Renaissance of East Anglian fisheries

Report of the REAF Group

Fourth draft

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Introduction to REAF and acknowledgements

Renaissance of East Anglian Fisheries (REAF) is a community-led long-term strategy for fisheries in the region. Work began in 2018, through the joint endeavours of East Suffolk Council, Peter Aldous MP, June Mummery MEP and Paul Lines. A partnership was formed between the regional industry, East Suffolk Council, Suffolk County Council, Norfolk County Council, New Anglia Local Enterprise Partnership and Seafish.

Funding was provided by the participating Councils, Seafish, the European Maritime and Fisheries Fund via the Marine Management Organisation, while REAF Group members provided their time and their contacts, some very generously. Seafish also contributed funding in kind in the form of fisheries data and data analysis as well as market expertise. East Suffolk District Council gave invaluable administrative and project management support and hosted meetings of REAF.

The report of the Renaissance of East Anglian Fisheries (REAF) was prepared by its members, with advice from Rodney Anderson and research and analysis from Vivid Economics Ltd.

This strategy builds on insights from numerous stakeholder and expert interviews across all sub-sectors, as well as conversations with regulators and public bodies. A list of organisations and individuals engaged is contained in the accompanying technical appendix. We would like to thank all individuals who have contributed to this project.

The calculations in the report are based on fish stocks remaining constant. Over the last decade, fish stocks have improved. If this trend continues, the rewards could be higher than estimated here.

1 Introduction

The current time is a moment of great potential and great threat for the fishing industry of East Anglia and Essex, from Leigh on Sea, on the north bank of the Thames Estuary, to King's Lynn, on the south side of The Wash. It is no accident that parties in East Anglia have come together now to prepare a strategy. This strategy unfolds a compelling story of opportunity alongside agonising risk of losing a culture of small-scale artisanal fishing. This strategy addresses how to prepare for that opportunity and support a flourishing coastal fleet.

The opportunities over the next two years to take decisions relating to the future of the East Anglian Fisheries are exceptional. This strategy explains the situation and recommends actions in most areas in which decisions should be made. Many of these decisions are time sensitive, with the majority needed within the two years. Many of the opportunities and threats are beyond the control of local decision makers, however, they will have a significant impact on the future of the industry. This report provides the opportunity to form a regional response to many of the challenges, including: the UK's departure from the EU's Common Fisheries Policy; the uncertain and changing abundance of locally important fish stocks; the upcoming retirement of the majority of local fishermen; and, the absence of normal (sufficient) levels of profit in parts of the fishing sector. Without appropriate action, changes will take place in the fishing sector from which it will take a long time to recover or which could turn out to be potentially irreversible. On the one hand, in ten years' time there could be a thriving sector, celebrating its diversity along the coast, supporting many more jobs off- and on-shore than at present, or alternatively, nearly all the traditional coastal fishing and associated processing and retail could have disappeared.

The fisheries of East Anglia have long supported a fishing industry, with ports and fish processing being part of the culture of the region. They are known for coastal shellfish, the sole and plaice of the shallow water banks of the North Sea, and for the annual mass migrations of herring. Vessels are launched from the shingle beaches and from ports and harbours all along the coast. Oysters are cultivated on racks and scrapes along the banks of the estuaries. Together they form a diverse set of small businesses operating along the coast, specialising in individual shellfish species such as crab and lobster, cockles, whelks and brown shrimp, or operating flexibly to catch the seasonal influxes of sole, herring, bass and skate. Its character varies as you travel from Leigh-on-Sea on the Thames Estuary to King's Lynn on the Wash.

Usually further out to sea, among and beyond the string of large wind farms, much larger trawling vessels are found pursuing sole, plaice or herring. Foreign-owned, they land overseas and with little economic connection with the UK.

The opportunity is remarkable. The UK's departure from the EU's Common Fisheries Policy could, if accompanied by well-designed national policy and regulation, increase UK vessel quota catch in the Southern North Sea by seven times by value and UK vessel non-quota catch by 25%, together adding 60 or more vessels to the UK fleet in the Southern North Sea, creating corresponding offshore and onshore jobs.[1]

The strategy addresses significant potential opportunities for growth under some Brexit scenarios. It recommends actions to support growth across all sectors along the value chain, while aiming to:

- enhance and grow a regional, active, sizeable and diverse inshore or coastal fleet;
- tackle improvements in regulatory operations;
- coordinate efficient investment along the supply chain;
- expand the value of natural resources through sustainable aquaculture;
- reduce tensions between angling and commercial fishing.

[1] Figures based on MMO 2016 landings data and Vivid Economics calculations. The vessel number estimate assumes a modern, highly productive fleet as specified in Box 2. In addition, a technical appendix to this strategy report details the approach..

The strategy takes into account the current pattern of activities, in particular:

- the specialisation of the catching fleet;
- the spatial distribution of stocks;
- the financial performance of the current fleet, at fleet segment and vessel level;
- the current infrastructure capability and its future potential;
- the capacity and financial performance of processors;
- aquaculture;
- recreational sea angling;
- recruitment and training;
- the Fisheries White Paper and the Fisheries Bill.

This is a diverse sector managed under complex regulation. To compound matters, the future policy arrangements with the EU after Brexit, if Brexit takes place, remain unknown. While this report lays out a set of headline recommendations, we acknowledge that their implementation will involve further decision-making.

Box 1 About REAF

Renaissance of East Anglian Fisheries (REAF) is a community-led long-term strategy for fisheries in the region. Work began in 2018, through the joint endeavours of East Suffolk Council, Peter Aldous MP, June Mummery MEP and Paul Lines. The partnership between the regional industry, East Suffolk Council, Suffolk County Council, Norfolk County Council, New Anglia Local Enterprise Partnership and Seafish, received funding from the European Maritime and Fisheries Fund via the Marine Management Organisation and was delivered by Vivid Economics. Rodney Anderson was the advisor.

2 Size of the opportunity

Upon leaving the EU Common Fisheries Policy, up to 13,300 additional tonnes per year of allowed catch become available to UK-registered vessels in the Southern North Sea, potentially being landed and processed in the UK. This would come about through a change in the way that fishing opportunity in the North Sea is allocated between countries, moving to a geographic area allocation under the international law of the sea, known as Zonal Attachment, replacing the current basis of historic fish catches, known as the Relative Stability Rule of the Common Fisheries Policy. This change would allocate a seven-fold greater catch of quota stock value to the UK from the Southern North Sea, worth approximately £28 - 34m at the quayside. This includes an eight-fold volume increase in sole, a ten-fold volume increase in herring and an eleven-fold volume increase in plaice. In addition, the Economic Link rule, which the UK uses to regulate the activities of vessels fishing the UK's fish stocks, could be strengthened to require those vessels to land fish in the UK.[2] The potential opportunities could further increase as fish stocks improve though effective management and the regional fleet becomes more efficient and more competitive. In addition, there may be opportunities to start harvesting crabs further offshore and to expand oyster cultivation.

East Anglia has potential to translate this opportunity into regional jobs and GVA. Table 1 presents the scale of this opportunity.

Box 2 Method for quantification of the opportunity

Data

- MMO 2016: anonymised, vessel level landings data of the UK fleet*
- STECF 2016: catch by species by ICES rectangle by vessel nationality
- ICES statistical rectangles
- Flanders Marine Institute 2018: Maritime Boundaries Geodatabase
- Seafish fleet economic performance 2016*
- Seafish processing sector census 2016* and Seafish processing financial survey 2015

*Later years are available for these datasets, but could not be used due to limitations in STECF data availability.

