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1 Qualifications and Experience

- 1.1 I am Patrick Franklin, Managing Director of Homarus Ltd, independent fisheries advisers. I have a Degree in Marine Biology & Zoology from Bangor University, gained in 1980.
- 1.2 I have 28 years' fisheries sector advisory work, with specialism in assessing impact of external factors and events on commercial fishing (pollution events, coastal engineering, offshore wind farms, pipelines etc).

2 My experience in local relevant projects is as follows:

- 2.1 Environment Agency Lincshire project:
 - 2.1.1 1997-2003: Over this period I was involved with detailed assessment of the possible impact of beach replenishment works along the Lincolnshire coast on Wash-based shrimp trawling fleet. This involved exhaustive assessment of landings data, lost fishing area calculations, reviews of evidence and potential mechanisms of biological damage to the stocks, discussions with the fisheries industry and their advisers. My work also involved preparation of the case for the Lands Tribunal
 - 2.1.2 2005-15: I have also provided intermittent ongoing assessment and advice on alleged damage to fishing operations arising from the beach replenishment works. This has included assessments of beach launched potters, siltation of cockle beds, also loss of working area for shrimpers.
- 2.2 2005-6: Environment Agency Snettisham-Heacham defences project: For this project I assessed the impact of beach rebuilding works and related safety zones on Wash-based shrimp trawling fleet. I also investigated possible stock damage to cockles in the works area
- 2.3 2009-2012: Le Strange Fishery, eastern Wash. I provided an independent assessment of cockling practices in relation to the definition of boundaries of a private cockle and mussel fishery on eastern Wash.
- 2.4 2011: Environment Agency Boston Barrier Scheme. I carried out an assessment of likely economic impact of the Boston Barrier Scheme and water level management on the Boston-based fishing fleet. This involved discussions and gathering of data from Boston and District Fishermen's Association (**BDFA**) representative and fishermen, Eastern Inshore Fisheries and Conservation Authority (**EIFCA**), Marine Management Organisation (**MMO**) and Port of Boston (**PoB**) regarding fishing patterns and practices, then modelling likely lost fishing time, income and profitability that would arise from constraints on vessels operating from the London Road Quay under a water level management regime.

3 Scope of Evidence

- 3.1 This Proof of Evidence is produced at the request of the Environment Agency. It intends to provide an independent view of the likely effects of the proposed Boston Barrier Scheme (the **Scheme**) on the commercial fishing fleet at Boston, during both construction and operation.

3.2 I understand I have a duty to provide assistance to the Inspector as an independent expert witness.

3.3 This proof will cover:

- An overview of the activities of the Boston fishing fleet,
- A review of likely impact to fisheries from alternative flood prevention schemes which were considered for Boston,
- Assessments of the impact of the Scheme on the fishing fleet during construction and operation,
- Assessments of the mitigation measures proposed by the Environment Agency
- Comments on fisheries-related issues raised in Objections
- Addressing the following points raised in the Statement of Matters:
 - 14a) issues around perceived increased flow velocities creating difficulty for the fishing and pleasure craft industry to operate safely;
 - 14b) issues around the relocation of the fishing fleet to operational quays downstream of the barrier which are currently used by larger shipping using the Port of Boston;

4 Introduction

4.1 This Proof is informed by briefing discussions with Mott MacDonald (**MM**) and the Environment Agency, a site visit, project reports, proofs of evidence of other experts and my own knowledge and experience from earlier projects concerning the Wash fleet, in particular discussions with the BDFa, EIFCA, MMO and PoB in 2011 when investigating the proposed use of the barrier for Water Level Management. A meeting to discuss the current Scheme with the BDFa and Environment Agency was organised but cancelled by BDFa at short notice. An alternative meeting date was offered two days after the cancelled meeting but I was unable to attend due to prior commitments.

4.2 I have also considered objections and statements of case to the extent that they refer to the fishing fleet. Most of the objections concern navigation issues which are covered by other experts' reports and proofs of evidence. However I have commented on some of the other issues raised.

5 Local Fisheries Context

This section of my proof sets out the background to the fishing fleet and activities at Boston. It is based on my research for the 2011 assessment of the impacts of Water Level Management, discussions regarding the Scheme held by the Environment Agency and others with representatives of the fishing fleet, publically available information and my own knowledge and observations.

6 Overview

- 6.1 Boston is a tidally restricted shellfish port receiving landings of three principal species: cockle, mussel, shrimp. Fishing grounds are within the Wash and less commonly along the Lincolnshire and Norfolk coasts.
- 6.2 The vessels are steel beam trawlers which have the capacity to operate dredges for mussel and cockle and beam trawls for shrimp. They are relatively flat bottomed and designed to dry out when necessary.
- 6.3 Cockles are harvested by suction dredge (over high water) or hand raking (over low water), primarily in summer. Mussels are laid and harvested over high water, primarily autumn / winter. Shrimp is fished at any state of the tide, primarily in the autumn.
- 6.4 As in any port, there will be a range of activity, gross income and profitability across the fleet. There is little wild mussel fishing in the Wash and most activity involves gathering seed and spreading it on private lays, to harvest later. Mussel fishing is thus mainly restricted to those fishermen who have a private lay (for locations see Figure 3).

Figure 1: Cockle fishing vessels in The Wash



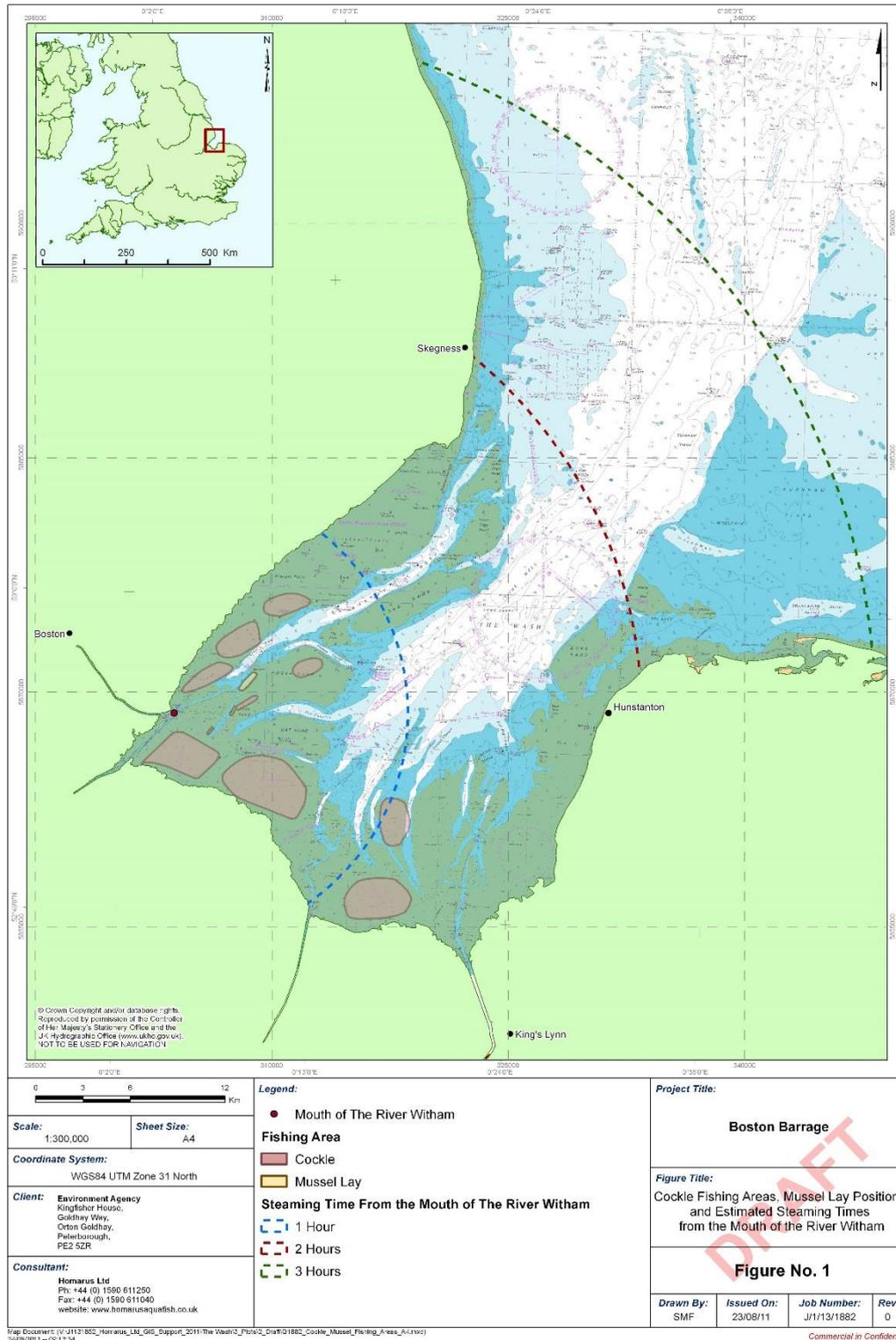
Source:https://upload.wikimedia.org/wikipedia/commons/c/c6/Cockling_on_The_Wash_-_geograph.org.uk_-_1435088.jpg

