



the  
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partnership

## **Labour Market Intelligence Research: Scoping Phase**

**A report to the Maritime Skills Commission**

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## Summary

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The evidence presented above about skills issues in the maritime sector shows many gaps. Few parts of the sector have any up-to-date and comprehensive analysis on which decisions can be based, whether to tackle problems or grasp new opportunities. And much of what is reported is rather superficial, taking complaints about recruitment difficulties at face value without probing to understand what's really going on, and where the problems really lie.

The Commission is also working in a fast-changing environment. Analysis, and decisions, which seemed wise before Brexit, for example, may no longer be so as the Government works its way towards a new approach to immigration – which matters enormously in an international sector with so many employees from overseas. More recently, the coronavirus crisis has overturned countless assumptions in very short order; it will be some time before we understand all the implications.

With so many gaps and challenges the Commission will no doubt want to prioritise. Two of the questions posed for this scoping study were “what further knowledge and understanding would be helpful?” and “to help identify whether primary research will be needed”. With so many gaps it would be better to address those questions topic by topic rather than attempt to fill in all the gaps regardless of priority.

One other gap is worth commenting on because the Commission's objectives include ensuring that the sector has the apprenticeships, qualifications and training provision it needs. There is little evidence on the adequacy and sufficiency of the training provision available to the sector, nor the appropriateness and quality of the range of qualifications, apprenticeships, and degree programmes available. That *may* mean that everyone is content, but it may not. And if everyone is content, there may still be room for improvement.

## Recommendations

We offer six recommendations under two headings:

### Core objectives

- Recommendation 1: the evidence above points to the following as early priorities for attention by the Commission:
  - a. the evidence indicates that the only part of the sector with pressing short-term issues which hinder growth is the building side of the marine leisure sector. The Commission will probably want to consider how far it gets involved in ‘putting out bush fires’ – ie tackling particular issues affecting discrete parts of the sector – and how it can distinguish between a bush fire and a more systemic problem. The place to start would be with a detailed discussion with British Marine and relevant businesses.

- b. several partners, including those most closely involved in it, said they were keen for the Commission to look again at the Merchant Navy Cadet programme. The terms of reference need some care, and should be drawn quite broadly to include the requirement for former seafarers ashore, and the value of enhancing the content of cadets' training before the IMO requires it when STCW is next refreshed. Though there is a good deal of data on the programme there are important gaps in the information available about what happens at different stages, and gaps in understanding about the dynamics of the programme and later employment.
- c. the proposal from the UK Major Ports Group is a good one which the Commission should consider seriously, both for its inherent value, and as an example of an approach to considering "future workforce" questions which the Commission might later want to apply to other parts of the sector. This is a project which certainly calls for new primary research, with a broad base because it is about exploring and attempting to understand an uncertain future.
- d. automation (and related technological change) is an obvious candidate, but the topic is vast and the scope for wasting energy in an unfocused way, no less vast; the terms of reference again need some care. At the pragmatic end of the spectrum, one fruitful approach might be to focus on changes which should be implemented *now* to ensure that the generation currently going through their initial training should leave with a good understanding of the current position in their field, and future possibilities. At the "blue skies" end, the Commission might want to consider a "think piece" looking further ahead.
- e. engineering comes up again and again as a problem area, but the exact nature of the problem is seldom defined with much precision, and decades-old calls to work harder to get more young people interested in STEM subjects do not appear to be making enough difference. The Commission ought to have a good look to understand exactly what the problem is in different parts of the sector, what employers do to manage those problems now, and what else can be done which will make a difference.
- f. immigration, and the employment of so many people from abroad across the sector, needs to be on the agenda because Brexit will (almost certainly) change the way employers, and indeed individuals, consider their options. Changes in immigration policy could have a major impact on the maritime sector. Data is good in some areas (particularly shipping), but poor in most. Evidence about the dynamics of immigration and why employers make the choices they do is poor across the board.

(There are undoubtedly other topics which merit early attention, such as – very topically during the coronavirus lockdown – the role of technology in learning, but they are not listed here because the evidence presented is largely silent about them).

- Recommendation 2: If the Commission wants to help companies to see skills problems in the round, it could publish practical guidance, perhaps with a title like “What can you do about Hard to Fill vacancies?”. This would pick up the broader HR issues covered above, with worked examples from across the sector showing how others have analysed, and then tackled, the problems they have in recruiting and retaining the people they need. It could offer advice to help companies look critically at what they really need in a job, and how to get it, drawing diversity questions into mainstream discussion about business priorities.
- Recommendation 3: Should the Commission decide that it wants to publish “think pieces” to stimulate debate, an early topic might be to challenge traditional thinking about recruitment, perhaps with a provocative title like “Do you really need a Master Mariner for that role?”. (No one doubts that Master Mariners bring great strengths and none should be offended by posing the question that way; the purpose would be to stimulate widespread debate about making future recruitment as effective as it can be).

### **Supporting Actions**

- Recommendation 4: the Commission should create, maintain and provide access to an online library of labour market reports. That will facilitate its work, including creation of its annual and five-yearly reports.
- Recommendation 5: the Commission should encourage others who initiate research in future to make contact at an early stage, for mutual gain.
- Recommendation 6: the Commission should consider whether or not to give priority to defining the sector in statistical terms. It sounds like it ought to be an obvious action, but given the breadth and complexity of the sector, the discussion with Cebr showed the potential for the subject to soak up a lot of effort for only modest returns; the pros and cons are more in balance than they might seem and ought to be debated carefully.

# 1. Introduction

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- 1.1 This is the report of the initial scoping phase of labour market intelligence research for the new Maritime Skills Commission. The purpose of this scoping phase was as follows:
- to identify what knowledge, data and analysis is already held by key organisations
  - to take advice on what further knowledge and understanding would be helpful, with some indication of priority
  - to help identify whether primary research will be needed (ie contacting employers)
  - if so, to identify the best way of doing that in each sector, eg surveys, focus groups, adding topics to existing meetings, face-to-face interviews
  - to identify other people whose views it would be useful to get
  - to talk over the role and potential membership of the MSC, and how each organisation might best work with it
- 1.2 This report covers all bar the last of those points.
- 1.3 This scoping report is a bit patchy, reflecting the very variable extent to which different parts of the sector have researched their current and future skill needs. There are some excellent reports and there is some good data, but there are also big gaps covered only by anecdote and assumption. One senior figure signed-off an e-mail which contained a helpful assessment of their sector with the words: “All from my personal crystal ball, of course!!”. That individual’s crystal ball is a good deal more valuable than most, but it is still a crystal ball, and robust analysis and planning needs something more.
- 1.4 A number of sector bodies acknowledged that their own information about skills issues, and in particular, skills shortages and skills gaps<sup>1</sup>, was limited – an acknowledgement usually accompanied by an offer to work with the Commission to explore the questions with their members. In one case a Chief Executive, though personally very interested, acknowledged that their organisation has not to date given much attention to skills matters.
- 1.5 In some cases, knowledge was partial. British Marine, for example, has information from members about hard-to-fill vacancies, but very little on issues round retention. And in most cases where there was information about skills difficulties, the information was very much more often about the fact of a shortage – ‘companies find it difficult to recruit X’ – than about the nature of the problem: *why* the difficulties occur, what impact they have, and what companies are doing already to mitigate those impacts. One executive in a sector body which has better-than-average information, referred to these deeper questions in acknowledging: “we don’t understand the dynamics of the industry”.

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<sup>1</sup> See Appendix A for an explanation of how these terms are conventionally explained.

- 1.6 There is relatively little about maritime skills matters published at national level, and - reflecting the current focus of Government support on area-based economic development – rather more for different geographical areas. In England, Local Enterprise Partnerships with strong maritime interests have already been active, and all LEPs have been given funds to prepare Local Skills Action Plans.
- 1.7 Overall there is a good deal published which is relevant to the work of the Commission – and no doubt more which has not been discovered yet as part of this study. It is beyond the scope of this review to do a full literature review, but the report below identifies at least key points. The Commission ought to make readily accessible a complete library of these reports, and keep it up-to-date.
- 1.8 The report begins with an exploration of short-term concerns, to check whether there are any which require early action by the Commission. It goes on to consider a range of longer-term matters, and to review other evidence, with final sections on next steps and recommendations. A number of appendices provide supporting detail.
- 1.9 It is striking that so many senior people readily agreed to meet to discuss this research<sup>2</sup>; interest in the work of the Commission is high, as is willingness to work with it.

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<sup>2</sup> All but one of the discussions took place before the coronavirus health crisis began in the UK.