Assumptions

- The calculation assumes that fish are equally distributed within each ICES rectangle.
- The location of fish is based on a single year, 2016.
- Opportunity catch and landings are valued at UK average stock prices, which tend to be above current regional prices for most stocks.
- Opportunity landings assume all UK registered vessels land into UK ports due to Economic Link regulation, and that East Anglian and Essex ports receive 70% of UK landings volumes from IVc.
- Opportunity vessel numbers assume proportional increases in landings by the non-shellfish inshore and offshore fleets, and constant landings volumes by the shellfish and low activity fleets. The new fleets are highly active as a result of this strategy.
- GVA for processing is assumed to increase in proportion to raw material processed, GVA in the catching sector is assumed to increase more than proportionally to landings, due to efficiency gains.

Limitations

The analysis only considers catch and catching potential from sea area 27.4.c, the Southern North Sea, and is based upon reported catches which tend to be lower than overall TACs and quotas.
Results are sensitive to the above assumptions. A snapshot of a single year is presented, while catching opportunities and stock distributions change from year to year.

[2] Figures based on MMO2016 landings data and Vivid Economics modelling. See Box 2 for methodological detail. In addition, a technical appendix to this strategy report is available, detailing the approach.

Table 1 Brexit offers an opportunity of 13,300 tonnes additional catch of UK vessels in the Southern North Sea, which could translate into 10,600 tonnes additional landings into regional ports

All values are regional figures. East Anglia and Essex (EAE) is defined as related to ports in East Anglia and Essex NUTS 2 (see Appendix for list of ports). For processing, all sites with postcodes CO, IP and NR are included.

		Current, EAE (catching: 2016 processing: 2015)	Opportunity, EAE (Zonal attachment and strategy recommendations)	
Tonnes/year landed (by UK vessels from IVc)	Inshore fleet	200	2,900	
	Shellfish fleet	7,000	7,000	
	Offshore fleet	-	7,900	
	Total	7,600	18,200	+140%
Value/year landed (by UK vessels from IVc, valued at UK average prices for opportunity estimates)	Inshore fleet	£0.8m	£8.2m	
	Shellfish fleet	£8m	£8m	
	Offshore fleet	£0m	£22m	
	Total	£9.6m	£39m	+310%
Jobs (current numbers stated in full time equivalent, opportunity estimates for the catching sector state number of people employed)	Inshore fleet	14 FTE	80 jobs	
	Shellfish fleet	73 FTE	90 jobs	
	Offshore fleet	0 FTE	120 jobs	
	Processing	209 FTE	up to 360 FTE	
	Total	328 FTE	up to 650 jobs/FTE	+100%
GVA/year	Inshore fleet	£0.4m	>£5.4m	
	Shellfish fleet	£3.4m	£3.4m	
	Offshore fleet	-	>£14.7m	
	Processing	£11m	£11 - 19m	
	Total	£15m	£24 - 43m	+60 - 190%
Vessel numbers and average annual fishing income per vessel	Inshore fleet	24 vessels, £33k/v	30 vessels, £250k/v	
	Shellfish fleet	76 vessels, £97k/v	76 vessels, £97k/v	
	Offshore fleet	0 vessels	20, £800k/v	
	Total	100 vessels	126 vessels	+30%
Fishing GVA/fisher	Inshore fleet	£29,000	£65,000	
	Shellfish fleet	£38,000	£38,000	
	Offshore fleet	n/a	£125,000	

Note: See Box 2 for data sources and further detail.
Source: Vivid Economics

3 A brief description of fisheries in East Anglia

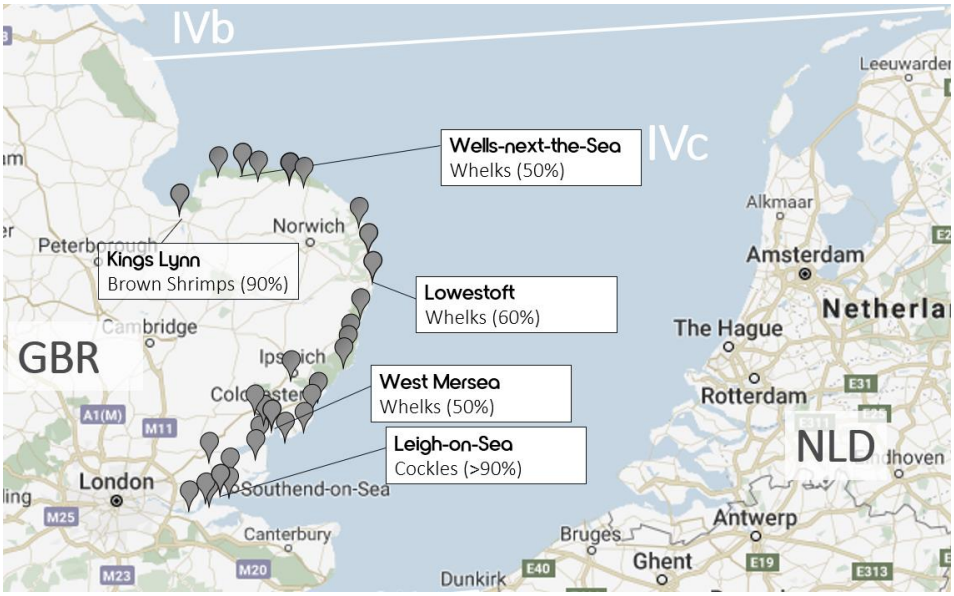
3.1 Introduction

The fisheries of East Anglia cover a diverse set of activities including a shellfish fleet; an inshore fleet catching flatfish; offshore demersal and offshore pelagic fleets; charter sea angling trips; individual sea anglers; aquaculture farms and processors, some with international exports; port and market services; and ancillary services.

The East Anglian coast spans estuaries, shingle beaches, harbours and the fairly shallow North Sea, with its banks and hollows and variety of substrates, creating a variety of local ecosystems in which shellfish grounds, demersal fish spawning grounds and other areas are found. It is home to significant stocks of sole, brown shrimp and plaice, as well as herring, mackerel, skate, bass, crab, lobster, cockles and whelks.

The total value reported of the catch of commercial species from the Southern North Sea has varied between £190m and £260m in recent years (£220m in 2017), of which between 7% and 12% (8% in 2017) was landed by the UK fleet (ICES 2017). East Anglia's ports received 63% of UK vessel landings from this sea area, corresponding to £9m in 2017 (4%) (MMO 2017). Most of this is shellfish and non-quota species caught by inshore and specialist shellfish vessels. Most finfish are currently landed overseas into ports in the Netherlands and France, with shellfish landings prevalent in the northern ports and harbours in East Anglia and the estuaries. Sole had the largest landed value from fishing ground IVc at £80m, followed by brown shrimp at £65m and plaice at £14m. Of these landings, only £0.5m of sole, £2m of brown shrimp, and less than £0.1m of plaice was landed into ports in East Anglia and Essex. Even then, some of the sole landed in East Anglia is shipped to Brixham market for sale rather than being sold locally. Other important species for East Anglia and Essex are cockles (£2.1m), whelks (£1.9m) and lobsters (£1m) (MMO 2017). Some of the principal shellfish ports are shown in Figure 1. Fishers in the region have questioned the accuracy of some of the official MMO data because it does not correspond with their first-hand local knowledge. The official data are shown inFigure 1 and have been used in other calculations in the strategy.

Figure 1 Ports along the coast of East Anglia and Essex tend to be specialised in a small number of species



Note: Species listed indicate top species landed into this port in 2017 by value share, value share in brackets. This map is indicative and does not reflect precise location of ports and sea areas. A full list of ports included in this analysis can be found in the appendix of this report.

