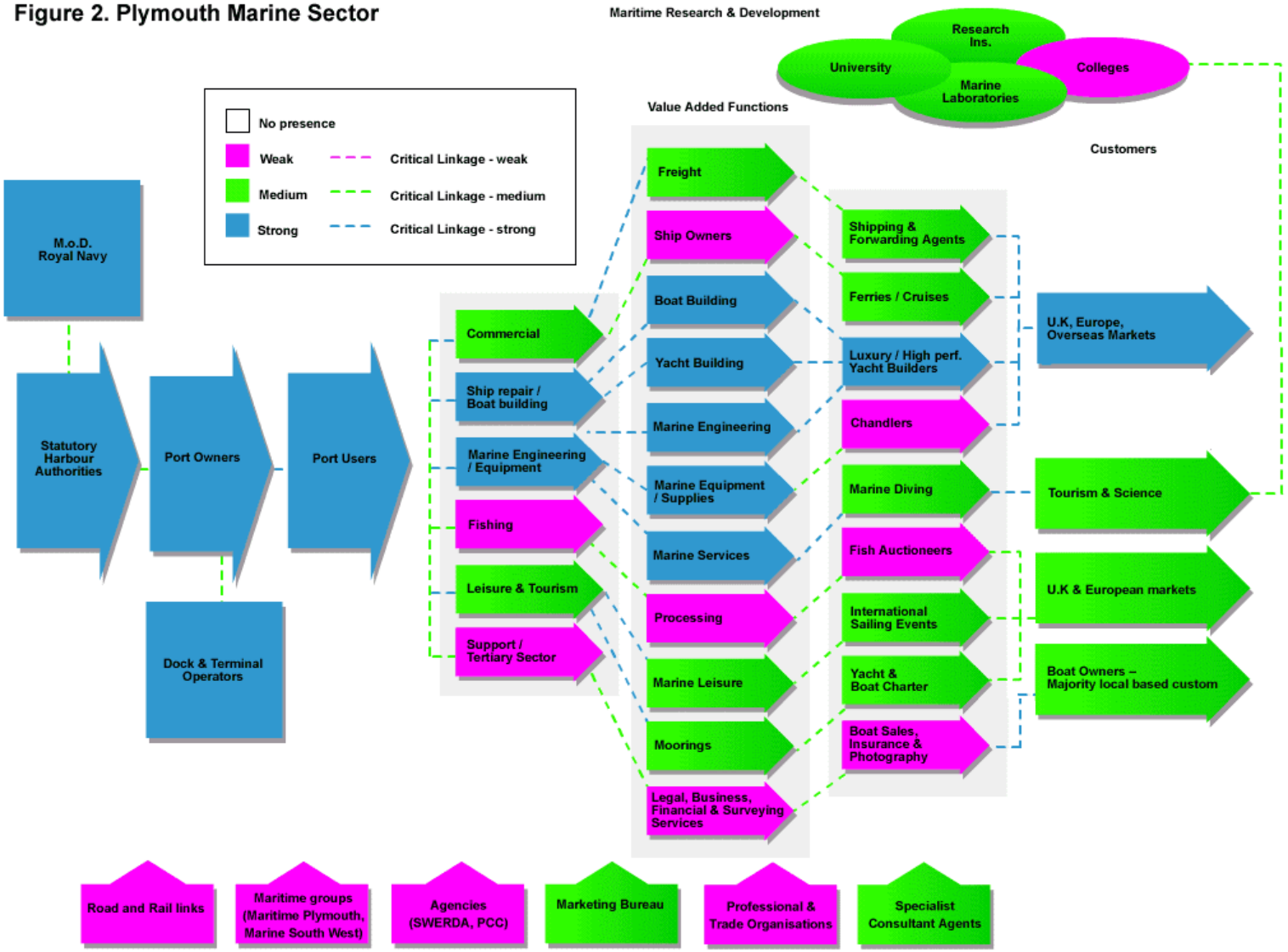
Figure 2. Plymouth Marine Sector



1

2 INTRODUCTION

1.1 General

This report has been prepared by MDS Transmodal and DTZ Pieda Consulting for the South West Regional Development Agency, Plymouth City Council and Maritime Plymouth. It sets out a strategy for the long-term development of the Plymouth marine sector, encompassing the whole range of marine related business and activities in the City.

1.2 The Need for a Strategy

Diversity of the marine sector in Plymouth

Plymouth is known primarily because of its role as a naval base and Royal Dockyard. The city contains the Navy's largest ship repair/refitting facilities in the UK, and Devonport is the largest Naval Base/Dockyard complex in Western Europe. While marine activity has traditionally been dominated by activities in the naval dockyard, it has nonetheless a significant and diverse commercial port, encompassing three separate harbours and harbour authorities:

- Cattewater (Cattewater Harbour Commissioners)
- Millbay Docks (Associated British Ports)
- Sutton Harbour (Sutton Harbour Company)

The port encompasses both freight and passenger activities – the latter dominated by Brittany Ferries operations – as well as significant fishing activities. There is an extensive network of marine service and support activity built around this.