Fig 2: Vessels at London Road Quay, Boston, (shrimp trawl raised in lower image)



Source: https://upload.wikimedia.org/wikipedia/commons/0/0a/The_Haven,_Boston_-_geograph.org.uk_-_709119.jpg,
https://upload.wikimedia.org/wikipedia/commons/c/c4/The_Haven,_Boston_-_geograph.org.uk_-_709098.jpg

Figure 3: Chart showing principle areas of cockle fishing and mussel lays used by Boston fleet, also estimated steaming times from mouth of River Witham



7 Landings values

- 7.1 There are two possible sources of data on volume and value of landings at Boston and other UK ports.
- 7.2 Firstly, the MMO, (an agency of DEFRA) gathers landings volume and value data from vessels and first buyers and should record landings. Data collection and collation is carried out by officers in main landings ports. For vessels over 10m in length, log books have to be completed and it is a serious offence for log books to not accurately reflect catch on board or landed. Data collection for under 10m vessels was more haphazard and improved when 'Buyers and Sellers' legislation was introduced in 2006 to put the onus on buyers of any more than 25kg of product to record the vessel it was bought from and where it was landed. All data is added to a database and this is published once per year and is searchable by port.
- 7.3 Secondly, Eastern Sea Fisheries Joint Committee (**ESFJC**), and its successor body from 2011, Eastern Inshore Fisheries & Conservation Authority (**EIFCA**), have responsibility for managing fisheries inside the 6-mile limit from just south of the Humber, to the Essex / Suffolk border. They have three or four fishery officers who each cover given stretches of coast and patrol for fishing or environmental infringements and also record data on landings. This data is based on their inspections, verbal declarations of fishermen and information from buyers. The landings data used to appear in ESFJC annual reports, by port, by month. Since the transformation into an IFCA, the data is given in fishery officer quarterly reports, which are within quarterly meetings documents downloadable from EIFCA's website.
- 7.4 A comparison between these two sources suggests that the MMO data is far from complete. Some species' data that are known to be landed in Boston is missing and other information is well below what is recorded by EIFCA. From earlier discussions with EIFCA, and my other work in this area, I am aware that the EIFCA officers have a good knowledge of local fleets, which vessels are working at a particular time and their landings. For cockles, the main management measure is a daily catch quota per vessel, which they are charged with enforcing and so routinely base themselves at the main processing factory buyers in Boston to monitor landings. By contrast MMO staff are more stretched with fishery officers tending to have their hands full with larger vessels in the main ports where they are based (Grimsby being the nearest in this case). They do not have the capacity to chase up the fishermen or buyers of all species in all small ports and a lot of shellfish in particular (which has never been subject to EU quota rules and so historically of less interest to MMO) simply slip through the system.
- 7.5 Based on the EIFCA data therefore, total value at landing in Boston averaged approximately £1.6m with range from £0.5m to £3.3m/year over the period 2000-2016. This data has been sourced from Eastern SFC annual reports for the period 2000 to 2009 (**Appendix 1**), and Eastern IFCA quarterly meetings documents, from 2011 to 2016¹ (**Appendix 2, Appendix 3**). No information is available for 2010, possibly due to transition from Sea Fisheries Committee to Inshore Fisheries & Conservation Authority. Some interpolation has been necessary for three missing quarters in the 2011-2016 period.

¹ 10 Annual Reports and ~24 Quarterly meetings documents have been reviewed to source this information. The 2009 ESFJC annual report and the Q3 2016 EIFCA report are appended as examples. Landings data for Boston are at pages 7 and 103 respectively.

Table 1: Value of landings at Boston and inter-annual change 2000-2016

Year	Landings value (£)	Change from year before
2000	1,124,342	
2001	2,421,584	115%
2002	1,466,810	-39%
2003	529,323	-64%
2004	944,353	78%
2005	728,184	-23%
2006	3,262,926	348%
2007	2,232,158	-32%
2008	1,711,787	-23%
2009	1,508,940	-12%
2011	1,506,578	0%
2012	2,054,177	36%
2013	1,495,845	-27%
2014	1,077,171	-28%
2015	1,296,172	20%
2016	2,174,444	68%
Average	1,595,925	

7.6 Inter-annual changes of +/- >50% are not uncommon. This is because the target species all have very variable population levels and so can support good or poor fisheries in a given year. Market prices for the main species also move considerably, depending upon supply and demand factors throughout mainland Europe, to where much of the catch is exported. Vessel owners thus need to be economically resilient to withstand these large changes.

8 Boston Fishing Fleet

8.1 The exact composition of the fishing fleet normally based at Boston, which could potentially be inconvenienced by the barrier construction, is difficult to determine with certainty. As with any fishing port, some visiting vessels may use the port for a few months while fishing locally is good, while others usually based at Boston may fish elsewhere temporarily. However my understanding is that fishing in Boston is mainly carried out by a number of local families who have generational associations with the port, and base themselves there year-round, so that interchange with other ports is not as common as elsewhere around the coast. However, there is some interchange with Kings Lynn, which has a larger fleet and higher income than Boston and is the only other commercial fishing port of note in the Wash.

8.2 There are 17 vessels with Boston registered as home port according to MMO database as at 1st March 2017, ranging in length from just below 10m to just below 14m (see **Table 2**). This is not necessarily definitive of all fishing vessels that might wish to use the Haven in the future for reasons described above.