Source: Vivid Economics, based on MMO 2017 landings data

3.2 Stocks

Most of the shellfish stocks are now closely monitored, with well-established arrangements for control of cockles and brown shrimp. Alongside familiar controls of licensed vessels and minimum landing size, the understanding of the status of crab and lobster stocks has developed further recently, while the whelk stocks and population dynamics are not yet well understood and the control of the fishery is in its infancy. The crab stocks appear to be stable but, while catches have been high and fishers report that the catch rate remains good in most areas, the trends in whelk stocks are not known and there is some concern that a large transfer of effort in recent years from other stocks into whelk fishing may be depleting the stock. On the other hand, the absence of cod, a predator of whelks, might partly explain the abundance of whelks.

In terms of finfish and flatfish, the stock situation is mixed. Fishers report at interview a complete absence of cod in the last four years, in what was traditionally a busy cod fishery, and attribute this to a variety of causes including climate change, under-sea power cables and offshore wind farms. They report rising numbers of spurdog and bass. There is a ban on landing spurdog, which has made longlining (a technique using bated lines of hooks sometimes extending for several kilometres behind the vessel) more difficult; the ratios of spurdog to target species being hooked has risen. There appears to be a lack of scientific evidence on current spurdog stock health. Fishers express concerns about poor catches of sole over the last ten years, because it is a high value species, and they blame its declining size and availability on poor management, in particular on the scale of activity by large trawlers operating from bases outside the region, in particular on pulse fishing and on the prosecution of spawning aggregations of sole (large shoals engaged in spawning). The official ICES assessments are summarised in Table 2.

Bass have the potential to become an important stock for the regional fleet and, in particular, the inshore fleet. Wild capture bass is a high value species. Recent years have seen tight controls introduced to enable the stock to recover, following the UK making a formal request to the European Commission to take emergency measures. There are signs that the recovery measures are beginning to have a positive effect.

Table 2 Health of finfish and flatfish stocks in the North Sea

	Sole	Plaice	Cod	Bass	Herring
Fishing pressure (FMSY)	red	green	red	green	green
Stock size (MSYB trigger)	green	green	red	red	green

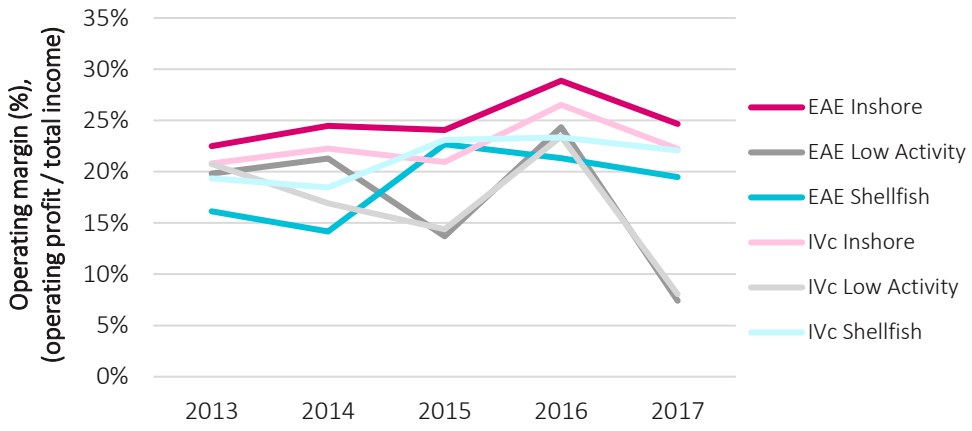
Note: Colour code indicates ICES evaluation. Green: Desirable situation. Amber: Status lies between the precautionary and limit reference points. Red: Undesirable situation, e.g. fishing pressure is above the relevant reference point or stock size is below the relevant reference point.
FMSY is the fishing mortality generating the highest surplus production in the long run.
MSYB trigger is a parameter in the ICES maximum sustainable yield (MSY) framework, triggering advice on reduced fishing mortality (below FMSY).
Source: Vivid Economics based on ICES 2018 stock assessments

3.3 Regional catching fleet[3]

A highly specialised shellfish fleet makes most of the shellfish landings. A fleet of over 70 shellfish vessels operates in the waters off East Anglia, targeting cockles, whelks, brown shrimps, lobsters and crabs. The shellfish fleet is reported to enjoy operating margins, defined as operating profits over total income, between 14% and 23% on average.

Single-handed vessel operation is risky. It is more dangerous to operate a vessel single-handed and serious accidents and near misses are frequent. These vessels are also much less productive than the slightly larger vessels with crews of two or more.. It is desirable to see a move away from single handed operation, in particular for safety reasons, in the future.

Figure 2 Most vessels operate at operating margins between 15% and 25%



Note: Operating margins are defined as profits before financial cost and asset depreciation divided by total income. No profit estimates for offshore fleet are reported here due to small regional sample size. See appendix for definition of vessel groups.
Source: Vivid Economics analysis of Seafish Fleet Economic Performance 2013-2017

In contrast, the inshore finfish and flatfish fleet targets a diverse set of species. Forty inshore vessels operating in the waters around East Anglia, of which 25 land more than half of their catch to ports between Kings Lynn and Southend -on-Sea. The inshore fleet catches primarily sole or bass. Only a few vessels

[3] All profitability data and vessel numbers in section 3.3 are based on Seafish Fleet Economic Performance 2013-2017. All vessel numbers are for 2017.

specialise purely in one of these, most vessels target and land multiple species in the course of the year, including sole, bass but also skates and rays and shellfish stocks. Survey results for the inshore fleet suggest average operating margins of between 22% and 29%. However, single vessels may operate at margins significantly below these averages.

A varying but low number of UK registered offshore vessels are fully or partly operating in the Southern North Sea, but these vessels land only low values into regional ports due to foreign ownership. The current UK-registered offshore fleet comprises three demersal trawlers, foreign-owned and landing overseas, catching at least one third of their catch in the Southern North Sea, mostly Sole and Plaice, and 16 more vessels that catch less than one third of their catch there. Three visiting pelagic trawlers targeting Mackerel and Herring report catching a few per cent of their catch in the Southern North Sea. Demersal trawlers range from 15 to 45 metres in length, while pelagic trawlers can be 50 metres or longer. Main landing ports include large ports such as Scheveningen and Harlingen in the Netherlands. No information on the profit margins of these vessels is currently available. These are specialist, modern vessels and represent a substantial financial investment, made possible by access to UK waters under the Common Fisheries Policy and through their purchase of access to UK quota. They are said to comply with the Economic Link mostly by gifting some quota to the UK. Some Dutch demersal trawlers have courted controversy in recent years by using pulse trawling, which employs electric currents to force fish from the seabed, a technique that the European Parliament has voted to ban with effect from August this year, with 5% of the fleet in the North Sea permitted to continue for scientific purposes until 2021 . There can be high fuel costs from trawling, particularly demersal trawling; for this reason and the environmental damage bottom trawling can cause, its long-term sustainability is in question.

More than 130 vessels each land fewer than £10,000 worth of catch by year. These low activity vessels operate around 20 days a year. Jointly, they account for about 5% of landings in the region. Low activity vessels make lower operating margins than the rest of the fleet in recent years (down to 7% in 2017), with some vessels registering losses.