In addition to the traditional ship repairing and refitting activities undertaken in the Dockyard, its operators, DML, have been seeking to use its technological expertise and skills base to diversify into other commercial activities. The city contains other significant marine related industries, including major boat manufacturing operations.

The city's location and environment have made it attractive as a major base for marine leisure and events, and for marine and maritime research, science and technology, including centres of expertise in the University of Plymouth, the Marine Biological Association, the National Marine Aquarium and Plymouth Marine Laboratory.

Opportunities are also considered to exist for the provision of intermodal freight transfer facilities between sea and rail within the city.

Pressure on waterfront land

The city is densely built up with little land within its boundaries to accommodate new employment, residential, commercial or other growth. Land on the waterfront is a scarce commodity and when made available, through release from the MOD, other existing uses or from other means, is generally under pressure from a variety of users. In the recent past little attempt has been made to assess the requirement for waterfront land specifically for

marine sector use, or to safeguard its availability for such use. Therefore, a key aspect of this study has been to establish the extent to which land and other infrastructure needs to be provided, retained or safeguarded to accommodate the needs of the marine sector.

Port facilities are part of Plymouth's USP

Plymouth has a unique role in the sub-region as a port serving its immediate hinterland and wider area. As part of the development of a strategy for the sector, considerable emphasis has been placed on determining the future role and development of commercial port operations in Plymouth. Currently, Plymouth is the second largest port in the South West region, with operators in the Cattewater handling 1.7 million tonnes of cargo in 2000. This includes all of the petroleum products burnt in Devon and Cornwall. The continental ferry port in Millbay Docks, operated by ABP, represents the principal facility of this kind in the South West. Plymouth also represents the only port in the South West which offers a serious proposition for the development of short sea shipping operations to the Continent in competition with other cross Channel options.

Ongoing work on regeneration plans for Cattedown and Millbay and the Plymouth Sub-Region

The need for a strategy for the marine sector is also being viewed in the context of ongoing work on regeneration plans for Cattedown and Millbay and to establish the benefits and opportunities that may be derived from or by the marine sector as a result of the development of these areas. There is also a need to identify how development of the marine sector contributes to the overall economic regeneration and development of the Plymouth Sub-Region.

Sub Regional Economic Strategy

The strategy is also presented in the context of the *Economic Strategy for the Plymouth Sub Region* produced by the Plymouth Sub-Regional Economic Partnership, which places emphasis on developing a coordinated approach to economic development in the sub-region, and for guiding investment priorities and other activities in the area. The strategy identifies maritime industries as a current strength of the area and on that offers growth potential. This concurs with our own findings on the scale and importance of the sector to Plymouth.

The promotion of key sectors with 'local strength and potential' and assistance with diversification is also set out as specific measure of the Business Development 'Framework for Action' as part of the Sub-Regional Economic Strategy. The marine sector cuts across a number of those sub sectors (high-tech engineering, maritime industries, food and drink (including fishing) and tourism) that have been earmarked for particular support.

1.3 Context of the Strategy

The marine sector is regarded as one in which Plymouth has a particular strength and this strategy is the result of a study commissioned by the South West of England Regional Development Agency (SWRDA) and Plymouth City Council (PCC) in conjunction with Maritime Plymouth. These organisations represent a variety of port and marine interests in the city and wish to explore the marine sector's potential for development, to identify the

measures necessary to achieve its potential, and the economic benefit of doing so.

The stated objectives of the study and, in effect, the foundation of the emergent strategy are:

- To develop a strategy for the long term development of the Port of Plymouth, encompassing the whole of the marine sector in the city; and

- To identify the land, buildings, infrastructure and other facilities which are needed for the future development of the Port of Plymouth in order to safeguard and improve its competitiveness

In effect, this document aims to provide a framework for action for the marine sector in Plymouth. It aims to identify overall objectives for the development of the sector and to identify and prioritise measures and actions by which those objectives can be achieved.

The strategy also has strong linkages to other regional initiatives in the sector. Marine technologies is one of SWRDA's priority sectors, and Plymouth forms a significant proportion of all South West activity in the sector. The development of the sector therefore fits well with the Regional Economic Strategy. The recent Regional Gateways Strategy also highlights the necessity of determining the future roles of key ports in the region, while SWRDA's Marine South West initiative is initiating actions that are clearly to the advantage of the Plymouth marine sector which in turn would benefit from a coordinated approach.

Having been reviewed and then finalised, the strategy is expected to be a living document, subject to regular review in order to take account of further research and analysis, changes in local conditions, monitoring of delivery of the strategy as well as changes in European, national, regional and local policies.

1.4 Scope of work

Work undertaken in the development of the strategy has been concerned with the following key items:

- Establishing the current position of marine related activities in the city;

  This consists of an economic impact study that assesses the current status and economic importance of marine sector activities that exist in and around the City. It seeks to define the precise nature of the marine sector in Plymouth and its hinterland and to assess its impact in terms of employment generation and the strength of linkages between the different sub sectors. This has covered the following sub sectors: commercial port operations; marine technologies; marine tourism and leisure; fishing; and marine science, research and development.