## 2. Short-term concerns

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- 2.1 For the most part there is a little evidence of recruitment difficulties serious enough to impede business success in the short term, for example by causing a company to hold back from bidding for a contract because it lacked the people to fulfil it if successful. The evidence that there is a problem worth early attention is strongest for the building side of the marine leisure sector, though it is rather too imprecise to enable the Commission to focus on it properly without further work.
- 2.2 The most common response to questions about short-term issues is this: “ports are by and large good at addressing current issues”. Other sectors said something similar.
- 2.3 The following examples (in no particular order) were quoted where there are current hard-to-fill vacancies:
- British Marine reported that member companies have difficulty in finding engineers, carpenters and a range of niche roles in boat and yacht-building, such as specialist interior finishers and paint sprayers, often because these people see more appealing alternatives elsewhere. In a 2016 survey of members 30% reported that a shortage of particular skilled workers was limiting their ability to expand, and putting additional pressure on existing employees;
  - the Society for Maritime Industries (SMI) reported that a specialist builder of workboats on the east coast of England is unable to find some of the skilled people it needs and has therefore not bid for some tenders it would otherwise have gone for;
  - the Royal Navy reports difficulty recruiting engineers, and cooks for sea-going roles;
  - the Institute for Chartered Shipbrokers (ICS) said that there are difficulties recruiting (and retaining) port agents. The jobs often require working at unsocial hours, alone, on a dockside, for relatively little pay, and people with an appropriate background often find other jobs more appealing;
  - the UK Chamber of Shipping said that companies are increasingly talking about having to look abroad to recruit, though there is no hard evidence to support the anecdotes;
  - one port company reported difficulties in recruiting stevedores; another, engineering fitters;
  - the Society for Underwater Technology (SUT) said that the underwater sector is finding it hard to recruit people with particular technical skills, for example in underwater welding with more unusual materials.
- 2.4 In most cases the example was presented more as an irritant than a business-critical problem.
- 2.5 The message was similar in area-based reports. This from the draft Solent Skills Advisory Panel Local Skills and Labour Market Analysis, December 2019, is typical:



*Skills shortage vacancies have decreased over the past couple of years and overall the skills supply and skills demand appear to be broadly in balance ...*

*The number of skills shortage vacancies in Solent is very small and it stands at the lowest level since 2013*

- 2.6 The report explores some exceptions, and some particular cases, but the maritime / marine sector does not feature amongst them.
- 2.7 Where there are indications of a shortage they are most commonly anecdotal and unquantified, and it is usually not clear what companies are doing about the problems reported, ie whether or not they have found some at least temporarily satisfactory work-around which enables them to carry on business as usual.
- 2.8 There is also evidence, again anecdotal, of companies using short-term tactical responses like increased overtime or increased use of short-term contractors (some of whom become longer-term contractors – indicating that problems may be more deep-seated).
- 2.9 Much the most significant tactical response is to employ workers from abroad, and in a number of cases colleagues explaining the modest nature of current issues added the caveat that many companies managed their issues by recruiting overseas; they were conscious that that option may become more difficult, or more expensive, and possibly wholly unrealistic, once the UK has completed its post-Brexit transition. In many cases overseas recruitment is more than a tactical response, however; for some employers it has become the norm for certain roles. Overseas recruitment gets separate consideration below.
- 2.10 For the most part therefore there is no short-term “crisis” in recruitment which is severely hampering any part of the sector’s ability to do business, and therefore no bush fire which the Commission needs to rush to put out. The exception is the building side of British Marine’s membership, where the signs are that recruitment problems *are* hindering their ability to do more business, though more information is needed to understand the exact nature of the problem.

### 3. Longer-term issues

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- 3.1 Interviewees raised a number of longer-term issues, reinforced by published reports, with a good deal of commonality between sectors. They are set out below in alphabetical order, though there is some overlap between categories.

#### Ageing workforce

- 3.2 The phrase “ageing workforce” is often used, though seldom explored or analysed. This comment is typical:

*We share some key challenges with those faced by the wider UK maritime industry. These challenges include addressing the skills gap that will be created by the ageing population and developing a more diverse and representative workforce.*

- 3.3 An exception is Liverpool City Region, which offers some data, noting in its 2017 employer survey that the maritime and logistics sector has:

*the highest proportion of employees aged over 50 in Liverpool City Region*

- 3.4 The figure is 41% for maritime and logistics, compared with 37% for health and life sciences, and advanced manufacturing, 35% for low carbon and energy. The data presented combines ‘maritime’ with the logistics sector, and the detail is not provided which would enable any further assessment of how far there is a problem in the maritime sector. In any event, these seem like quite small differences.

#### Automation and Technology

- 3.5 For the first event in its Maritime Futures programme in November 2018, Maritime UK chose to focus on “skills”. The event report concluded:

*The challenge is we need a Sector-wide approach to the capabilities that we require for the future which encompasses new and emergent technologies, new production methods (for example robotics), a changing industrial base focussed on rapid innovation, arguably driven by highly agile and responsive organisations many of which will be SMEs. The future isn't a straight line; we need to build a resilient and agile workforce capable of responding to changes.*

- 3.6 Amongst its recommendations, the report included the following:

*The training syllabus (STCW) is not fit for purpose; it is not dynamic to meet the needs of the advancement of technology. We need people with great flexibility and adaptability for the future, addressing both seafarer and non-seafarer roles.*

*The skills in demand will be highly transferable, and we predict that the war for talent will be global and across industries. We need to understand maritime career paths and ensure that we enable people to transition to meet future needs, while not impacting upon current requirements.*

*Technology can be game-changing, but technologies on their own do nothing. It is a combination of people and technology that makes things happen whether in an organisation or across the sector. We need to develop formal methods for the review of training, and develop continuous learning within the sector, linked to emerging career pathways and skills requirements.*

*We need to address ways of demonstrating the “corporate value” of people and their skills by encouraging industry to invest in future-proofing skills, view people as an asset, not a cost.*

- 3.7 These themes, and others closely related to them, were reflected in both discussions for this report and the many of the documents consulted. UK NEST, for example, discussing future requirements in the naval engineering sector, says this:

*The future Navy will employ air-borne, surface and sub-surface autonomous platforms exploiting the emerging technologies of robotics, artificial intelligence, nanotechnology, etc. and incorporating cyber security measures. These will require skill sets from the underpinning sciences and emerging degree courses such as computer science with AI, robotics, drone technology, network security, etc.*

- 3.8 The Skillsea report (see more below) notes that “the STCW Convention [last formally reviewed in 2010] does not make reference to digital skills”. Others talk about the design of zero emission vessels, alternative propulsion technologies, 3D printing, new fuels which are much more demanding to handle and which therefore require more sophisticated training, and much more.

- 3.9 And for their part, the Nautilus Federation published in 2018 the results of an extensive survey of members across the world; “Future proofed? What maritime professionals think about autonomous shipping”. Illustrating the range of considerations involved with automation and technological development, Mark Dickinson, General Secretary of Nautilus International, says in his Foreword:

*I hope the findings from this survey will help to shape a future in which new technologies are used not simply as a crude substitute for seafarers, but as a tool to improve the safety and efficiency of the shipping industry and the working lives of all within it.*

- 3.10 Alongside the Maritime 2050 People Route Map which featured the Maritime Skills Commission, DfT published its Technology and Innovation Route Map. One of the five “key themes” of that Route Map is

*developing the skills base necessary for a technologically-enhanced maritime future.*

- 3.11 DfT’s ambition is clear that the technology and skills arms of Maritime 2050 should work very closely together.

- 3.12 There are also important questions about re-training long-standing employees whose job has been automated. Re-training that person for an indoor role, perhaps at a keyboard, raises a number of other issues beyond those of skills training alone.

- 3.13 See also the engineering section below.

## Brexit and recruitment overseas

3.14 All the recent labour market reports cited here were published while there was still some uncertainty about when, indeed whether, the UK would leave the EU. All of them therefore prefaced their analysis with cautious words about the difficulty of predicting what the impact of Brexit on skills requirements might be.

3.15 Maritime UK's brief high level policy paper on immigration, agreed at its January 2020 meeting, quoted some data to illustrate the scale of employment of foreign nationals in the UK maritime sector:

*55% of the 67,000 certificated officers in the Merchant Navy, serving with members of the UK Chamber of Shipping, are overseas nationals, according to the Department for Transport's 2019 Seafarer Statistics. The proportions rise to 75% for uncertificated officers (who primarily work in hospitality roles) and 81% for ratings.*

*25 to 30% of employees in maritime law, insurance, shipbroking and classification societies are foreign nationals, according to a 2019 estimate by Pricewaterhouse Coopers for Maritime London.*

*15% of the jobs in the UK's fishing fleet are held by employees from overseas, according to a 2018 estimate by the Sea Fish Industry Authority.*

3.16 These are not small numbers which can be managed away with some modest adjustment to companies' working practices. Use of foreign labour – importantly from both the European Union and beyond – is an integral part of the way that many companies across the sector work, in some cases from choice (because they work internationally and want a workforce which reflects that reality), and in some from necessity (because of perceived difficulties in recruiting the people they want from within the UK).

3.17 Immigration is very political and it is not clear how far the Government's latest [policy statement](#), published in mid-February 2020, represents their final word on the matter, and how much there might be room for discussion, about the detail or the timing of any changes, in recognition of the reality of different sectors' circumstances.

3.18 There are also questions for industry. For example, how far do British companies *really* want to employ home-grown employees in preference to foreigners? There are not many examples of active pursuit of alternative sources of labour from within the UK.

3.19 A related question about where businesses are located came up twice in the research. If a company has a subsidiary office in the UK staffed almost entirely by employees from Eastern Europe (a local example was cited in one of the Liverpool City Region papers), and if the pressure to reduce future immigration increases, will there not come a point when the company simply relocates that office to the cheaper certainty of Eastern Europe? Recent experience of working remotely during the coronavirus shut-down will only encourage such thoughts.