3.4 Angling

Angling is a popular sport nationwide, contributing significant value added. In freshwater, it is a licensed activity, but at sea, individuals can go angling without a licence, either from the beach or from a small boat. While it is not known how many people participate in sea angling in East Anglia, the number is thought to be several thousand. Around 82 boats with skippers take anglers fishing on charter trips for half a day or a day at a time in East England (DEFRA, 2012). Most anglers are local while a few travel to East Anglia, staying in local guest accommodation and eating out. The pressure that angling exerts on fish stocks is not currently well documented. Nor is the contribution to the regional economy, estimates of which are not sufficiently reliable to reproduce here. Charter boats typically target favoured species such as bass and skippers apparently allow customers to take more than one specimen home per trip, for personal consumption, although the regulatory limit set for bass is one fish per customer per day. The rest of the fish are required to be returned to the sea once caught. While this may seem to be a modest catch, a large bass can have a retail value of up to £80 and inshore commercial fishers may be catching no more of these target species than a charter angling vessel (interview evidence). Commercial targeting of bass is currently restricted to vessels with authorisations, to specific times of year, to limited bycatch with certain gears and to an annual catch limit with hooks and lines.

3.5 Aquaculture

The two main types of aquaculture in East Anglia are cultivation of oysters and mussels, with oyster farming the most common. Racks of oysters are set on the banks of estuaries whereas strings of mussels may be set out at sea. Both depend on access to suitable sites with good water quality. There appears to be scope to expand oyster farming, whereas it is claimed that mussel farming has recently declined because of reduced availability of seed mussels in the region as wild mussel beds have been encroached on by wind farms.

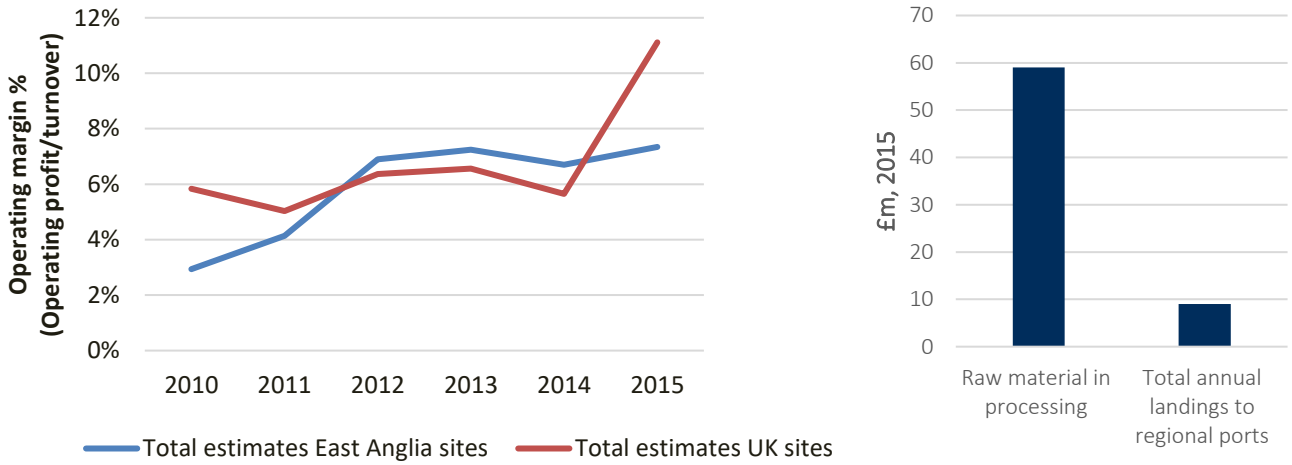
3.6 Ports

There are ports, harbours, staithes and beach landing places all along the coast of East Anglia. The two largest ports are Lowestoft and Great Yarmouth, from which fishing vessels, oil and gas platform supply vessels and offshore wind service vessels operate. Lowestoft is a Defra-designated port for landing fish. Fishing vessels also operate from the port of Kings Lynn and the harbours at Wells, Leigh on Sea and West Mersea, as well as from beaches and estuaries such as Cromer, Aldeburgh and Felixstowe Ferry, to name just a few. The portside facilities vary greatly in maximum draught, mooring, landing and storage facilities and vehicular access. One port in East Anglia, Lowestoft, has a traditional auction where buyers typically attend daily. The auction has suffered from declining quota stock landings and uncertainty over the tenure of its premises but provides a lifeline for some local fishers. Some of the fish landed in East Anglia goes through the auction, but much is sold direct to processors or is transported by road to Brixham for auction.

3.7 Processing[4]

The processing sector in East Anglia has decreased in size over the last decade and no longer relies on landings in the region. The number of processing plants in the wider region of East Anglia has decreased by 30% in the last seven years with 14 sites remaining in 2018. Employment in processing has halved over the same time period. This reflects declining landings in the region, to which the remaining businesses have responded by diversifying, buying their feedstock from further afield, from Grimsby, Peterhead and Brixham, for example. The transport costs involved in shipping from these locations squeeze their margins. Retailers also buy their stock from further afield, most commonly Billingsgate in London, which entails spending many hours on the road each week making multiple trips .While average processing margins have increased in the last few years, they are generally low, at around 7%, see Figure 3. Some of the processors focus their marketing and sales on the UK market but produce is also sold in Europe, particularly to France, Spain and Southern Europe, with some sent to China. For example, much of the Plaice that is landed in the Netherlands is consumed in Italy.

Figure 3 Margins in the processing sector have been low, but there is an upward trend (left)



Note: Operating margins are defined as profits before financial cost and asset depreciation divided by income. Most of the fish processed in East Anglia is not landed in East Anglia.

Source: Vivid Economics analysis of Seafish processing sector survey 2008-2015 and MMO 2017

[4] All values based on Seafish processing financial survey 2008-2015 and Seafish processing sector census 2008-2018. All sites with postcodes CO, IP and NR are classified East Anglian processors in this analysis.

3.8 Training

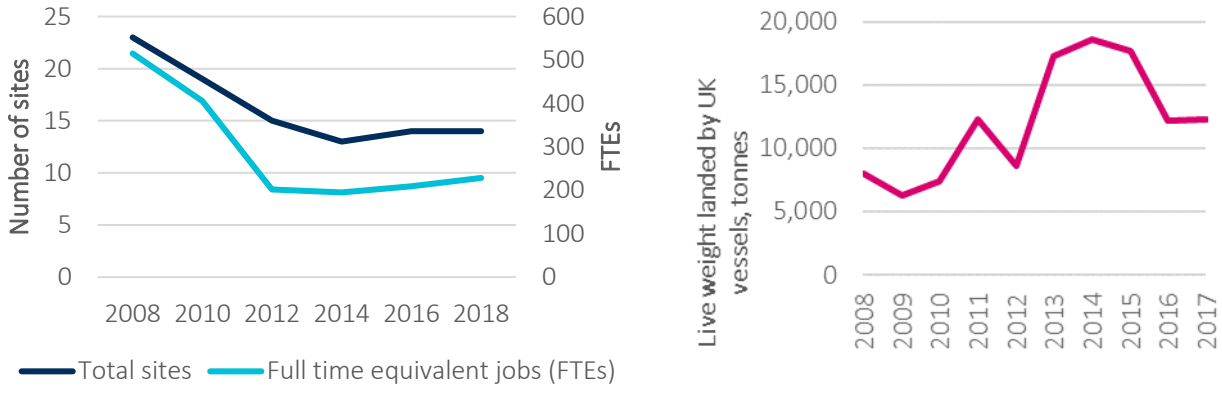
Basic training is required before crew can go to sea, but it can be completed in a week or two of classroom learning at a cost of a few hundred pounds. Further, more advanced courses take fishers through various modules leading to a skipper's certificate and can be completed over the course of a year or two. East Anglia has established providers which offer this training. In the processing sector, filleting is a skilled job, which is learned at work and for which training courses are available.

