed in relation to criteria as set out below.

Evidence base – an assessment of the available evidence for each species in relation to fishing effort, landings, stock health and presence of spawning and nursery areas. This links to issue 1 of the Community Voice Method (CVM) project: Need better information guiding management.

Current Regulation – assesses species based on measures currently in place in relation to protection of pre-spawning individuals, gear management or specification

and effort restrictions. This links to issue 2 in CVM: Need fair and effective regulation monitoring and enforcement.

Ecosystem impacts – assessment considers the potential ecosystem level impacts of the main gears associated with each species (e.g. by-catch, habitat damage) and the presence or absence of spawning and nursery areas of each species. This links to issue 5 in CVM: Need to improve understanding of the environment.

Fisheries performance – considers the landed weight and value of catch from within the Eastern IFCA district, any detectable trends in landed catch, landings from within the district as a proportion of the UK total and available ICES advice. This links to issue 3 in CVM: Need to ensure fishing sustainability and viability.

Each species is provided a relative 'risk' rank for each criterion. These scores are considered separately and as part of a fisheries group to identify any key issues within the fisheries. Species are grouped into broad fisheries based on similarities in biology and fishing methods. A more detailed methodology and outputs from the data driven assessment are presented in Appendix 1.

A wider assessment is then undertaken, taking into account the scores generated by the initial assessment, and wider contextual drivers and other obligations (see sections 1.2.2 and 1.2.3 below). This includes a consideration of the presence of fisheries within Marine Protected Areas (MPA), which has a significant effect on prioritisation.

1.2.2 Priorities in the context of other drivers and additional criteria

The initial assessment provides an indication of the risk posed by the fishing activities on a limited number of criteria. To more fully explore the risk associated with each fishery, additional criteria are applied where the data is available for a fishery and other contextual issues are explored. Below is an explanation of the additional factors and contextual issues which are also taken into consideration.

Spawning and nursery grounds – Inshore fisheries tend to be small scale (vessels mostly under 10 metres) making up the majority of the UK fishing fleet with only a fraction of the landings. However, where spawning or nursery grounds occur (as is often the case for inshore areas), even small-scale fishing activities can have a disproportionate effect on the wider stock dynamics of a species. The assumption is that there is a greater risk to fisheries sustainability and wider ecosystem impacts where fishing effort overlaps spatially with spawning or nursery grounds.

The primary sources of spawning and nursery ground evidence is found within Ellis *et al* 2010[1] and 2012[2] and an Eastern IFCA research report on the composition of commercial catches (2014)[3].

Fisheries trends – MMO data has been used to assess whether a trend can be observed from landings data for the period 2010-2016 (inclusive). A strong positive or negative trend is associated with a higher risk and a greater priority which is considered in the context of mean annual landed weight to give a sense of proportion.

Recreational activity – Data on recreational activity is limited for most species. The outputs of the Angling 2012 project have been used to judge important recreational species. Recreational landings are not included in MMO landings figures however recreational landings are thought to contribute a significant amount of fishing mortality to certain species. Furthermore, recreational fishing plays an important economic role within the district although this is not reflected in the MMO landings figures.

The primary source of recreational angling evidence is found within Armstrong *et al*. 2013[4].

Gear related impacts – Fishing activity has impacts beyond the effects on the targeted species. By-catch and damage to habits for example varies from gear to gear with some gears known to have greater 'ecosystem' level impacts than others.

Eastern IFCA is nearing the end of a project to assess the impacts of all commercial fisheries in European Marine Sites (a type of MPA) within the district. This assessment will determine where fishing activity may be having a detrimental effect on features associated with protected areas and consequently where management measures are required. The intention of this assessment is to ensure that fishing activities are not having an adverse effect on the integrity of the MPAs.

In addition, new MPAs have been or are in the process of being designated (such as the Greater Wash Special Protection Area). Fishing activity within these sites will also require assessment to determine the potential for adverse effects.

Protection of MPAs from the detrimental impacts of fishing activity is a fundamental obligation of Eastern IFCA outlined in the Marine and Coastal Access Act (2009),

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

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

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

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

which is to be achieved above all other main duties[5] and as such, is afforded the highest priority.

Ecosystem functioning – Where Eastern IFCA is considering management measures, wider ecosystem level impacts are considered. Protection of seabed habitats are likely to result in higher levels of fisheries productivity and a greater resilience to climate change, other anthropogenic impacts and natural occurring events (such as storms etc.). Bycatch is also considered under this heading.

General biology – General population dynamics are known for most commercially important species. Aspects of the general biology (for example age at sexual maturity) are also taken into account as an indicator of sustainability.

Political/social context – In addition to prioritising fisheries by risk, there are also political and social drivers for change, for example Defra's revised approach to fisheries management, landings obligations and the national implementation of Bass Nursery Areas. In some cases, the requirement to act through these drivers outweighs other perceived risks to fisheries.

OSPAR requirements - Consideration has been given to obligations under the Oslo / Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), how proposed Eastern IFCA work streams fit into these and any gaps which could lead to potential work in the future. This consideration has been based on species and habitats listed within "List of Threatened and/or Declining Species & Habitats" within OSPAR Region 2, Greater North Sea.

Requirements on Eastern IFCA are identified in Appendix 2 ("Summary of Eastern IFCA commitments and planned actions under OSPAR").

In summary, it is evident that the existing approaches and activities of Eastern IFCA in general satisfy obligations under OSPAR, and that additional requirements are limited to informing relevant authorities should we become aware of the presence of certain, generally very rare, species or habitats.

1.2.3 Fisheries management in MPAs

The majority of the Eastern IFCA district is protected by marine protected area designations (Table 1). These sites contain a range of species and habitat features that require protection. IFCAs have a duty to ensure fisheries are managed in accordance with MPA conservation objectives. An on-going work-stream to assess the impacts of commercial fishing activities within MPAs has delivered a better understanding of where management is required. Assessments account for the current levels of fishing activity but these will potentially change over time.

Eastern IFCA routinely collects data to monitor fishing activity and compliance within managed areas. However, additional work is required to demonstrate Eastern IFCA's responsive monitoring and management of fisheries in MPAs. Following the

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

completion of fisheries assessments in MPAs, plans will be developed to show how Eastern IFCA will monitor and respond to changes in fishing activity, which could lead to significant impacts on MPAs.

The protection of MPAs from potentially damaging fishing activities is a key role and obligation of Eastern IFCA's work. This is factored in to the additional assessment for each fishery (Section 2.1).

Table 1 (below) shows marine protected areas within the district and indicates the key fisheries management issues for each site and the priority associated with the development of Monitoring and control plans.

Table 1. MPAs within Eastern IFCA's district.

Site name	**Key issues for fisheries management**	**Priority (MCP)**
Humber Estuary Special Protection Area (SPA) *and* Humber Estuary Special Area of Conservation (SAC)	North-Eastern IFCA leading assessment of these two sites. Management measures in place for the protection of eelgrass (Eastern IFCA Marine Protected Areas Byelaw 2016). Other features have been provisionally assessed and no adverse effects determined at current levels of activity. Potential cockle fisheries (Horse Shoe Point) will have to take account of bird food dynamics and disturbance.	n/a (likely to be led by other IFCA – dialogue ongoing).
Gibraltar Point SPA	Has been provisionally assessed; no adverse effects determined at current levels of activity.	9
The Wash and North Norfolk Coast SAC	Fishing activity assessments are on-going. Annual cockle and mussel fisheries managed under the Wash Fishery Order are assessed and managed in accordance with the site's conservation objectives. Management measures in place for the protection from bottom towed gear of *Sabellaria* reef (Marine Protected Areas byelaw 2016: Area A to I), sub-tidal stony reef communities (Area J) in The Wash and eelgrass on the North Norfolk Coast (Areas SH, EH, SF, BP, BC). Management measures are required in relation to bottom towed gears (primarily shrimp fishing) on sensitive habitats (to be determined via ongoing assessment). Management measures are also potentially required for the protection of *Sabellaria* reef and sub-tidal stony	1

	reef communities from damaging levels of pot fishing activity.	
The Wash SPA	Annual cockle and mussel fisheries managed under the Wash Fishery Order are assessed and managed in accordance with the site's conservation objectives. Other, non-Wash Fishery Order fisheries has been provisionally assessed and no adverse effects determined at current levels of activity.	1
North Norfolk Coast SPA	Has been provisionally assessed and no adverse effect determined at current levels of activity.	1
Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ)	The site was designated in January 2016 – assessments are required to determine if fishing activity could have an impact on the designated features. Any management measures will be developed through dialogue with stakeholders.	6
Breydon Water SPA	Has been provisionally assessed; no adverse effects determined at current levels of activity.	7
Alde, Ore & Butley Estuaries SAC	Has been provisionally assessed; no adverse effects determined at current levels of activity.	5
Alde & Ore Estuaries SPA	Has been provisionally assessed; no adverse effects determined at current levels of activity.	5
Orfordness to Shingle Street SAC	Has been provisionally assessed; no adverse effects determined at current levels of activity.	9
Deben Estuary SPA	Has been provisionally assessed; no adverse effects determined at current levels of activity.	8
Stour and Orwell Estuaries SPA	Bait digging highlighted as potential cause of disturbance to over-wintering birds. Voluntary code of conduct in place which limits bait digging activity to less sensitive areas during winter. Eastern IFCA monitor compliance. Natural England lead on management of the bait digging activity at this site.	4
Inner Dowsing, Race Bank & North Ridge Site of Community Importance (SCI)	Eastern IFCA to manage the 0-6nm part of this site, which extends beyond 12mn offshore. *Sabellaria* reef requires protection from towed demersal gear; Eastern IFCA to implement regulation for this purpose. Other fishing impacts (including potting) to be assessed.	2
Haisborough, Hammond & Winterton SCI	Eastern IFCA to manage the 0-6nm part of this site, which extends beyond 12mn offshore. *Sabellaria* reef requires protection from towed demersal gear; Eastern IFCA to implement regulation for this purpose. Other fishing impacts (including potting) to be assessed.	3

Outer Thames Estuary SPA	MMO undertook assessment of this site, which extends from the coast to beyond 12nm. No adverse effects identified at current levels of activity.	n/a (leadership dialogue ongoing)

Recent Designations include:

- Greater Wash pSPA
- Outer Thames estuary extension pSPA
- Harbour Porpoise pSAC (Southern North Sea)

Each of these new/extended MPAs will require fisheries assessment and management should adverse effects be identified.

The rationale for prioritisation of Monitoring & Control Plans (MCPs) for MPAs within Eastern IFCA's district is set out below.

Priority 1 - The Wash and North Norfolk Coast SAC, The Wash SPA, North Norfolk Coast SPA

Production of one integrated MCP for these overlapping and / or contiguous sites is indicated in order to produce a Plan which is easily comprehensible to both stakeholders and managers. The area is large, with several designated features including Red Risks, and there are appreciable levels of fishing activity of several types, including metiers which are not compatible with the Red Risk features. These factors combine to place these sites at the top of the priority list.

Priority 2 - Inner Dowsing, Race Bank & North Ridge SCI

The area includes Red Risk features (*Sabellaria* reef); managing these will require controls on the use of bottom towed gear - shrimp beam trawling is known to occur within the site.

Priority 3 - Haisborough, Hammond & Winterton SCI

The area includes Red Risk features (*Sabellaria* reef); managing these will require controls on the use of bottom towed gear. Best available current evidence suggests that such fishing activity is at a very low level within the site. Levels of potting activity are also thought to be low. Therefore, the MCP for this site is likely to require monitoring of activity, and of compliance with closed areas, rather than any more interventionist management.

Priority 4 - Stour and Orwell Estuaries SPA

This is a relatively large area, with appreciable levels of activities which may potentially impact on the features – the most immediately apparent being bait digging. This issue is one which recurs, and indicates that a management approach should be developed.

