Identification of Learning Pathways for the Maritime Sector

A final report for the Maritime Skills Alliance

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The Mackinnon Partnership

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1. Introduction

Context

1.1 In August 2005 The Mackinnon Partnership was commissioned by the Maritime Skills Alliance (MSA) to identify learning pathways in the maritime sector.

1.2 The Maritime Skills Alliance is a strategic alliance between the British Marine Federation (BMF), Merchant Navy Training Board (MNTB), Port Skills and Safety (PSS) and the Sea Fish Industry Authority (SFIA) and was formally established in January 2004. The BMF officially joined the alliance during this project but were already members of the project steering group. The MSA aims to provide a focus for maritime sector skills issues and ensure that a joint approach is adopted wherever appropriate to the development of education and training, National Occupational Standards (NOS) and qualifications frameworks for those involved with maritime activities.

1.3 The MSA is a Sector Body working with the Skills for Business Network in the absence of a dedicated Maritime Sector Skills Council (SSC). It has a strategic relationship with several overlapping SSCs including GoSkills, Improve and Skills for Logistics, as well as the Sector Skills Development Agency (SSDA).

1.4 This learning pathways project is the first project of its nature commissioned by the Alliance and is supported by the SSDA. For the first time it provides an up-to-date and independent identification of the learning pathways, key occupational roles and key functions undertaken in the maritime sector. The outcome will provide the basis upon which appropriate learning pathways can be created, supported by the necessary provision. The findings will inform the Sector Qualifications Strategy that is currently being developed by the MSA. The mapping exercise and action plan will also inform future priorities and activities related to the development of NOS, qualifications, training programmes and careers information for the sector.

Scope

1.5 A labour market assessment was produced for the sector in February 2005[1]. It defined the sector, and identified employment patterns, skills needs, skills supply and employer training. The maritime sector (and the MSA "footprint") was defined as including industries where the principal business activities cover the control, management and operation of harbours, ports and vessels associated with:

- transport by sea of passengers, freight and petrochemicals in bulk;
- leisure cruises at sea;
- loading and unloading cargo and passengers from ships;
- catching fish and shellfish;

[1] MSA Labour Market Assessment 2005

- supporting offshore exploration and production, surveying and other sub-sea activities.

1.6 The scope of this project covers the "footprint" identified above but is widened to include some of the areas covered by the BMF, including yacht brokering and watersports instruction. The~~refore, the~~ MSA "footprint" has been extended to include "commercial activities related to the use of water-born craft on rivers, inland waters, lakes and lochs.~~amended from "leisure cruising at sea" to "leisure cruising"~~. Although boat building is covered by the BMF, it is not included in this project as boat building is in the footprint of SEMTA, the Sector Skills Council for Science, Engineering and Manufacturing Technologies. During the project, the project steering group agreed to widen the scope of the project further to include hydrographic surveying and maritime search and rescue.

Project outputs

1.7 Identifying learning pathways for the maritime sector has involved the production of:

- an occupational map, identifying key occupational roles and responsibilities;
- a map of qualifications, training provision and career pathways;
- a functional map, identifying key functions undertaken in the sector;
- a gap analysis of occupational roles and functions not covered by NOS, or by nationally recognised qualifications;
- an action plan to address any identified gaps, and recommendations for further work.

1.8 The MSA Labour Market Assessment 2005, identified the industries, types of employment, numbers employed, changes in maritime employment, workforce characteristics, skills gaps, and skills supply for the maritime sector. Therefore, this project does not attempt to review the data contained in the Labour Market Assessment as it is still up to date.

1.9 According to the SSDA, NOS are "the first and last word in what an individual needs to know, do or understand in order to carry out a particular job effectively". Ultimately, the project outcomes should inform the development of new or revised NOS in areas where there are gaps in NOS and sufficient demand. This project process and outcomes have also provided a mechanism through which existing NOS can be reviewed.

2. Methodology

Overview

2.1 We have summarised below each phase of our methodology. Although the methodology was divided into phases, most of the work was undertaken concurrently. The data collected during the desk and field research was often of relevance to a number of different aspects. Our approach gave us the flexibility to make the most of the data collected so that information from one area, such as the occupational map, could also be used to inform the development of the functional map and career pathways matrix.