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Table 2: Extract of MMO fishing vessel database, January 2017

Admin Port	Home port	Port no	Name	RSS number	LOA (m)
GRIMSBY	BOSTON	BN428	ITSIE BITSIE	C17115	10.55
GRIMSBY	BOSTON	WY133	CHALLENGE A	A24129	10.67
GRIMSBY	BOSTON	BN84	MAGGIE S	B11948	10.88
GRIMSBY	BOSTON	BN19	SOVEREIGN	B11092	10.9
GRIMSBY	BOSTON	BN67	INTREPID	B10867	11.2
GRIMSBY	BOSTON	BN64	RUTH IMELDA	B10768	11.28
GRIMSBY	BOSTON	LO58	KATHERINE	A18631	12.3
GRIMSBY	BOSTON	BN80	LUCY MARIE	C16842	13.3
GRIMSBY	BOSTON	BN86	VICKY ELLEN	B13034	13.38
GRIMSBY	BOSTON	BN190	KATHRYN JAMES	B14590	13.52
GRIMSBY	BOSTON	BN438	PATRICIA B	C17932	13.94
GRIMSBY	BOSTON	BN435	FIVE JS	C17800	9.53
GRIMSBY	BOSTON	BN109	MEDWAY IV	C16822	9.6
GRIMSBY	BOSTON	BN24	ABIGAIL	A14963	9.88
GRIMSBY	BOSTON	BN430	CALLY SERANNE	C17236	9.95
GRIMSBY	BOSTON	BN439	LILI MAE	C18174	9.97
GRIMSBY	BOSTON	BN434	LITTLE LEER	C17735	9.98
Total					17
Average					11.23

- 8.3 The EIFCA fishery officer quarterly reports sometimes mention the number of vessels involved in a fishery and working from Boston, particularly if fishing is good. For the cockle fishery, there are mentions of between 19 and 25 boats working when fishing is busy. The highest number recorded is 25 in the third quarter of 2013, landing 1,800 tonnes between them, worth £770,000. The highest volume of landings in the time series was in the third quarter of 2016 with 3,100 tonnes, worth £1,670,000, when 23 boats were said to be working. For other fisheries, vessel numbers are rarely given, with occasional reports about 8-12 for musseling or 5-8 for shrimping.
- 8.4 A site visit by Mr Scriven on 24th February 2017 noted 26 vessels in all. It is not clear whether these are all in normal commercial use. Some were old and not well maintained. Five did not display a port number – these may mean they have become de-registered as it is mandatory to display a port number if actively fishing.
- 8.5 One other source is an EIFCA report for June 2015 which includes a letter from the BDFA to the EIFCA regarding cockle management for that season. The letter includes a list of members and their vessel names. Most members have signed the letter. This list shows 21 vessels. The report is attached as **Appendix 3**, the letters in question are pages 65-66.
- 8.6 BDFA has been asked by the Environment Agency for a list of their membership on several occasions and as at the time of drafting this proof has not provided this information.

9 Fishing pattern

At present the fishing fleet uses a quay on the right bank, upstream of the Swing Bridge and adjacent to London Road. The majority of this quay is owned by the Environment Agency and is leased to the local fishing association (Boston & District Fishermen's Association, Incorporating the Boston and Fosdyke Fishing Society Limited).

10 Cockles

Vessels leave shortly after high water and navigate downstream with the tide. They dry on the beds at about mid-tide and the crew disembark to hand rake. When beds cover again, the vessels float off and return to Boston on the incoming tide. Most of the catch is landed to the Dani cockle processing factory on the left bank in the port complex. Suction dredging uses the opposite pattern, with the vessels on the beds over high water. However, this method is unlikely to be allowed in future apart from perhaps in extremis to remove very high densities of cockles. Almost all vessels take part in the cockle fishery. With an emphasis on hand raking in recent years, equipment needs and costs are minimal.

11 Mussels

Harvesting and most maintenance takes place over high tide. The vessels leave as soon after low water as they can float and go out of the Haven against the incoming tide. The beds are worked over high tide and the vessels return against the ebbing tide, berthing when there is just enough water to keep them afloat. Seed harvesting trips are more distant and may involve staying out for 24 hours, with departures and returns more loosely planned. Mussels are sold mainly to Holland and Belgium. They are collected in bulk from the London Road Quay.

12 Shrimp

12.1 Fishing tends to take place in shallow waters and along the edge of channels and gullies in the Wash. If fishing close to the mouth of the Haven, the pattern will be as described for mussels. Fishing further away, they may stay out a 'tide and a half', i.e. leaving against an incoming tide, returning with the following incoming tide. A 'two tide' trip would involve returning against the next ebbing tide. Shrimp are also exported, primarily to Holland. Most trips are short, 'single tide' trips and timing is critical, giving about 5 hours on the grounds in average conditions.

12.2 The relatively low catch value of shrimp in Boston and the EIFCA reports suggest that probably less than half of the local fleet have the skills and the gear to carry out shrimping.

13 Alternative schemes

This section briefly discusses alternative barrier schemes considered for Boston from a fisheries point of view.

1994 Sea lock and barrage

- 13.1 I am aware from a 1994 report prepared by Balfour Maunsell (appended to the proof of evidence of Mr. Anderson (**EA/1/2**)) that a sea lock and barrage scheme was considered at the mouth of the Haven.
- 13.2 The advantage of this proposal from a fisheries point of view is that it appears to give the fishermen somewhat longer fishing time over the grounds, as the retention of water in the whole of the Witham estuary would mean that they would be at the sea lock site, as opposed to leaving their moorings, as soon as tidal elevation allowed. This is said in the report to provide three hours additional fishing time per trip, but with no explanation. My own estimate is 1-1.5 hours, given that fishermen told me in 2011 steaming from Boston to the mouth of the Haven takes 30-45 mins, (which makes sense given a normal steaming speed for vessels of this type of ~8kts and ~5 miles from Boston to the proposed sea lock site). The report makes an estimate on the benefit of this additional time to fish shrimp over a 5 month season to give an apparent additional profit to the fleet of some £3m. Based on my working knowledge of the area going back to 1997, I consider the assumptions concerning additional catch, number of vessels making the catch and number of days fishing are all exaggerated and compound to give a result far beyond the realms of plausibility. For better context of this estimate:
- 13.2.1 the report itself states at page 109 the shellfish catch at Boston was worth £1.2m in 1991 (though it is not clear from context in the report if this covers all shellfish, i.e. including shrimp, or just molluscs).
- 13.2.2 all species combined catch value for Boston averaged £1.6m over the period 2000-2016 (from para 7.5 above).
- 13.2.3 My 2011 work showed shrimp landing values at Boston between 2000 and 2009 to be in the range £42,000 to £370,000.
- 13.2.4 a whole-UK value of shrimp landed in 1994 was £2.0m, (from National Archives Sea Fisheries Statistics 1994, Table 3.3, available through the MMO website).
- 13.3 Additional fishing time obviously has scope to increase landings, but to nowhere near the extent suggested by Balfour Maunsell. Indeed at section 6.4.4.6 of the 1994 report the fishermen apparently express concern about effects the scheme would have on their livelihood.
- 13.4 There also seem to be significant uncertainties as to possible effects on nutrient supply and so food availability for commercial shellfish on the beds outside the Haven (see map at Figure 3), water quality and contamination with sewage pathogens, and also siltation of shellfish beds (sections 6.3.2.1, 6.4.4.6, 6.4.4.9, 6.4.4.10). It seems overall that relatively modest catch value increases which may be possible from this scheme are outweighed by significant uncertainties in environmental and contamination damage to shellfish beds.

Water Level Management

- 13.5 I understand that the Scheme has been designed so as not to compromise the introduction of Water Level Management (**WLM**) in the future.
- 13.6 For my Proof of Evidence, I have based my assessment on the Environment Agency's proposed WLM regime. In this proposal, a barrier at the location of the currently proposed

structure. , would retain water on the upstream side on alternate (in practice daylight) low tides between April and October. The aim being to make the upper Haven more user-friendly for pleasure craft and improve aesthetic qualities of the town.

- 13.7 In 2011 I was asked by the Environment Agency to assess the possible impact of WLM on the Boston fishing fleet. The WLM regime meant that they could become 'locked in' at the London Road Quay until the barrier opened as the flooding tide reached 1.45m AOD, instead of normally being able to leave when it reached about -0.6m AOD, and likewise having to arrive back earlier than normal before it closed again.
- 13.8 Based on discussions of fishing practices and locations of grounds with the fishing industry, ESFJC landings data from 2000-2009, and a tidal model that measured the loss of navigation time throughout the year, I constructed fishing economic models for each of the three main target species and calculated lost catch value in proportion to time that would be lost at the fishing grounds under this scheme.
- 13.9 These showed as a best case, when fishermen went to sea on every opportunity, even though time available was often reduced, the net loss to the fleet would be some £240,000 per year. As a worst case, where the vessels were assumed to abandon any attempt to conduct fishing methods where they needed to be on the grounds over high water, as shortened trips would be simply non-viable, the loss would be some £439,000 per year.
- 13.10 Even though the fleet is subject to inter-annual landings changes of this magnitude, (**Table 1**), this loss burden would be permanent. Given average annual landings value of some £1.6m, losses of this nature from this scheme would create a threat to the viability of fishing in Boston.