Priority 5 - Alde, Ore & Butley Estuaries SAC, Alde & Ore Estuaries SPA

Production of one integrated MCP for these overlapping sites is indicated in order to produce a Plan which is easily comprehensible to both stakeholders and managers. Provisional assessment has indicated no adverse effects at current levels of activity, leading to a low level of priority.

Priority 6 - Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ)

As the site was designated in January 2016, all management assessments and activities are less advanced than for SACs and SPAs. The site features are closely linked with a major fishery within the EIFCA district (crustacean potting), and one which has come out as a high priority in this current Strategic Assessment. These factors place the site at a relatively high priority. Consideration will be given to the inclusion of this site with the MCP for the spatially contiguous Priority 1 sites, either at the production of that MCP, or at as early a stage as practicable.

Priority 7 - Breydon Water SPA
Priority 8 - Deben Estuary SPA
Priority 9 - Gibraltar Point SPA

These are relatively small sites, where there are thought to be low levels of activity which could impact on the designated features. This is borne out by the fact that for each site, provisional assessment has indicated no adverse effects at current levels of activity. At this level of priority, there is considerable flexibility to change the order of priority and production of MCPs, in response to specific concerns should they arise. It is likely that a bespoke MCP will be produced for each site, as they do not naturally align with any other MPAs in terms of location.

Sites for which it is proposed Eastern IFCA do not produce Monitoring & Control Plans.

Humber Estuary Special Protection Area (SPA) *and* Humber Estuary Special Area of Conservation (SAC)

North Eastern IFCA have taken the role of developing a MCP for this site, we will communicate with NEIFCA when they have developed a draft, in order that we are informed as to the developments. However, NEIFCA will continue to lead on this site.

Outer Thames Estuary SPA

As the MMO have taken the lead in assessing this site, and work to date has indicated no adverse effects at current levels of activity.

2. Results

Outputs from the data driven ‘initial assessment’ and subsequent consideration of contextual drivers (including fisheries management in MPA) are set out in the tables below. Each fishery is given an overall risk rating (low, medium or high) and each assessment criteria category is also given a risk rating. Key species within each group are identified to ensure that group averages do not dilute the potential issues associated with a single species.

Potential work streams are then considered in relation to various outputs (e.g. additional data acquisition etc.); this is given a priority rank which draws on both the data driven initial assessment and contextual drivers.

Potential new work streams which are considered of a high priority are considered further in section 2.2. The assessment also identifies where risk of sustainability issues is being effectively mitigated by established works streams which have become ‘business as usual’. These are set out in section 2.3 and are an important consideration when considering what additional work streams can be undertaken within the finite resources of the Authority.

Lesser risk work streams are considered in section 2.4 with a view to identify potential future needs, beyond the 2018/19 financial year.

2.1 Fisheries Assessment

Group: Bivalve Molluscs	**Key Species: Cockles, Mussels**	**Overall risk: Medium**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Low**	Initial assessment Rank: **Low**	Initial assessment Rank: High	Initial assessment Rank: **High**
Contextual Rank: **Low**	Contextual Rank: **Medium**	Contextual Rank: **High**	Contextual Rank: **High**
The key species within this group are low risk with regards to available evidence, the other species which make up the group are marginal fisheries. Due to Eastern IFCA regulations prohibiting the use of fishing gear without authorisation, Eastern IFCA generally has a good evidence base. That said, the evidence base associated with levels of effort in hand gathering bivalve fisheries outside of The Wash (particularly recreationally) is poor.	The dominant bivalve mollusc fisheries have a significant level of regulation in place (the Wash Fishery Order 1992) and IFCA byelaws are in place for outside of the Wash, as such, the assessment scores the group as a low risk. However, Eastern IFCA byelaws relating to bivalves are yet to be reviewed (since being inherited from ESFJC) and management of fisheries outside of The Wash will be hindered by the archaic wording of these (particularly Horseshoe Point (Lincolnshire) and potentially Suffolk rivers. The Wash Fishery Order 1992 is currently undergoing a review, work relating to which	Molluscs dredges (bottom towed gear) are associated with this fishery which have a high ecosystem impact rating. A suction dredge fishery is the highest risk fishery. In addition, fishing activity occurs within spawning grounds although, this is less relevant in terms of the biology of this group. The dominant fishery is by hand-working (low impact) and this is managed, along with the use of bottom-towed-gears through Eastern IFCA byelaws and the Wash Fishery Order 1992. The main fisheries occur within MPAs and have the potential to impact on site integrity without appropriate management and compliance. An increased risk has been reported with this fishery in 2017, with market	Cockles and mussels dominate this category making up a very high proportion of UK catch and high landed weights and values. The trend in cockle landings is one of the few with a strong positive value. In addition, three key shellfish processing factories operate within the district which also rely in part on catch from this group. As such, catch associated with this group has wider value in providing related jobs (e.g. factory workers, delivery drivers etc.) and is thought to make up a significant proportion of income for the fishers involved. Mussel fisheries in the district have previously contributed a significant proportion of national landings (more than 80%). No mussel fishery has taken place

	will require resource into the 2018/19 financial year.	demands causing fishers to target small cockles.	since 2015, but a small fishery is planned for 2018

Category of works	Priority / rationale	Potential works
New data / evidence acquisition	**Priority: Low** – the evidence base for the dominant fisheries is very well established and current mechanisms are in place to continue to gather evidence as required. Further evidence is needed in relation to recreational hand gathering but given the small scale of the fishery and low potential impact, it is still prioritised low.	
Monitor / maintenance	**Priority: High** – given the high economic and cultural value of the bivalve fisheries within the Wash and North Norfolk Coast, maintenance of current levels of monitoring and evidence gathering is required to prevent the fishery from increasing in risk. As both the cockle and mussel stocks in The Wash and the cockle stocks at Horseshoe Point have been suffering from regular high natural mortality events in recent years, regular monitoring is also important as the stocks vary considerably on an annual basis. Cockle surveys at Horseshoe Point (Lincolnshire) are also conducted on an annual basis but significant barriers remain in relation to opening this fishery. Potentially commercially exploitable levels of cockles have been reported in the Suffolk rivers, survey work would be required to determine whether they are. Critical workstream in relation to data entry of established fisheries data forms and enforcement of such. SWEEP – model established for food availability monitoring	• Annual cockle surveys; • WFO licence holder consultation; • Horseshoe Point cockle survey; • Maintenance of fisheries data collection and database management • SWEEP
Regulation	**Priority: Medium** – a work stream relating to the review of the Wash Fishery Order Licence fees, Regulations and Policies is under way because of 2016/17 priorities which will require resource in the 2018/19 financial year. This will include the implementation of Inshore Vessel Monitoring System (iVMS) on the associated fishing fleet. Shellfish aquaculture is also managed through the WFO within The Wash, primarily through lease conditions. New lease conditions are required to reduce the risk of biosecurity issues. In addition, recent non-compliance with the lease conditions has led to a review of the conditions and found that redrafting would be beneficial to provide more clarity.	• Continuation of review of WFO Regulations, Licence fees and Policies including dialogue with the industry; • Implementation of new WFO Shellfish Lay lease conditions; • Development of measures in ‘un-managed’ area;

	A recent court case involving the Le Strange fishery has led to the potential of an 'unmanaged area' existing between the private and the Regulated fisheries. Management of this area and within the Le Strange fishery may be required in relation to protecting designated features and cockle stocks and a request has been made by Natural England that EIFCA introduce such management measures. An emergency byelaw would be required to mitigate the risk of an unmanaged area which would be considered a higher risk as this area would be open to any fishers. General management within the Le Strange is considered less of a risk given that i) only certain fishers are permitted to fish within the site, ii) Natural England have put in place a fisheries management plan in consultation with the Le Strange estate. The Horseshoe Point cockle fishery is currently managed through an inherited byelaw which requires review. Many messages (n=62) were submitted regarding the cockle fishery. There have been concerns around some of the regulation in the fishery. This has highlighted the difficulty of regulating a fishery that has different business models operating within it and the benefit of maintaining a flexible approach to management.	• Development of management measures within the Le Strange fishery; • Review 'Humber Estuary Cockle Fisheries Byelaw' inherited from North Eastern Sea Fisheries Committee.
Engagement	**Priority: High** – the Wash fisheries exhibit a range of differing business models which are often in conflict. In addition, the Wash Fishery Order has a long history and is a relatively complex regulatory mechanism which has been reviewed and updated. Further dialogue with the industry is required to develop Policies, a fisheries management plan, Regulations and licence fees as a continuation of the 2016/17 priority work. Further engagement needs to occur around issues related with biosecurity, primarily stopping the potential spread of invasive non-native species particularly in relation to shellfish aquaculture in The Wash	• Continuation of review of WFO review – consultation with industry; • Awareness raising and education regarding biosecurity
Enforcement	**Priority: Medium -** Previous poor behaviours by minority of fishers has driven the development of new Regulations which require dialogue with the industry. Non-compliance with Wash Fishery Order Shellfish Lay Lease conditions (particularly in	• Engagement with fishers in relation to new WFO measures;

	relation to the movement of shellfish and the 'sharing' of Lays. In addition, cockles have been settling in WFO Lays which has resulted in an increase in the number of reports of fishers unlawfully removing shellfish from lays and potentially using lays to circumvent WFO Regulations.	• Enforcement of WFO measures; • Enforcement of WFO Shellfish Lay lease conditions.
Environment / ecosystems	**Priority: High** – The dominant bivalve fisheries within The Wash are compliant with the Habitats Directive as demonstrated by Habitat Regulations Assessments. Monitoring and Control plans are required to ensure continued compliance with the Directive – such plans have been assessed as a priority in the Wash and N.Norfolk Coast SAC. There is the potential for fisheries not currently considered in the Wash HRA to occur (e.g. sub-tidal seed mussel fisheries etc.) which require additional consideration at the 2017 mussel survey has indicated that inter and sub tidal mussel fisheries will take place within the Wash 2018/19. Seed mussel fisheries have been known to occur on the N.Norfolk Coast and will be considered as part of the assessment of the Cromer Shoal Marine Conservation Zone. Bivalve molluscs are particularly vulnerable to biosecurity events, particularly in The Wash where aquaculture is also present. There has been low compliance with fishers pre-notifying the authority regarding shellfish movements on their lays. Therefore, it is a priority to improve compliance with this and ensure fishers are aware of biosecurity precautions that need to be taken. This was a prioritised work stream in 2016/17 but was subsequently re-prioritised due to lack of resources (staff time). Bivalve mollusc fisheries within The Wash are also potentially subject to impacts of aquaculture in relation to food availability – the ongoing monitoring programme (SWEEP) is informing on potential impacts is still ongoing. As the aquaculture is subject to the Habitats Regulations, further work is required. In addition, mussel beds within the Wash have been exhibiting unexpected mortality which is thought to be linked to a disease or a parasite. Partnership work with Hull university is ongoing (reflects 2016-17 priority) to detect the cause of the mortality.	• Development of cockle fishery and mussel fishery management plans for the WFO1992 fisheries. • Development of relevant monitoring and control plans • Habitat Regulation Assessment for seed mussel fisheries; • Development of management measures (as required) for the protection of the Cromer Shoal MCZ • Development of Biosecurity plans (particularly in relation to aquaculture in The Wash); • Continued monitoring of Chlorophyll RFU values and mussel meat counts (SWEEP project) to inform the HRA associated with aquaculture in The Wash • Assess impacts of private fisheries within MPAs starting with a gap analysis of available evidence

	Further consideration of the role the fishery has on bird disturbance and the timing of the fishery is required. In particular the ability to have the fishery open during the winter months. This work stream should be included in future HRAs. Eastern IFCA has a role in managing private fisheries which occur within MPAs. These fisheries generally relate to bivalve molluscs (aquaculture) and have not been considered within the 'Amber and Green' assessment and require assessment and possible management. The evidence base in relation to this work is limited and as a first step, a gap analysis of activity levels and interactions is required. In particular, Natural England have requested that EIFCA undertake to manage fishing activity in the Le Strange private fishery.	• Investigate cause of mussel mortality in The Wash.
Viable Industry	Various works ongoing in relation to viability as covered in previous sections.	• Enabling lay activity • Investigation into mussel die off • Increasing awareness of biosecurity issues.
Species trends	Cockles have a strong positive trend (primarily due to an exceptional cockle settlement in 2014) whereas mussels have a negative trend (primarily due to a very large subtidal fishery in 2010 setting a high benchmark, followed by high mortalities and poor recruitment on the regulated inter-tidal beds). No emerging fisheries are detected in initial assessment.	