## Business Services sector

- 3.20 Maritime London's 2019 report "Catching the Wave" included a chapter on "Talent and Education". It noted that "access to talent has historically been a key competitive advantage for the UK MPBS [maritime professional business services] sector" and that "sustaining this lead will be crucial to maintaining the UK's lead in MPBS".
- 3.21 The authors are concerned about limitations in the flow of new recruits into the professional business sector: most of the students at the UK's many maritime business courses are from overseas ("reflecting the low profile the maritime sector has in the UK"), and the lack of growth in cadet numbers means that "other countries are more successfully building a pipeline of future MPBS professionals".
- 3.22 The low numbers of former cadets available for jobs in the professional services sector is a matter of considerable concern for Maritime London itself. Companies have re-thought traditional models of employment, unpicking assumptions that certain jobs would always go to former seafarers and replacing them with much broader recruitment. But Maritime London said that there remains a strong appetite to recruit and retrain former seafarers for some roles, and a degree of frustration that too few are available. Maritime London therefore actively supports its own cohort of Merchant Navy Cadets through the Maritime London Officer Cadet Scheme, though numbers are relatively modest and they want to see more cadets nationally so that more seafarers are available later on.
- 3.23 Looking more widely, the authors of *Catching the Wave* estimate that "within maritime law, insurance, shipbroking and classification, 25 to 30% of employees are foreign nationals", commenting:
- Given the importance of foreign nationals to the MPBS sector, it is essential for the UK to protect their right to stay in the country, and for new workers to arrive, after Brexit. This will be crucial to maintain the continued strength of the industry and prevent foreign talent from moving to other more immigration-friendly maritime centres, such as Dubai.*
- 3.24 A section of the report's recommendations is consequently headed "Increase the talent pool". It includes recommendations to Government to maintain or increase the support it offers for cadetships, and to the industry to increase their marketing to seafarers of the opportunities the sector offers when they come ashore.
- 3.25 The position within maritime law illustrates the value of understanding the full story which lies behind the headlines. There are two groups of former seafarers who work in maritime law. The first group are employed as "marine managers"; they typically come ashore in their 40s or 50s, and they train in-house for a range of duties including taking statements and dealing with evidence, where their experience at sea is invaluable, but they are not lawyers. There is no shortage of these marine managers.

- 3.26 Where there is a problem is with seafarers who come ashore at a younger age and do the full training to become lawyers; to make the cost of conversion training worthwhile they have to come ashore relatively young. The partner responsible at Norton Rose Fulbright said: “the supply of Brits is just very limited”. ie with more home-grown cadets at sea, it should be possible to encourage more to come ashore in their 20s to re-train for maritime law positions.

### Competition for Talent

- 3.27 Something which came up in more than one sector was the image of the sector, or parts of it (because few people outside it think of the maritime sector as a whole), or of individual companies. In practical terms that comes down to competition: how does the sector first attract and then retain the talented people it wants in the face of strong competition from others? Some of this relates to the reality of certain jobs, some of it to perception.
- 3.28 For those who run ports (and those who work in ports in other roles, like port agents) there are particular issues round managing the unsocial hours which work in a port inevitably requires.
- 3.29 For the Society of Underwater Technology, whose core is in the oil and gas sector, it is a problem that oil and gas is currently “almost as toxic as the tobacco industry”, as their Chief Executive put it, in terms of its reputation - which makes it hard to recruit people. And in the North East of Scotland young people have a further reason to be wary because they have seen the cyclical nature of the oil and gas industry, with experienced workers having to go overseas during downturns in order to continue their careers.
- 3.30 In other cases it may be a mix of both reality and perception: decommissioning, similarly, though a multi-billion pound, multi-decade, opportunity was cited as a sector which struggles to attract people who can see more exciting alternatives.
- 3.31 Physical location complicates recruitment for some. In a meeting with senior HR managers from the UK Major Ports Group, several talked about how unappealing their location was, from the more industrial outskirts of large cities to isolated ports in otherwise rural areas – though other ports reported no difficulty.
- 3.32 The Sea Fish Industry Authority has gone further than any other body in the sector to explore the relative appeal of their industry to young people (focusing on those aged 16-18):
- The findings were quite alarming. The next generation of school leavers see jobs in seafood as low-skilled, unexciting and focused on handling fish. As a result, the industry faces a challenge to address misconceptions and offer a more attractive proposition to attract young people.*
- 3.33 There are several calls for more effective action to address the issue. Liverpool City Region has a section in one report entitled: “Improving the image of the sector among young people”:
- There was general agreement among stakeholders that there is an image problem with the sector and that this is impacting employers’ ability to attract the best candidates*

- 3.34 However, the comments clearly include the warehousing industry, and worries about “long periods at sea” perpetuate the myth that ‘young people don’t want to go to sea any more’. There are many examples of strong interest in careers at sea; Caledonian MacBrayne recently attracted more than 20 applicants for each place on their apprenticeship programme, and though the ratio is much lower for cadets, training companies still talk in terms of two applicants for every place.
- 3.35 Marine Resources is a recruitment company which asked some wider questions about recruitment difficulties in its large-scale Marine Industry Salary Survey last year.
- 92% of those surveyed [said] it was difficult to attract specialist candidates from other industries.*
- Marine employers rate engineering as the most difficult role to recruit for, with 17.5% of those surveyed commenting that they struggled to fill vacancies of this type most often*
- [quoting a respondent] “The most serious concern we have is succession planning and the lack of skill base coming into the industry”.*
- 3.36 Mark O’Reilly, who has just stepped-down as Chairman of Team Humber Marine Alliance, also commented on the difficulty of attracting people into the maritime sector when knowledge about it is limited: “Hull as a city has turned its back on the sea; it’s not visible”.

## Diversity

- 3.37 The Women in Maritime Taskforce has been keen to get reliable data on the position of women in different parts of the maritime sector and in different roles, particularly senior and management roles – and it has struggled to do so. In large part that is because of the more general difficulty of defining the sector and aligning definitions with existing data sources.
- 3.38 It is clear from the many reports cited here that the assumption is widespread that the sector has a diversity problem, though explicit references are not frequent.
- 3.39 UK NEST notes that the industry “is dominated by white men while women, and people of other ethnicities, account for less than 10% of the workforce. This is directly related to the undergraduate population studying engineering and technology degree subjects at UK universities”.
- 3.40 In its strategy, the Port of Tyne sets a diversity target: “We will double diversity by 2030” (which means increasing female participation in their workforce from 16% to 30%).
- 3.41 In a rare example of detailed analysis of diversity data, the Maritime Skills Alliance published a briefing paper entitled “[What percentage of seafarers are female?](#)”. Noting that it is commonly asserted that “only 2% of seafarers are female”, the paper uses DfT data to show that in the UK 16% of officers are female – counting also those in hospitality roles, and not just those who are deck and engine room officers. 16% is very far from parity, but the facts make a better basis for future action than myth.



## Engineering

- 3.42 Many sectors report difficulty recruiting engineers. It is therefore worth starting with Engineering UK's most recent State of Engineering Report, published in 2018:

*Across the years, the report's key message has remained largely the same: the engineering sector is of vital importance to the UK, yet demand for people with engineering skills is not being met by supply through the UK education pipeline.*

*we anticipate an annual shortfall of between 37,000 and 59,000 engineering graduates and technicians.*

- 3.43 It is also worth noting the Council's conclusions:

*In our view, the key to addressing the future demand for engineers is encouraging young people to study STEM subjects and pursue engineering-related qualifications*

*the proportion of young people aged 11 to 19 who would consider a career in engineering has risen from 40% in 2013 to 51% in 2017 ... Yet findings from our 2017 Engineering Brand Monitor indicates that just 28% of young people aged 11 to 14 surveyed had taken part in a STEM careers activity in the last year.*

*The Royal Academy of Engineering estimates that more than 600 UK organisations run STEM engagement initiatives directed at schools, and there have been a host of policy efforts to address skills shortages through, for example, reform in technical education. However, coordination between activities and evidence of impact remains limited and teachers find it difficult to navigate this complex landscape.*

*While women comprise 47% of the overall UK workforce, they make up only 12% of those working in engineering occupations.*

- 3.44 The Engineering Council is concerned that there is too little home-grown talent:

*A considerable proportion of students studying engineering and technology at HE level in the UK are from EU or non-EU countries. This is most apparent at taught and research postgraduate levels, where international students make up two thirds of all engineering and technology students and as much as 80% in some engineering disciplines. Our current reliance on international students leaves the engineering pipeline extraordinarily vulnerable to changes that could occur once the UK leaves the EU.*

- 3.45 Unlike other parts of the sector, the naval engineering industry - ie engineering companies working in the defence sector - has researched its needs and published conclusions. UK NEST produced a report in 2018 entitled "The naval sector workforce", which updated previous research, and was based on a survey of members. Interestingly, it reported that recruitment and retention were very healthy:

- all members reported being over-subscribed for both graduate (average 65:1) and apprentice (average 78:1) recruitment.



- they were able to achieve their recruitment targets without compromising their academic standards.
- staff loss was generally less than 1% pa.

3.46 Beneath those very positive headlines lies rather more complexity:

- there were challenges in recruitment for certain subjects at graduate level: naval architecture, mechanical engineering, electrical and electronic engineering, systems engineering and software engineering.
- there were challenges, too, in recruiting people with experience, and specific “pain points” were identified for naval architects, systems engineering, power electrics, safety engineering, cyber security, human factors and hydro-dynamics.
- “all members highlighted the potential loss of staff through retirement as a significant issue for the future and a primary cause for concern for the technical capability of the sector over the next five to ten years ... it is not just the loss of capacity but the loss of experience and knowledge that is seen as an issue”. (The report goes on to identify a range of means by which members were seeking to capture the knowledge and experience of older leavers).