Current Scheme

This section of the proof covers the likely impacts to the Boston fishing fleet that will arise from the construction and operation of the Scheme, together with arrangements to mitigate these impacts.

14 Construction Phase

- 14.1 The main impact to fishing from construction of the Scheme is the placement of the cofferdam during the construction of the barrier.
- 14.2 The cofferdam is planned to be in place for some 15 months, according to the construction schedule which is included as an appendix to Mr Mallin's proof of evidence (**EA/3/2**) (total of lines 12,14 and 15).
- 14.3 During this time, navigation of larger vessels, (i.e. including commercial fishing vessels), past the cofferdam in either direction would only be allowed on High Water slack, or with a following current and subject to one-way traffic control. This is based on the proof of Ms Watson (**EA/4/1**), (Navigation simulation study conclusions) and the Navigation Management Plan (section 3.8) (**A/17/2D**).
- 14.4 This would disrupt normal operations of the fishing fleet at their current London Road moorings.
- 14.5 When fishing on the grounds over high water (shrimp, mussel dredge, cockle dredge) fishing vessels normally leave with a rising tide, fish on the grounds from roughly half tide, over high

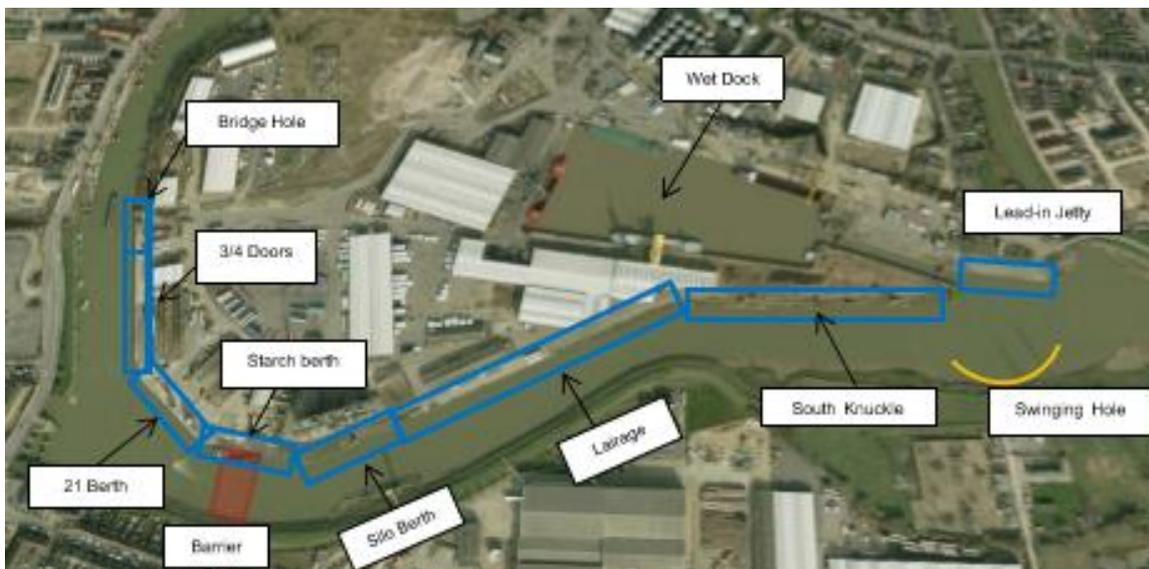
water and to half tide on the ebb, then return to port to unload before -0.6m AOD is reached. On both inward and outward journeys they would pass the cofferdam against the tidal flow and thus should not be disrupted.

- 14.6 If fishing over low water, (hand raking cockles), they normally leave on a falling tide, fish from around half tide or below and over low water, then float off and return after half tide, i.e. both inward and outward journeys are with the tidal current. If restricted to leaving and returning at High Water slack, so avoiding travelling with a following current, they would have perhaps 2-3 hours extra to wait while the beds dried out, and the same wait again after floating off the beds on the return journey, waiting for high water. Fishing time would be as normal, i.e. some 5-6 hours, but with some 4-6 hours waiting time in a 12 hour trip. This would be inefficient and involve many hours of unproductive and frustrating waiting time.
- 14.7 It is worth noting that some fishing activities do not stick rigidly to either pattern, particularly if the vessels are planning to stay out for longer than 5-6 hours. Thus cofferdam restrictions may also disrupt these trips to some extent.

15 Movement to Lairage Quay

- 15.1 To mitigate against this disruption, and to provide additional safety whereby the fishing vessels do not need to pass the cofferdam at all, the Environment Agency have made arrangements for the fishing fleet to temporarily relocate to the Lairage Quay on outer wall of the commercial port, below the proposed barrier location, while the barrier is constructed (Statement of Case para 5.3.8 (I/1), Navigational Impact Assessment 6.17.1(A/17/2D)).

Figure 4: View of the Haven and location of the Lairage (and other) Quays. The London Road Quay is not marked but is on the west bank upstream of the swing bridge.



Source: EA Navigational Impact Assessment Technical Report

- 15.2 The Environment Agency has been in discussion with BDFA for some time on this move. The Environment Agency has:

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- 15.2.1 secured a lease from Port of Boston for the use of some 300m of quay on the outer wall of the port, known as the Lairage Quay, together with access roads (the lease area is shown as **Appendix 4**);
- 15.2.2 agreed to undertake various improvements at the port site to allow for normal, safe fishing vessel working; I understand that Environment Agency are now tendering for contractors to make these improvements;
- 15.2.3 offered a package of compensation to cover among other things the costs of moving fishing and other gear from the existing fishing base at London Road to the new site at the Port of Boston, (roughly 1km by road), additional costs of operating from Lairage Quay and navigational interruptions, or failing agreement of a package, compensation on a statutory basis. This is set out in the proof of Mr Scriven (**EA/7/1**) and is discussed further in my proof at paragraph 21.1 below.
- 15.3 I have visited this site and examined the details set out in BDFA Temporary Facility – Functionality Requirement report (Functionality Requirement Report), attached as **Appendix 5**.
- 15.4 Overall the site is suitable and would be satisfactory to allow fishing to continue as normal. It would be reasonable for the fishermen to relocate to this site, as has been offered. Whilst some of the details of the facilities are still subject to discussion between the fishermen and the Environment Agency, I am confident that what is proposed is adequate based on current practices at London Road and many other fishing ports around the UK.

16 Quay length

- 16.1 There has been some debate over the length of the quay provided. At the time of drafting this proof I understand the fishermen have requested 400m, to include 100m for an 'unloading area'.
- 16.2 The number of vessels which need to be catered for is difficult to define precisely. BDFA have yet to provide a definitive list of their membership and vessel characteristics. As discussed above, 17 vessels are registered with a home port of Boston according to MMO (**Table 1**). A maximum of 25 vessels appear in the EIFCA fishery officer reports. This probably includes a number of visitors from Kings Lynn when cockling on the west side of the Wash is prolific. 26 vessels have been physically counted in Boston but some may not be properly licenced and active (no port numbers).
- 16.3 As regards vessel length, the average from the MMO list (**Table 1**) is 11.23m.
- 16.4 As regards mooring practices, from background knowledge and many photographs available online and in various reports, as well as my own observations, vessels at Boston often 'raft up' i.e. they moor side by side. This is very common practice in fishing ports around the UK.
- 16.5 As regards a linear distance needed for each vessel space, some space end to end is required to allow for tidal movement. From Google Earth and some other imagery on line, they seem to moor less than 1/4 boat length apart at closest at Boston. Allowing say 1/2 a boat length and average of say 12m, then some 18m per vessel space is needed.