Rationale

2.2 The methodology described below illustrates how we approached the project. For a number of reasons our original methodology was adapted as the project developed. Some of the NOS we needed to consult were not approved when we commenced the project. This meant that we could not work on certain aspects of the project in the anticipated timeframe. In addition, the complexity and scope of the project increased as the project developed, and we had to adjust the methodology accordingly.

2.3 Another factor was that an important element of the methodology became ~~unworkable and~~ unrealistic. The original plan was for the MSA to run a number of Specialist Technical Group meetings. However, a vast number of other maritime consultation events were also taking place, such as the regional consultation events about a foundation degree framework for the ports and harbours industry. I~~Therefore, i~~t was decided that this method would be impracticable and to seek an alternative approach~~it what be ineffective to continue with the technical meetings as planned~~.

2.4 ~~As an alternative approach,~~ W~~w~~e therefore agreed to undertake~~ook~~ consultation and research by speaking directly to a number of "industry experts"~~representatives~~ from each of the maritime industries. Although this approach was more time consuming, it was an effective mechanism given the complexity and enormity of the task. The resulting discussions were very detailed and focused. In addition, draft documents were also discussed at other events and steering groups, such as training advisory groups. Findings from these meetings were fed into the development process.

Project Steering Group Meetings

2.5 A total of seven~~ix~~ project steering group meetings took place during the lifetime of the project. These meetings set the scope and parameters for the project, agreed key decisions, signed-off each stage of work and monitored project progress. The meetings were also a useful forum in which any issues arising could be discussed and resolved.

Phase 1 – Collecting the data

2.6 This involved four key steps.

2.7 Firstly, we met with the project steering group to agree the scope and parameters for the project. This was important so that the focus of the project was accurate and realistic. However, as the project progressed and new information and issues emerged, the scope of the project was reviewed and revised. This led to the scope of the project being extended into new areas. The impact of this on the size of the project was alleviated somewhat by the steering group agreeing to reduce the depth of work to be undertaken in some of the industries.

2.8 Secondly, once the scope of the project was agreed, we started the desk research phase and focused on collecting and collating relevant data. This included current and proposed NOS, previous occupational and functional maps, job descriptions and person specifications, job adverts, details of regulatory requirements, outlines of training programmes and careers information. We also made use of previous reports, such as the MSA Labour Market Assessment Report 2005.

2.9 Thirdly, we met with one representative of each of the main industries in the maritime sector. In some cases, the representative was accompanied by an industry expert. The meetings provided the opportunity to discuss the industry in detail and we identified any potential issues and problem areas. We also identified further sources of information, including experts we should speak to about particular areas of the industry. These were face-to-face meetings and were necessarily long and detailed so that we could identify the strands within each industry sector, as well as the main job roles.

2.10 Fourthly, we continued to collect data during all stages of the project. This ensured that we always worked from the latest versions of documents such as NOS. Our extended desk research phase helped us to continually refine our data and cross-reference against a number of sources. The ongoing desk research was crucial, especially when the scope of the work changed mid-way through the project.

2.11 Once the key occupational roles were identified, we developed a database of relevant NOS for each industry. This included NOS developed by and for the industry, NOS developed by overlapping SSCs and sector bodies, and generic NOS. However, the primary focus has been on the areas that are the sole responsibility of the MSA or the joint responsibility of the MSA and one or more Standards Setting Bodies (SSBs).

Phase 2 – Initial drafting and analysis

2.12 Following the meetings with representatives of each industry, we produced an initial draft of the occupational map for each of the industries. This first draft was primarily based on the detailed information we collected during these meetings, and each draft was verified by the industry representatives. Once this first outline draft had been produced and approved, we worked on refining the maps and filling in the gaps. We did this by analysing and drawing on the information we collected in the second and fourth steps of phase one. We developed the occupational information and used NOS, job descriptions and job adverts to identify the key functions for each occupational role.

2.13 The main aim of the drafting and analysis phase was to develop an initial outline of an occupational and functional map for each of the industries in the maritime sector. This outline was used to form the basis of discussions with industry experts.

Phase 3 – Consulting the sector

2.14 Members of the project steering group provided contact details for a number of industry experts, covering the breadth of each industry. We undertook telephone and face to face interviews with a total of 24 key individuals (see Appendix A) and ensured coverage across the spectrum of the maritime sector. In advance of these meetings we sent each individual a copy of the relevant draft documents and a copy of our key questions for discussion at the meeting. These questions are listed below.