3.47 The comments on future requirements are worth quoting in full:

*Whilst the recruitment picture looks extremely healthy, numerous individuals have raised two concerns: are the academic standards sufficiently high to ensure continuing excellence and are the traditional degree subjects appropriate for “tomorrow’s navy”? Today’s graduate recruitment is focused on naval architecture and the traditional engineering disciplines, in particular mechanical engineering. The future Navy will employ air-borne, surface and sub-surface autonomous platforms exploiting the emerging technologies of robotics, artificial intelligence, nanotechnology, etc. and incorporating cyber security measures. These will require skill sets from the underpinning sciences and emerging degree courses such as computer science with AI, robotics, drone technology, network security, etc.*

#### **The Institution of Civil Engineers’ review of professional skills**

In 2017 the Institution invited its Vice President to lead a review “to ensure that ICE members have the necessary skills to practise in an industry in which technology and digital science are changing rapidly”.

The report, “ICE Professional Skills”, published in June 2018, reached a number of conclusions which potentially illustrate the equivalent discussion within the maritime sector:

- The notion that a qualification, once achieved, is for life - is untenable.
- A culture of continuous learning needs to be embedded more deeply into the Institution and its members, together with a recognition that civil engineers who fail to keep abreast of changes affecting their areas of activity are simply unfit to practise.

- ‘Soft skills’ are becoming increasingly important, particularly with the increase in multi-disciplinary working in construction, the increasing importance of stakeholder engagement and the impact of digital technology. These skills are seen to be lacking among civil engineers in the workplace. The importance of soft skills should be promoted at every level, and appropriate training or upskilling provided.
- Team working is becoming increasingly important, particularly with multi-disciplinary working crossing the boundaries between disciplines and companies. This reinforces the need for greater breadth of skills, including understanding of other disciplines and soft skills such as communication.
- The profession must embrace digital technology, and civil engineers should develop the rapidly-evolving skills needed to exploit its benefits.

### Merchant Navy Cadet programme

3.48 Colleagues in the UK Chamber of Shipping and MNTB, Nautilus, MCA, Maritime London and IAMI all raised a number of concerns about the operation and impact of the current programme for Merchant Navy cadets, and suggested that it ought to be a priority for the Commission to look into it. Unsurprisingly, there was a degree of overlap in the points raised, and also some divergence of view, for example:

- are the assumptions on which the current SMarT Plus target of 1,200 starts pa is based still valid?<sup>3</sup> The Chamber of Shipping thought a review might point to a higher target.
- is the Tonnage Tax training commitment ratio of 1 in 15 the right one? (Companies in scope must train one cadet for every 15 officers employed). Nautilus recalled that the original evidence pointed to a target of 1 in 8, and noted that the eventual agreement was a compromise.
- do we have the right model for the Tonnage Tax training commitment when in many cases it means only a very limited relationship between company and cadet, with consequent high levels of drop-out?
- do we have enough *evidence* about what actually works in the cadet programme? (as opposed to hearsay and anecdote).
- why is there a shortfall in the number of cadets in training (and completing), despite the very substantial effort going into attracting new recruits?
- are training companies right to insist that applicants have A level Physics when the effect is to discriminate against girls? (far fewer of whom do physics at A level).
- why are there not more former seafarers coming ashore to join companies in London’s professional services sector (which *do* want them)?

<sup>3</sup> The 1,200 figure comes from a 1996 report prepared by Cardiff University, cited in the Government’s 1998 strategy “British Shipping: Charting a New Course”.

- how much do British shipping companies really want British cadets?
- 3.49 The 2015 Maritime Growth Study recommended the Department for Transport to look again at the numbers of seafarers required, and the result was the 2016 Seafarer Projections Review, researched for the Department by Oxford Economics. The questions above go beyond the scope of that review to consider also the flow of former cadets into jobs ashore.
- 3.50 On the demand for seafarers at sea, the review says this:
- The UK shipping fleet declined between 2009 and 2015, reflecting increasingly strong competition from emerging global maritime centres. Despite this, the number of officers and non-hospitality ratings of all nationalities working in the UK shipping industry has remained fairly stable since 2006. This apparent inconsistency appears to reflect strong growth within the relatively labour intensive cruise sector.*
- 3.51 The projections in the report extrapolate demand for UK seafarers from potential changes in the scale of world trade, and assumptions about the UK's likely share of the world market. The report sets out its assumptions carefully, which do not include the potential impact from developments in new technology, or from Brexit (or, of course, from the coronavirus pandemic). This caveat is important though, particularly in light of changing immigration policy post-Brexit:
- However, these findings are very sensitive to assumptions regarding non-UK seafarers. If the UK shipping industry were to continue to increase its employment of non-UK seafarers in line with historical rates, the supply of both officers and ratings could increase over the coming decade.*
- 3.52 The report includes an interesting section on the extent to which requirements, including those of shore-based employers in professional services and elsewhere, “need to be met by UK seafarers”.
- 3.53 The authors offer some very tentative conclusions, with careful caveats, about the implication of their projections for the number of new cadets and ratings required:
- We identify a shortage (or ‘excess demand’) of around 3,000 to 4,000 deck and engine officers in most years of our forecast period. Excess demand for deck and engine ratings is estimated to increase throughout the forecast period to reach a shortage of around 2,000 by 2026. These findings are based on conservative assumptions concerning the supply of non-UK seafarers. If we instead assume that the supply of non-UK seafarers continues to grow in line with historic rates, then excess demand is eliminated.*
- 3.54 The shortage of officers by 2026, in other words, may be as high as 4,000 – or as low as zero.
- 3.55 The coronavirus pandemic is relevant here too, because assumptions about the growth of world shipping rely to a great extent on the growth of the Chinese economy, which may now contract for a period, and because a major factor in the increase in UK seafarers is the growth of the cruise sector, which has been hit particularly hard by the pandemic.
- 3.56 On potential demand ashore, the report says this:

*In contrast to the situation at sea, modelling of the demand for and supply of seafarers for roles ashore suggests there should, at least in theory, be an ample supply of former seafarers becoming available to take up such roles in the years ahead. This is in sharp contrast to the current situation, in which stakeholders have reported that it can be very difficult to secure the services of former seafarers for onshore roles.*

3.57 Maritime London is one of the stakeholders very keen to see more former seafarers available for roles ashore.

3.58 Taking a different approach to demand ashore, the International Association of Maritime Institutions (IAMI) would like to see the cadet programme re-thought so that there is a direct route for former seafarers to become college and university lecturers. IAMI says that this would have the following advantages:

- expanding the future roles that seafarers can consider, both when considering what a career at sea can offer, and also as a new career when moving from sea to shore
- better preparing new lecturers to reduce the high work load they have when undertaking both training and teaching in their first two years. This is the area of high attrition (Note Shields [South Shields Marine School] used to reduce the teaching contract in year 1 to compensate)
- increasing the range of qualifications that seafarers can attain whilst working at sea
- aligning with the Maritime Strategy 2050 in assisting the transfer ashore.

3.59 IAMI adds:

- the current maritime colleges would commit themselves to providing the mandatory teaching opportunities which many teacher training providers struggle to find (very similar to sea berth opportunities).
- currently new STEM teachers are supported using large bursaries, so the Government recognise that there is a shortage and central support is needed. We would ask for this support to be extended into the maritime (very much STEM focussed) sector to allow seafarers to access this training and receive an initial early career payment (similar to the previous golden hello) to manage the transition from seagoing salaries to the educational sector.

## Re-thinking recruitment

3.60 The thought came up most clearly in the question: “Do we really need them to be a former Master Mariner?”.

3.61 As presented, there are two thoughts in there, in fact, one specific to Master Mariners, and the other more general. For Master Mariners, this is a challenge to the assumption – weaker now than it used to be, but still very much present – that certain roles require not simply experience at sea, but that someone should have the experience and status of Master Mariner.

- 3.62 Sometimes the reasons are commercial – impressing or reassuring clients – rather than related directly to the skills and other qualities, including social confidence, which flow from command at sea.
- 3.63 The question came up with the work done by Associated British Ports to re-think the marine pilot’s role to focus on what the job actually requires because the company did not see a full enough future pipeline of Master Mariners coming ashore for such roles. The result was the creation of an in-company training programme to train more junior former seafarers to become pilots, now broadened-out into the Marine Pilot statutory apprenticeship.
- 3.64 The wider question rests on a view that the shipping sector is quite conservative, with a strong inclination to follow past experience in recruitment, rather than to ask (as ABP has done) “what qualities does this role really require?” and “are we casting our net wide enough to find the talent we’re looking for?”.
- 3.65 That thought came out in a variety of different ways, reflecting the fast-changing labour market. For example, a senior HR professional from the port sector commented that “engineers are going in with a laptop now, not a toolbag” – and that recruitment ought therefore to focus more at degree level.
- 3.66 There were many comments on what is effectively HR practice, from lack of attention to succession planning through to management of shift patterns in a port to strike a better balance between the reality that much port traffic is unpredictable, and family-friendly ambitions. There may be a role for the Commission to offer some HR advice on how companies can re-think, or re-design, job roles to ease recruitment issues.