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- 16.6 Thus at the highest EIFCA value of 25 vessels, the space needed can be calculated as (25 vessels x 18m per vessel) / 2 for rafting = ~225m of quay space is required for mooring. This still leaves ~75m in hand for an unloading area if they need it.
- 16.7 At present, the London Road Quay leased by the Environment Agency is 200m long (see report Boston London Road Fishing Quay, Inspection and Condition Survey Report, May 2016, attached as **Appendix 6**). I understand from Mr Scriven that there is some 60m in addition that belongs to BDFA at the south end that is used for temporary berthing / unloading, but is too near the swing bridge to allow for mooring. Other mooring areas are discussed in paragraph 16.9 below.
- 16.8 Photographs in the Condition Survey Report show a mixture of single mooring, double mooring and unused quay, the latter possibly as it is overgrown, or possibly due to mud build up making it too shallow to use. See also **Fig 2** above for typical double mooring.
- 16.9 I am aware that some vessels also use some mooring space further up the Haven adjacent to South End, once they have unloaded. There is a fenced off car park there that I believe is for fishermen only and provides some 80m quay length. 5 vessels were in this location, according to a site visit by Mr Scriven on 24th February 2017. Some vessels also moor at St Ann's Wharf, upstream of the London Road Quay. Some also moor opposite St Ann's Wharf, adjacent to South Terrace. Based on estimates from the site visit and from Google Earth images, it would seem that mooring space currently used equates to approximately:
- 150m usable at London Road
 - 100m at South End / south Terrace
 - ~100m St Ann's / other locations
 - ~350m in all
- 16.10 When fishing for cockles, the vessels mainly land at the Dani cockle processing factory on the left bank just below the swing bridge. There appears to be some 120m of quay space available there (based on Google Earth).
- 16.11 As with any fishing port, vessel operators have to work between themselves to organise unloading, mooring, maintenance of vessels and gear etc. in whatever quay space they have available, as efficiently as they can.
- 16.12 Given the mixture of existing facilities and practices centred on 200m of quay at London Road, the 300m of quay space provided at the Lairage Quay is adequate for the fishing fleet to moor, operate and carry out their normal activities, accepting that the current practice of double mooring will be needed for some vessels, particularly when busier. It is worth noting that 25 vessels working concurrently from Boston is likely to be a temporary peak, and whether it will be reached depends on whether the cockle season that coincides with the barrier construction is a prolific one. It would not in my opinion be necessary to provide more than the 300m offered. I understand discussions are continuing between the fishermen and the Environment Agency.

17 Quay Wall

- 17.1 The Environment Agency has agreed to undertake various improvements to the Lairage Quay to make it suitable for fishing boat working, as set out in the Functionality Requirement Report (**Appendix 5**).
- 17.2 These can be summarised as:
- 17.2.1 Ladders at 15m intervals
 - 17.2.2 Handholds at 30m intervals
 - 17.2.3 Mooring rings at 2.5m intervals²
- 17.3 I understand from the Environment Agency that fishermen initially requested mooring rings and ladders both at 30m intervals. The specification planned thus seems more thorough than has been requested.
- 17.4 Wooden fendering and protection of ladders will also be provided.
- 17.5 Power, water and life-saving facilities will be provided to the quay wall. There will therefore be all the facilities required available at the quay wall.

18 Quay land

- 18.1 Various improvements and services are also planned for the quay land, including:
- 18.1.1 Electricity supply
 - 18.1.2 Surface improvements if needed
 - 18.1.3 Cold water supply
 - 18.1.4 Lighting
 - 18.1.5 Fencing and signage
 - 18.1.6 Personal hygiene facilities
 - 18.1.7 Fork lift lock up enclosures
 - 18.1.8 Parking facilities
- 18.2 Some of the details of the facilities are still subject to discussion between the fishermen and the Environment Agency. Overall, the level of facility provision is thorough. Although the details of the facilities may not have been agreed yet with the fishermen, I am confident that what is proposed is adequate.

² I understand that from recent discussions between Mr Scriven and BDFA that mooring rings at 10m intervals are viewed as adequate by BDFA, so this aspect of the specification may be revised.

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- 18.3 The only minor operational disadvantage of being based at the Lairage Quay will be that, during the cockling season, the cockle catch cannot be landed directly to the Dani processing factory, on the left bank just below the Swing Bridge, as is now the case. This will be upstream of the construction site and so not navigable by fishing boats apart from with a following current in both directions, which may not be convenient compared to the normal schedule (landing an hour or two before high water, (duration up to 0.5 hours), then mooring). The bulk bags used for handling the cockle catch may thus need to be transported some 400m by truck or forklift through the dock estate from the Lairage Quay to the Dani factory. I understand that Environment Agency have offered compensation which will cover the additional transport and handling that will be involved. This is set out in the proof of Mr Scriven (**EA/7/1**) and is discussed further in my proof below. This appears to me to be an entirely reasonable proposal.
- 18.4 The temporary relocation to the Lairage Quay may in fact give the fleet a slightly longer tidal window in which to operate. I understand from the Navigational Impact Assessment (**A/17/2D**), also from Halcrow and the fishermen when making my assessment in 2011, also from talking with the Environment Agency and Mott Macdonald, that there was something of a 'high spot' at or close to the Swing Bridge of about -2mAOD. The vessels need safe draft clearance of some 1.4m so can navigate to/from the London Road Quay at about -0.6m AOD or above. The depth at the wall of the Lairage Quay is -3m AOD, i.e. 1.0m deeper than the current constraint, so enabling the vessels to sail at -1.6m AOD, approx. half an hour earlier on a rising tide and return half an hour later on a falling one. This will be of benefit to those fishing types when departure is normally at the first opportunity as the tide rises and arriving back at just before the tide drops too far to allow navigation, i.e. for all fishing types apart from hand raked cockling, (see paragraphs 10-12 above for more details on fishing patterns relative to tidal states).
- 18.5 The process of relocation of the fishing base from London Road to the Lairage Quay, a distance of approx. 1km by road, before construction of the barrier, and back again afterwards, may involve some minor loss of fishing time and so have some economic effect on the fleet. This is estimated to take one week at worst each way, equivalent to roughly two fishing days on an average basis.
- 18.6 There may also be additional expenditure in vehicle hire, fuel etc. in moving the equipment over. It is difficult to imagine that this would exceed £5,000 per move.
- 18.7 I understand that compensation has been offered by the Environment Agency to mitigate any loss of fishing time, as well as for extra costs involved in moving the fishing equipment, and additional operating costs such as running forklifts etc.
- 18.8 I thus consider that the Environment Agency have made all reasonable efforts to assist the fleet to move to and use a temporary fishing base at the Lairage Quay. The arrangements planned will be satisfactory for the normal working of the fleet during the construction phase. Any residual impacts from the costs of moving, and associated lost fishing time, will be subject to financial compensation. Thus no material adverse impact need be suffered from moving to this location.

19 Other construction phase impacts

- 19.1 The Navigational Impact Assessment (**A/17/2D**) states at 6.7.5 that the Haven may need to be totally closed to navigation for up to 2 days while the barrier gate structure is installed.

- 19.2 Other activities such a dredging and installation of scour protection may require short term navigation restrictions to be put in place. Outside of these specific elements of work there may also be isolated restrictions on navigation where deemed appropriate by the works contractor and the Harbour Master.
- 19.3 The Environment Agency estimate that these minor disruptions to navigation could amount to up to 2 weeks in aggregate.
- 19.4 Fishing operations from Boston are time critical due to the tidal restrictions, so navigational delays in the Haven during construction will lose fishing time on the grounds, so potentially causing economic losses.
- 19.5 The Environment Agency has agreed that navigational delays that cause losses would be mitigated by a compensation scheme. There should thus be no negative residual impact arising from the construction of the Scheme. I am confident that everything reasonable has been done to identify the effects of the construction of the barrier on the fishing fleet and then to mitigate or avoid those effects, or where that cannot be done, to offer compensation to cover for the costs and losses which would be incurred. It would in my opinion be unreasonable of any fisherman not to co-operate with the Environment Agency in relation to what is being offered to the fleet.