- A SWOT analysis of the sector in the light of current market developments;

This identifies the key issues that need to be addressed to foster the development of the marine sector in Plymouth. These are divided into strengths, weaknesses, opportunities and threats for each of the identified industry sub sectors together with a summary of key points and common factors.

- A review of relevant local, regional and national policy and planning frameworks.

  The development of a strategy for the marine sector in Plymouth also needs to take into account the local impact of various local, regional, national and European policies and planning frameworks. The report therefore provides a review of relevant aspects of policies relating to transport, fishing and tourism as these affect the marine sector in Devon and Plymouth in particular.

- The identification of a strategy that sets out objectives for the development of the marine sector in the context of the above.

  This involves the identification of future objectives for each of the sub sectors, providing the foundation of a strategic approach and the review of existing development proposals in the context of this strategy; including the identification of potential funding sources.

- The preparation of an Action Plan Framework that identifies and prioritises the measures required to take the Strategy forward.

Working Papers

A series of sector reports are presented in the Appendix as Working Papers that focus on the specific characteristics and developments and wider trends within the industry sub sectors that comprise the Plymouth marine sector. Five Working Papers have been produced covering commercial port activities; marine technologies; fishing; tourism and leisure; and marine science, research and development.

1.5 Acknowledgements

The conclusions and recommendations contained in this report are the sole responsibility of MDS Transmodal and DTZ Pieda Consulting. However, we must acknowledge the considerable guidance and assistance provided by the Steering Group, consisting of members of SWRDA's Regeneration Unit, the Economic Development Service of Plymouth City Council and Maritime Plymouth, throughout the course of our work. We would also like to acknowledge the assistance received from various members of the marine sector business community and others within Plymouth who have been consulted during the course of the study.

2. ECONOMIC IMPACT ASSESSMENT

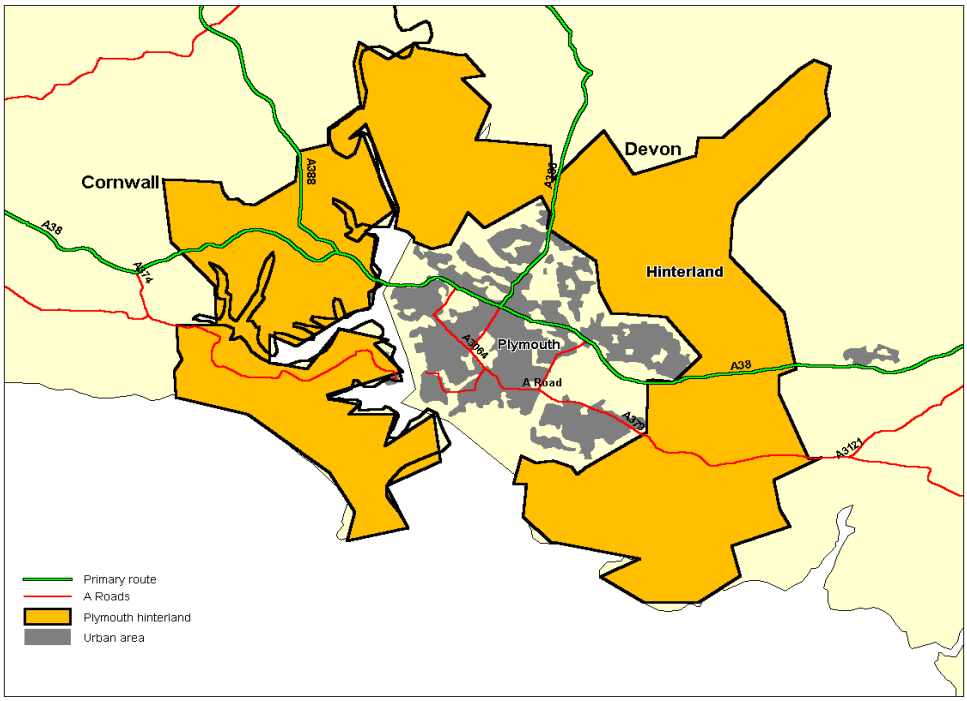
2.1 Introduction

This section sets out the current position of the port of Plymouth and the sector of marine activities that exist in and around the City. We have sought to identify the full range of marine activities and facilities in Plymouth and the surrounding area. For the purposes of this study we have defined the local area to encompass the entire Plymouth Local Authority District plus a collection of wards in surrounding districts that we believe encompass the vast majority of Plymouth's marine activity. The additional wards (which we refer to as the Hinterland) are:

Ward Name	District
Burraton	Caradon
Landrake	Caradon
Essa	Caradon
Maker	Caradon
Millbrook	Caradon
Pill	Caradon
St.Stephens	Caradon
Sheviock	Caradon
Torpoint	Caradon
Bickleigh and Shaugh	South Hams
Brixton	South Hams
Newton and Noss	South Hams
Sparkwell	South Hams
Wembury	South Hams
Yealmpton	South Hams
Bere Ferrers	West Devon

This area is shown in Figure 1

Figure 1
Plymouth and its Hinterland



DTZ Pieda Consulting, Economics

2.2 The Marine Sector in Plymouth

Definition

This section seeks to identify the precise nature of the marine sector in Plymouth and its hinterland. It is important to note that the definition of the sector is a matter of choice. A narrow definition of the Plymouth marine sector would be to view it as being concerned with those activities associated with moving goods and people through the port. However these activities clearly have strong linkages with other marine activities in the City. For the purposes of this report, when we refer to the marine sector we mean the wider definition encompassing an array of supporting and related activities.