3.9 Regulatory bodies

Access to fishing and control of fishing activities is exercised by two IFCAs and the MMO, with responsibilities split between them geographically and by stock targeted. Each has responsibility for setting policy, making regulatory rulings, commissioning scientific studies, inspection and enforcement. The IFCAs and MMO have a concordat, but not all believe this is working well enough. Within the East Anglia region, the IFCAs are small organisations, for example, the Eastern IFCA, having around 20 staff, though the number of staff is large in relation to the number of active fishing vessels is one agency staff member per eight boats. The IFCAs have governance arrangements including representation from local fishers and local authorities.

The way the Pool is run can be improved. One of the main roles of the MMO is to run the Pool, to which most inshore vessels belong as a way to secure access to finfish. The MMO sets allowed catches for members of the Pool each month for the month ahead. A common complaint is that the allowed catches are too low to satisfy fishers' income needs. The MMO tries to improve this situation by trading the quota it receives from vessels under the quota gifting arrangements of the Economic Link. It assesses quota trades according to the price of fish associated with that quota. On that basis, its trading counterparties have specific preferred trades which they like to make, where the ratio of quota value is high relative to the price of fish associated with that quota. In other words, the trading counterparties routinely profit from the poor trading strategy of the MMO.

Figure 4 Decreasing size of processing (left) and volatile landings of the catching sector (right)



Source: Vivid Economics analysis of Seafish processing sector survey (left) and EU Scientific, Technical and Economic Committee for Fisheries (right)

The accompanying technical appendix contains a detailed assessment of the current status of the fisheries sector in East Anglia.

4 Recommendations

The evidence supporting the recommendations comes from discussions with over 40 stakeholders in East Anglia across all fisheries sectors, including catching, angling, aquaculture, processing, infrastructure and training, and from statistical data. Most of these recommendations are worth taking forward in all circumstances, but Recommendation 2.2 could only legally be taken forward in Brexit scenarios, and in Recommendations 3.1, 3.2, 4.1, 4.3 are only worth taking forward in scenarios in which the UK's access to stocks increases considerably.

A central aim of these recommendations is to improve safety. In particular, the package of measures enables the introduction of larger inshore vessels with crews of three, gradually phasing out the dangerous practice of single-handed working.

Recommendation 1: Close the Pool and control the inshore fleet through gear and hours at sea restrictions. Modify shellfish licences to include some finfish access.

1.1 We recommend that the Pool system for inshore vessels is disbanded in East Anglia. Inshore vessels in East Anglia either specialise in shellfish or they are generalists. The skippers all highly value flexibility because East Anglian fisheries vary a great deal both locally along the coast and across the seasons. The prevalence of shellfish is much greater around the hard substrates of the north coast and also in the estuaries. The finfish vary according to the location of prey species and spawning grounds and in addition the staple stocks of skate and sole move inshore in the summer and offshore in winter, with herring moving north and south in the North Sea seasonally. These small inshore vessels have a limited range since they fish on day trips and the time and fuel cost of steaming to a fishing ground limits their comfortable range to about 20nm. They can only catch what is locally available. The Pool is uniquely ill-suited to this fishing situation because it is inherently inflexible with catch limits being set no less frequently than monthly by the MMO.

We accept the claims of inshore fishers that the stocks available to them locally vary greatly by season and from year to year, and that they rely on flexibility in catching whatever is available from month to month. One option would be to replace the Pool with quota controls, which would bring the inshore fleet under the same arrangements as the offshore fleet. A primary concern is whether the inshore fleet could thrive in the current quota market. Government records show that the current quota holdings in key stocks are concentrated on a small number of vessel licences, quota trading is controlled by Producer Organisations (effectively quota brokers set up and run by groups of fishers) over which the large quota holders have influence, quota prices and trading are opaque and it appears that the quota market is illiquid. In these circumstances, the inshore fleet would not be able to use the current quota market to pursue local fishing opportunities with sufficient flexibility. The reform of the national quota system to remedy these shortcomings would be outside the control of a Regional Authority, see Recommendation 8, and may not be possible at all, given that it would involve changing the operation of Producer Organisations and could affect established property rights of quota holders. The government in its White Paper has signalled its intent to keep the current Fixed Quota Allowance system.

1.2 We recommend introducing a new system based on hours at sea for the inshore fleet. The inshore fleet has limited catching capability and mostly does not use trawled gear, so it is better to control its impact on stocks via gear restrictions than by power and size of vessel. Vessels would be limited in the number of pots they can carry or operate and the length and type of nets they can use. They will be allowed to go to sea for a maximum number of hours, sufficient for an expectation of good financial results, which will be monitored through financial reporting to the Authority. The improved income relative to the current system is expected to cause the value of a vessel licence to appreciate considerably. To mitigate this, and to allow the number of licences in circulation to be adjusted over time, licences will be converted to a discretionary, rolling 12-year

renewal period and will be leased from the state. The leasing fee will be set annually and might go down or up, but increases will be capped by a maximum year on year increase. It will be set in such a way that the vessels can continue to make a reasonable income. This combination of changes will make it easier for new entrants to acquire a licence and will provide some public return from the fish stocks.

In summary, the effort-based system would be regionally-focused and have the following components:

- a new category of leased regional inshore licence will be created;
- vessels will be entitled to go to sea up to 2,100 hours a year, which is around the maximum observed utilisation of coastal vessels in the UK (150 14-hour days);
- management will respond to stock levels and may change the number of hours allowed and/or the number of licences issued;
- vessels will be limited in the type of static gear and the amount of gear they can carry or operate at sea;
- vessels might be subject to other stock management measures, such as area or seasonal closures to protect spawning stock, and restrictions on fishing activity deemed necessary in marine protected areas;
- fish must be landed within the region;
- vessels' power must not exceed 300 hp (220 kW);
- vessels' trips must not exceed 30 hours at sea (reflecting views from fisher interviews);
- vessels must submit annual financial reports;
- vessels must carry systems to record catch and location and must report it. Vessels could list their catch at auction or directly to purchasers before landing via a mobile application. The Authority must keep the location of vessel activity and catches secret.

1.3 We recommend that the performance of the effort-based system is reviewed after 12, 24 and 36 months. There would be further discussion of the effort regime before it is implemented, so some of the details could change. It is uncertain how well an effort-based system would perform, in particular, whether fishing mortality can be sufficiently controlled without limits on power and/or vessel size. Although an effort-based system was popular at interview, whereas neither the Pool, nor a tradeable community quota system were well supported, some effort-based systems internationally have shown poor performance, failing to control fishing mortality or resulting in over-capacity and races to fish. To avoid these two outcomes in East Anglia, it will be necessary to limit the number of licences, potentially to a figure below the current number, and that in the first instance preference be given to the currently active vessels. It will also require collaborative effort between the regional industry and regulators to avoid the risks that an effort-based system would otherwise present and to enable fishers to derive the maximum benefits. We recommend that inactive vessel licences are converted into angling licences, see Recommendation 5, to avoid these licences reverting to active licences. If the effort-based system did not perform well, the default would be to revert to a quota-based system.

1.4 We recommend reinstating limited finfish catching rights for shellfish licence holders. Shellfish licences used to allow for some finfish access. This gave shellfish vessels the flexibility to prosecute finfish for short periods when the shellfish opportunities are poor, for example, when crabs are moulting. The shellfish fishers highly value this flexibility and it should be reinstated. This recommendation, in combination with an apprenticeship scheme and financing for upgrading vessels will help the transition away from single-handed operation, which is unsafe.