### **Forthcoming work**

- 3.67 There are other reports in the pipeline relevant to the work of the Commission.
- 3.68 The [Sea Fish Industry Authority](#) has EU funding for a major research project looking at future skills requirements in England (not just for the catching sector), working as part of DEFRA’s Seafood 2040 strategy. Results are due in July.
- 3.69 There are (at least) two EU-funded projects focused on maritime skills which will report in the near future.
- 3.70 [SkillSea](#) is an EU-funded project developed by the European Community Shipowners’ Association and the European Transport Workers’ Federation, with participants from 16 countries, designed to “Future-proof skills for the maritime transport sector”. Its objectives are:
- analysing the effect of technological developments on the industry’s skills requirements
  - an even better match between the industry’s skills needs and the education and training of maritime professionals
  - overcoming barriers to the mobility of maritime professionals

- improving cooperation and synergy between education providers, maritime authorities and the industry
  - ensuring that Europe retains a world-leading access to maritime skills and experience for improved competitiveness
- 3.71 Membership of the SkillSea consortium includes three British-based organisations: Fleetwood Nautical Campus, Liverpool John Moores University and Nautilus International. The project is coordinated by STC, the Dutch college, and due to complete at the end of 2022.
- 3.72 The initial report, just published, has some interesting discussion about how far the standards set in STCW are still fit-for-purpose. The critique ranges from the observation that standards are set for *individuals* whereas most work at sea is done by teams, to detailed discussion of the absence of higher level skills associated with evaluation, analysis and creation.
- 3.73 Also funded by the EU is the MATES project (“Maritime Alliance for fostering the European Blue Economy through a Marine Technology Skilling Strategy”), coordinated by a Spanish organisation, with two Scottish partners, Strathclyde University’s Department for Naval Architecture, Ocean and Marine Engineering, and Aquaterra, an Orkney-based environmental consultancy. The project is designed to address skill shortages in the offshore renewable energy sector and the ship building sector, and is due to report at the end of 2021.

## 4. Other area-based analyses

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- 4.1 There is a good deal of area-based analysis and reporting, which is the focus of this chapter. There has been no systematic assessment of it so far, though Maritime UK's Regional Council is preparing a summary of what each of the relevant Local Industrial Strategies has to say (and presumably also the Skills Action Plans when they are all done), which should be useful.
- 4.2 This chapter works its way down the country from North to South.

### Scotland

- 4.3 In its 2018 Analysis of the Maritime Sector in Scotland, the Scottish Maritime Cluster has this thoughtful summary on skills:

*The overall subject of 'skills' is complex. It was highlighted by many as critical to the future of the sector. A number of those consulted considered that this was the most important issue that SMC can address.*

*Major concerns are the demographics of the workforce and ensuring that the right skills will be available in the future at the right cost. Companies like Ferguson Marine are trying to reduce the average age of their workforce through apprenticeships but there is widespread concern about what was described as the 'middle age gap' in the UK. The development and adoption of digital technologies within the sector is expected to demand individuals with very different skills sets and it is believed that this needs to be urgently addressed.*

- 4.4 The report adds this conclusion from its SWOT analysis:

*Skills, digitisation, automation and green shipping are key issues for the future and can be regarded as areas of both opportunity and/or threat for Scotland.*

- 4.5 The MaxiMar report - "Maximising the Marine Economy in the Highlands and Islands" - produced jointly by Highlands and Islands Enterprise and BEIS, sets its conclusions very much in terms of economic growth. Under the heading "Regional Cluster Model for Marine Innovation, Technology and Skills", the report says:

*Industry has expressed a need for access to high quality, state-of-the-art facilities, equipment and wider infrastructure to drive enhanced R&D and aid clustering, close to the marine environment. A number of key locations in the region host research and technology organisations which already support this, but they are not currently sufficiently resourced. There is a strong case for a major cluster development incorporating technology and sea-trial testing facilities and industry support mechanisms. It will incorporate enhanced marine training and skills development provision which will scale up training provision in the Highlands and Islands, and will align with other training providers across Scotland. There is an opportunity to develop an innovative partnership model that builds on the combined existing infrastructure to better meet the needs of industry, grow innovation in the sector, extend and expand the skills base, and attract new business to the region. ...*



*there are some skills gaps that will need to be addressed to make sure there is an adequate workforce to fuel sector growth*

4.6 (There is a separate, but linked initiative, to develop a university centre in Oban).

4.7 Highlands and Islands Enterprise's *Skills Review for the Aquaculture Sector in Scotland* illustrates the breadth of the sector. Though aquaculture may seem niche the sector is an important employer in parts of the Highlands and Islands, with ambitions to double in size. The remote location of many fish farms is a challenge in terms of recruitment and retention, and also in accessing training.

*There is a need for more engineering skills in the aquaculture workforce as well as the supply chain but there is strong competition for these skills from other sectors in the economy.*

*Boat skills are key across aquaculture and its supply chain and there is an unmet demand in the workforce and the pipeline. There are gaps in leadership, management and wider business skills in the current aquaculture workforce and addressing these will be important going forward, particularly where businesses grow in size and complexity.*

*... the aquaculture sector needs people who are skilled in up-to date approaches to fish husbandry, fish health, feeding and biology. Again, these are lacking in the current workforce*

*there is a need for high quality R&D skills to be attracted and retained in aquaculture and the supply chain*

*there is an industry wide need for more people with soft, transferable skills and skills that enable them to adapt and continue to adapt the changing work environment and new systems and processes. This covers team working, career management, digital skills, relationship building and the skills required to be a valuable and effective worker.*

## North West England / Merseyside

4.8 **Liverpool City Region** links the maritime sector with logistics when setting its priorities, and little of the analysis in its reports identifies the distinctive features of the former.

4.9 For example, when LCR says that 12,000 jobs were created in the sector between 2010 and 2016, "mainly in transport and warehousing", it's not clear how many were in the maritime part of the sector.

4.10 In consultations for the LCR Freight and Logistics sector strategy:

*Employers reported that they were not experiencing significant skills shortages, although they did acknowledge that this may depend on their use of foreign workers ... something that may be more difficult to secure in future post-Brexit.*

*Employers are also seeking to embed more responsive, transferable skills such as analytical and communication skills and commercial awareness so that all employees might be more proactive in problem solving, and offering new ideas or insight for improving the business and who can operate in a range of more flexible roles.*



*While there is a focus on some job roles becoming more technical, this was by no means universal and a number of businesses still relied on relative [sic] low skill occupations such as dock labour which is still dependent on the arrival of cargo ships.*

- 4.11 The authors of the report wonder if “more could be done to improve the attractiveness of some of these jobs through better job design”.

### North East England

- 4.12 The **North East LEP** carefully lists the region’s major ports amongst its strategic assets, the North East’s LEP’s Strategic Economic Plan uses the word “maritime” only once (and “marine” not at all). One of its four priority sectors for growth, however, is “energy”, much of which is “maritime” in nature, and in the range of skills involved:

*The North East is the leading location in England in the wind energy, oil and gas sectors*

*North East subsea sector: 50 supply chain companies supporting 15,000 jobs*

- 4.13 The skills actions set out in the strategy are generic, and none relate specifically to the maritime sector.
- 4.14 Maritime UK is in discussion with Tees-based PD Ports about creating a regional “cluster” group in the North East, which might lead to more analysis of the region’s maritime skills.

### Northern Ireland

- 4.15 The only report identified relating to maritime skills in Northern Ireland is a 2015 analysis of the training needs of the wider seafood industry in Northern Ireland. The findings relevant to the catching sector are very specific, eg:

*The main demand from industry is for the four one-day mandatory Safety Training Courses to be delivered at times and locations to suit industry with a view to these being delivered at shorter notice during times of bad weather.*

*The training of foreign crews also presents challenges to training providers as the trainees command of the English language varies considerably and could impact on the ability to learn vital information.*

*The inshore shellfish fleet is increasing in scale and therefore provides potential to further promote the Seafish under 16.5m skipper certificate.*

### Humberside

- 4.16 **Team Humber Marine Alliance (THMA)** is rather cautious about claiming too much for the impact of current concerns, referring to:

*a demand for or focus on a number of areas including deckhands, marine engineers, crane drivers and marine surveyors.*

4.17 THMA reports that “good progress has been made” to enhance the range of training available on the Humber, with the opening of Modal Training in Grimsby (now Humber Maritime College) and new options available through Hull Trinity House Academy.

4.18 Its research drew a distinction between *current* skills issues:

*Several specific areas were identified as being difficult to recruit including technical and business services roles:*

- *Masters and officers*
- *customer services (port operator)*
- *technical managers (projects especially lifting)*
- *experienced seafarers*
- *proposals engineers*
- *Chief Engineers (fishing vessels)*
- *shipping agents*

4.19 ... and *future* skill demands:

*Future skills demands haven't identified any new specific roles although Brexit will obviously require a greater understanding of tariffs, customs clearance procedures etc.*

- *Customs import/export clearance*
- *Project managers*
- *Shipping Agents*
- *Master Mariners and Chief Engineers*
- *Engineering apprentices*
- *Technicians – heavy lifting*
- *Logistics/Procurement operatives*
- *Stevedoring and Port Operatives*
- *Offshore wind blade repair.*

4.20 An April 2019 paper for the Humber LEP entitled simply “Ports and Logistics” has this to say:

*The sector is changing, meaning that skills needs are changing too. There is a need for a five year sector skills strategy which anticipates changing skills needs and puts in place the provision and facilities that will ensure business can find the skills they need in the short-, medium- and longer-term. This involves not only raising skills levels within the existing workforce, and replacing those workers who leave the sector due to retirement, but requires a co-ordinated programme of activity to engage with a much broader potential workforce, encourage under-represented groups (particularly women) into the sector and increase diversity within the workforce.*

4.21 The more recent evidence report for the Skills Advisory Panel says under “Ports and Logistics”:

*Roles difficult to recruit for include: Masters, experienced seafarers and proposals engineers*

*Within the ports and logistics sector, there are shortages of deckhands, marine engineers, workboats crew and offshore logistics operations.*

## Wales

4.22 We identified no reports relating to maritime skills in Wales.

## East Anglia

4.23 The 2018 report by **New Anglia LEP** on the ports and logistics sector is notable because New Anglia (Norfolk and Suffolk) is not currently an area supported by Maritime UK through one of its “clusters” – though discussions to set up a cluster group are at an advanced stage. Little in the report concerns the maritime sector.