The core activities of the marine sector are related to the naval base and the commercial operation of the port:

The activities associated with the MoD as harbour authority and naval base

Businesses directly involved in cargo handling

Ferry and cruise ship operators

The fishing industry

The core activities derive considerable strength from an intricate web of other marine activities. Taken together these activities form a much wider marine industries sector. The loss of any one of the core activities of the Port would weaken the overall sector by reducing the demand for these support services. Equally, the attraction of additional core functions would strengthen the overall sector by stimulating demand for new or enhanced support services. All port users would benefit from further enhancement of support services. The existence of such mutual interdependencies between businesses is one of the characteristics of a well-established sector.

The range of other marine activities which have strong linkages with the core activities include:

- Ship repairers and boat builders
- Marine engineering and equipment supply
- Tourism and leisure activities
- Marine science, research and development
- Businesses providing services to visiting shipping, such as ships' agency, bunkering and waste disposal
- Businesses providing services to exporters and importers, including clearing and forwarding agencies
- Businesses engaged in the transport of goods to and from the Port including rail freight activities, road haulage, transport businesses and container and trailer repair and maintenance businesses
- Marine related businesses, including marine surveyors, marine engineers or businesses that need access to port facilities
- Business services, such as lawyers, accountants, marine insurers and banks.

Figure 2 presents a graphical illustration of the marine sector in Plymouth. Within this diagram we have attempted to show all the sub sectors that contribute to the sector as a whole, the relative importance of individual sub sectors, and the extent of linkages between each sub sector. Support functions have also been considered within the diagram, i.e. organisations which have an overall indirect effect on the marine sector. Examples include the Plymouth Marketing Bureau and specialist consulting agents.

The diagram depicts a value chain showing how each component of the sector adds value to the preceding component(s). Sectors are broken down into their component parts in order to establish the linkages at a general level. The final chain in the sequence represents the customers that the marine sector serves.

The differences in colour illustrate the relative contribution of each sub sector in terms of the scale of operations and extent of impacts on the local economy. Employment is the main criteria for evaluating the economic effects of each sub sector. Linkages are also depicted, showing how strongly each component relies on the preceding stage, if at all.

The starting point for the sector is the Statutory Harbour Authority (the MoD(N)), the Port Owners (including dock and terminal operators) and the Port Users/Occupiers. The MoD(N) is responsible for the day-to-day operation of the harbour under the control of the Queens Harbour Master, controlling the flow of marine traffic in and around the harbour area.

The Port Owners are those who own and control the following port/harbour areas:

Millbay

Sutton Harbour (Coxside)

Mount Batten

Devonport

Cattewater

The majority of activity within the marine sector is located in these areas, though clearly other areas also contribute to the sector, notably Saltash and Torpoint. The Port Users box refers to those who use the port as the centre of their business, and are the main focus of the sector analysis.

We have identified seven basic functions of the marine sector within the Port of Plymouth. Marine science and R&D are considered separately, though this sub sector has important linkages to other elements of the sector and forms an important under-pinning factor for the whole sector. The remaining six basic functions embrace all the significant marine activities that are undertaken within Plymouth and its hinterland. These are:

Commercial port activities

Ship repair and boat building

Marine engineering and equipment supply

Fishing

Leisure and tourism

Supporting/tertiary activities.

The next stage in the value chain expands on the basic functions to examine the value-added functions undertaken within the sector. The diagram highlights the reliance of Plymouth's marine sector on marine engineering and ship repair and boat/yacht building activities. This reliance derives from the number of jobs supported in this sector and the number and range of businesses involved. Against this backdrop, other sectors such as fishing and shipowners, do not contribute to the sector on the same scale though are still important facets of the sector. Similarly, supporting and tertiary activities are not significantly

represented in the Plymouth marine sector, though they obviously provide important services to other sub sectors.

Marine leisure is another significant contributor to the marine sector, although not on the same scale as marine engineering and ship repair and boat building. This sector includes activities related to sailing, canoeing, marine-based museums/exhibitions and moorings associated with the various yacht clubs in the area. Building on these strengths, Plymouth also has strengths in hosting international sailing events and is also strong in yacht and boat charter activity.