Group: Crustaceans	**Key Species: Brown Crab, Lobster**	**Overall risk: High**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Low**	Initial assessment Rank: **High**	Initial assessment Rank: **Low**	Initial assessment Rank: **Medium**
Contextual Rank: **High**	Contextual Rank: **High**	Contextual Rank: **Medium**	Contextual Rank: **High**
The group scores low in the initial assessment which reflects a high level of data collection (including effort – MSAR data). However, the current evidence base associated with the two-main species (edible crab and lobster) does not have the spatial resolution to fully inform Eastern IFCA management measures and is of relatively low confidence due to the data collection methods. Fisheries data is also augmented by scientific (length frequency) data collection although this has been found to be insufficient in relation to lobsters. Additional data may also be required to inform the Cromer Shoal MCZ impact assessment including impacts on fisher's if management measures are required	The majority of species within this group are not regulated however the two dominant species (crabs and lobsters) do have associated national and IFCA management measures in place. These management measures are subject to an ongoing review (priority during 2016/17 assessment) which is examining the need to more effort management. Stakeholders have indicated need for additional measures as follows: total ban on berried lobster (100% support). Escape hatches should be installed into all pots (100% support). Increase minimum landing size for crab 55.6% support. Maximum landing size for lobster (54.5% support), Encourage V notching of Lobster (86.4% support). Additional regulation will potentially be needed pending	These fisheries are dominated by potting fisheries which score low for ecosystem impacts (low by-catch, negligible habitat damage). However, recently designated Cromer MCZ habitats (requires assessment) against the interaction with potting and the dominant fishery on the N.Norfolk coast is thought to coincide with the youngest crabs of the relevant stock before they migrate along the east coast.	Landed value and weight is high for two key species (brown crab and lobster) and scientific advice (CEFAS) indicates that both stocks are being exploited at levels exceeding those required for maximum sustainable yield. 2016 represents a year of high Crab landings. The score for this group has been reduced, but this is largely due to new species that have been landed but in low weights. Weights for key species Brown crab and Lobster are 5th and 6th respectively. Value of catch ranked 5th and 4th respectively for crab and lobster. No strong trends have been reported for either of the key species. Between 2-3% of the total UK landings of Crab and

	the outcome of the Cromer Shoal MCZ assessment.		Lobster occur within the Eastern IFCA district. There has been a steady increase in the number of vessels participating in the fishery.

Category of works	Priority / rationale	Potential works
New data / evidence acquisition	**Priority: High** – Fisheries sustainability data collection is currently underway but additional data is required to assess the fisheries in more detail and to inform the development of management measures (including impacts on the industry) in relation to MSY. Development of MSAR forms including dialogue with Cefas and MMO will be required to prevent duplication of effort on the part of the fishers. In addition, fishing activity data in relation to potting within the Cromer Shoal MCZ is required to complete an impact assessment. It is not thought that information with higher spatial confidence is required at this stage.	• Partnership work with Cefas and MMO to develop MSAR forms (higher spatial resolution and effort data); • Additional length frequency data needed for lobsters to inform MSY models; • Potting activity within the Cromer Shoal MCZ to inform an impact assessment.
Monitor / maintenance	**Priority: Medium** – Current levels of data collection are limited but need to be maintained and furthered to prevent any increases in risk. There is potentially a risk that effort will increase in relation to lobster fishing resultant of the berried lobster ban – being a mixed fishery, this may have the effect of increasing crab landings or displacement onto crab fishing. Velvet swimming crabs – reports of an increase on the ground. Fisheries for this species could have impact on implementation of escape gaps.	• Continue crab and lobster bio-sampling regime to inform development of MSY models; • Monitor effort levels to assess if increases in effort occur as a result of berried lobster ban.
Regulation	**Priority: High** – whilst the fisheries are thought to be operating at levels exceeding those required for maximum sustainable yield, they are not currently thought to be in imminent danger of collapse. Management measures in relation to the protection of the Cromer	• Development of management measures in relation to crab and lobster fisheries sustainability

	Shoal MCZ (if required) will be required to go to formal consultation this year. These measures have not yet been developed, therefore this is a continuation of a 2016/17 priority. In addition, crustacean fisheries are known to occur within the Wash and North Norfolk Coast SAC/ other SAC's which will need to be reflected in the associated monitoring and control plans. There is also a push for more regulation from within some sections of the industry.	• Development of management measures (as required) for the protection of the Cromer Shoal MCZ • Development of relevant monitoring and control plans
Engagement	**Priority: High** – The brown crab and lobster fisheries on the N. Norfolk coast are not only of high economic importance but also cultural importance. Engagement is required to develop fisheries sustainability measures and management of potting activity within the Cromer Shoal MCZ (as required) both of which have the potential to impact on fishing activity. Due to the paucity of data in relation to the fishery, anecdotal evidence from the industry is highly valuable. Nationally new legislation has been brought in, commonly known as the 'berried lobster ban'. Engagement is needed to ensure that all fishers are aware of this to increase compliance and ensure buy-in.	• Engagement in relation to the development of measures; • Development of voluntary 'v-notching' scheme; • Engagement in relation to berried lobster ban
Enforcement	**Priority: Low –** Compliance in relation to the key species (i.e. Crab and Lobster) is generally good. No new measures are likely to be implemented within the next financial year. Focus for compliance should be on the 'berried lobster ban' including development of associated SOPs in relation to using lobster 'scrubbing detection kits'. Current levels of presence / engagement needs to be maintained to deter non-compliance.	• Continue routine engagement and compliance checks in accordance with the Compliance Risk Register and TCG; • Development / training in relation to berried lobster ban for IFCOs.
Environment / ecosystems	**Priority: High** – An assessment of impacts of fishing activity in relation to the Cromer Shoal MCZ needs to be undertaken and management measures (as required) put to formal consultation by January 2018. Monitoring and control plans will be required and this activity takes place predominantly within MPAs for which MCPs have been prioritised (namely the Wash and North Norfolk Coast SAC). There is the possibility that the 'berried lobster ban' may lead to increased effort (to still get the same level of catch), there may be more pots deployed	• Development of relevant Monitoring and control plans • Cromer Shoal MCZ – fishing impact assessment

	and therefore possibly are greater number of crabs caught and retained. There have been issues raised in relation biosecurity for this fishery particularly in relation to the bait used in pots.	
Viable Industry	The development of crab and lobster sustainability measures will include extensive dialogue with the industry to ensure that the short-term impacts of any measures on fishing viability are understood. Initiatives started by the industry are being considered including the use of escape gaps. In addition, the use of any 'edible' crab as bait is presently restricted under an EIFCA byelaw. Other IFCA's make an exception for cooked offal which would otherwise to go waste. This will be reviewed alongside the development crab and lobster measures.	• Engagement in relation to the development of measures.
Species trends	Velvet swimming crabs and 'mixed crabs' show a strong negative trend. Annual landed weights of Velvet swimming crabs have declined from a peak (20 tonnes) in 2011 to 1.7 tonnes in 2016 (This is possibly due to environmental factors. -e.g. warm winter, favouring velvet crabs in 2010-2011, resulting in an increased abundance) Mixed crabs were only landed in one of the years over the period 2010 to 2016 (inclusive) and is not thought to be reflective of a genuine trend. Green crabs have shown a strong positive trend over the same period although the peak landing over the period (2015) was all of 200 kg, which shows this is a marginal fishery.	

Group: Demersal	**Key Species: Bass, Cod**	**Overall risk: Medium**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Medium**	Initial assessment Rank: **Medium**	Initial assessment Rank: **Medium**	Initial assessment Rank: **Low**
Contextual Rank: **Medium**	Contextual Rank: **Medium**	Contextual Rank: **High**	Contextual Rank: **Medium**
Eastern IFCA evidence base in relation to demersal fisheries is limited, particularly in relation to effort data. That said, many of the species represented have ICES stock assessments undertaken which provide a strong evidence base. Further activity data is required in relation to the levels of use of gear in relation to ecosystem impacts (including within spawning and nursery areas) and protection of MPA features although this is considered of a lower risk given relatively low activity levels. Netting activity data is potentially required in relation to bycatch of porpoises, seals and seabirds.	Eastern IFCA has only limited management measures in place however, these fisheries are heavily managed through national and European measures (including minimum sizes and effort control). Due to gaps in the national legislative system, 'unregulated netting' is thought to occur (i.e. netting which is, for the most part, legal but is not regulated in any way). This tends to be undertaken by small scale fishers but, particularly when undertaken in nursery or spawning areas, does have the potential to have disproportionately large impacts on wider stocks – this is mitigated by the national development of new bass nursery areas (which will limit netting activity). Bass fisheries are uniquely at risk within this	Demersal fishing gears include bottom-towed-gears, which score highly for potential ecosystem impacts (particularly habitat damage) and nets which have the potential to remove large number of fish very efficiently. Where these are deployed within nursery or spawning areas, there is the potential for disproportionately large impacts in wider stocks. This is compounded by the existence on 'unregulated netting'. Several reports (n=4) from commercial fishers, stating that pulse fishing has been detrimental to these fisheries and has resulted in high fishing mortality.	Whilst demersal fisheries are not detected as a particularly high risk within the initial assessment, a proportion of economic value is not thought to be detected by the MMO landings data used in the assessment. In addition, some species are particularly valuable even in small quantities (e.g. bass). This is thought to be particularly relevant in Suffolk where many small-scale fishers land small amounts direct to the public (and is not captured in MMO data as a result). Therefore, the economic importance of these fisheries is potentially underestimated, particularly when considering the that a large proportion of fishing activity is also recreational which tends to generate a wider ranging economic benefit.

	group given the seriousness of the current ICES advice, recent evidence relating to the timing of spawning aggregations within the district and the gaps identified within the 2017 European Bass measures. These species will be subject to the landings obligation. CVM actions: Protection of spawning areas with a focus on bass (95.5% support). Maximum landing size Bass (54.5% support).		Cod and Bass respectively are 7th and 13th with regards to landed weight. They are also 7th and 8 respectively for economic value. The economic reliance on these two species is high for certain fishers. There have been a very high number (n=28) of reports during patrols that there are very few of cod being caught. MMO landing figures for Bass show that within our district fishing mortality has gone up slightly from 2016 to 2017 (provisionally). The aim of the EU measures was a 50% reduction in fishing mortality. This has not been the case in our district. Therefore, there was potentially a lot of latent capacity with the management measures that were implemented in our district.