- Are the main occupational roles covered?
- Are there any alternative job titles that need to be added?
- Are the role descriptions accurate?
- What are the main functions of each occupational role? (These may be functions not covered by any NOS or they may be covered by NOS from other sectors)
- What qualifications are mandatory (i.e. regulatory requirements) and what qualifications are relevant/sometimes undertaken for each occupational role?
- Are there any relevant training courses/programmes for each occupational role (these may or may not be certificated)?
- What would be the main career progression route for each occupational role?

2.15 In addition to these meetings, we also consulted with industry experts by email (see Appendix A). In most cases there were a number of conversations and email correspondence with each individual. Due to the nature and scale of the project, this had to be an iterative process so that we could confirm the accuracy of the drafts. This also enabled us to give individuals further opportunities to comment as the project progressed and the drafts were further developed.

2.16 It was not always possible~~Unfortunately we were unable~~ to confirm some of our research findings or clarify certain issues. This occurred in instances where ~~we were~~ it was difficult to make contact with an appropriate "industry expert".~~given insufficient contact names and we were either unable to make contact with the named individual or they were unable or unwilling to contribute to the project~~ However this does not invalidate the vast bulk of the findings and any reservations are indicated in the appendices~~.~~

2.17 Our purpose was to refine and build up the initial outlines of the occupational and functional map, develop the qualifications and career pathways maps and identify any additional sources of information. Revisions or additions that were made to the draft documents were checked with the individual who had made the original suggestion. Any differences of opinion were resolved through continuous cross-checking against source data and with other industry experts. We ensured that we benefited from the expert practitioners by

drawing on their knowledge and experience to validate our findings.

3. Summary of Occupational Map

Overview

3.1 In the occupational map (see Appendix B) we have identified the main occupational roles in the maritime sector. These are shown for each of the industries within the maritime sector:

- Commercial Sea Fishing;
- Marine Leisure;
- Maritime Search and Rescue;
- Merchant Navy;
- Ports and Harbours.

3.2 For each occupational role, we have included the main job title, the most commonly used alternative job title(s) and a brief description of the role and key responsibilities. The breadth and level of responsibility of each job role varies greatly depending on the context and the size of the company where individuals are employed. Therefore, we have tried to produce role descriptions that are flexible enough to take account of the diversity of the sector, but also sufficiently detailed to give a good indication of what the job role would usually involve. Where it is particularly pertinent, we have also indicated the skills and experience required for the job role.

Scope

3.3 The project steering group agreed that the scope of the occupational map should encompass the whole of the maritime sector, including some areas that overlap with other SSCs. The steering group wanted the occupational map and career pathways matrix to reflect the breadth of the sector. This means that in some cases other SSCs are partly or wholly responsible for developing NOS for some of the occupational roles listed in the occupational map. Therefore, the occupational map and career pathways information includes additional areas that are not included in the functional map. These additional areas are boat design, boat manufacture, and yacht surveying.

Definition

3.4 An occupational map can take many forms, but commonly provides an overview of the sector, including:

- the main employers and stakeholders;
- the numbers employed in the sector (including all industries making up the sector);
- role and context;
- career progression and development for selected job roles (now and in the future);
- trends and drivers;

- skills needs and gaps;
- key characteristics of employment in the sector.

3.5 The MSA Labour Market Assessment 2005 covered most of these areas. Rather than repeat that exercise, we have produced a clear and concise occupational map which focuses on identifying the key job roles in the sector. The occupational map doesn't attempt to list every possible job role and job title. This is because there is a great deal of variation between different companies, partly due to the many different contexts to be found in the maritime sector. However, the main job roles have been identified, along with other job titles that may be used in some companies.

Links to NOS

3.6 The job roles that have been identified have also been mapped to current NOS. Any gaps in NOS and qualifications provision have been identified and we have produced an action plan to address any identified gaps, where there is sufficient need. Alongside the occupational map, we have produced a map of learning pathways for all job roles within the sector and a report and action plan in relation to any gaps in NOS.

4. Qualifications, Skills and Career Pathways

Qualifications Map

4.1 The project steering group agreed that we should identify the main qualification provision for each occupational role. In line with the remit of the MSA and its constituent sector bodies, we have focused on identifying relevant nationally accredited qualifications. Where there are no qualifications in this category, we have identified other types of qualifications, such as international qualifications. In such cases we have also identified, where possible, other courses and programmes, which may or may not be certificated.