The penultimate column in the diagram is an extension of the value-added functions to provide a clearer description of the precise activities occurring within the marine sector in Plymouth. The most important element of the marine sector is the building of luxury/high performance yachts. Other sectors that contribute significantly within this sector include ferries and cruises, marine diving and the aforementioned marine leisure activities in the form of international sailing events and yacht and boat charter. Marine diving in particular stands out in the sector analysis with a strong concentration of diving centres/equipment centres within the Plymouth area. Ferries and cruise ships operate from Millbay, with Brittany Ferries being the main ferry operator.

The sectors that make a lesser contribution to the overall marine sector include chandlers, fish auctioneers and tertiary activities such as boat sales, insurance and marine photography, amongst others. The classification of these sub sectors does not seek in anyway to devalue their importance to the sector, but rather to make the point that relative to other components, they contribute less to the overall sector.

The final column illustrates the locations of customers for the sub sectors that form the marine sector as a whole. The smaller components of the sector tend to rely more on UK and European markets, whereas the leading sectors are oriented more towards global markets.

Figure 2 Plymouth Marine Sector

Click here to view sector map.

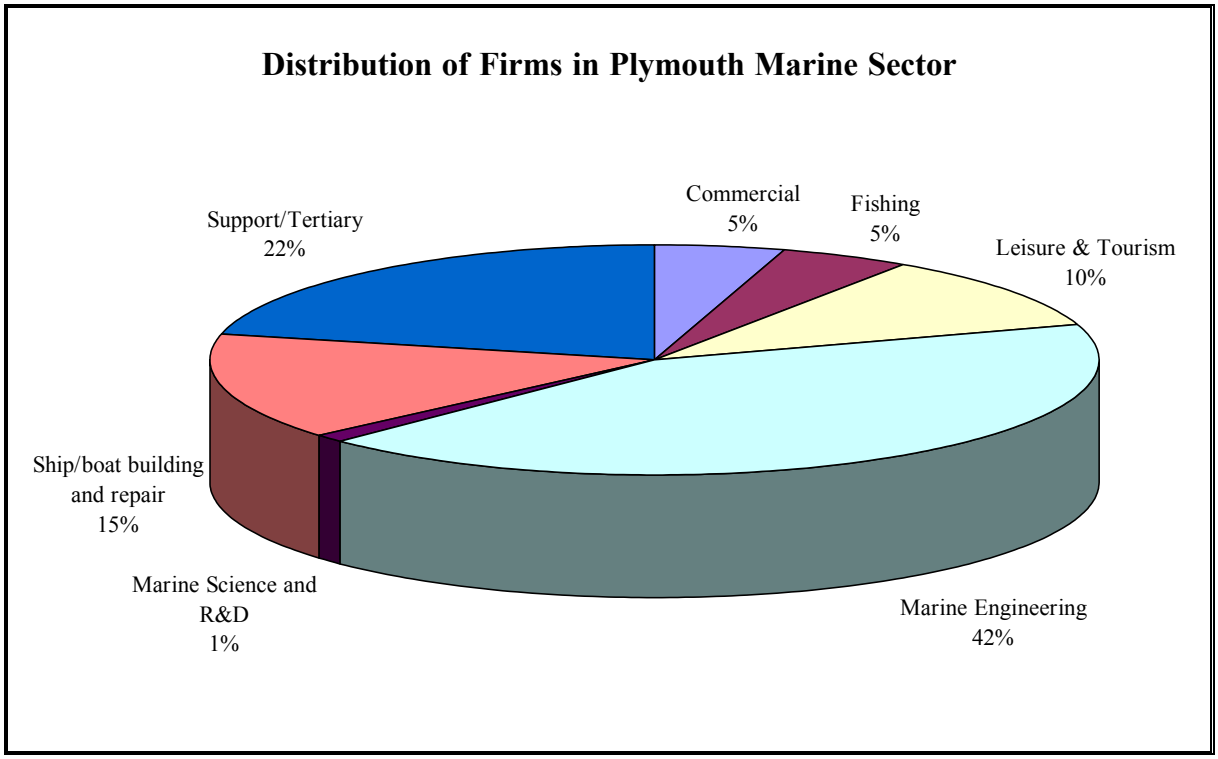
2.3 Companies in the marine sector

During the course of the study we have compiled a database of 251 companies that are active in Plymouth's marine sector. The table below summarises the distribution of these firms by type of activity:

Table 1 Firms in the Plymouth Marine Sector

Activity	Number of Firms
Commercial port activities	12
Ship repair and boat building	37
Fishing	12
Marine Engineering and Equipment	107
Marine/marine R&D	3
Leisure and Tourism	26
Supporting/tertiary activities	54
Total	251

Figure 3



Key points:

We have identified 12 companies involved in the commercial operation of the port (5% of all companies). This includes the activities of dock and terminal operators such as Associated British Ports (ABP), Cattedown Wharves Ltd, Victoria Wharf Ltd and the Sutton Harbour Company. Also included are the commercial operations of Brittany Ferries, and J Boston & Son as ship owners and operators, plus the main aggregates activities of Aggregate Industries Ltd.