20 Operation

- 20.1 I understand that once the barrier has been constructed it is proposed that the fishing fleet base will return to London Road Quay (**Statement of Case 8.3.1(d)(i) (I/1)**).
- 20.2 The barrier will not adversely affect navigation of fishing vessels post construction (as set out in the Navigational Impact Assessment 7.5.14 (**A/17/2D**), Ms Watson's proof (**EA/4/1**), Captain McArthur's proof (**EA/5/1**) and Mr Murrison's expert report (included as an appendix to Ms Watson's evidence (**EA/4/2**)), so the impact on the fishing fleet during the operational stage will be minimal. They will be able to fish as before.
- 20.3 There may be some short-term, very occasional delays to navigation. This could be through:
- 20.3.1 Barrier raising / maintenance or flood event
 - 20.3.2 One way traffic
 - 20.3.3 Maintenance dredging and traffic
- 20.4 The Navigational Impact Assessment (**A/17/2D**) sets out at 7.8 that the barrier maintenance will cause temporary closure for some 50 minutes once per month, plus 1 hour and 50 minutes once per year. Good communication and prior knowledge of fishing operations, seasonality and likely times of transit, together with some flexibility in the maintenance schedule, should mean that delays and economic impacts on the fleet from maintenance are not significant, if they happen at all.
- 20.5 During a flood event, when the barrier would rise for a maximum of 9 hours, fishermen would not normally be attempting to navigate the Haven. Tidal flood events are associated with storm

surges driven by gale force winds, with sea states in the Wash most likely to be prohibitive to normal fishing.

- 20.6 The operation of a one-way traffic scheme through the barrier has the potential occasionally to cause very short delays. However, as described earlier in discussion of fishing patterns, the fleet tend to travel at roughly the same time in the same direction. They thus will be very unlikely to conflict with each other. Remaining traffic using the barrier is light and generally sailing vessels going to or from the Wash, which also tend to travel in the same direction at the same time (Navigational Impact Assessment Section 5 (**A/17/2D**)). CCTV footage taken at Black Sluice over two periods September to November 2013 and May to June 2014 showed 1081 fishing vessel movements, which accounted for 57% of all vessel movements observed. 16 of these fishing vessel movements involved either overtaking or passing other vessels (fishing or otherwise) when in sight of the camera, i.e. in some 1.5% of observations. Assuming, at worse, all of these encounters would have needed some degree of control around the barrier by a VTS, then on average a typical fishing vessel fishing 100 days per year could expect to be subject to one way traffic or similar control for perhaps 10 minutes on 1.5 days per year, i.e. a disruption of 15 minutes per year. One-way traffic restrictions thus have the potential to cause delays but in practice this likely to be insignificant.
- 20.7 Navigational restrictions resulting from maintenance dredging taking place as a result of the barrier is not worse than is the case pre-construction, (Navigational Impact Assessment section 7.6 (**A/17/2D**)).
- 20.8 Other potential navigational risks during operation are discussed in the Navigational Impact Assessment (**A/17/2D**) and the Environment Agency's proofs of evidence. The mitigation measures planned reduce these to not significant.
- 20.9 The totality of delays in any year post-construction from maintenance, one way traffic management etc., overall would be minimal and not significant.
- 20.10 Overall, therefore, there will not be any residual negative impact on the fishing fleet during the operational stage.

21 Comments Regarding Compensation

- 21.1 I have been asked to comment on the adequacy of the compensation package that the Environment Agency has offered to the fishermen, to mitigate any losses that cannot be avoided by other means. This is an offer which has been made to the BDFFA to seek to reach agreement on outstanding matters. Negotiations are ongoing and the information set out here is correct at the time of drafting this proof, but may change. If agreement is not reached, the measures and compensation set out above would still be available to the fishing fleet, so there would be no significant residual effect on the fishing fleet – effects would be mitigated and there would be compensation for losses arising from any residual effects.
- 21.2 The intent to enter a compensation agreement with the BDFFA, if possible, is set out in Mr Scriven's (**EA/7/1**) proof.
- 21.3 I am aware that the Environment Agency have offered the following compensation package to the BDFFA:

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- 21.3.1 The transfer of the freehold of the London Road Quay to BDFA, together with a lump sum of £363,000.
- 21.3.2 In addition, there is an offer to pay BDFA for business losses to the fleet due to temporary closures of the river during construction if this amounts to more than 14 lost fishing days in aggregate. The rate is £16,000 per lost fishing day.
- 21.4 The offer of the freehold tenure of the quay and the lump sum is made in response to the BDFA being uncertain about their future, only being tenants (of the Environment Agency) at the London Road Quay. The current leases are attached at **Appendix 7**. It is a 99 year repairing lease and at the end of the term in 2067 the BDFA could also be liable for dilapidations.
- 21.5 My estimate of likely losses to be suffered by the fleet are as follows:
- 21.5.1 Gross income per fishing day for the fleet will be roughly:
- £1.6m average annual landing value (from paragraph 7.5 above)
- 100³ fishing days per year
- $£1.6m / 100 = £16,000$ per fishing day
- 21.5.2 Thus in a calendar week there will be approximately $(100 / 365) \times 7 = 1.91$, say 2, fishing days on average.
- 21.5.3 The additional costs associated with vehicle hire, fuel, casual labour etc. to move the fishing base from London Road to the Port of Boston are estimated at around £5,000. I also estimate that the process will take one week in each direction.
- 21.5.4 The approximate magnitude of losses which could potentially be suffered by the fleet are summarised as follows, based on the discussions above.

Construction

Expenses of moving: £5,000 x 2 moves	£10,000
Lost fishing income moving: £16,000 x 4 lost fishing days	£64,000
Additional costs re Dani: 1 cockle season x £5,000	£5,000

Haven closures / restrictions

2 cal weeks = ~4 fishing days in aggregate x £16,000	£64,000
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Total **£143,000**

Operation:

Minimal, not significant

Note that the above figures are approximations of losses on a year-round average basis.

- 21.6 Given an anticipated disruption of 2 weeks for moving and up to 2 weeks in aggregate for minor navigational issues, the £363,000 lump sum offered by the Environment Agency would thus leave a residual sum which could be put towards the long term refurbishment of the quay and so secure the industry's future, or as a buffer against variation from the average. This would be in addition to being given the freehold of the London Road quay land.
- 21.7 The Environment Agency is also offering to pay further compensation for fishing interruption should, due to unforeseen circumstances, the Haven be closed to navigation such that more than 14 fishing days were lost during the construction period. The loss of an additional 14 fishing days would amount to $(£16,000 \times 14) = £224,000$. The non-navigational losses in paragraph 21.5 above amount to $(£143,000 - £64,000) = £79,000$. Thus at $(£224,000 + £79,000) = £303,000$, the lump sum of £363,000 would still be well in excess of likely losses, should this 14 day threshold be reached.
- 21.8 It is worth noting that all of the above figures concern loss of gross catch value. Not fishing will incur variable cost savings. This will be primarily in fuel and other consumables, estimated roughly at 15-20% of grossings. These are not taken into the calculations but will serve as a further buffer to variations or use of estimates. Note that crew costs are not considered as a variable in this situation. Although the crew are normally paid on a share of the catch value, so potentially earning nothing when fishing is not possible, it is anticipated that skippers would transfer a share of the compensation to them as if it were catch value in the normal way.
- 21.9 Normally in circumstances such as this, one can predict economic losses ahead of the impact, and reach a compensation settlement on that basis, or assess the evidence for losses after an impact has occurred, and pay what is reasonably demonstrable.
- 21.10 In this case, the offer of the freehold of the quay plus a lump sum is unusual in that it incorporates values that are not directly related to the primary impact. It is also unusual as it offers a capital asset, a lump sum, as well as coverage of lost income beyond a threshold, should it occur, during the construction phase. This is in addition to the cost to the Environment Agency of using and upgrading the Lairage Quay. The package offered thus appears eminently reasonable. The Environment Agency has been seeking to do the best it can to reach an agreement with the BDFA in advance of the works.
- 21.11 If agreement is not reached on this basis, the fishermen would still be provided the mitigation of the primary impact, (restrictions due to the cofferdam), by provision of the Lairage Quay, together with compensation on a proven losses basis, so would not suffer any uncompensated residual effects in any event.