1.5 We recommend that the Maritime and Coastguard Agency prepares itself to respond in timely fashion to requests for the certification of new, acquired and adapted inshore and offshore fishing vessels in EAE region. Seafish handed responsibility for vessel certification to the MCA in November 2017 and currently there appears to be a capacity shortfall within the MCA.

Recommendation 2: Require the offshore fleet to land its catch in the UK and restrict it from fishing within 12 nautical miles of the UK.

2.1 We recommend the offshore fleet will be required to land its catch in the UK. The conditions of the Economic Link currently allow vessels to comply while contributing a small fraction of the value to the UK economy than if they landed their catch here. By changing the Economic Link to require landing of catches in the UK, there would be the opportunity for the value to the UK economy to be maximised.

2.2 We recommend that the restrictions on ownership of fishing vessels, laid out in the Merchant Shipping Act 1988 and overturned in the Factortame case, are re-applied. This would prevent UK-registered vessels which operate from other countries around the North Sea, and whose beneficial owners reside overseas, from re-flagging without transferring their beneficial ownership, and the beneficial ownership of their quota, to the UK.

2.3 We recommend that all vessels except regional inshore vessels will not be allowed to fish in that part of the EAE region which lies within UK territorial waters (12 nautical miles), keeping that zone available exclusively for the inshore fleet. This is to avoid the offshore fleet taking away the fishing opportunity upon which the inshore fleet relies. The inshore fleet would continue to be allowed to fish outside UK territorial waters.

Recommendation 3: A modern offshore fleet, delivering top fish quality, jobs and reduced environmental impact.

3.1 We recommend that consideration be given to restricting offshore vessels to 500 hp (370 kW) power and prohibiting the use of beam trawls. These restrictions will encourage and facilitate the entry of modern 20-22 metre vessels, each with a crew of five, each able to use a variety of gears: twin rig trawls; seign, pair-seign and fly-shooting nets. These vessels will carry the most modern fish handling and storage technology. Having a draught of just over 3 metres, they can be accommodated in the outer harbour in Lowestoft without major dredging and quay reinforcement works.

The proposed new offshore fleet is modelled on the modern French fleet of the same size and gear type. It offers higher fish quality, greater employment opportunities, less impact on marine ecology and a lighter carbon footprint.

This vision for the new fleet is in contrast with the current fleet. At the present time, no offshore vessels operate out of the EAE region. Instead, a number of UK-registered but Dutch owned vessels operate out of the Netherlands. They use beam trawls, which drag heavy metal beams across the seabed, which is more ecologically damaging and fuel intensive than other fishing techniques.

Recommendation 4: Invest in a regional fishing port.

4.1 We recommend the designation of a regional fishing port to accommodate increased landings and vessel activity from the Southern North Sea, with facilities and dues that are at least as attractive as competitor ports, making it the landing place of choice for the offshore fleet and many inshore vessels. A stronger Economic Link and Zonal Attachment could lead to up to 35 additional offshore vessels landing in East Anglia or other East Coast ports, and would enable significant increases in landings, income and fleet size of the inshore fleet. The principal candidate to be regional port is Lowestoft.

4.2 We recommend setting a one year, time-limited infrastructure working group to coordinate the plans of offshore and inshore vessel owners, port owners, fish market owners, processors and repair yards as they decide what investments to make. This effort will help to secure port access, quayside facilities and nearby processing. At the end of this process, we recommend that the port owner, for whichever port is chosen as the regional fishing port, publishes a strategy on its plans for fishing. The port owner is likely to ask for

realistic indications of the numbers of vessels, realistic and vetted indications of future landings, lengths of contracts for any new buildings erected, standardisation of health and safety standards across fishing vessels using the port and means of coordinating landing space between vessels.

Whichever port is chosen, investment will be required in:

- **harbour facilities** of suitable draught, berth space, ice, chilling facilities, provisioning and unloading space, storage for equipment;
- **market arrangements**, such as electronic and satellite auctions, storage, sorting facilities, grading machines; and
- **transport logistics** to consolidate smaller landing places' volumes.

The port will also have to consider access and/or accommodation for ancillary services to support the fleet.

4.3 We recommend that Lowestoft fish market introduces an electronic auction, as part of modernisation to respond to increased landings. This will allow remote buyers to participate as well as offering the most transparent auction process. Catches might be pre-registered for auction before landing via a mobile application. Further improvements and modernisation would be needed if large volumes of fish were landed in Lowestoft.

4.4 We recommend that a pontoon is installed at Felixstowe Ferry. Vessels would then be able to come alongside for loading and unloading and thus avoid the current high-risk practice of transferring goods into pulling dinghies and rowing across the tide.

Recommendation 5: Provide access to finance for the scaling up and automation of the processing sector.

5.1 We recommend coordinated planning between processors, vessel owners and ports to integrate and co-locate investment along the supply chain. The processing sector will have to dramatically increase its capacity under Zonal Attachment and a stronger Economic Link. Coordination can reduce risk in investment as well as leading to lower cost configurations of assets.

5.2 We recommend that temporary finance support is available to mitigate the potential effects of the introduction of trade tariffs and non-tariff barriers to trade. This finance takes the form of working capital loans or temporary equity participation, in the event that a Brexit with tariff and non-tariff barriers creates temporary financial stress for some processors, fishers or markets, where the underlying business is sound. Consideration should be given to whether this facility should be extended to the catching sector.

5.3 We recommend that a finance facility is established to support the expansion of processing businesses. If and when much larger volumes of fish are landed in East Anglia, finance will be needed to expand the infrastructure to handle it, for the purchase of machinery, land, vehicles and buildings. Smaller enterprises may find it difficult to access finance when the recent history has been of general sector decline. A finance facility, operated nationally by Defra, could ensure that businesses have appropriate access to finance. Consideration should be given to whether this facility should be extended to the catching sector.

Recommendation 6: Upgrade the control regime for anglers.

We recommend bringing the control of sea angling closer into line with controls for commercial fishing. This will reduce tensions between anglers and commercial fishers and allow a better understanding of total fishing mortality, particularly for bass.

6.1 We recommend that angling charter boats have to carry monitoring equipment and report catches. The location of their activity will be kept confidential by the monitoring authority in a way that prevents disclosure.

6.2 We recommend that non-compliance with licence conditions and control regulations is penalised by licence suspension or revocation. We propose a presumption that these measures would be used, given that they offer an effective enforcement measure, with the application of fines alongside, or instead where an individual is already unlicensed.

6.3 We propose, for charter angling vessels, an effort-based system of control, with a limit of 2,100 hours at sea per year and a maximum number of twelve rods which a vessel can deploy. This mirrors the form of control for inshore vessels.

6.4 We propose that leisure anglers comply with a bag limit. A bag limit specifies the number or weight of fish that can be landed. This replaces the current rule whereby catches cannot be sold commercially. The current rule is widely thought to be flouted in part because it is difficult to prove that fish are not sold commercially.

Recommendation 7: Remove barriers to aquaculture expansion by de-risking development and improving access to finance.

Aquaculture faces several barriers to expansion which can be overcome through suitable interventions.

7.1 We recommend that the Crown Estate carries out an assessment to identify new sites suitable for aquaculture, invites interest in taking on leases, and where there is interest, invites bids and prepares the licencing and permitting of those sites as part of its service. The Crown Estate has the know-how and political clout to shepherd the authorisation of sites through the various regulatory processes and this would substantially de-risk aquaculture development. The Crown Estate would be able to recover those costs later through rental income.