Category of works	Priority / rationale	Potential works
New data / evidence acquisition	Priority: **Medium** – effort and fisheries data is not necessarily required from a 'stock management' perspective but is of a priority in relation to MPA management and fishing in spawning and nursery areas. Further evidence is potentially required in relation to the presence of spawning and nursery areas within the district, given the changes in water temperature and the emergence of bass nursery areas in recent years. Collection of better fisheries data in	• Continue to liaise with national approach re under 10m

	relation to these fisheries was given a medium priority in 2016/17 but initial work streams proved unsuccessful. Recently introduced voluntary measures would benefit from further development and additional dialogue with the RSA community would be beneficial. National measures to obtain additional landings data from the under 10m sector will also address the 2016/17 work stream in the longer term. Additional spatial activity data may be required to inform HRA related to proposed SPA and SAC for birds and porpoises. Additional data collection related to netting activity (both recreational and commercial) would bring benefits across multiple workstreams.	sector landing data; • Continue to provide evidence in relation to development of BNAs; • Further develop voluntary fisheries data; • Undertake gap analysis of fishing activity data relevant to assessing fishing impacts on SPA bird species and porpoises.
Monitor / maintenance	Priority: **Medium** – development of 'unregulated netting' measures was a 2016/17 priority but Eastern IFCA involvement in Bass Nursery Area development is likely to have a similar benefit (in relation to the impacts of netting in estuaries and rivers) although, any gaps left by the BNA work will need to be identified through the continuation (or re-evaluation) of unregulated netting in the context of BNA. Monitor displacement into other fisheries	• Re-assess needs for 'un-regulated netting' measures in the context of BNA development.
Regulation	Priority: **Medium** – demersal species are heavily regulated by national and European measures. Whilst monitoring and control plans are necessary for bottom-towed-gears, it is	• Consideration of 2018 bass

	unlikely that regulation will be required initially in relation to these fisheries (except for red-risk features for which management measures are either in place or in development) due to low levels of activity using this metier. Unregulated netting is thought to occur within the district at unknown levels. 'Unregulated netting' refers to the practice of legally fishing using nets non-commercially whereby there are limited regulations to restrict the practice (noting the MCRS and mesh ranges still apply). Nets are very effective methods of capturing fish and as such, pose a risk to stocks particularly when occurring in nursery or spawning areas. This issue is highlighted as part of the Angling Trust's Dossier on Inshore Netting Reform (http://www.anglingtrust.net/page.asp?section=1184&sectionTitle=Reforming+Inshore+Netting) , which also highlights issues and potential solutions with the use of nets in a wider sense. The emergence of Bass Nursery Areas within the district and the planned introduction of such reduces the risk in relation to 'unregulated netting'. Eastern IFCA contribution to this work will mitigate the associated risk. In addition, recently imposed bass regulations (European Commission measures) have reduced the associated risk in a strategic sense as recreational anglers are prohibited from retaining any bass as of January 2018 and commercial fishers are more heavily restricted. This does however raise the risk of non-compliance and increases the importance of engagement and education from an operational perspective. Bass fisheries sustainability is in exception to the group in general, particularly in relation to the protection of spawning aggregations. In 2016/17 Eastern IFCA developed and consulted on an Emergency Byelaw. Through consultation and information gathering Eastern IFCA determined that the costs (to the fishing industry) would be disproportionate compared to the beneficial effect. This is due to several key factors, but primarily because of relatively low fishing mortality which is evidenced by historical landings data and because if the regulation came in fishers indicated that they would still fish outside the EIFCA district therefore the reduction in fishing mortality would be minimal. Furthermore, new advice has been received that the perceived 'later' spawning in the EIFCA district is not unique. Whilst bass stocks are considered to be in a very poor state, the risk associated with bass fisheries is mitigated by the implementation of European management measures and a national work-stream related to Bass Nursery Areas. EIFCA contribution to the related work-streams	measures in relation to ICES stock assessments and local conditions; • Partnership working in relation to the development of Bass Nursery Areas; • Consider benefits of nursery / spawning area protection when developing other management measures.

	will further reduce the associated risk and should be considered as a higher priority than the group in general. Given the importance of nursery and spawning areas in relation to this group, protection of these areas should be considered as a potential added benefit of other management measures (for example, closed areas in relation to the protection of EMS could include some areas of importance for nursery / spawning areas where appropriate).	
Engagement	Priority: **Medium** – given the lack of formal fisheries data, there is a reliance on strong relationships to detect changes in activity levels. Wide engagement will be required in relation to bass nursery areas. Additional / more directed engagement with the RSA sector will also benefit strategic and operational decision making. Engagement is required in relation to the development of BNAs. Fishers to be made aware and education to be completed around the landings obligation regulation and on new bass measures. In addition, there is a lack of consistency across IFCAs and the MMO in relation to the application of MCRS to RSA. A high proportion of RSA are not aware of MCRS within the district.	• Engagement with RSA sector to obtain fisheries data; • Engagement with fishers re BNA and other bass measures; • Development of material to engage RSA re MCRS and collaborative / standardising • Landing obligation
Enforcement	Priority: **High** – compliance with European bass measures is of high risk given the unfavourable state of the bass stocks. Engagement with commercial and recreational fishers is required to ensure understanding of the measures. Partnership work with the MMO and intelligence gathering. Further enforcement may be required to ensure compliance with the landings obligation.	• Bass related enforcement and engagement; • Intel gathering and partnership working with

		MMO (bass and landing obligation.
Environment / ecosystems	Priority: **Medium** – Monitoring and control plans prioritise areas where this is not a primary fishery but will ultimately be considered through plans (primarily in Suffolk estuaries). Impacts of fixed and drift netting to be considered in relation to SPA bird species and porpoises. Bottom-towed-gear management is also required in relation to 'red-risk' gear/habitat interactions although activity levels (of bottom-towed-gear) within this fishery are relatively low.	• Monitoring and control plans; • Undertake gap analysis of impacts data relevant to assessing fishing impacts on SPA bird species and porpoises; • Development of management measures for any relevant 'red-risk' gear/feature interactions within MPAs.
Viable Industry	Certain fishers rely almost entirely on a limited number of species (cod, bass, sole, skate) which are presently either in a poor state or heavily regulated. Any potential works which could reduce reliance on these few species would likely be of benefit to the viability of the industry and the fisheries in the long-term. In particular, there is significant latent capacity in the herring fishery of East Anglia which was once a prominent fishery.	• Explore initiatives to I invigorate the herring fishery.
Species trends	A strong negative trend is seen in cod landings however this is most likely driven by EU and national level quota management. Late 2016 and early 2017 saw very low abundance of cod, missing its usual winter peak. No other species show strong trends in addition to appreciable landed weights. No high-risk trends are detected.	

Group: Dogfish and Sharks	**Key Species: L.S.D.**	**Overall risk: Low**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Medium**	Initial assessment Rank: **Medium**	Initial assessment Rank: **Low**	Initial assessment Rank: **Low**
Contextual Rank: **Low**	Contextual Rank: **Low**	Contextual Rank: **Low**	Contextual Rank: **Low**
Fisheries evidence is generally poor including effort and catch data (especially given their use as bait species). The gaps in data are now generally identified. ICES advice is to maintain at current levels of exploitation. Gaps Identified, prohibited species, ICES advice is maintain.	Some species within the group are subject to no-take restricts (i.e. most sharks). Dogfish have limited regulation and are thought to be biologically vulnerable to recruitment over-fishing however fishing mortality is relatively low within the district. Eastern IFCA byelaw 14 prohibits the removal of Tope.	Most fishing is conducted via longlines and nets which have limited ecosystem impacts although some are caught as unintended by-catch via trawls. Given the small proportion of UK landings taken from within the district, impacts on spawning and nursery areas are likely to be limited, relative to other target species.	ICES advice is generally favourable for dogfish but poor for sharks (sharks are however generally subject to no-take restrictions). None of these fisheries are particularly important from an economic perspective and, with one exception represent less than % of UK total catch (lesser-spotted-dogfish being the exception at just over .5% which is decreased since previous years). Many dogfish species are likely to be more important as bait for other fisheries (and may be under recorded as a result). ICES advice is currently favourable for lesser-spotted-dogfish. Activity within the district is relatively limited, does not represent a significant proportion of UK landings and is within ICES advice.

			A key message (n=10) that came from fishers is that catches of Spurdog are very high and they should be able to land them. Particularly considering the perceived ecosystem impacts.

Category of works	Priority / rationale	Potential works
New data / evidence acquisition	Priority: **Low** – except for lesser-spotted-dogfish (LSD), all the species are marginal with regards to landed weight, have favourable ICES advice or are no-take species. LSD are an important bait species within other fisheries (e.g. crab and lobster) and as such, landed weight indicated from MMO data is potentially an underestimate of catch.	• Develop mechanism to monitor levels of LSD use as bait to gain better understanding of overall fishing mortality; • Undertake gap analysis of fishing activity data relevant to assessing fishing impacts on SPA bird species and porpoises.
Monitor / maintenance	Priority: **Low** – EIFCA are involved with the Cefas led Elasmobranch Steering Group, which might at some stage conduct some research into the impacts of windfarm cables on elasmobranchs. Continuation (and some further development) of voluntary landings data work streams are beneficial particularly in relation to lesser-spotted-dogfish.	• Partnership working with CEFAS re shark / dogfish research where possible; • Development of voluntary landings data.
Regulation	Priority: **Low** – none identified.	• None identified
Engagement	Priority: **Low** – given the limited available data, dialogue with the industry is important to detect changes in activity levels or emerging fisheries.	• None identified
Enforcement	Priority: **Low** – there are limited regulation which can be enforced (except for Tope for which there is an EIFCA byelaw).	• Continue routine engagement and compliance checks in accordance with the Compliance Risk Register and TCG.

Environment / ecosystems	Priority: **Medium** – Monitoring and control plans prioritise areas where this is not a primary fishery but will ultimately be considered through plans (primarily in Suffolk estuaries). Impacts of fixed and drift netting to be considered in relation to SPA bird species and porpoises. Bottom-towed-gear management is also required in relation to 'red-risk' gear/habitat interactions although activity levels within this fishery are relatively low. The Eastern IFCA district is potentially a refuge for these species and this should be reflected within a monitoring and control plan.	• Development of relevant monitoring and control plans; • Undertake gap analysis of impacts evidence relevant to assessing fishing impacts on SPA bird species and porpoises; • Development of management measures for any relevant 'red-risk' gear/feature interactions within MPAs.
Viable Industry	Spurdog catches are very high (currently a prohibited species). Fishers have reported that they have to discard large amounts and this is both time consuming and makes long lining unfeasible at certain times of the year.	• Work with partner organisations to report this issue from fishers.
Species trends	Lesser-spotted-dogfish show a strong positive trend with annual landed weight increasing from 1 tonne in 2010 to 8 tonnes in 2016. However, landed weight has been relatively steady (between 19 and 13 tonnes) over the last 4 years and looks to have levelled. Whilst this is a modest annual landed weight (and circa 1% of UK landed weight) LSD are thought to show a biological vulnerability to over fishing (slow growth, low fecundity). Smoothound are the only other species in this group that have landings over a tonne. Landings have been consistent with no strong trend. However, this is likely to be due to quota rather than species trends.	