A total of 37 companies (15% of all companies in the sector) have been identified in ship repair and boat building, the largest being Devonport Management Ltd and Marine Projects.

12 companies have been identified in the fishing industry (5% of the total) though the actual total is likely to be higher if the activities of individual fishermen are included, as each boat can be thought of as an separate company where they are owned by individuals. On the processing side, one of the largest companies in the fishing sector is Interfish.

The marine engineering sub-sector accounts for the largest number of companies in the sector with a total of 107 firms identified (42% of the total). The vast majority of these are small engineering firms, though there are a small number of larger firms included such as Simpson Lawrence and Cosalt International Ltd.

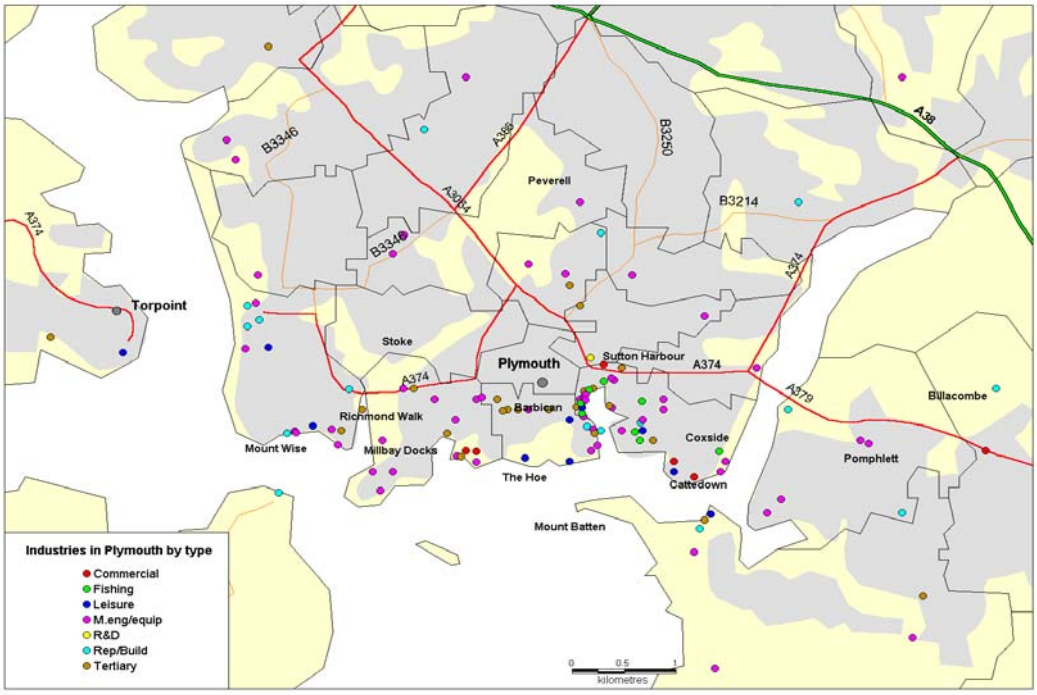
Within Plymouth strong linkages have developed between the marine sector and specialist research and educational establishments in the city. This includes the Marine Biological Association, Plymouth Marine Laboratories and the Hyperbaric Medical Centre. In addition, the University of Plymouth has a total of 28 undergraduate courses related to the marine sector plus various post-graduate research programmes.

Within the tourism and leisure sector a total of 26 firms have been identified as having particularly strong linkages to the marine sector. However this total excludes the large number of hotels, bars and restaurants in the city and its hinterland that derive some benefit from visitors to the port. The principal activities included within the 26 firms identified are the activities of the various yacht clubs and moorings in the area and a large number of marine related attractions such as the National Marine Aquarium, plus the activities of specialist service providers such as those operating boat and diving trips.

Finally, the database includes 54 companies engaged in supporting activities to the other activities identified above. This includes the activities of various freight forwarding agencies, chandlers, marine surveyors, solicitors and specialist insurance agencies.

The map below shows the distribution of companies within the Plymouth marine sector, broken down by key area of activity:

Figure 4 Plymouth marine sector by type of company



The map indicates that the principal beneficiary from marine sector activities is the city of Plymouth itself and its hinterland. Most of the businesses that make up the marine sector are located in Plymouth, the majority near the port itself.

2.4 Employment Directly Associated with the Plymouth Marine Sector

Our research indicates that approximately **13,500 full time equivalent (FTE) jobs are directly dependent on the marine sector in Plymouth and its hinterland**. This includes civilian employment associated with the Naval Base, which is largely dependent on the use of the Port of Plymouth. This number is equivalent to 12% of all employment in the study area.