7.2 We recommend that a finance facility is set up, offering non-concessionary loans and technical assistance for the creation of new and the expansion of existing aquaculture sites. Aquaculture is an unusual activity and banks find it hard to assess how risky it is. As a result, aquaculture farms may find it difficult to obtain finance. We propose that The British Business Bank supports loan applications for aquaculture expansion, or acts as the lender, where businesses are well run and have good business plans, to allow these businesses to expand.

7.3 We recommend that research is carried out to devise and test yield-enhancing husbandry techniques for shellfish culture. The aquaculture farms do not have the scale to do this work themselves and they would like to understand why yields are so variable and how to raise them and make them more consistent. It may be that CEFAS will be able to assist with this research. When the research is complete, dissemination and training will follow.

7.4 We recommend the publication of joint plans and commitments on water quality. Clean water is essential for the cultivation of shellfish. The Environment Agency and local authorities, by publishing joint plans and commitments, could reduce the actual or perceived risk of reduction in water quality in East Anglia, where aquaculture sites could be affected by future land use change and, in particular, where there is large scale new building development planned.

7.5 We recommend greater clarity from the regulatory authorities on the acceptability of cultivating triploid Pacific Oysters. This type of oyster is the most common type farmed in East Anglia. It is not native but is also not capable of reproduction. Some oyster farmers feel there is a risk that the regulators might rule against the use of these oysters in the future and would welcome a clear position on this from the regulatory authorities.

Recommendation 8: Set up an apprenticeship scheme

There is a need to replenish the high proportion of fishers who will be retiring over the next five to ten years. New blood will be attracted into the industry by the economic opportunities secured by Recommendation 1. It takes one to three years for a new entrant to learn the technical skills and gain the experience necessary to become a successful skipper. Even under the improved economic conditions imagined by Recommendation 1, many small inshore vessels will not bring in sufficient revenue to pay the wages of a trainee as well as an experienced skipper. There are also training course costs to be met and there is no guarantee that trainees will stay the course. For these reasons, skippers will not take on trainees at their own expense.

8.1 We recommend establishing an apprenticeship training programme for future skippers, funded by the national apprenticeship levy. This will allow trainees to take home a competitive wage while working alongside experienced skippers on small vessels, Under the scheme, government would co-fund wages and classroom training. The Department for Education should be asked to change its eligibility rules to admit fishers as apprentices. If it refuses, the option of introducing workers agreements should be explored as a route to meeting the DfE's eligibility criteria.

8.2 We recommend a 'careers in fishing' brochure is prepared to accompany the apprenticeship scheme. The document will show career paths in fishing and will explain the prospects from joining the sector and the pathway from new entrant to independent, vessel-owning skipper.

8.3 We recommend that the apprenticeship training programme should offer apprentices an attractive training package that equips them for a successful career in the industry. The training timescales and the quality of the training should be designed to encourage entrants.

8.4 We recommend that tailored finance is made available to graduates from the apprenticeship scheme. This will support qualified new entrants to acquire a vessel and a licence.

Recommendation9: Combine the IFCAs and MMO into a single East Anglia Regional Fisheries Authority.

9.1 We recommend that the IFCAs and MMO are combined into a single East Anglia Regional Fisheries Authority, with responsibility for setting and enforcing marine fisheries controls in the region. This would save money, reduce the number of inspections and inspectors needed, and give the new organisation a more appropriate regional scale than the current three organisations have.

A regional organisation can maintain local focus and accountability while being highly capable and effective. As a national organisation, the MMO covers the whole country whereas the IFCA, with its more local focus, accumulates local knowledge and has a governance structure that is locally accountable. However, the IFCAs each have no more than about 20 staff. With this number of staff, they enforce regulations and are responsible for devising controls and conducting some stock assessments. A regional authority could maintain local accountability while enjoying the scale to employ a larger number of specialist staff and would become more capable as a result. It would be able to deploy a more complex staff shift structure for inspections, making evasion of controls more difficult, while developing a deeper understanding of the industry.

9.2 The controls on gear use should be harmonised. The current arrangement, where an IFCA controls some aspects of fishing within 6nm and the MMO beyond 6nm, has led to different rules as to what gear can be carried and the minimum landing size from those two zones. The two organisations have not succeeded in coordinating their rule-making. Not only does this reduce the flexibility of fishers to deploy their gear where they wish and make it difficult to understand the rules, it also makes the rules very difficult to enforce.

9.3 Inspectors should check for compliance with all controls. Fishers and their vessels are currently inspected by more than one inspector when the two agencies have not managed to coordinate so that an inspection covers compliance with all regulations. This increases the amount of time inspections take and the lack of cooperation between the agencies annoys fishers.

Recommendation 10: Manage stocks as mixed fishery and change the behaviour of the regulator

10.1 The clear objective of controls should be to manage all stocks to maximum sustainable yield (MSY) in a manner that reflects the reality of mixed fisheries. This means managing to a target biomass and reporting the estimated biomass. We also recommend following the balanced approach adopted by Norway, where provision for fish take by seabirds and cetaceans are taken into account in selecting the desired biomass and allowed fishing mortality. To date, there has been too much focus on fishing mortality alone. Estimates of the target biomass should be published annually by the fishery authority.

10.2 The new authority should manage the region as a mixed species fishery. Many inshore fishers target multiple species. Many species interact with each other, with some stocks being the prey species for other stocks. Astonishingly, the fishery is not managed as a mixed species fishery. The science of the stocks is not assessed and modelled as a mixed fishery and when controls are tightened on one stock, displacing effort onto another stock, the controls on that stock do not anticipate that response. Some of the stocks, such as whelk, are data deficient, in that insufficient data are available to populate more advanced fish stock models. Unless it is prohibitively expensive to collect these data, we recommend that data is collected for all commercial stocks in East Anglia to allow balanced, mixed-fishery MSY catch targets to be set annually.

10.3 When fishers take up appointments within regulatory authorities as representatives of the fisher sector, they should be paid for their time at an appropriate market rate. The new authority is encouraged to retain representation from the fisher community in its decision-making processes, as is currently the case for the IFCA. Payment of fishers for holding appointments is appropriate as compensation for the time they give up from their commercial fishing activities.

10.4 Fish should not be discarded unless they have a known high survival rate. As part of the new effort-based regime, discards should be permitted where there is a scientific case and the fish have low mortality upon return to the water. Those discards should be recorded. In all other cases the fish caught should be landed.

10.5 Avert the landing of fish in roe through real time closures. Fish bearing roe are carrying the next generation of fish. The landing of such fish should be averted. To avoid the discarding of roe bearing fish, the fishing authority will need to accompany fishers to sea or use other means to observe when the season for fish in roe begins and will then suspend fishing for a period until they have spawned.

10.6 Gear mesh sizes should be slowly increased and pot escape panels made mandatory for appropriate species to avoid the capture of juveniles. The catching of juvenile fish undermines the value of the fishery in two ways: it prevents the fish reaching sexual maturity and so starves the population of reproduction and it results in the landing of smaller fish which command a lower price. Fishing effort is sufficiently effective that a high proportion of fish above the mesh and escape panel size will be caught each year, so unless fish are allowed to mature and reproduce before being caught, the productivity of the fishery will be substantially impaired. It is important to announce mesh size changes years in advance and to raise the sizes gradually to

avoid writing off nets in service and wholesalers' inventories and also to avoid sudden reductions in landings which, for crab processors in particular, could cause financial distress and result in a loss of jobs.