4.2 All of the data we have gathered regarding qualifications and training has been summarised in a Qualifications Map (see Appendix C). This has in turn informed the gap analysis and action plan (see Section 6). When analysing the qualifications provision for the sector, we have primarily concentrated on qualifications that are maritime specific. However, where specific maritime qualifications are unavailable or not appropriate, we have sometimes identified generic qualifications (such as management qualifications) and/or qualifications from other sectors (such as engineering and hospitality). In these instances we may not have listed all of the available qualifications, especially if there is a proliferation of similar qualifications. References to these categories of qualifications should therefore be treated as indicative rather than exhaustive.

Summary of Qualifications in the Maritime Sector

4.3 In most of the maritime industries there are stringent and wide-ranging statutory certification requirements for a significant number of occupational roles. These are sometimes, but not always, linked to nationally accredited qualifications. Where appropriate, we have indicated the main statutory certification requirements but have not included all of the statutory requirements. There are a number of professional bodies in the maritime sector and, where appropriate, we have included references to professional qualifications and membership. Due to the international nature of the sector, we have also included some international qualifications.

4.4 In developing the occupational map, we identified the main entry requirements for each job role. These requirements are sometimes mandatory but often optional or not specified. For some roles experience is more important than any particular qualifications, although it should be noted that to gain their previous experience individuals may have required or obtained qualifications as they progressed.

Career pathways and progression

4.5 A career pathways matrix (Appendix D) has been designed to contain the detailed information regarding career pathways and progression. The matrix outlines the main progression routes in the maritime sector, and it also outlines any established routes to and from the maritime sector. In some industries, such as the Merchant Navy, there are very defined and clear progression routes, but in other industries progression routes are variable.

5. Functional Map

Overview

5.1 We have developed a functional map (Appendix E) to give a detailed breakdown of what work is undertaken across the maritime sector. Some of the same functions are undertaken in more than one occupational role and in more than one of the maritime industries, but on the functional map each function will only appear once. This is because the functions are grouped according to the key functional areas rather than by industry area.

Scope

5.2 The project steering group agreed that the scope of the functional map should be narrower than that of the occupational map. This is because some of the roles included in the occupational map are partly or wholly in areas that are the responsibility of other SSCs. Therefore, it is these SSCs who would take the lead in developing NOS for these areas. The areas that are included in the occupational map but are not in the functional map are boat design, boat manufacture and yacht surveying.

Definition

5.3 The information contained within the functional map illustrates the skills and knowledge required in the sector, and in individual job roles. In developing the functional map, we identified the main tasks undertaken in each job role. The functional map contains an overall Key Purpose Statement for the sector, and identifies Key Roles and sub-functions. These sub-functions will normally equate to a NOS unit (or NOS equivalent in size to a unit), or occasionally to a NOS element or NOS suite.

Links to NOS

5.4 Where NOS exist that cover individual sub-functions, we have used the NOS/unit titles to describe the functions. Where the titles of NOS suites/units do not include a verb, we have sometimes amended them so that the functions are clearly described. For example, *Port Operations* has become *Undertake and Support Port Operations*.

5.5 If a particular function isn't covered by NOS/units, we have described the function in the style used in NOS. Therefore, where functions are not covered by NOS, the functional information can be used to directly inform the development of new NOS (where there is sufficient demand).

Developing the functional map

5.6 To develop the functional map, we had to identify the main functions of each occupational role. We then coded each function so that we could track where and how often it appears. This will enable the occupational roles to be cross-referenced against the functional map.

5.7 Some functional areas (or parts of functional areas) have been included in the functional map even though the only potentially relevant NOS currently available sit outside of the MSA "footprint". This is because although the functional area is within the MSA "footprint", the relevant (or potentially relevant NOS) are generic NOS that have been developed by another Standard Setting Body (SSB). For example, Yacht Brokering is within the responsibility of the MSA, but some of the units from the Sales NOS suite (Marketing and Sales SSB) cover some of the functions of Yacht Brokering.

5.8 Therefore we have also included functional areas that overlap with the functional areas covered by other SSBs. The maritime engineering functions are an example of an overlapping area. A significant proportion of the maritime engineering functions that have been included in the map are potentially covered (partly or wholly) by generic engineering NOS that have been developed by SEMTA. However, it may be the case that these NOS are not specific enough for the maritime sector and this is something that will need to be determined in the future.