22 Issues Raised In Objections

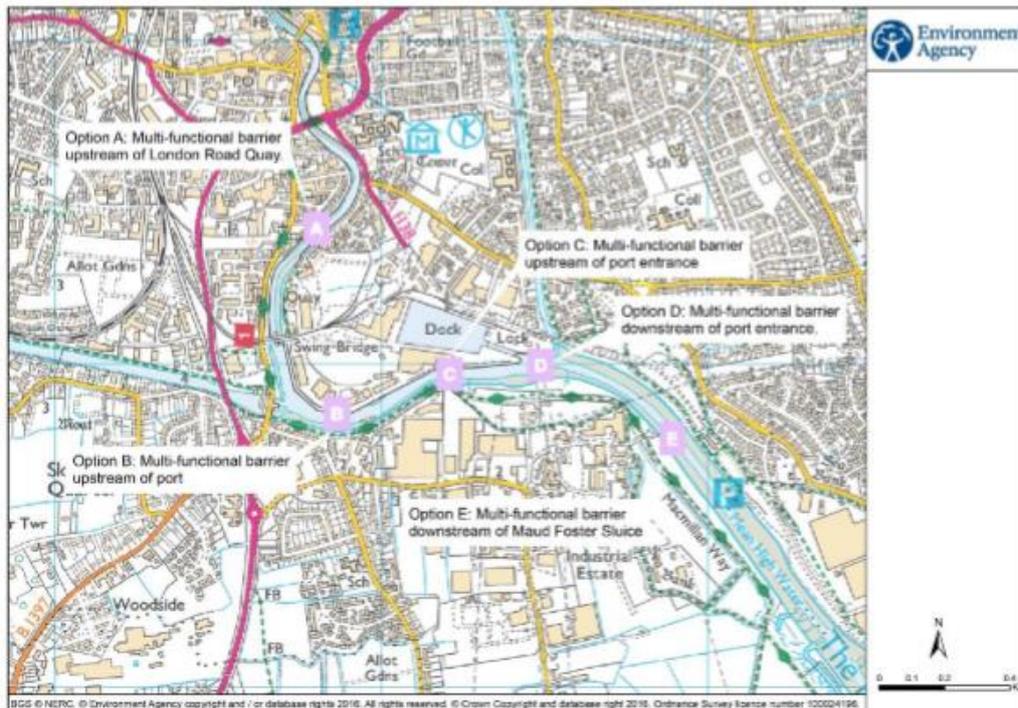
- 22.1 I have read all of the letters of objection that mention impacts on the commercial fishing fleet. The objections relating to the fishing industry concern primarily:

- 22.1.1 Location of Barrier⁴
- 22.1.2 Safety of Navigation of Barrier during high flow velocities⁵
- 22.1.3 Safety of Navigation of Barrier due to sight lines⁶
- 22.1.4 Closure of navigation during construction⁷
- 22.1.5 Economic risk⁸
- 22.1.6 Comparisons with the Wivenhoe Barrier (Essex) ⁹

23 Location of the Barrier

- 23.1 I am aware that the location of the barrier has been the subject of considerable assessment and local consultation. Further Evidence of this is given in the proof of Mr Anderson (**EA/1/2**).
- 23.2 The Environment Agency Statement of Case (**I/1**) sets out the shortlist of sites, A to E, which are shown below for ease of reference.

Figure 5: Barrier location shortlist (copied from Environment Agency Statement of case (I/1))



⁴ Raised by Don Ransome (Obj 1), David Matthews (Obj 2), Cllr Stevens (Obj 3), Cllr Brown (Obj 7), Capt Franklin (Obj8), Rodney Bowles (Obj 14), Terry Despicht (Obj 15), RA Brewster / Tricia B Shellfish Ltd (Obj 16), Shane Bagley (Obj 17), Jamie Lee (Obj 18), Wyberton Parish Council (Obj 20), Howard Smith (Obj 21), BDFA (Obj 22), Ron Careless (Obj 23),
⁵ Raised by: Cllr Stevens (Obj 3), Cllr Brown (Obj 7), Inland Waterways Assoc (Obj 9 & 24), Robert Booth (Obj 10), Rodney Bowles (Obj 14), Terry Despicht (Obj 15), RA Brewster / Tricia B Shellfish Ltd (Obj 16), Shane Bagley (Obj 17), Jamie Lee (Obj 18), Howard Smith (Obj 21), BDFA (Obj 22).
⁶ Raised by Cllr Brown (Obj 7), Inland Waterways Assoc (Obj 9 & 24), , Rodney Bowles (Obj 14), Terry Despicht (Obj 15), RA Brewster / Tricia B Shellfish Ltd (Obj 16), BDFA (Obj 22).
⁷ Raised by: Inland Waterways Assoc (Obj 9 & 24), Shane Bagley (Obj 17), Jamie Lee (Obj 18), BDFA (Obj 22).
⁸ Raised by: David Matthews (Obj 2), Cllr Stevens (Obj 3), Capt Franklin (Obj8), RA Brewster / Tricia B Shellfish Ltd (Obj 16), Shane Bagley (Obj 17), Jamie Lee (Obj 18), BDFA (Obj 22).
⁹ Raised by: Shane Bagley (Obj 17), Jamie Lee (Obj 18), BDFA (Obj 22).

- 23.3 The site that would have least impact on commercial fishing operations is A. This is upstream of the London Road Quay and so the fleet would be able to come and go as they do at present, with the exception of the 5 or so boats which use the higher mooring position adjacent to South End.
- 23.4 I understand that A was ruled out of the process early on for a variety of negative factors. All other options are likely to cause disruption during construction, with restricted or possibly no navigation possible between the fishing quay and the open sea. B, the selected option, allows the opportunity for temporary relocation of the fishing fleet to a location below the construction site, the Lairage Quay, (on the north bank between sites B and C), from which fishing will be able to take place with minimal restriction, as discussed above. The Lairage Quay is the only location in the Haven which would allow for temporary relocation of the fleet. Thus site B is much preferable from a fishing operations point of view compared to sites C, D or E. For similar reasons it would also be preferable to any location lower down the Haven towards the Wash.