4.24 The report points to a number of skill shortages, including one in the maritime sector, for marine pilots. (The report was written before the statutory apprenticeship for pilots was approved). There are also recommendations about the need for more training in automation and related skills, and better management and leadership training to enable the sector to grow. On the latter, the report quotes a 2016 article in by Peel Ports HR Director Howard Sloane, in which he talks about:

*a watershed moment in recruitment for our industry because we can no longer rely on the traditional sources for senior and executive-level managers. To be able to respond to a shifting environment, driven by changing customer needs, the ports industry needs to broaden its talent pool. Indeed, we are looking for individuals with the ability to drive transformation that will deliver success for our business. That means attracting a far wider range of leaders and innovators with different skill sets.*

## South West England

4.25 There are several, rather general, comments about skills matters in Cornwall’s response to the 2018 Maritime 2050 Call for Evidence:

*marine businesses report difficulties to fill technical positions including mechanical engineering roles*

*Staffing issues: these are a concern for companies, many with an ageing workforce. Those in more peripheral locations in particular have difficulties in retaining skilled staff due to travel and access issues*

*It is a priority that any future funding programmes aimed at maritime education, training and employment allows for bespoke training including in low numbers, and employer involvement in determining the need for business skills*

*Cornwall and the Isles of Scilly would like to see the future Maritime 2050 strategy have a focus on retaining and developing the current maritime skill base across the UK as well as fostering this skill base to transition into new emerging maritime activities such as autonomous vessel technology. The strategy should also focus on how to attract young people to join the sector, building on the work undertaken by the Cornwall Marine Academy.*

- 4.26 When it refreshed its Maritime Strategy last year Cornwall Council added two other points:

*Consumer demand for sustainably-sourced fish is likely to increase, alongside a looming skills gap*

*In the next five years the demographic trend of an ageing marine workforce will continue to accentuate and the severe lack of skilled engineers will become an increasingly pressing issue. This, combined with the evolution from a career for life to a life of multiple careers, will require a new approach to skills in the short and medium terms to enable broadening the skills of people to cope with emerging technologies and to support businesses to invest in training, reskilling and lifelong learning.*

- 4.27 The Heart of the South West LEP (covering Devon, Plymouth, Somerset and Torbay) has been planning to consider which sectors merit “deep dive” research and analysis, and the maritime sector is one of those being considered. The timing of any work commissioned has now presumably been put back because of the coronavirus crisis.

## Solent

- 4.28 **Solent LEP** gives a very high profile to the marine and maritime sector; senior representatives are very active in Maritime UK, and the LEP is energetically pursuing a number of related initiatives, such as its careers hub.

- 4.29 The LEP’s analysis indicates no pressing problems:

*Skills shortage vacancies have decreased over the past couple of years and overall the skills supply and skills demand appear to be broadly in balance*

*The number of skills shortage vacancies in Solent is very small and it stands at the lowest level since 2013.*

- 4.30 The report identifies a number of sectors in which there are skill shortages – and the maritime sector is not one of them.

- 4.31 The Royal Navy, in partnership with Solent LEP, is developing proposals for a Maritime Enterprise Zone in the Solent. That initiative will include at least an informal assessment of the current state of play in terms of maritime education and training, but development plans have been disrupted by the current coronavirus crisis.

## South East England

- 4.32 Maritime UK is in discussions with Kent University and others to establish a “cluster” grouping for South East England, to be launched later in 2020.

- 4.33 The long-established Marine South East has participated in many projects in the last 15 years, some of which have a skills focus or skills aspects, eg the recently-completed, Erasmus-funded, OnBoard Project: Development of technical profiles and training curriculum for the ports and logistics sector. None, however, appear to offer substantial analysis of skills issues.

## 5. Defining the sector

- 5.1 Pragmatically, this report takes a very broad definition of the maritime sector, based loosely on Maritime UK's own definition of its scope: "We bring together the UK's shipping, ports, services, engineering and leisure marine industries". Where there is some evidence to support it the report also includes information about offshore energy, ocean science and fishing as the most prominent sectors in the wider "blue economy" not clearly covered by Maritime UK's words.
- 5.2 At some stage the Commission may well wish to define its scope more precisely:
- to support quantitative analysis
  - to help in determining where to focus its attention
  - to assist partners such as LEPs which want to cover the sector, so that there is some commonality in how the sector is defined and therefore analysed.
- 5.3 The Centre for Economics and Business Research (Cebr) considered the question of definitions in its economic impact reports for Maritime UK in 2019; the following extract from Cebr's "State of the Maritime Nation, 2019" over-arching report (p12) states the position well:

Here we set out how the Maritime Sector has been defined for the purposes of the study. On a holistic level, the wider sector can be disaggregated into the shipping, ports, leisure marine, marine engineering and scientific and Maritime Business Services industries, which in themselves are formed of numerous individual and distinct activities.

Cebr has subsequently undertaken a mapping exercise using this list to identify how each of these four industries aligns with the national accounts. For most industry activities, a corresponding Standard Industrial Classification (SIC) code exists which enables the identification and quantification of the direct economic impacts using publicly-available data sources. A minority of activities do not map neatly against the SIC framework, necessitating the use of industry or local-level data for quantification purposes.

- **Shipping industry**
  - International passenger transport (cruise and ferry);
  - Domestic and inland waterway passenger transport;
  - International freight transport (bulk, container, gas and tanker);
  - Domestic & inland waterway freight transport;
  - Other shipping activity.
- **Ports industry**
  - Warehousing and storage;

- Port activities and management;
- Stevedores, cargo and passenger handling;
- Border agency, HMRC and public sector employees operating in ports.
- **Leisure marine industry**
  - Recreational marine activities, marine finance and legal activities and general marine services;
  - Boatbuilding (marine leisure vessels);
- **Marine engineering and scientific industry**
  - Shipbuilding;
  - Marine renewable energy;
  - Marine support activities for offshore oil and gas, engineering and mining;
  - Marine science and academic activities, including government vessels and technical consulting;
- **Maritime Business Services industry**
  - Shipbroking services;
  - Maritime Insurance services;
  - Maritime Financial services;
  - Maritime Legal services;
  - Ship Surveying and Classification activities;
  - Maritime Education (including Maritime university courses and cadetships);
  - Maritime Consultancy; and
  - Maritime Accountancy.

Here we focus solely on the Maritime Sector on a holistic basis; a full description of how the direct, aggregate and regional economic impacts of each industry has been measured can be found in Cebr's separate reports for each industry.

#### **Quantifying the direct economic impacts of the Maritime Sector and data sources**

The first stage of the study, discussed in more detail in Cebr's separate reports on the shipping, ports, leisure marine, marine engineering and scientific and Maritime Business Services industries, has involved mapping the activities of each industry against the National Accounts framework, in order to establish clarity on the precise definition of activities as they map against the Standard Industrial Classification (SIC) framework.

In essence therefore, this involves taking each of the sector's and industry's activities, and mapping these to the most relevant Standard Industrial Classification (SIC) code in order to identify the activity's economic data. It is clear from Cebr's analysis that the majority of activities do map neatly onto the National Accounts framework. As a result, Cebr have been able

to exploit company financials data in addition to publicly-available data sources such as the Annual Business Survey to gather data for some constituent activities of the sector. Cebr has therefore drawn upon a combination of publicly-available data, desk research and industry data to quantify the economic contribution from the Maritime Sector.

In order to quantify the direct economic impacts of the Maritime Sector, a number of different approaches have been taken which reflect the degree of alignment (or otherwise) for each activity against the National Accounts framework. They are as follows:

- The major source of data used to quantify the direct economic contribution of the Maritime Sector is the Financial Accounts Made Easy (FAME) database, which provides business demography and financial accounts data for companies operating in the UK Maritime Sector. The FAME database has been used to generate estimates for the business turnover, GVA, employment, the compensation of employees and profitability of the shipping industry.
- For those industries and constituent activities which do not map neatly against the national accounts framework, a combination of industry sources (such as the British Marine Key Performance Indicators) and publicly-available data sources have been used to generate direct economic impact estimates.
- As FAME does not provide data on exports of goods and services, data have instead been sourced from both the ONS Pink Book or industry sources such as the UK Chamber of Shipping's (UKCoS) Annual Sea Inquiry. In some instance the ONS Supply Use Tables have been used to generate estimates.
- Data for the direct economic contribution of each industry have by extension been then used to quantify the contribution that the Maritime Sector makes to the UK Exchequer, and the productivity of the sector in terms of GVA per job.

Again, a more detailed description of sources used for each industry and their constituent activities can be found in Cebr's separate industry reports, which quantify the economic contribution of each industry.

5.4 In discussion, CEBR explained that they had to do a good deal to supplement and complement the data available through the Standard Industrial Classification (SIC) codes; the result is, in their words, "highly bespoke".