Group: Flatfish	**Key Species: Sole, Plaice, Flounder, Dab**	**Overall risk: Medium**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Medium**	Initial assessment Rank: **Medium**	Initial assessment Rank: **High**	Initial assessment Rank: **Medium**
Contextual Rank: **Medium**	Contextual Rank: **Low**	Contextual Rank: **High**	Contextual Rank: **Medium**
Eastern IFCA evidence base in relation to flatfish fisheries is limited, particularly in relation to effort data. That said, many of the species represented have ICES stock assessments undertaken which provide a strong evidence base. Further activity data is required in relation to the levels of use of gear in relation to ecosystem impacts (including within spawning and nursery areas) and protection of MPA features although this is considered of a lower risk given relatively low activity levels. Netting activity data is potentially required in relation to bycatch of porpoises and SPA bird species.	Eastern IFCA has only limited management measures in place however, these fisheries are generally managed through national and European measures (including minimum sizes and effort control). However, due to gaps in the national legislative system, 'unregulated netting' is thought to occur (i.e. netting which is, for the most part, legal but is not regulated). This tends to be undertaken by small scale fishers but, particularly when undertaken in nursery or spawning areas, does have the potential to have disproportionately large impacts on wider stocks. The implementation of the demersal landing obligation will likely impact on these fisheries, particularly in relation to 'choke species' (such as bass) which	Many species within the group are likely to have nursery areas within the district (which are thought also to be coincident with shrimp fishing). Fishing gear includes bottom-towed-gear which has a high ecosystem impact and (abrasion) although activity levels are thought to be low. Entangling nets used also have a relatively high ecosystem impact score given the high levels of bycatch, particularly in relation to the mixed fisheries.	Whilst flatfish fisheries are not detected as a particularly high risk within the initial assessment, a proportion of economic value is not thought to be detected by the MMO landings data used in the assessment. In addition, some species are particularly valuable even in small quantities (e.g. sole). This is thought to be particularly relevant in Suffolk where many small-scale fishers land small amounts direct to the public (and is not captured in MMO data as a result). Therefore, the economic importance of these fisheries is potentially underestimated, particularly when considering the that a large proportion of fishing activity is also recreational which tends to generate a wider ranging economic benefit. ICES advice is favourable for the highest landed weight species (including sole).

	will potentially inhibit fishing activity and increase non-compliance.		There is a strong negative trend for several species within this group (plaice, dab, brill) however the quantities landed are minimal (.5 to 1 tonne per annum). The species landed are generally high values (£4 to £10 a kilo. Strong negative trend for sole, with fishers indicating that they have a greater dependence on this species considering reduced Bass quota and lack of cod.

Category of works	Priority / rationale	Potential works
New data / evidence acquisition	Priority: **Medium** – effort and fisheries data is not necessarily required from a 'stock management' perspective but is of a priority in relation to MPA management and fishing in spawning and nursery areas. Further evidence is potentially required in relation to the presence of spawning and nursery areas within the district, given the changes in water temperature and the emergence of bass nursery areas in recent years. Collection of better fisheries data in relation to these fisheries was given a medium priority in 2016/17 but initial work streams proved unsuccessful. Recently introduced voluntary measures would benefit from further development and additional dialogue with the RSA community would be beneficial. National measures to obtain additional landings data from the under 10m sector will also address the 2016/17 work stream in the longer term. Additional spatial activity data may be required to inform HRA related to proposed SPA and SAC for birds and porpoises.	• Continue to liaise with national approach re under 10m sector lading data; • Continue to provide evidence in relation to development of BNAs; • Further develop voluntary fisheries data; • Undertake gap analysis of fishing activity relevant to assessing fishing impacts on SPA bird species and porpoises; • Development of sole fishing activity data (data sharing agreement with MMO).

	There have been reports of a lack of flounders within Suffolk Estuaries over recent years which is anecdotally thought to be a result of potters (crab, lobster, whelk) catching it to use as bait. Further information on the use of bait in the crab and lobster fisheries will be obtained through the pending associated consultation (i.e. crab and lobster measures) which may inform this issue. In addition, fishing effort data in relation to sole will reduce the risk associated with anecdotal reports of increases in sole fishing activity (as a result of displaced fishers and lack of bass and cod). Collaborative work with the MMO (particularly in the form of a data sharing agreement) will enable better utilisation of data already collected to monitor activity and detect potential issues.	
Monitor / maintenance	Priority: **Medium** – development of 'unregulated netting' measures was a 2016/17 priority but Eastern IFCA involvement in Bass Nursery Area development is likely to have a similar benefit (in relation to the impacts of netting in estuaries and rivers) although, any gaps left by the BNA work will need to be identified through the continuation (or re-evaluation) of unregulated netting in the context of BNA.	• Re-assess needs for 'un-regulated netting' measures in the context of BNA development.
Regulation	Priority: **Low** – flatfish species are generally regulated by national and European measures. Whilst monitoring and control plans are necessary for bottom-towed-gears, it is unlikely that regulation will be required initially in relation to these fisheries (except for red-risk features for which management measures are either in place or in development) due to low levels of activity using this metier. In addition, the emergence of Bass Nursery Areas within the district and the planned introduction of such will likely reduce the need to regulate initially to prevent 'unregulated netting'. Landing obligation limits ability to add management. Potential further protection of spawning / nursery grounds	• None identified
Engagement	Priority: **Medium** – given the lack of formal fisheries data, there is a reliance on strong relationships to detect changes in activity levels. Wide engagement will be required in relation to bass nursery areas (which may	• Engagement with RSA sector to obtain fisheries data; • Engagement with fishers re BNA.

	have impacts on netting for all species within some rivers and estuaries). Additional / more directed engagement with the RSA sector will also benefit strategic and operational decision making. Messages from fishers have indicated that there is an increased amount people targeting these species due to lack of cod and bass.	
Enforcement	Priority: **Medium** – Flatfish fisheries are generally marginal although some high value species present a higher enforcement risk at sometimes of the year. Flatfish will be subject to the landings obligation so there may be an increased requirement for enforcement.	• Continue routine engagement and compliance checks in accordance with the Compliance Risk Register and TCG.
Environment / ecosystems	Priority: **Medium** – Monitoring and control plans prioritise areas where this is not a primary fishery but will ultimately be considered through plans (primarily in Suffolk estuaries). Impacts of fixed and drift netting to be considered in relation to SPA bird species and porpoises. Bottom-towed-gear management is also required in relation to 'red-risk' gear/habitat interactions although activity levels within this fishery are thought to be relatively modest.	• Monitoring and control plans; • Undertake gap analysis of impacts data relevant to assessing fishing impacts on SPA bird species and porpoises • Development of management measures for any relevant 'red-risk' gear/feature interactions within MPAs.
Viable Industry	Priority: **Low** Certain fishers rely almost entirely on a limited number of species (cod, bass, sole, skate) which are presently either in a poor state or heavily regulated. Any potential works which could reduce reliance on these few species would likely be of benefit to the viability of the industry and the fisheries in the long-term. In particular, there is significant latent capacity in the herring fishery of East Anglia which was once a prominent fishery.	• Explore initiatives to I invigorate the herring fishery.
Species trends	Several species show a strong negative trend but only in relation to modest landed weights (1.6 tonnes down to less than 500kg between 2010 and 2015). Sole show a strong negative trend with landed weights reducing from 73 tonnes in 2010 to 42 tonnes in 2015 and 2016 (loss circa £250,000 in value) and is relatively important in a national context (circa 3.4% of UK landings) although ICES advice indicates that the stock is in favourable condition. Long rough dabs have shown a large increase to 2.3 tonnes in (2016) up from around 0 to 10 kilos in previous years.	

Group: Cephalopods		**Overall risk: Low**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **High**	Initial assessment Rank: **High**	Initial assessment Rank: **High**	Initial assessment Rank: Low
Contextual Rank: **Low**	Contextual Rank: **Low**	Contextual Rank: **Low**	Contextual Rank: **Low**
Marginal fishery with very limited landings (less than 300 kg combined per annum).			

Category of works	**Priority / rationale**	**Potential works**
New data acquisition	Priority: Low – limited / marginal fishery	• None identified
Monitor / maintenance	Priority: Low – limited / marginal fishery	• None identified
Regulation	Priority: Low – limited / marginal fishery, additional regulation would have very limited effect.	• None identified
Engagement	Priority: Low – limited / marginal fishery	• None identified
Enforcement	Priority: Low – limited / marginal fishery	• None identified
Environment / ecosystems	Priority: Low – limited / marginal fishery	• None identified
Viable Industry	Priority: Low – limited / marginal fishery	• None identified

Species trends	None identified.

Group: Pelagic	**Key Species; Herring, Mackerel, Sprat**	**Overall risk: Low**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Medium**	Initial assessment Rank: **Medium**	Initial assessment Rank: Medium	Initial assessment Rank: **Low**
Contextual Rank: **Medium**	Contextual Rank: **Low**	Contextual Rank: **Low**	Contextual Rank: **Low**
Netting activity data is required in relation to bycatch of porpoises but low levels of activity reduce the associated risk.	This group is managed through European and national measures. In addition, given the small contribution to UK landings, EIFCA regulation would have very limited benefit.	Spawning aggregations can be targeted very effectively by metiers associated with these fisheries and does represent a potential risk, particularly in relation to mackerel in the Southern North Sea however, EU measures are currently in place to reduce the impact of targeting these aggregations. Associated gear is generally not considered to have impacts on MPA features but the development of MCPs will be necessary as will assessments of potential impacts in relation to purposes and SPA bird species.	None of the species landed represent a nationally important landed weights and value of catch is relatively low. ICES advice is generally favourable except for mackerel and horse mackerel. The herring fishery is exploited far below MSY due to the low market demand and value of the fishery. Historically there has been a winter sprat fishery in the District (particularly around the Wash). This supplied bulk

		Several fishers (n=5) have reported issues regarding higher levels than usual of disturbance caused by seals. Reports have focused on seals damaging nets and following vessels. This issue effects those targeting pelagic species more than others.	orders for fish meal etc. Poor market prices limited this fishery, but an increase in value or displacement from the brown shrimp fishery could see vessels target this fishery again.

Category of works	Priority / rationale	Potential works
New data acquisition	Priority: **Medium** - effort and fisheries data is not necessarily required from a 'stock management' perspective but is potentially of import in relation to spawning and nursery areas. Further evidence is potentially required in relation to the presence of spawning and nursery areas within the district, given the changes in water temperature and the emergence of bass nursery areas in recent years. Continuation of voluntary data collection from smaller scale fishers. Netting activity data is required in relation to bycatch of porpoises and SPA bird species.	• Undertake gap analysis of fishing activity relevant to assessing fishing impacts on SPA bird species and porpoises.
Monitor / maintenance	Priority: **Low** – Continuation and potential for further development of voluntary data collection from smaller scale fishers	• Development of voluntary landings data.
Regulation	Priority: **Low** – Regulated primarily through national and European measures. Eastern IFCA regulations will have limited impacts given low levels of take. Assessments in relation to the protection of SPA bird species and porpoise may require management however, activity levels are considered low at present.	• None identified.
Engagement	Priority: **Low** - given the lack of formal fisheries data, there is a reliance on strong relationships to detect changes in activity levels. Wide engagement will be required in relation to bass nursery areas (which may have impacts on netting for all species within some rivers and estuaries but these will likely be limited for this fishery given low landed weights and values). Additional / more directed engagement with the RSA sector will also benefit strategic and operational decision making. Previous years	Further development of RSA engagement material

	have shown that RSA's are unaware of larger minimum conservation reference size (MCRS) in the North Sea ecoregion, therefore there is a requirement for a greater amount of engagement. There has been a lack of consistency between different IFCA's and the MMO on this issue.	
Enforcement	Priority: **Low** – fishery is generally marginal however; MCRS offences have been detected historically. Shoals of sprat have potential to include high proportions of juvenile herring.	• Continue routine engagement and compliance checks in accordance with the Compliance Risk Register and TCG.
Environment / ecosystems	Priority: **Medium** – Monitoring and control plans prioritise areas where this is not a primary fishery but will ultimately be considered through plans (primarily in Suffolk estuaries). Impacts of fixed and drift netting to be considered in relation to SPA bird species and porpoises.	• Undertake gap analysis of fishing activity relevant to assessing fishing impacts on SPA bird species and porpoises.
Viable Industry	Priority: Medium – Significant numbers of herring are landed at certain times of the year. Fishers can easily obtain a large quantity of this fish with minimal effort. However, market demand is minimal and price reflects this. The impact is that it is not usually economically viable for fishers to target this fishery. Sprat fishery not currently targeted due to low market value. Displacement from brown shrimp fishery could see increased interest.	• EIFCA to identify if opportunities exist to work with partner organisation's or individuals (including fishers) to increase the market demand of these species (primarily herring).
Key Species / Species trends	Herring landings are relatively stable and represent less than 1% UK total landings but are the dominant landed weight within the group. Horse mackerel show a strong negative trend but landings are negligible (reduced from .8 of a tonne in 2010 to 1kg in 2016). There have been no recent sprat fisheries.	