Table 2 summarises these results, with estimated employment broken down into the core areas of marine activity. Key points from the analysis are as follows:

Around 700 people are employed in activities related directly to the commercial operation of the port. This largely consists of employment in freight and ferry activities, but also includes employment associated with the various port owners and terminal operators. (This estimate is derived from the 1997 Annual Employment Survey under the chosen SIC codes);

A further 5,700 people are employed in ship repair and boat building activities. The vast majority of this total is accounted for by the activities of two large firms in the area, namely

Devonport Management Limited (DML) which employs 4,200 people and Marine Projects employing 1,100. This highlights the high level of dependence on the activities of these two employers – combined they account for more than 90% of all employment in this sub sector;

Another 1,100 jobs are associated with businesses engaged in marine engineering activities, predominantly small engineering firms providing marine services and which benefit by association with the Port, and proximity to certain key customers;

Around 4,000 jobs are associated with defence activities, this is essentially composed of employment at HMS Drake – the largest naval support facility in Western Europe. This is a facility that would not be located in Plymouth were it not for the presence of the Port. Employment comprises the Naval Base itself, situated beside the Dockyard providing a range of supporting facilities for ships and submarines based at Plymouth. The Naval Base also has responsibility for fleet maintenance, including the provision of engineering support services. HMS Drake also runs the Operational Sea Training Programme, essentially involving the training of naval personnel.

An estimated 300 jobs are associated with the fishing industry in Plymouth, around half of which are in fish processing. Key players include Interfish, which alone employs around 90 people. However, this figure may underestimate the true number of jobs in this sector as this is an industry characterised by high levels of self-employment amongst fishermen.

We have estimated that in the region of 1,300 tourism and leisure jobs in the study area are marine related or marine supported. This comprises employment in a range of different activities that include accommodation providers, restaurants and bars, museums and other visitor attractions. In addition to this, there are a number of special events that attract visitors to Plymouth so generating additional income for the city. These include the Plymouth Marine Festival, the Single Handed and Two Handed Transatlantic Yacht Races as well as the conclusion of the Fastnet race. The Royal Western Yacht Club has estimated that the Transatlantic Race alone generates £3 million to the local economy every fourth year.

We estimate that a further 150 people are employed in marine science and research activities at the University Institute of Maritime Studies, Plymouth Marine Laboratory and the Diving Diseases Research Centre. In addition, approximately 1500 students are currently enrolled in marine related courses in the area.

Finally, we estimate that there are a further 200 jobs supported by the marine sector in a range of supporting and tertiary activities such as shipping and forwarding agencies, marine surveyors, solicitors, insurance agencies and the like.

Figure 5

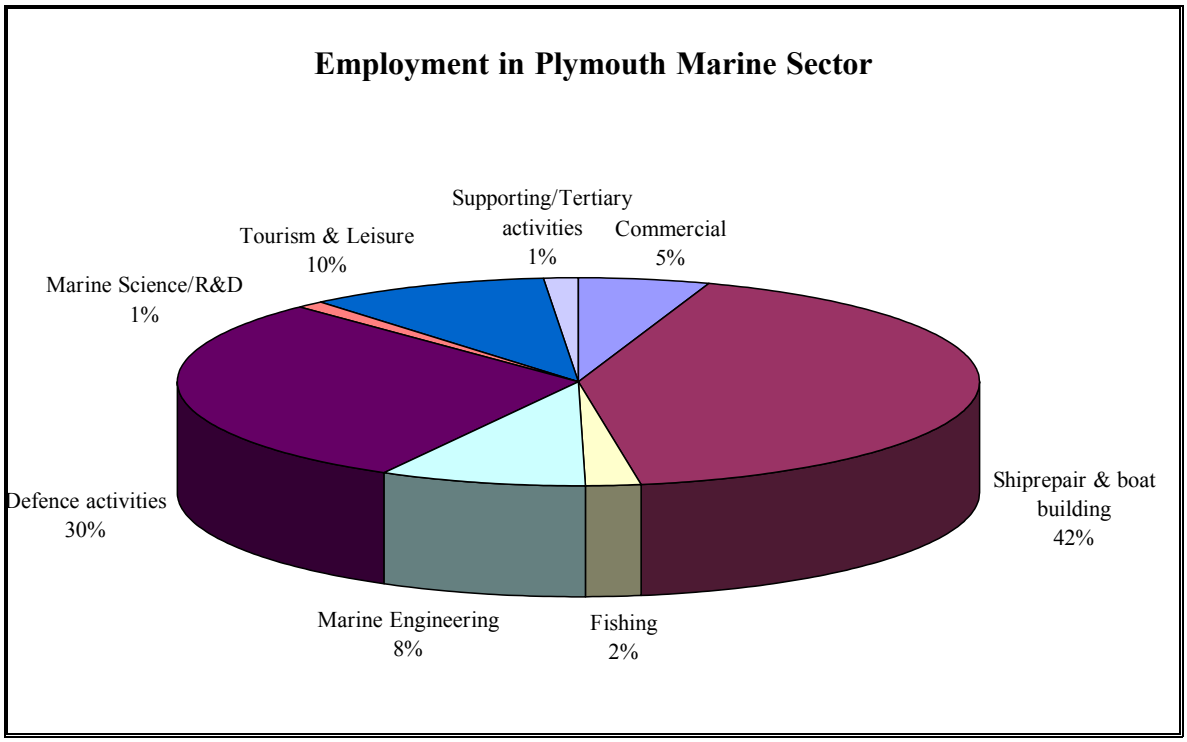


Table 2 Employment Associated with Marine Activities in Plymouth

	Employment	%
Commercial	700	5
Ship Repair and Boat building	5,700	42
Marine Engineering & Equipment	1,100	8
Fishing	300	2
Defence	4,000	30
Marine science and R&D	150	1
Tourism and Leisure	1,300	10
Support/Tertiary	200	2
TOTAL	**13,450**	**100**
Source: DTZ Pieda Consulting (based on data from the 1998 Annual Employment Survey © Crown Copyright)		