5.5 Two examples illustrate that tailoring:



- Cebr sense-checked their emerging conclusions with sector insiders at different stages, typically exploring whether individual companies those insiders named were included or not. Many companies involved in marine autonomous vessels for example were not readily identifiable under any “maritime” code and had to be added manually.
  - Cebr said that the SIC codes were least useful for the professional services sector.
- 5.6 Moreover, the separate reports Cebr produced for the different sectors – shipping, ports, engineering, and so on – and for some localities, do not all use the same definition; in some cases report sponsors asked for different coverage.
- 5.7 It is also worth noting that Cebr’s purpose was different to the Commission’s - they were seeking to define the *economic impact* of the sector rather than to explore “people” issues - so the choices they made may differ from the choices which the Commission might make.
- 5.8 Though the Cebr team has clearly spent a good deal of time trying to reach a robust definition of the sector they see more work to be done to refine their work; indeed, they recommend it.
- 5.9 The difficulty of defining the maritime sector was mentioned in a number of discussions with area-based colleagues, and Heart of the South West LEP asked that the Commission produce a definition. In its report for the Scottish Maritime Cluster, consultancy Optimat commented:
- [There are significant challenges in quantifying the maritime market due to the lack of a clear and consistently used definition for the sector](#)
- 5.10 It is also worth looking wider afield at how others define the maritime or marine sector. The European Union refers to it as “the blue economy”, employing some five million people in five broad groups:
- [shipping](#)
  - [shipbuilding](#)
  - [non-living resources \(primarily oil and gas\)](#)
  - [living resources \(fishing, aquaculture, processing\)](#)
  - [coastal tourism](#)
- 5.11 The conclusion for the Maritime Skills Commission is that there is no readily-available definition of the sector in statistical terms, nor any useful proxy.
- 5.12 Should the Commission wish to address this it should think carefully about the *purpose* of that exercise, because defining the purpose carefully will help when choices have to be made between precision and pragmatism.

## 6. Next steps and Recommendations

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### Offers and Proposals

- 6.1 Some colleagues offered suggestions for work that the Commission should do, and the UK Major Ports Group made a formal proposal for some joint research.
- 6.2 Three organisations offered to circulate questions to members to supplement the information currently available: British Marine, ICS and IMarEST. ICS commented that the “timing is right for a survey, in terms of Brexit” (this was before the coronavirus struck).
- 6.3 In each case colleagues suggested that the number of questions should be very small – five or six – and offered to advise on getting the design of those questions right for their members. (The implication is that there could be different versions of those questions, with a common core to aid comparability).
- 6.4 Maritime London advised that meetings would work better for its members, and offered both to set them up and to help shape some questions to put to members
- 6.5 The UK Major Ports Group (UKMPG) offered an outline proposal, which is in full in Appendix B, for a “future workforce” research project which it would like to undertake with the Commission. UKMPG proposes this as the core research question:
- what do the likely future ports workforce and ways of working look like and how can the sector transition from the position today?*
- 6.6 Joint projects of this nature could be a very effective way for the Commission to work, so long as its impartiality is not constrained. A joint project would help to stretch the Commission’s limited funds further; it would add reassurance that featured topics are of real interest; it would mean more effective engagement with partners, which would help to “get under the skin” of challenging topics; and it would make it more likely that resulting recommendations would win acceptance.

### Conclusions

- 6.7 The evidence presented above about skills issues in the maritime sector shows many gaps. Few parts of the sector have any up-to-date and comprehensive analysis on which decisions can be based, whether to tackle problems or grasp new opportunities. And much of what is reported is rather superficial, taking complaints about recruitment difficulties at face value without probing to understand what’s really going on, and where the problems really lie.

- 6.8 The Commission is also working in a fast-changing environment. Analysis, and decisions, which seemed wise before Brexit, for example, may no longer be so as the Government works its way towards a new approach to immigration – which matters enormously in an international sector with so many employees from overseas. More recently, the coronavirus crisis has overturned countless assumptions in very short order; it will be some time before we understand all the implications.
- 6.9 With so many gaps and challenges the Commission will no doubt want to prioritise. Two of the questions posed for this scoping study were “what further knowledge and understanding would be helpful?” and “to help identify whether primary research will be needed”. With so many gaps it would be better to address those questions topic by topic rather than attempt to fill in all the gaps regardless of priority.
- 6.10 One other gap is worth commenting on because the Commission’s objectives include ensuring that the sector has the apprenticeships, qualifications and training provision it needs. There is little evidence on the adequacy and sufficiency of the training provision available to the sector, nor the appropriateness and quality of the range of qualifications, apprenticeships, and degree programmes available. That *may* mean that everyone is content, but it may not. And if everyone is content, there may still be room for improvement.

## Recommendations

- 6.11 We offer six recommendations under two headings:

### Core objectives

- Recommendation 1: the evidence above points to the following as early priorities for attention by the Commission:
  - a. the evidence indicates that the only part of the sector with pressing short-term issues which hinder growth is the building side of the marine leisure sector. The Commission will probably want to consider how far it gets involved in ‘putting out bush fires’ – ie tackling particular issues affecting discrete parts of the sector – and how it can distinguish between a bush fire and a more systemic problem. The place to start would be with a detailed discussion with British Marine and relevant businesses.
  - b. several partners, including those most closely involved in it, said they were keen for the Commission to look again at the Merchant Navy Cadet programme. The terms of reference need some care, and should be drawn quite broadly to include the requirement for former seafarers ashore, and the value of enhancing the content of cadets’ training before the IMO requires it when STCW is next refreshed. Though there is a good deal of data on the programme there are important gaps in the information available about what happens at different stages, and gaps in understanding about the dynamics of the programme and later employment.

- c. the proposal from the UK Major Ports Group is a good one which the Commission should consider seriously, both for its inherent value, and as an example of an approach to considering “future workforce” questions which the Commission might later want to apply to other parts of the sector. This is a project which certainly calls for new primary research, with a broad base because it is about exploring and attempting to understand an uncertain future.
- d. automation (and related technological change) is an obvious candidate, but the topic is vast and the scope for wasting energy in an unfocused way, no less vast; the terms of reference again need some care. At the pragmatic end of the spectrum, one fruitful approach might be to focus on changes which should be implemented *now* to ensure that the generation currently going through their initial training should leave with a good understanding of the current position in their field, and future possibilities. At the “blue skies” end, the Commission might want to consider a “think piece” looking further ahead.
- e. engineering comes up again and again as a problem area, but the exact nature of the problem is seldom defined with much precision, and decades-old calls to work harder to get more young people interested in STEM subjects do not appear to be making enough difference. The Commission ought to have a good look to understand exactly what the problem is in different parts of the sector, what employers do to manage those problems now, and what else can be done which will make a difference.
- f. immigration, and the employment of so many people from abroad across the sector, needs to be on the agenda because Brexit will (almost certainly) change the way employers, and indeed individuals, consider their options. Changes in immigration policy could have a major impact on the maritime sector. Data is good in some areas (particularly shipping), but poor in most. Evidence about the dynamics of immigration and why employers make the choices they do is poor across the board.

(There are undoubtedly other topics which merit early attention, such as – very topically during the coronavirus lockdown – the role of technology in learning, but they are not listed here because the evidence presented is largely silent about them).

- Recommendation 2: If the Commission wants to help companies to see skills problems in the round, it could publish practical guidance, perhaps with a title like “What can you do about Hard to Fill vacancies?”. This would pick up the broader HR issues covered above, with worked examples from across the sector showing how others have analysed, and then tackled, the problems they have in recruiting and retaining the people they need. It could offer advice to help companies look critically at what they really need in a job, and how to get it, drawing diversity questions into mainstream discussion about business priorities.

- Recommendation 3: Should the Commission decide that it wants to publish “think pieces” to stimulate debate, an early topic might be to challenge traditional thinking about recruitment, perhaps with a provocative title like “Do you really need a Master Mariner for that role?”. (No one doubts that Master Mariners bring great strengths and none should be offended by posing the question that way; the purpose would be to stimulate widespread debate about making future recruitment as effective as it can be).

### **Supporting Actions**

- Recommendation 4: the Commission should create, maintain and provide access to an online library of labour market reports. That will facilitate its work, including creation of its annual and five-yearly reports.
- Recommendation 5: the Commission should encourage others who initiate research in future to make contact at an early stage, for mutual gain.
- Recommendation 6: the Commission should consider whether or not to give priority to defining the sector in statistical terms. It sounds like it ought to be an obvious action, but given the breadth and complexity of the sector, the discussion with Cebr showed the potential for the subject to soak up a lot of effort for only modest returns; the pros and cons are more in balance than they might seem and ought to be debated carefully.

## Appendix A: Skills Shortages & Skills Gaps

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The Employer Skills Survey managed by the Government is the UK's definitive labour market intelligence report – the gold standard. Here are definitions the 2017 report used for 'Skills Shortages' and 'Skills Gaps':

### Skill Shortages

In brief:

vacancies that employers find hard-to-fill due to applicants lacking relevant skills, qualifications or experience are termed 'skill-shortage vacancies'.

At greater length:

When employers have vacancies, potential employees are either able and willing to meet employer requirements, or they are not. In line with previous years, a third of vacancies in the UK (33%) were considered hard to fill. When employers struggle to fill vacancies, this is often due to a lack of the required skills, qualifications or experience among applicants. Collectively these are known as 'skill-shortage vacancies'. Although relatively few employers experienced them at the time of the survey (6%, the same proportion as in 2015), these employers reported a range of impacts resulting from them, including: increased workloads for other staff; loss of business or orders to competitors; delays developing new products or services; and difficulties introducing new working practices.

### Skill Gaps

In brief:

one in seven employers (13%) had at least one member of staff who was not fully proficient – referred to in this chapter as having a skills gap

At greater length:

Alongside skill shortages that may be experienced when recruiting, employers may also experience skills gaps in their existing workforce. This internal skills challenge arises when employees lack proficiency to fulfil their role. Such skills gaps, where persistent, may hinder an employer's ability to function to its full potential in terms of productivity and profitability.