5.9 In developing the functional map, we identified that there are a group of functions that overlap between Key Functional Areas C and D (see Appendix E). These have been identified in white and are labelled as Key Functions CD. Further work may be necessary to determine whether engineering (and related) shore-based roles involve the same functions, regardless of the category of employer (e.g. a port, harbour authority, marina, shipping company or fleet management company). We have identified the potentially relevant NOS and NOS units for the shore-based engineering roles listed in the occupational map. This information can form the basis of any further research and development work in relation to NOS for maritime engineering.

6. Gap Analysis and Action Plan

6.1 One of the main objectives of this project was to produce a gap analysis of occupational roles and functions not covered by NOS, or by nationally recognised qualifications. We have structured the gap analysis by industry and have included a summary of any action that needs to be taken. We have also produced a more detailed action plan to address any identified gaps (where there may be sufficient demand). The action plan also covers areas that may need further investigation and/or a joint approach, working with other SSCs.

Gap analysis

6.2 The gap analysis highlights occupational roles (or parts of occupational roles) that are not covered by suitable NOS or by nationally recognised qualifications. An indication is given of whether any further action is required. This takes into account the level at which individuals enter the job role and the potential demand for NOS and/or qualifications.

Commercial Sea Fishing		
Occupational Role(s)	**Gap/issue**	**Action required?**
N/A	No specific gaps or issues	N/A

Marine Leisure		
Occupational Role(s)	**Gap/issue**	**Action required?**
Yacht Broker	No specific NOS or nationally accredited vocational qualification. The only relevant NOS are the generic Sales NOS. These are not specific to the maritime sector.	Limited
Yacht Surveyor	No specific NOS or nationally accredited vocational qualification.	Limited
Marina Manager Dockmaster Marina Operative	No NOS for handling small waterborne craft.	Limited
Chief Steward/Stewardess	No specific NOS for maritime hospitality roles.	Yes

Maritime Search and Rescue		
Occupational Role(s)	**Gap/issue**	**Action required?**
Coxswain (ALB) Helmsman (ILB) Navigator Crew Member Hovercraft Commander	No NOS which specifically cover the search and rescue related functions. These roles and functions apply to RNLI but may not be relevant to other providers of maritime search and rescue services.	Yes
Coxswain (ALB) Helmsman (ILB) Navigator Crew Member Hovercraft Commander Mechanic (ALB) Mechanic (ILB)	The Merchant Navy Series A, B and C NOS (in relation to boat handling, seamanship, navigating and engineering) may not cover all of the requirements of the maritime search and rescue function.	Yes

Mechanic (ALB) Mechanic (ILB)	No NOS which cover radio communications.	Yes

Merchant Navy		
Occupational Role(s)	**Gap/issue**	**Action required?**
Cruise Director Chief Purser	NOS that cover functions related to maritime hospitality do not take account of the maritime context.	Yes
Fleet Director (and any other Fleet Management roles)	No specific NOS covering fleet management.	Limited
Personnel Manager Training Manager Personnel Officer Training Officer	There are generic NOS for personnel and training but these do not specifically cover: • the deployment of marine personnel for ship operations, including logistics and co-ordination of personnel; • ensuring compliance of seafarers with safety and environmental regulations; • statutory training requirements.	Limited
Operations Manager Safety Officer	There are no specific NOS or nationally accredited vocational qualifications. Other generic NOS may be relevant including Occupational Health and Safety.	Limited
Marine Superintendent Marine Technical Assistant	There are no specific NOS or nationally accredited vocational qualifications, and there are no NOS for handling small waterborne craft.	Yes
Engineering Superintendent Assistant Engineering Superintendent Engineering Technical Assistant	No specific NOS or nationally accredited qualifications for Engineers working in shore-based maritime roles. Large amount of potentially relevant NOS and huge numberamount of engineering units.	Yes

Ports		
Occupational Role(s)	**Gap/issue**	**Action required?**
Port Operations Director Port Operations Manager Security Manager	No specific NOS for the Ports Industry are in place to cover these roles, other than the Supervision of Port Operations NOS. Other generic NOS may be relevant, such as Management and Leadership NOS and Security Management NOS.	Yes
Ports Facility Security Manager	Training standards are in place but no NOS.	Yes
Hydrographic Surveyor	There are NOS (Spatial Data Management) and S/NVQs for surveyors working in a large range of roles, but no NOS or vocational qualifications that specifically cover this role. Also, there are no NOS for handling small waterborne craft.	Yes
Port Engineer Engineering Manager Engineering Supervisor Maintenance Assistant	No specific NOS or nationally accredited vocational qualifications for Engineers working in Ports industry. Large amount of potentially relevant NOS and huge numberamount of engineering units.	Yes

Action Plan

6.3 The action plan below is designed to address or explore gaps or potential gaps in NOS and qualifications provision. These gaps or potential gaps have been indicated in the gap analysis section.