Group: Shrimp / Prawns	**Key Species: Brown Shrimp**	**Overall risk: High**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Medium**	Initial assessment Rank: **Medium**	Initial assessment Rank: **High**	Initial assessment Rank: **Medium**
Contextual Rank: **Medium**	Contextual Rank: **Medium**	Contextual Rank: **Medium**	Contextual Rank: **High**

Data in addition to that which can be obtained from existing MMO data requests is required to manage the fishery in the context of protecting designated features of MPAs. Fishers are required to complete returns forms and the implementation of iVMS is included in ongoing management measure development. Additional data with regards to impacts on habitats is required as is further evidence in relation to by-catch (particularly in relation to juvenile fish). Internal processes in relation to processing and analysing associated data is required. Further dialogue with the MMO is required to avoid duplication of effort on the part of the fishers.	A permit scheme is in development (and will likely be in place for 2017/18) which provides a mechanism to implement stock management measures. MPA protection measures are part of an ongoing work stream. Spatial closures introduced through the 'Protected Areas Byelaw' also require review. Several fishers (n=3) have requested that Eastern IFCA implement a closed season during the time when the shrimps contain brood.	Shrimp trawling gear exhibits a high risk in relation to both habitats damage and by-catch impacts (particularly in nursery areas). Management measures to protect MPA features are in development and are forecast to be in place in 2017/18 however, wider ecosystem impacts (i.e. by-catch) require further development (albeit in the context of a permit mechanism having been put in place). The MSC accreditation is being brought in to decrease ecosystem impacts. Fishers (n=4) have raised concerns that this might cause a closed system. There are potentially issues with bycatch within this fishery, although it is thought that this will likely be addressed through the MSC accreditation. Although the focus is generally on The Wash, it is thought that there are also several fishers that target this fishery in the	Brown shrimp (and to a lesser extent – pink shrimp) represent significant, nationally important fisheries. Landings of Pink shrimp have shown a strong negative trend over the last 6 years. Reasons for this are well understood. Landings of brown shrimps have fluctuated greatly in the last 6 years (due to the biology of the species) therefore there is no strong trend and changes are reported as within the normal range. This is also influenced by the availability of other fisheries (primarily cockles).

		Suffolk estuaries. Where there is potential for the fishery to have a disproportionate negative effect.	

Category of works	Priority / rationale	Potential works
New data acquisition	Priority: **Medium** – priorities set in 2016/17 have provided mechanisms for the collection of better fisheries data including the development of returns forms and provision for iVMS. Internal and partnership processes require development in relation to iVMS data analysis and capture. Some vessels currently complete return forms for the MMO (vessels 12m and over), dialogue with the MMO is required to reduce duplication of effort. A two-year shrimp gear impact study project plan was developed to be undertaken with EMFF funding. However, the project has recently been recommended to be closed (subject to approval by the R&CSC) as it has been determined unlikely to achieve its goals successfully. Instead, annual monitoring to be determined in the Monitoring and Control Plan for this fishery, should provide evidence of the fishery's impact on conservation features.	• Develop mechanisms to store and analyse iVMS data including dialogue with partner organisations; • Liaise with MMO re need to capture higher resolution fisheries data; • Develop shrimp returns forms in consultation with fishers • Development of monitoring regime through Monitoring and Control Plan.
Monitor / maintenance	Priority: **High** – continuation of the development of systems to analyse returns data Including the eventual analysis of iVMS data) is required. Management measures for MPA protection require completion. Once fully implemented, fishing activity will require monitoring and management in line with measures highlighted in the HRA, management plan and subsequent Monitoring and Control Plan and flexible permit conditions.	• Continuation of 2016/17 shrimp management priorities; • Monitor effort in line with Monitoring and Control Plan
Regulation	Priority: **Medium** – notwithstanding the priority work stream in relation to MPA measures, stock management measures represent a priority carried over from the 2016/17 priorities. Whilst a mechanism to implement such measures is in	• Continue to implement Shrimp Permit Byelaw and MPA management measures;

	place, development of specific measures is required and is intended to be informed by the ongoing Marine Stewardship Council Accreditation Scheme work being undertaken by the industry. Spatial closures which primarily relate to shrimp fishing are currently in place in The Wash. These require review to reflect new evidence in relation to the extent of the 'red-risk' features which they protect. However, the closures currently in place have less of a risk associated with them than in the case where management is required and there is none (i.e. amber and greens management).	• Develop fisheries sustainability management measures (including consideration of impacts on nursery areas); • Review of existing spatial closures (Regulatory Notices) to reflect new evidence.
Engagement	Priority: **High** – proposed MPA management measures are complicated and structured engagement with the industry is required. The structure of the industry itself is complicated and exhibits differing business models. Further dialogue is required in relation to the development of stock management measures and the associated impacts on the industry. Development of Monitoring and Control Plans are required in relation to this gear as relatively minor increases in activity levels have the potential to have detrimental impacts on MPA features and activity is a dominant fishery in a high priority MPA.	• Continue dialogue with the industry in relation to MPA management measures (including formal consultation of permit conditions); • Development of associated Monitoring and Control Plans • Develop fisheries sustainability measures in consultation with the industry and considering outputs of MSC accreditation.
Enforcement	Priority: **Medium** – the implementation of the new measures will require enforcement engagement to familiarise fishers with additional requirements (e.g. obtaining a permit, permit application process). Compliance with existing measures (mesh size requirements etc.) is generally considered good.	• Enforcement and engagement in relation to new shrimp measures; • Routine shrimp fishery engagement and compliance checks in accordance with the Compliance Risk Register and TCG.
Environment / ecosystems	Priority: **High** – Shrimp management measures in relation to the protection of designated habitats in the Wash and North Norfolk Coast are still in development and implementation of this 2016/17 priority will carry over into the next financial year. Bottom-towed-gear management is also required in relation to 'red-risk' gear/habitat interactions and activity levels within this fishery are relatively high.	• Continuation of 2016/17 shrimp management priorities; • Development of management measures for any relevant 'red-risk' gear/feature interactions within MPAs.

Viable Industry	Priority: **Medium** Concerns that MSC accreditation scheme may create a closed system and prevent new entrants to the fishery.	• Maintain EIFCA involvement in the planning and preparation of the MSC accreditation scheme.
Species trends	Pink shrimp showing strong negative trends. Brown shrimp highly variable but within their normal range in the last two years.	

Group: Skates and Rays	**Key Species: Thornback**	**Overall risk: Low**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Medium**	Initial assessment Rank: **Medium**	Initial assessment Rank: **Low**	Initial assessment Rank: **Low**
Contextual Rank: **Medium**	Contextual Rank: **Medium**	Contextual Rank: **Medium**	Contextual Rank: **Medium**
Skates and rays suffer from poor identification and are often reported as 'skate and ray' or unintentionally misinterpreted. The Quota system does distinguish between some species now but this is hampered by the difficulties in identifying species. ICES advice is limited due to a paucity of data.	Eastern IFCA has no regulation in place specifically in relation to this group which is managed primarily through European quotas. Notably, there is a lack of minimum landing size regulation for skates and rays despite having relatively low fecundity.	Skates and rays are primarily targeted using long-lines but also gillnets and demersal trawls. Gillnets and trawls have a greater ecosystem impact and where this occurs in sensitive areas (nursery or spawning grounds or designated habitats), ecosystem impacts could occur. However, activity levels are not very high (with skate quotas often restricting activity to a single trip per month for non-sector vessels).	ICES advice is unfavourable for 'skates and rays' (i.e. as a distinct reported species but there are limited landings of these within the district). ICES advice for thornback rays is maintain at current levels. As a group they are of limited economic value but some, smaller scale fishers may have a dependence on them. There have been four reports of a large amount of skate being

			reported but that the quota is not available at the correct time.

Category of works	Priority / rationale	Potential works
New data acquisition	Priority: **Medium** – Kent and Essex IFCA are undertaking a joint research project with Cefas which may provide additional information. Effort and landings data are poorly understood for skates and rays. Netting activity data is required in relation to bycatch of porpoises and SPA bird species.	• Development of voluntary landings data; • Actively liaise with partner organisations in relation to planned research projects; • Undertake gap analysis of fishing activity relevant to assessing fishing impacts on SPA bird species and porpoises.
Monitor / maintenance	Priority: **Low** – Continuation and potential for further development of voluntary data collection from smaller scale fishers	• Development of voluntary landings data.
Regulation	Priority: **Low** – none identified	• None identified
Engagement	Priority: **Medium** – given the lack of formal fisheries data, there is a reliance on strong relationships with the industry and the RSA to detect changes in activity levels or potential emerging issues. The RSA sector favours this group and may provide additional information or a platform for developing research initiatives (tagging study, size at maturity study etc.).	• Develop potential project plans to fill gaps in understanding of skate/ray biology and population dynamics

Enforcement	Priority: **Low** – group managed primarily through the quota system.	• Routine engagement and compliance, intel gathering and partnership working with MMO in accordance with Compliance Risk Register and TCG.
Environment / ecosystems	Priority: **Medium** – Netting and trawl based fisheries have the potential to have wider ecosystem effects (habitat damage and by-catch, particularly in nursery or spawning areas). These fishers will likely be subject to lower priority monitoring and control plans by virtue of their general location (primarily Suffolk fisheries, the MPA of which have been prioritised lower). Netting fisheries are subject to assessment in relation to impacts on SPA bird species and porpoises. Bottom-towed-gear management is also required in relation to 'red-risk' gear/habitat interactions although activity levels within this fishery are relatively low.	• Develop relevant monitoring and control plans; • Undertake gap analysis of fishing activity relevant to assessing fishing impacts on SPA bird species and porpoises; • Development of management measures for any relevant 'red-risk' gear/feature interactions within MPAs.
Viable Industry	Priority: **Medium** – fishers have reported to the IFCA that at certain times of the year large quantities of Skate are on the ground and are available to be caught however the quota is not available.	• EIFCA to lobby at a national level regarding the allocation of quota in a way that works for smaller vessels.
Key species / Species trends	Significant negative trends are identified but only in relation marginal species (landed weights less than 100 kg). Thornback ray landed weights have remained stable and relatively high between 2010 and 2016 and UK proportion is 2%.	

Group: Whelks	**Key species: Whelk**	**Overall risk: Low**	
Evidence base	Current Regulation	Ecosystem impacts	Fisheries performance
Initial assessment Rank: **Low**	Initial assessment Rank: **Low**	Initial assessment Rank: **Low**	Initial assessment Rank: **High**
Contextual Rank: **Medium**	Contextual Rank: **Low**	Contextual Rank: **High**	Contextual Rank: **High**
Whelk fisheries data has been collected over the last three years in conjunction with the Emergency Whelk Byelaw and its permanent replacement. Whilst data is collected, a current research project is ongoing to determine an effective MLS and effort restrictions the context of MSY. Continuation of current collection is sufficient to provide data for the research projects.	A permit mechanism is now in place which enables the introduction of measures as required. Effort, gear and MLS are all currently managed and an ongoing research project will inform of any required changes. Suffolk fishers have raised concerns that the MCRS is too high and effectively makes the fishery inshore unviable.	Potting fisheries represent a relatively low risk in relation to ecosystem impacts although, assessments of potting activity within the Cromer Shoal MCZ is required.	The landed weight of whelks is significant within the district and one of the major whelk processing factories is situated within the district. In 2016 the number of vessels fishing inside the district was the same as 2014. The landed weight has remained consistently high since 2014 and peaked in 2016. The level of exploitation and landings may be too high. This concern has been communicated to EIFCA on two occasions by commercial fishers.