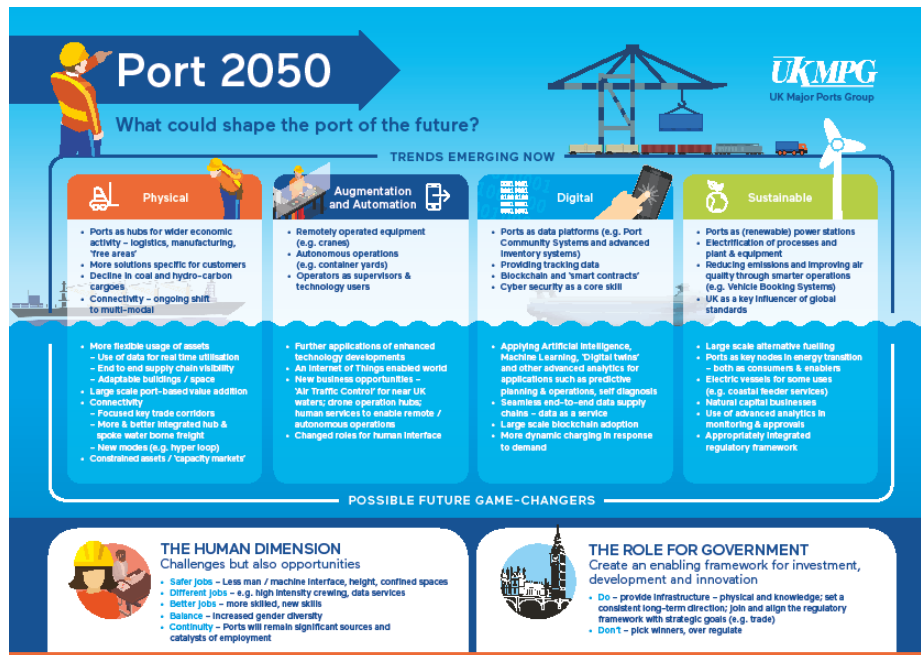
The ESS report also refers to skills gaps as "the internal skills challenge".

# Appendix B: Proposal from UKMPG

## UKMPG future workforce research project pitch February 2020

### Situation

The modern port is a significantly different place to the port of history. It is increasingly shaped by forces such as globalisation of supply chains automation and digitisation. It is also shaped by external



imperatives such as sustainability. We expect these trends to not only continue but to accelerate. See left for a summary of recent survey of UKMPG members on the trends shaping the future of their businesses.

As noted in this summary this changing business and organisational environment has important implications for the people working in the

sector – both today and tomorrow. Whilst there are important advantages in the future port workplace, such as safety and greater opportunities to deploy new sources of talent, and whilst some (perhaps many) future roles are currently unknown, there are undoubtedly substantial challenges to be addressed. This is not only in terms of staffing the future state, but also crucially in making the transition in a timely, efficient but also responsible manner.

### Complication

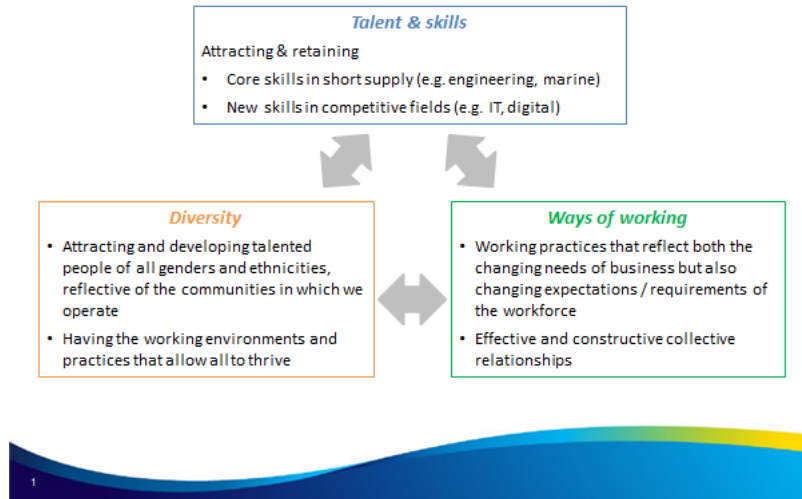
The port sector could be described as having relatively traditional or legacy workforce characteristics for an industrial / distribution sector. Skills areas are manual and operator based for important occupational categories, with a number of specialist and relatively sector specific categories (e.g. VTS operators, harbour masters, pilots). The age profile skews towards the more mature cohorts, with a low level of voluntary churn in many occupational categories. The sector's gender mix is heavily male weighted with a 85:15 split (although better than other maritime sectors). A significant portion of the workforce work shifts and can be subject to short notice flexibility requirements.

The sector has high levels of union membership and collective bargaining coverage. Reward packages for many occupational categories are also fairly traditional, with overtime, shift premia and pensions being key features. Recruitment and promotion has historically been relatively unstructured. Of course, a legacy basis brings strengths as well. Jobs are typically well paid as well as being around 50% more productive than the UK average and not seasonal. There is strong commitment to high quality apprenticeships and 'craft' training. In many cases a strong sense of responsibility towards the local communities around the ports, where most of the workforce hail from and where the port

operator can be one of the larger private sector employers. The sector has a low to zero gender pay gap. The sector also has its own dedicated skills (and safety) entity, Ports Skills and Safety.

Positive change is occurring. Many major port operators are putting in place much more structured programmes of recruitment and promotion, as well as driving increases in diversity. Tough choices have been made on some legacy aspects, such as aspects of pensions. But the sector recognises that more change, more quickly is required.

**Ports future workforce – key dimensions of change**



programmes of recruitment and promotion, as well as driving increases in diversity. Tough choices have been made on some legacy aspects, such as aspects of pensions. But the sector recognises that more change, more quickly is required.

However, making this change successfully and in a responsible manner requires a better understanding of three interlinked dimensions of the future ports workforce – see above.

**Resolution**

Achieving a better understanding of these dimensions, and the ways to address them is not a unique challenge to any one individual port operator (although the specifics of implementation inevitably will be).

Therefore, the major port operators wish to commission a piece of common piece of research to explore the three interlinked key dimensions of change highlighted above, the relationships between them and how potential solutions for how they might be addressed. These solutions are likely to be at both a sector level and a generic company level, plus potentially have implications beyond the sector (e.g. any implications for Government policy). The overall ‘exam question’ is ***‘what do the likely future ports workforce and ways of working look like and how can the sector transition from the position today’***.

We anticipate that the research will require a mixture of desk research and structured interviews. We also anticipate that meaningful insights from the work are likely to prompt some hard thinking by a range of stakeholders, including but certainly not limited to, the ports operators themselves.



## Appendix C: List of those consulted

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British Marine	Brian Clark, Head of Public Affairs, Policy & Research Blue Davies, Head of Training Alastair Wilson, Head of Research
British Ports Association	Richard Ballantyne, Chief Executive
British Tugowners Association	Robert Merrylees, Secretary
Cornwall Marine Network	Aur�lie Nollet, Director
Heart of the South West LEP	Phill Adams, Skills lead
IMarEST	David Loosley, Chief Executive
Institute of Chartered Shipbrokers	Julie Lithgow, Director Matt Gilbert, Head of Education Robert Ashdown, Chief Executive
International Association of Classification Societies	
International Association of Maritime Institutions	Gary Hindmarch, Secretary
Maritime and Coastguard Agency	Brian Johnson, Chief Executive
Maritime London	Jos Standerwick, Chief Executive
MarRI-UK	Alex Duffy, Director
MNTB	Kathryn Neilson, Director
Nautilus International	Mark Dickinson, General Secretary Debbie Cavaldoro, Head of Strategy David Appleton, Professional and Technical Officer Phil Roche, Partner
Norton Rose Fulbright	Richard Steele, Chief Executive
Port Skills and Safety	Trevor Blakeley, Chief Executive
Royal Institute of Naval Architects	Jamie Finlay, Chief Officer
Royal Fleet Auxiliary	Cdre Iain Lower, Director of Strategy and International Relations, Maritime Sector & Parliamentary Engagement
Royal Navy	Richard Falk, Head of Training
Royal Yachting Association	John Murray, Chief Executive
Society of Maritime Industries	Steve Hall, Chief Executive
Society for Underwater Technology	Stuart Baker, Assistant Director of Strategy and Programme Development; Chair, Maritime UK Solent
Solent LEP (& Maritime UK Solent)	Mark O'Reilly, Chairman and Chief Executive
Team Humber Marine Alliance	Bob Sanguinetti, Chief Executive
UK Chamber of Shipping	Tim Morris, Chief Executive
UK Major Ports Group	
Workboat Association	Kerrie Forster, Chief Executive

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## Appendix E: Glossary

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BEIS	Department for Business, Energy and Industrial Strategy
CEBR	Centre for Economics and Business Research
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
ICS	Institute of Chartered Shipbrokers
IMarEST	Institute of Marine Engineering Science and Technology
IMO	International Maritime Organization
LEP	Local Enterprise Partnership
MarRI-UK	Maritime Research and Innovation UK
MCA	Maritime and Coastguard Agency
MNTB	Merchant Navy Training Board
MPBS	Maritime professional business services
STCW	Standards of Training, Certification and Watchkeeping
SUT	Society for Underwater Technology
UKMPG	UK Major Ports Group
UK NEST	UK Naval Engineering Science and Technology