10.7 When a ban on catching a stock has been introduced it should be reviewed annually. The current ban on catching spurdogs appears to have been effective in allowing stocks to recover but it causes fishers to divert their effort to other stocks, such as whelks, and risks causing a substantial shift in the balance of stocks in the mixed fishery. The scientific evidence on spurdog stock health should be updated immediately. All bans should be reviewed annually.

10.8 The MMO should change its approach to trading quota for the Pool. The MMO should change its method of valuation of the quota it trades on behalf of the Pool. Its current method does not reflect the economic value of the quota and it loses value on its trades.

10.8 The Authority should seek to achieve a system of control with low regulatory risk, through clear and early signalling of future intentions and following the Better Business for All approach.[5]

10.9 The regulator has to be both tough and reasonable. Most fishers want to comply with controls but a few will take their chances and cheat. Those who comply would like to see less cheating. High levels of compliance require both strict enforcement and some discretion where genuine mistakes are made. The regulatory authorities can do a lot to earn the respect of fishers by working hard to understand them well and being effective and fair enforcers of the rules. Fishers report that there is further room for improvement in striking this balance.

10.10 Introduce suspension of permit penalties. It is very difficult to achieve high levels of compliance, however good the detection, if the penalties offer ineffective incentive to comply. The system of fines is generally seen as inadequate. Confiscation of gear is more effective. Most effective of all, fishers suggest, would be the temporary suspension of fishing permits, mirroring the penalties for road vehicle driving offences. The authorities should introduce permit suspension of three months, six months, a year and permanent suspensions to reflect the severity of offences and persistence of offenders. Such a system would have to be able to operate in all sea areas, under the current jurisdictions of the IFCAs and the MMO.

Recommendation 11: Make more use of data to manage potential conflicts between fishers and other marine activities

There are plans for substantial increases in the number of wind farms along the East Coast and these may be nearer to the shore than previous large-scale rounds. In addition, planners consent dredging activities, cable laying and the protection of marine areas. In order to make well informed decisions about where to place these activities and whether to permit them, more use needs to be made of a combination of fishing vessel positioning and landings data. This should already be handled by joint marine planning and fisheries management, but greater data analysis and sharing is needed.

11.1 We recommend that vessel positioning and landings data should be compiled, analysed and the findings shared with the Crown Estate. It is important that precise information on where catches are made and on where individual fishers find their best catches is not disclosed publicly to avoid excessive fishing competition in those places. We recommend that planning decisions take into account the safety implications of additional steaming times for fishing vessels resulting from navigational restrictions.

11.2 We recommend that consultation processes for marine development proposals affecting the fishing industry take into account that fishers are remote workers whose working hours often do not correspond with those of the regulators and developers. Many find it difficult to attend meetings during standard office hours and do not have the same opportunities as land-based stakeholders to contribute to formal on-line or

[5] https://www.gov.uk/guidance/better-business-for-all

other types of standard consultation exercises. As a result, fishers can feel marginalised. Consideration should be given to specific arrangements to ensure that fishers' knowledge, views and concerns are fully taken into account.

5 The future of REAF

East Suffolk District Council will convene a new REAF Strategy Group, with a small secretariat and fisheries manager, which will be accountable for devising and carrying out a first-year programme of work to take forward the strategy. The group will be responsible for canvassing political support and encouraging other organisations to adopt the actions proposed for them. These other organisations include Defra, The Crown Estate, MMO, MCA, regional IFCAs and the Environment Agency. REAF will also pursue an active programme of stakeholder engagement. REAF will be time-limited to three years and will seek funding from the replacement of the European Maritime and Fisheries Fund and other sources.

The proposed list of actions that could make up this programme is set out in Table 3.

Table 3 Actions table

Recommendation	Theme	Sector	Outcome	Actor
1	Zonal Attachment	Catching, Processing, Ports	The UK leaves the Common Fisheries Policy, all stocks within UK EEZ are reallocated to the UK fleet	Defra
2	Requirement of landing in the UK (Economic Link regulation)	Processing, Ports	Limit compliance options to 100% landing in the UK	Defra
3	Designation of regional fishing port	Ports	A designated fishing port to compete with established other offshore ports. Investment in quayside facilities, satellite market, navigation, and transport logistics.	Defra (Local authorities, Department for Transport, Port owners)
4	Establish new effort-based inshore fleet control system	Catching (Inshore)	Move inshore fleet to an effort-based system/community quota system. Restore finfish access for shellfish licences.	Defra (MMO/IFCA)
5	Financing facility	All sectors	To support new fisher entrants, port infrastructure upgrading, processing expansion and automation, new aquaculture sites and processing	BEIS or Defra
6	Performance metric reporting (fish catch and biomass relative to maximum sustainable yield) and fleet economic performance	Catching	Changes to data collection and reporting to enhance insights.	Cefas or MMO on behalf of REAF
7	Technical assistance, incubator	All sectors	Technical assistance for aquaculture, catching	Defra

Recommendation	Theme	Sector	Outcome	Actor
			and processing expansion.	
8	Pre-licensed or permitted aquaculture site leasing rounds	Aquaculture	Leasing rounds to promote investment.	Crown Estate
9	Entry of angling into the control regulation	Angling	VMS, licencing, quota, catch reporting.	Defra
10	tbc: windfarm lease changes	Aquaculture, Catching	Tbc	Crown Estate
11	Transitional cashflow and equity relief arrangements for processors	Processing	Access to temporary finance in case of Brexit with tariff and non-tariff measures.	BEIS or Defra
12	Reduce regulatory risk	All sectors	Increased engagement with industry (MMO/IFCA), better integration of stock assessments (between Cefas & IFCAs), and smoother changes in TAC.	Defra
13	Water quality	Aquaculture	A joint strategy and commitments on water quality from Environment Agency and local authorities.	Environment Agency, Local Authorities
14	Apprenticeship programmes	Catching	Establish apprenticeship programmes for fishers.	Defra, Seafish

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Appendix

The vessel groups in this strategy are defined as follows.

Figure 5 Fleet groupings

Offshore fleet	Inshore fleet	Shellfish fleet	Low activity fleet
			
Criteria: Vessel length above 14m or vessel length above 13m and total annual fishing income >£200,000. Top species targeted is not shellfish, total annual fishing income >£10,000.	**Criteria:** Vessel length below 14m and total annual fishing income <£200,000. Top species targeted is not shellfish, total annual fishing income >£10,000.	**Criteria:** Top species targeted is shellfish, total annual fishing income >£10,000.	**Criteria:** Total annual fishing income <£10,000.

Source: Vivid Economics

East Anglia and Essex (EAE) fleet:
All vessels landing more than 50% or their total landings into a port within East Anglia and Essex

Southern North Sea (IVc) fleet:
All vessels catching at least 30% or their total catch in the Southern North Sea

East Anglia and Essex (EAE):
This analysis focused on the regional fishing industry in *East Anglia*, defined as the coast between Kings Lynn and Southend-On-Sea. On this basis, all fishing ports in the NUTS2 region East Anglia as well as Essex that registered landings in 2017 are included in this analysis.

These ports are: Aldeburgh and Orford, Blakeney, Bradwell, Brancaster Staithe, Brightlingsea, Burnham-On-Crouch, Canvey Island, Clacton, Colchester, Cromer, Felixstowe, Great Yarmouth, Harwich, Ipswich, Kings Lynn, Leigh-On-Sea, Lowestoft, Maldon, Pagelsham, Rochford, Sheringham, Sizewell Beach, Southend-On-Sea, Southwold, Walton-On-Naze, Wells, West Mersea, Winterton, Wivenhoe

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