Category of works	**Priority / rationale**	**Potential works**
New data acquisition	Priority: Medium Additional biological data is needed to inform work relating to the MCRS implanted through the Whelk Permit Byelaw 2016.	• Increase scope is associated research project and voluntary gathering of whelk samples from fishers. Eastern IFCA to be involved with national collaboration between the IFCA's and CEFAS.
Monitor / maintenance	Priority: **Medium** - Continuation of research project in relation to MLS and MSY. MSY assessment likely to require several years of fisheries data. Engagement with the industry to make them aware of permit byelaw.	• Continuation of Whelk research projects to develop appropriate MLS and effort management.

		• Assessment of permit data – MSY • Assessment of MLS
Regulation	Priority: **Low** – current regulations are thought to be sufficient to reduce risk of fisheries collapse. Mechanism in place to modify measures in line with best available evidence – to be informed by ongoing research project.	• None identified
Engagement	Priority: **Low** – prior to the outputs of research projects re MLS and MSY no additional engagement is required (noting that current levels of engagement are required to inform fishers about the measures). To be informed by the associated research project. Further engagement is required to get buy in to the management process, including submission of accurate returns and the importance these have regarding future management of the fishery.	• None identified • More engagement to follow new MLS / MSY work
Enforcement	Priority: **High** – compliance with the Emergency Whelk Byelaw and the Whelk Permit Byelaw 2016 has been poor. MSY models rely on data provided by permit holders however, compliance with data returns has also been poor. In addition, the favoured bait species for whelks are edible crab (*Cancer pagurus*). Eastern IFCA has a byelaw in place to prevent its use which was in response to fishers using undersize crabs.	• Routine whelk fishery engagement and compliance, intel gathering and partnership working with MMO in accordance with Compliance Risk Register and TCG.
Environment / ecosystems	**Priority: High** – An assessment of impacts of fishing activity in relation to the Cromer Shoal MCZ needs to be undertaken and management measures (as required) put to formal consultation be January 2018. Monitoring and control plans will be required and this activity takes place predominantly within MPAs for which MCPs have been prioritised (namely the Wash and North Norfolk Coast SAC).	• Development of relevant Monitoring and control plans; • Cromer Shoal MCZ – fishing impact assessment.
Viable Industry	Priority: **Low** Reports of the MLS being too high inside the EIFCA district and the grounds being fished out, due to high effort within the inshore grounds. Therefore, there is a requirement for further research and implementation of findings.	• Further research on effort and SOM to ensure the long-term sustainability of the fishery.
Species trends	Strong positive trend and significant landed weight.	

Other Work Streams as flagged by messages, patrol reports and other sources.		
Issue	Priority	Narrative
Negative impact of pulse trawling. This is from outside district but it is reported as having a negative impact on stocks within the district. Effecting fishing fleet (multiple sectors).	Medium	Reported 4 times in messages and patrol reports. Also discussed during fisheries meetings. Issues reported have generally related to this causing widespread ecosystem impacts and causing the declines in demersal fish, flatfish and whelks. This is a politically sensitive issue and is locally of high profile. Additionally, it may have implications associated with EU exit. EU parliament recently (January 2018) voted in favour of banning the practice but any change will have to be negotiated with the EU Commission and Member States.
High numbers of seals causing issues.	Medium	Fishers (n=5) primarily in Suffolk but also along the North Norfolk coast have reported that there are a higher number of seals than is usually reported. This is causing them problems with the seals getting stuck in the nets and eating high quantities of the fish. Many have asked about the use of pingers and studies are underway looking at the impact of large numbers of pingers in an area. It has also been reported that the number of firearm applications are up.
Marine Pollution	Low	2 pollution incidents reported within the district in 2017. Membership of SEG ensures EIFCA are relevant regarding these events.
Potting vessels from the North East are fishing within the district	Low	Reports (n=2) that vessels from the North East are fishing inside the EIFCA district and then landing outside of it.
New data protection guidelines	High	New (stricter) legislation is being brought in as of May 2018. EIFCA will need to undertake work to be compliant.

2.2 Eastern IFCA Priorities 2018-19

The above assessment indicates many actions relevant to the risks associated with fisheries within the district. Table 2 indicates the key issues and provides rationale for their allocated priority.

Table 2 – High priority works for 2018-19			
Category	**Work**	**Fisheries**	**Comments / Rationale**
To ensure that the conservation objectives of Marine Protected Areas in the district are furthered	Development of management measures for 'red-risk' gear/feature interactions.	Demersal, flatfish, Dogfish and Sharks, Skates and Rays, Shrimp and prawns	Primarily relates to shrimp trawling (although all bottom-towed-gear fisheries will be affected) within the Inner Dowsing, Race Bank and North Ridge (IDRBNR) SCI, and the Haisborough, Hammond & Winterton SCI. 'Red-risk' interactions require immediate management. Work includes development of spatial closures within the IDRBNR SCI, dialogue with Natural England and the industry, formal consultation of regulations, an economic impact assessment and production of engagement material for stakeholders. Continued from 2016/17 priority.
	Assessing the impact of fishing activities on the Cromer Shoal Chalk Beds tranche 2 Marine Conservation Zone and delivering management measures (if required).	Crustaceans, Whelks, Shrimp and prawns, bivalve molluscs	Work to include a gap analysis of available evidence (impacts and fisheries activity) to inform an environmental impact assessment. Subsequent work will include development of management measures (as necessary), dialogue with the industry including formal consultation and the production of an impact assessment. Continued from 2017/18 priority. Take into consideration impacts of berried lobster ban.
	Development of priority Monitoring and Control plans.	Bivalve molluscs, shrimp and prawns, crustacean and whelks	The highest priority Monitoring and control plans relate to The Wash and North Norfolk Coast SAC, the Wash SPA and the North Norfolk Coast SPA. The key fisheries within these sites are bivalve molluscs and shrimp fisheries.
	Undertake gap analysis in relation to newly designated / soon to be designated MPAs and	Demersal, flatfish, Dogfish and Sharks, Skates and Rays, pelagic	Three MPAs are in the process of designation, the features of which include SPA bird species and porpoises which are sensitive to net-based fisheries. An assessment of the available impact and fishing activity data is required such that targeted

	develop plan to obtain relevant data.		evidence gathering can be undertaken to obtain required evidence.
	Delivering fisheries management measures for Amber and Green' designated features within European Marine Sites (EMS).	Shrimp and prawns (brown shrimp)	Primarily relates to the implementation of shrimp management measures within the Wash and North Norfolk Coast SAC. Work includes completing the development of measures to protect sensitive features (including dialogue with Natural England and the industry), formal consultation and the production of an economic impact assessment, production of stakeholder engagement material. Continued from 2015/16 priority.
	Introduction of an emergency byelaw to mitigate risk of damage to Wash and North Norfolk Coast SAC as necessary.	Bivalve molluscs	The court case relating to the extent of the Le Strange fishery has required the estate and local fishers to come to an agreement on the boundaries of the private fisheries. There is the potential that subsequent decisions will result in an area within The Wash which is not managed via the Wash Fishery order or the Le Strange estate. As such, emergency measures may need to be introduced pending a final decision on the boundary for the protection of the MPA.
	Development of management measures in relation to shrimp fisheries sustainability	Shrimp and prawns (brown shrimp)	The shrimp fishery is of high economic importance and is a nationally important fishery. Work includes development of management measures in consultation with the industry (including outputs from the MSC accreditation scheme), development of impact assessments and formal consultation with the industry. The priority of the work may be influenced by outputs of the MSC accreditation scheme – if suitable voluntary measures are adopted successfully, the requirement on Eastern IFCA may be reduced.
To ensure that sea fisheries resources are exploited sustainably and in accordance with MSFD requirements	Development of management measures in relation to crab and lobster fisheries sustainability	Crustaceans (edible crabs and lobsters)	The crab and lobster fisheries are of high economic and cultural value and represent nationally important fisheries. The immediate risk to the fishery is moderate in relation to crabs but higher in relation to lobsters, however neither are thought to be operating at MSY. Work includes a significant amount of informal consultation to develop measures, collection and

			analysis of relevant evidence (including fisheries data and economic impacts) including development of data collection mechanisms from fishers. V notch lobsters.
	Monitor fisheries management of bass in the context of European and national fisheries management measures and contribute to the development of Bass Nursery Areas	Demersal (bass)	The priority relates to the protection of spawning areas as may be and nursery areas within the district. Continued partnership working with Cefas and Defra in relation to Bass Nursery Areas, engagement and compliance monitoring in relation to European measures. The risk associated with bass fisheries is mitigated by European and National work streams which aim to protect bass stocks. In addition, bass fishing within the district makes up a relatively minor proportion of UK (less than 2%) and English (circa 5%) bass landings – further regulation beyond that implemented through the European Commission is unlikely to have a significant beneficial effect. However, EIFCA contribution to related work-streams is considered a priority in the context of poor stock health. Bass measures implemented for 2018 are stricter and reduce risk from a strategic perspective but also increase operational risk (i.e. education, engagement and enforcement including partnership work) which is highlighted in the section above.
	Development of district wide biosecurity measures	All (focus on bivalve molluscs)	Primarily relates to the bivalve mollusc fisheries (which are of high economic importance) but is applicable to all fisheries within the district. Continued from 2015/16 priority.
To ensure that the marine environment is protected from the effect of exploitation by reviewing district wide bio-security measures including management of invasive, non-native species	Implementation of proposed licence fees, fisheries management plan and Regulations.	Bivalve molluscs	Work includes formal consultation with WFO licence holders in relation to proposed measures and implementation pending consent from the Minister (including production of engagement material for fishers).

To develop management of the fisheries regulated under the WFO (regulated and several fishery)	Implementation of WFO Shellfish Lay lease conditions	Bivalve molluscs	Work in relation to ensuring compliance with WFO lease conditions (putting on and removing shellfish). Education and engagement in relation to biosecurity and the transfer of Invasive non-native species.
	Continued development of WFO policies.	Bivalve molluscs	Work includes informal consultation with WFO licence holders to develop policies which relate to the key concerns of fishers and appropriate management

2.3 'Business as Usual' – Critical Work-streams 2017-18

The Strategic Assessment 2017-18 indicates where risks in relation to a fishery or species are mitigated because of established work streams. The cessation of such work streams has the potential to increase risk associated with a fishery. Such identified work streams are set out below to provide context for the identified 'new' priorities identified through the Strategic Assessment.

SWEEP

The SWEEP project has been reviewed and it has been determined that evaluating the food carrying capacity is beyond our resources/capability. We will continue monitoring the chlorophyll and cockle and mussel meat yields required by the model used as mitigation within the associated HRA. New sondes have been purchased to conduct this monitoring regime.

Wash Fishery Order surveys

Annual surveys of cockle and mussel stocks within The Wash are a significant undertaking. These surveys do however, provide a level of fisheries evidence which is not reflected in any other fishery within the district. The associated fisheries are considered a low risk primarily because of our understanding of stock dynamics but also reflect the mechanism in place for managing the fisheries (The Wash Fishery order) and its associated tools (Fisheries Management Plan etc.).

Whelk management / research

The risk associated with the Whelk fisheries was high during the 2015 Strategic Assessment. Subsequent development of management measures has significantly reduced the risk associates with the fishery.

Data collection and research projects associated with stock assessments are ongoing and are established work streams intended to continue over time. Work relating to the size at maturity (to inform an appropriate minimum landing size) and analysis of effort and landings data (to inform the appropriate number of pots per vessel) is required to mitigate residual risk associated with the fishery.

Crab and lobster research

Analysis of Monthly Shellfish Activity Reports (MSAR) data in relation to crustacean management is undertaken routinely. This data is augmented by 'bio-sampling' data which is also routinely collected by officers in the field. Whilst the current dataset relating to this requires development (as highlighted in the assessment) the continuation of the established processes is needed to prevent risk from increasing.