24 Safety of Navigation of Barrier during high flows velocities

- 24.1 Navigational issues and mitigation matters are addressed in the Navigational Impact Assessment (**A/17/2D**), Navigational Management Plan (**EA/3/2**), the proof of Ms Watson (**EA/4/1**), the proof of Capt McArthur (**EA/5/1**) and the expert report of Mr Murrison (appended to the proof of evidence of Ms. Watson (**EA/4/2**)). I have considered this evidence and it is apparent to me that there will be no navigational problems for the fishing fleet in practice.
- 24.2 The concern raised by objectors seems to centre on the navigation of the barrier channel travelling with strong downstream flows, i.e. at the ebb phase of spring tides when combined with high fresh water run-off.
- 24.3 One factor which does not seem to have been discussed is the probability of need for downstream navigation in these conditions from a fishing industry perspective. As set out earlier, the main fishing activity when vessels leave London Road Quay on a falling tide is to go hand raking cockles when vessels need to dry out on the beds over low water. For other forms of fishing, departure and return are usually against the tide. Cockling is predominantly a summer fishery. Using raw data from my 2011 assessment, the average cockle catch landed at Boston over 2000-2009 is 2,014 tonnes. Of this, 1,971 tonnes, or 98% of the total, were landed in the period April to October, (the months which would have been subject to water level management). River discharge will be inherently lower than in the summer months than in the winter. This is borne out by the fluvial discharges affecting the barrier area, shown in Table 1 of Ms Watson's proof, which show that in 'typical summer' Grand sluice and Black sluice discharges are some 6 m³/sec combined, while the value for 'typical winter' is 74 m³/sec, some 12 times as much. Thus the probability of travel downstream in high fluvial flow conditions will thus be relatively low, though of course it may be necessary occasionally.
- 24.4 Concern has been raised by Shane Bagley (**OBJ 17**) that it may be impossible to navigate against the current in a commercial fishing vessel in the barrier channel. Set out in the Navigational Impact Assessment Report (**A/17/2D**), River User Addendum, at page 19, is a maximum forecast flow of 3.8kts downstream through the barrier, using tide/run off conditions experienced in March 2016. Displacement hull fishing vessels of the type seen at Boston typically steam at 8-9kts. Thus at normal steaming speed the vessels would be travelling at over 4kts over the ground (a fast walking speed) when navigating upstream through the barrier in such conditions, so making good progress and maintaining normal directional stability. Ms

Watson's proof (**EA/4/1**) also states that in simulations the fishing boat transited the barrier structure successfully in the full range of river conditions tested. This concern thus seems to be unfounded.

25 Safety of Navigation of Barrier due to sight lines

This issue and associated mitigation measures have been covered in the Navigational Impact Assessment (**A/17/2D**), Navigational Management Plan (**EA/3/2**), the proof of Ms Watson (**EA/4/1**), the proof of Capt McArthur (**EA/5/1**) and the expert report of Mr Murrison (appended to the proof of evidence of Ms. Watson (**EA/4/2**)). I would add to the points contained in their proofs that, in my experience it is not uncommon for fishermen working from multi-use ports to be subject to vessel traffic system (**VTS**) or local port service (**LPS**), i.e. as per mitigation measures set out in the Navigational Impact Assessment and the Navigation Management Plan.

26 Closure of navigation during construction

Limitations on navigation during construction are inevitable. This will primarily be due to the cofferdam and also due to occasional disruption from construction traffic. The Environment Agency has put together a comprehensive package of mitigation measures to overcome these. This is discussed at para 15.1 to 19.5 and 21.1 to 21.11 of my proof. Relocation to the Lairage Quay will remove the major obstacle to navigation, i.e. the by-pass channel between the cofferdam and the left bank at the barrier location. Departing and returning to the Lairage Quay, downstream of the construction site, will mean the fleet operations will be effectively unhindered and may be enhanced by the greater tidal window available at Lairage Quay. However, in case there is any disruption, the Environment Agency have offered financial compensation. There thus should be no residual impact resulting from any navigation restrictions.

27 Economic risk

- 27.1 Concerns are raised as to future viability of the industry and importance to the regional economy.
- 27.2 As has already been discussed, the Environment Agency has offered a comprehensive compensation package for the fishing industry and as explained in paras 21.1 to 21.11 this will ensure that any negative economic impact is avoided.
- 27.3 The statements about industry value at 'tens of millions of pounds' are exaggerated. Annual landings values are in the range £0.5 to £3.3m, with average ~£1.6m, according to EIFCA data. These landings will produce further added value through processing and distribution, but not 'tens of millions of pounds'.
- 27.4 The statement about employment of 'hundreds of jobs' is also exaggerated. Employment and impacts upon it in the fisheries sector is normally measured in full-time equivalents (FTEs) as seasonality of employment is common. Fishing in Boston and processing the catch is seasonal and part-time. Vessels of this kind will typically have a crew of two or three working for a share of the catch value. They will fish for ~100 days / year, but with a wide range. Allowing for shore-side duties, crews will thus be directly engaged for ~50% of the time. With some 20 active vessels, the direct employment is probably about 30 FTEs spread across 60 people.

Using national norms for processing, the Boston catch probably gives rise to very roughly 20 FTEs in processing on average.

- 27.5 Any potential short term economic losses will be covered by the compensation scheme. The industry stands to gain some longer term security by the transfer of the London Road Quay into their ownership.

28 Comparisons with the Wivenhoe (Essex)

- 28.1 Shane Bagley (**OBJ/17**) and the BDFA (**OBJ/22**) mention in connection to current speed and navigability that the Colne barrier at Wivenhoe, Essex, caused the local fishing industry there to collapse.

- 28.2 The Colne barrier was built in 1994. It is not dissimilar to that planned for Boston in that the barrier forms a 30m wide channel in the estuary. Lock-type gates are closed in the event of a storm surge. In 2000 the Environment Agency produced an information leaflet on the Colne Barrier. In a Q&A section on page 6 of this leaflet it states: '*Strongest ebb and flood tides are just over 2 knots in the main channel. This is acceptable to powered craft but sailing dinghies may have difficulty at some states of tide and wind*'. A current of just over 2 knots should not cause any difficulties to commercial fishing vessels. The leaflet is attached as **Appendix 8**.

- 28.3 I have also spoken with a fishery officer at Kent and Essex IFCA who mentioned that the fishing industry which used to be in Wivehoe was quite modest in size compared to that at Boston and its demise was not related to the Colne Barrier. It collapsed for other reasons, primarily lack of fish quota for the vessels concerned. He also stated that the Colne Barrier would not be a navigation impediment to commercial fishing vessels.

- 28.4 According to the website ports.org.uk, the port of Wivenhoe (and presumably the fishing base) closed in 1992, before the barrier was built in 1994. Despite making enquiries, I can therefore find nothing to support the concerns raised in relation to Wivenhoe.

29 Issues raised in the Statement of Matters

- 29.1 14a) issues around perceived increased flow velocities creating difficulty for the fishing and pleasure craft industry to operate safely;

- 29.2 This is covered in paras 24.1 to 24.4 above.

- 29.3 14b) issues around the relocation of the fishing fleet to operational quays downstream of the barrier which are currently used by larger shipping using the Port of Boston; Fishing fleet's concerns regarding flow velocity.

- 29.4 This is covered in paras 15.1 to 18.8 above.

30 Conclusions

- 30.1 For the construction phase of the barrier, the Environment Agency has invested significant resources in planning for provision of an adequate alternative fishing base for the Boston fleet.

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The Environment Agency has also offered to provide compensation that will be adequate to cover any residual impacts that cannot otherwise be mitigated.

- 30.2 For the operational phase, all the evidence shows that the fishing fleet would be able to operate as they do at present.
- 30.3 During the construction phase, any residual economic impacts which cannot be mitigated will be subject to financial compensation. Offers of compensation have been made to the BDFA, including a package based on discussions with the BDFA. It is hoped that this will be agreed in the near future. I consider the package of compensation which the Environment Agency has offered to the BDFA to be eminently reasonable.
- 30.4 Overall, the fishing fleet is one of the key commercial users of the river and a major flood defence scheme such as this cannot be built without some disruption to normal operations. The Environment Agency has carefully assessed all likely impacts that will arise from the Scheme and have made all reasonable efforts to ensure that there is no residual negative impact on the fishing fleet.

31 Statement of Truth

I hereby declare as follows:

- 31.1 Insofar as the facts stated in this Proof of Evidence are within my own knowledge I believe them to be true, and that the opinions I have expressed represent my true and complete professional opinion.
- 31.2 This Proof of Evidence includes all facts which I regard as being relevant to the opinions which I have expressed and that I have drawn the inquiry's attention to any matter which would affect the validity of those opinions.
- 31.3 I understand that my duty to the Inquiry is to help it to help it with matters within my expertise and I have complied with that duty.