Maritime Action Plan			
Gap/issue	**Proposed Action**	**Lead?**	**Deadline?**
1 No NOS or nationally accredited vocational qualifications for Yacht Brokering	Discuss issue with The Association of Brokers and Yacht Agents. Further action unlikely as normal route is with a degree in any subject. There may be interest in a small qualification or training programme that acts as an introduction to the maritime sector.	BMF	tbc
2 No specific NOS or nationally accredited vocational qualifications for Yacht Surveying	Normal entry is through degree route. Marine surveying is covered by SEMTA and they have been looking at this area as part of their Sector Skills Agreement for the Marine Sector. There have not been any links between the BMF/MSA with this work and this is something that may need following up.	BMF/MSA	tbc
3 No specific NOS or nationally accredited vocational qualifications for maritime search and rescue	There is a need to investigate the demand for NOS and nationally accredited vocational qualifications for maritime search and rescue. This investigation should include: • making contact with the RNLI to determine demand/interest; • identifying and making contact with other providers of maritime search and rescue services to determine demand (and to check that the functions identified by RNLI are relevant). If there is demand and sufficient need for NOS, a proposal should be submitted to SSDA to: • map the functions for all maritime search and rescue services (using the RNLI functions as a starting point); • examine the Merchant Navy Series A, B and C NOS to determine their suitability to cover similar functions within maritime search and rescue (a list of possible units has been compiled as part of this project); • research whether there is a need for NOS which cover the use of radio communications (for maritime search and rescue, and possibly for marine leisure, commercial sea fishing and the Merchant Navy).	MSA	Autumn 06

Maritime Action Plan			
Gap/issue	**Proposed Action**	**Lead?**	**Deadline?**
4 No NOS for marine hospitality roles (Cruise Director, Chief Purser, Chief Steward/Stewardess etc)	Identify all hospitality occupational roles on cruise ships, ferries and superyachts, including roles specific to the maritime sector. Map any specific maritime hospitality functions and take action to ensure that these are covered by NOS/qualifications. People 1st and BMF should be invited onto the project steering group.	MNTB	Aug 06
5 No specific NOS covering shore-based ship management roles, including personnel, training, operations, fleet management and marine roles	Evidence indicates that NOS may not be necessary as seafaring experience (and certification) is the most common entry requirement. However, there may be a need for NOS and/or qualifications for shore staff who do not have seafaring experience. There is a working group in Glasgow (led by the Scottish Executive and formed by representatives of the Ship Management and Training Industry) looking at ways of delivering shipping knowledge and awareness to shore staff with no prior marine knowledge. Discuss at next MSA meeting and contact the Scottish working group.	MSA/MNTB	tbc
6 No specific NOS or nationally accredited qualifications for safety or environmental roles	Specific environmental roles have not been identified as part of this project, although environmental management (in a marine context) is becoming increasing important. Action should be taken to scope the prevalence and growth in safety and environmental roles, especially on large passenger vessels and in ports and harbours.	MSA	tbc
7 No NOS for handling small waterborne craft	Develop NOS for handling small waterborne craft and identify any occupational roles not covered by this project e.g. roles on specialised vessels, work boats etc. Explore whether NOS should cover maritime search and rescue.	MNTB/MSA	Spring 07
8 No NOS for Port Management function	Investigate further the need for specific NOS for these and related roles, and whether there is a need for a nationally accredited qualification at this level. If there is sufficient need for NOS, submit a proposal to the SSDA to develop new NOS. NOS for these roles should be considered alongside the NOS for the Ports Facility Security Manager role.	PSS	Autumn 06
9 No NOS for Ports Facility Security Manager	Continue to explore need for NOS to complement the Training Standards that are already in place. If there is sufficient need for NOS, submit a proposal to the SSDA to develop new NOS. This should be considered in tandem with the other senior port operations roles (Port Operations Director, Port Operations Manager, Security Manager).	PSS	Autumn 06