Database maintenance and development

Additional fisheries data forms have been issued over the past few years and the associated data entry burden has increased. Suitable databases are required to mitigate the cost in time of entering data and subsequent analysis.

Further data is required going forward, not least in relation to electronic monitoring devices. New systems will need to be developed which can store and analyse this new source of data including the logistics of obtaining it from partner organisations (e.g. the MMO).

Risk of conflicts with other marine users

The present assessment focusses on sustainability issues which are within Eastern IFCAs envelope of influence. Other marine users also compete for space and resource within the marine environment and such activity is increasing over time.

Eastern IFCA is a statutory consultee within the Marine Licencing System. Where new plans or projects are proposed within the district, Eastern IFCA highlights potential conflicts with fisheries sustainability.

Enforcement

Enforcement activity is primarily driven through the Compliance Risk Register (an annual assessment of risk of non-compliance) and Tactical Coordinating Group meetings (which also considers intelligence, emerging issues, fishing trends and the monthly risk profile).

Enforcement activity is influenced by the outputs of the Strategic Assessment as this identifies the fisheries most at risk of sustainability issues (and by extension, those potentially most vulnerable to negative impacts through non-compliance).

Authority business

In addition to work relating to furthering the objectives of the IFCA, a significant resource is spent on general Authority business including preparation for meetings, community engagement and training. This is considered further in the 5-year Business Plan.

2.4 Identification of future priorities 2018-19

Given the finite resources of the IFCA, workloads are prioritised. Table 4 (below) sets out work streams relating to risks identified within the Assessment which are considered less of a priority. It is important to highlight these potential work streams as they may inform future Strategic Assessments or, opportunities may present during the year which enable additional benefit from existing or partner projects for which, these should be considered.

Table 4 – Identification of future priorities 2018-19

Category	Work	Fisheries	Comments / Rationale
Obtaining better fisheries data	Continue dialogue with MMO in relation to development of under 10m vessel reporting.	All (focus on finfish species)	Risk associated with this work-stream is mitigated through national approaches and partnership working. Work primarily includes partnership working with this national piece of work including influencing the outcomes to solve IFCA data deficiencies.
	Development of relationship with RSA to obtain more fisheries data.	All (focus on finfish species)	Finfish species are relatively data poor within the district but RSA data will be useful in determining trends to detect issues (including as part of this assessment). Development of the IFCA's relationship with the RSA sector will further our available evidence and enable better integration of RSA activity into the Strategic Assessment.
	Further develop the mechanism to obtain voluntary data from commercial fishers in light of possible changes to important commercial species (reduced ability to depend on Bass and Cod).	Demersal, flatfish, skates and rays, dogfish and sharks	Existing voluntary measures are in place to obtain better fisheries data. This project could be furthered to obtain data from a wider range of fisheries.
	Continue dialogue with MMO and other partner organisations to develop 'joined-up' approach to gathering fisheries data from fishers.	Demersal, skates and rays, flatfish, dogfish and sharks	In order to obtain better fisheries evidence without duplicating effort on the part of the fishers, a collaborative approach is required. In particular, MMO data requirements on fishers do not have the spatial resolution

			needed to undertake HRAs. Furthermore, effort data is rarely collected.
	Develop shrimp returns data in consultation with industry	Shrimps and prawns	Non-compliance with the requirement to return shrimp fishing data has indicated that the forms provided by Eastern IFCA should be developed to aid completion. Work includes dialogue and consultation with the industry.
	Implementation of iVMS for all fisheries	All	Notwithstanding the current work streams to implement iVMS requirements within the cockle and shrimp fisheries, a national approach is underway to deliver a requirement for all fishing vessels to have a form of electronic monitoring device. Input from the IFCAs is required to develop the necessary Statutory Instrument. There is also direction from the Authority that, should a national approach not succeed, IFCA byelaws would be used to implement to requirement.
	Undertake a gap analysis of available evidence in relation to private fisheries, collate required data, assess fisheries and develop management as required.	Bivalve molluscs	The evidence base relating to private fisheries is limited and a gap analysis is required to determine where additional evidence is required to inform related assessments. In particular, fisheries management within the Le Strange Fishery (The Wash, Norfolk) may be required and is potential a higher risk given the use of towed gears (dredges) although no fisheries evidence is available to Eastern IFCA as a result of commercial sensitivities.
Delivering fisheries management in relation to private fisheries in MPAs where necessary.	Complete HRAs in relation to 'unplanned' fisheries (sub-tidal seed mussel fisheries in particular).	Bivalve molluscs	Seed mussel fisheries have the potential to occur throughout the year. Where such a fishery is detected by fishers, Officers have a limited amount of time to develop management measures and a HRA for the fishery (particularly in sub-tidal fisheries which are ephemeral). In the event one does occur, the economic benefit of the fishery is relatively high (as mussel is usually used in local aquaculture).

Delivering fisheries management in relation to fisheries in MPAs	Re-assess need to deliver ‘unregulated netting’ in the context of bass nursery areas.	Demersal, flatfish, skates and rays, dogfish and sharks	The assessment of the potential impacts and scale of ‘unregulated netting’ was undertaken during the last financial year as a priority. Subsequently, Bass Nursery Areas have been proposed and Eastern IFCA has provided evidence towards the development of these. The establishment of BNA diminishes the requirement to implement independent ‘unregulated netting measures’ in most areas.
	Review the Humber estuary cockle byelaw (inherited from North Eastern Sea Fisheries Committee)	Bivalve molluscs	Fishing opportunities within this fishery have previously been limited by an unfavourable stock assessment in (e.g. 2016 survey found very few fishable cockles), the lack of an up-to-date shellfish water classification and difficulties relating to access via the land. The byelaw requires review to make it more transparent and to enable a fishery from the sea. Fishers have more recently indicated a will to fish the area and there may be a relatively simple solution to enable this to be explored.
To ensure that sea fisheries resources are exploited sustainably and in accordance with MSFD requirements	Work around education and engagement with regards to the landings obligation. (supporting role)	Fin fish (all)	The landings obligation is resulting in changes to how the fisheries in the district operate.

3. Principles applied in undertaking priorities

The Strategic Assessment focusses on 'what' is required to further fisheries sustainability and the conservation objectives of MPAs. The 'how' work is undertaken is driven primarily by our vision statement and our published policies and strategies (for example the Enforcement Policy and Data Strategy - these can be found online at http://www.eastern-ifca.gov.uk/publications/).

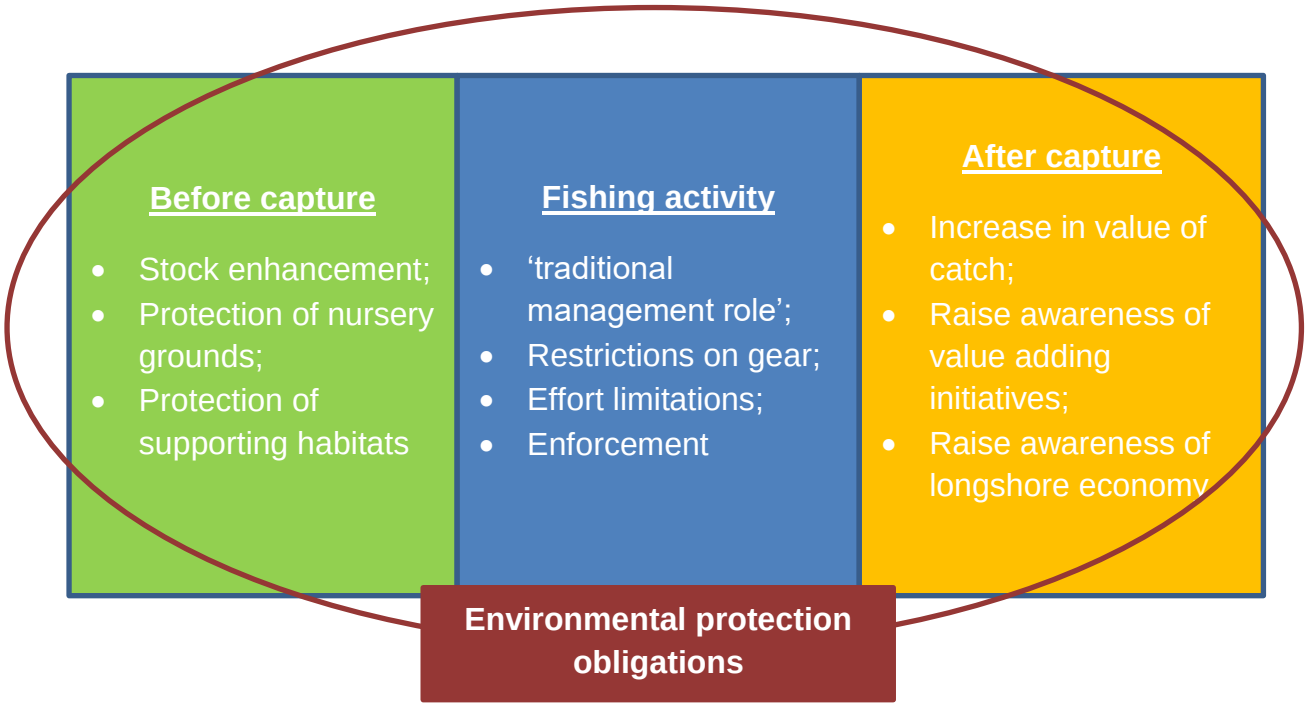
Eastern IFCA Vision - *Inshore Fisheries and Conservation Authorities will lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.*

In undertaking The Strategic Assessment 2018 two important principles were identified which are set out below.

3.1 Consideration of the 'complete fishery'

Fisheries consist of more than just the fish and fishing gear which capture them. The productivity of a fishery can be influenced by the protection of habitats associated with the prey of a target species or by the strength of the market into which they are sold.

Eastern IFCA regulations tend to focus on the mechanisms of catching fish and shellfish, for example; restrictions on the number of whelk pots and daily quotas of cockles. However, our management of these fisheries considers the complete fishery and, where it is achievable and appropriate, Eastern IFCA endeavours to get additional benefit from management measures by taking this consideration into account.



3.2 Community Voice Method

Stakeholder engagement is fundamental to the delivery of Eastern IFCA objectives and our commitment to it is set out in the annual Engagement Plan. From drawing on local knowledge to develop management measures which suit a particular fishery, to engaging with young people about the benefits of the marine environment, Eastern IFCA commits a significant resource on communication.

In 2016, we undertook an innovative community engagement project called 'Community Voice Project'. The aim of the project was to engage with the full range of stakeholders using new methods, to understand what is important to them in relation to the inshore environment.

The project delivered a formal report on its findings in October 2017 but lessons learnt from the project were being applied and were guiding our engagement with stakeholders during 2017-18.

CVM data has been used to inform the contextual information within the assessment. This approach is useful as it provides a level of objectivity to an otherwise subjective part of the Strategic assessment.

3.3 Industry viability

An additional category of works has been added into each species assessment covering industry viability. This is in line with the Eastern IFCA remit and in recognition of the fact that most of the business models within the district are small and will have a limited ability for business promotion on a large scale. Therefore, where possible Eastern IFCA will seek to identify ways for the industry to improve its viability. This may include ensuring authorities are aware of specific issues that affect industry.

4. Conclusions

The additional criteria and new approach have resulted in outputs which are more holistic and outputs focus on work-streams rather than a fishery or a species. In particular, the management of MPAs features more cohesively as part of the assessment, resulting in outputs which cover the entirety of Eastern IFCA's remit.

The outputs of the assessment largely reflect the 2017-18 priorities where work is still underway. Some work-streams identified in the 2017-18 assessment have been re-prioritised as a lesser priority which is primarily due to national programs mitigating some of the risk.