Maritime Action Plan			
Gap/issue	**Proposed Action**	**Lead?**	**Deadline?**
10 Lack of Hydrographic Surveying NOS/qualifications	Make formal contact with The Hydrographic Society UK (and any relevant SSCs) to explore whether there is a need for NOS (there does not appear to be a significant demand as normal entry is through degree route). *Note that the Construction Industry Council, as a partner in ConstructionSkills, is currently consulting industry on revisions to the Level 4 Spatial Data Management and the new Level 3 Spatial Data Management.*	PSS/MSA	Sept 06
11 No specific NOS or qualifications for Engineers working in shore-based maritime roles. Large amount of potentially relevant NOS and huge amount of engineering units	Discuss with MSA, SSDA and SEMTA, put together action plan. Focus on Port Engineer, Engineering Manager, Engineering Supervisor, Engineering Superintendent, Assistant Engineering Superintendent and Technician positions. Work with MSA members to agree and identify relevant occupational roles, so that, where feasible, joint activity can take place. Convene technical expert groups to scrutinise potentially relevant NOS (list of possible units has been compiled as part of this project), including: Engineering Leadership, Engineering Management, Marine Engineering, Electrical and Electronic Servicing, Engineering Maintenance, Engineering Maintenance and Installation, Performing Engineering Operations and Engineering Technical Support (all SEMTA). The technical expert groups should also identify any functions specific to engineering in the maritime sector (that are not covered by the generic engineering NOS listed above).	PSS/MSA	tbc

6.4 The above action plan should be discussed (for amendment and approval at the next MSA Executive Group meeting).

7. Conclusions and Recommendations

Conclusions

7.1 The aim of this project has been to develop an occupational and functional map and identify learning pathways in the maritime sector. This is the first time that such a project has been undertaken as a joint project across the whole of the maritime sector. Not surprisingly this has meant that some of the findings have been unexpected and the scope of the project developed as the project progressed.

7.2 The scope of the project has been broader than was initially anticipated. This breadth has limited the amount of detailed work that could be undertaken to identify new functions in complex areas such as port engineering and shore-based ship management. Therefore, this project has focused on identifying any issues and areas requiring more detailed work. The amount of detailed work undertaken in this project has been limited not just by the broad scope but also by the lack of any technical working groups.

7.3 Due to the limited project resources and timescale, it has not always been possible to follow-up on all of the issues that have arisen over the course of the project. These issues may need to be revisited at a later date and include whether the functions and occupational roles that have been identified are relevant to the inland waterways and lakes.

7.4 As explained in section five, in developing the functional map, we identified that there are a group of functions that overlap. These functions relate to shore-based roles. Further work may be necessary to confirm whether the functions undertaken are the same in different contexts. This has not been possible within the scope of this project, primarily because there has not been a technical working group or individual contacts to provide the necessary specialist expertise. Furthermore, significant resources and expertise would be needed to analyse all of the generic engineering NOS, in order to determine their relevance to the maritime sector.

7.5 Until this potential overlap has been confirmed, any work in relation to shore-based roles should be taken forward jointly by the MSA members so that there is a consistent and cost-effective approach.

7.6 In undertaking a significant amount of desk and field research, it has become apparent that there are relevant activities taking place in other related sectors, particularly in the engineering sector. There may be scope for greater joint working and collaboration between MSA members and with other sectors. However, such an approach should only be taken when there is added-value in doing so.

7.7 We have identified a considerable amount of web-based information in relation to maritime careers and qualifications. This information is contained in a variety of different sources and isn't always easy to discover, as detailed information is generally available on websites related to each of the maritime industries, rather than from a central resource.

Recommendations

7.8 Based on the project findings and conclusions, our recommendations are as follows:

- discuss and agree the action plan and timeline at the next MSA Executive Group meeting;
- implement the action plan, as soon as practicable~~;~~
- consider a joint approach and further research in relation to shore-based engineering roles;
- check whether the occupational roles and functions apply to inland waterways and lakes, and make any revisions or amendments before the outputs of this project are available publicly;
- identify all relevant projects in related/overlapping sectors and agree a lead person to make contact with each relevant project;
- develop a central resource (probably in the form of a MSA website) for maritime careers and qualifications information. This resource should be based on the information contained in the appendices of this report and should link to all relevant websites;
- explore the need~~how~~ to develop a~~the~~ relationship with the RNLI~~.~~ and other organisations with responsibilities for maritime search and rescue operations.