2.5 Indirect and Induced Employment

Where employers that are dependent on the marine sector purchase goods and services from other companies based in the local area, that expenditure will help sustain employment in supplier companies. Employment sustained in this way is referred to as an indirect employment effect of the sector. Similar effects, known as induced employment effects, arise from expenditure on goods and services within the local area by those employed in companies dependent on the marine sector (i.e. expenditure by those directly and indirectly employed in the sector).

The number of jobs in Plymouth and its hinterland sustained through indirect and induced employment effects has been calculated using a local employment multiplier. We have used a multiplier of 1.2 - i.e. for every 10 people employed in Port dependent activities, a further 2 jobs in the local area are created through indirect and induced expenditure. This multiplier is consistent with that we have used in previous studies of this kind and also consistent with that used in other recent studies of the port[1].

Overall, given a total of 13,500 people employed in marine sector, there will be around 2,700 indirect and induced jobs supported in Plymouth and its hinterland.

[1] For example, see 'The Impact of a Port on Its Local Economy: the case of Plymouth', P. Gripaios and R. Gripaios, 1995

3 SWOT ANALYSIS

3.1 Introduction

This section examines key issues that need to be addressed to foster the development of the marine sector in Plymouth. These are divided into strengths, weaknesses, opportunities and threats for each of the industry sub sectors under consideration. From this a number of key points and common factors become apparent and are summarised in Section 3.3.

The sub sectors included in the analysis are:

- Commercial port activities;
- Marine technologies, ship repair and boat building;
- Fishing;
- Tourism and leisure; and
- Marine science R&D

The SWOT analysis for each sub sector has been distilled from the various research completed to date, including interviews and discussions held with various companies and organisations in Plymouth, and also drawn from previous related work carried out by the consultants for SWRDA and other organisations. Much of the basis for these conclusions can be found in the Working Papers for each sub sector, which are included in the Appendix.

3.2 Sub sector analysis

Strengths	Weaknesses	Opportunities
Commercial port activities:		
General: • Sheltered harbour, few tidal restrictions • Relatively deep water compared with other regional ports • MoD supported conservancy functions • Relatively good road access to hinterland • Presence of a variety port operators increases overall port competitiveness Bulk: • Dominant position in regional liquid bulk sector Roro: • Modern ro-ro terminal Cruise: • Willing support of City authorities Other: • Tiered system of management of the Tamar Estuary through the recently formed TECF is considered to be setting an example of best practice in the UK and Europe	General: • Alongside depth limitations in Cattewater constrain port to small ship, coastal/short sea trades • Poor/underdeveloped rail links to working port areas Bulk: • Lack of suitable waterside space in Cattewater for expansion of bulk handling activities, including water frontage, storage and backup areas • Lack of storage a limiting factor on cargo handling rates Roro: • Ro-ro berths under-utilised, dominant position of Brittany Ferries a deterrent to other users • Lack of local cargo base and underdeveloped unaccompanied trailer traffic within the region not conducive to new ro-ro service development Cruise: • major cruise terminals at So'ton and Dover compete for cruise business • Alongside water depths prevent berthing of larger cruise ships, not conducive to home porting • naval restrictions on anchoring in Sound	General: • Medium to long term EU and national transport policies which place the emphasis on sustainability and "user pays principle" may favour the development of coastal/shortsea shipping (SSS) • Potential funding for combined transport services, including SSS unit load services • Potential availability of Freight Facilities Grants for coastal/SSS projects • DETR policy on Trust Ports including guidelines on good governance and requirement for annual strategy document and business plans implies greater cooperation between harbour authorities, port operators and users

Strengths	Weaknesses	Opportunities
Marine technologies, ship repair and boat building:		
• Presence of high profile companies (DML, Marine Projects) currently undergoing expansion • Major employers have well established in-house training programmes • Skilled labour force and good availability of local labour • Above average wages available for skilled workers • Highly motivated and well trained staff • Positive impact on local skill base through provision of in-house training programmes by larger companies	• Subject to wider negative industry trends including a depressed shipbuilding sector and competition from overseas • Weak local supply base and intense competition • Lack of suitable waterside sites • Space constraints at existing facilities limiting efficiency in some cases • Quality of training available at selected local educational institutions • Poor international airport connections hindering access/development of overseas markets	• Development of opportunities in offshore industry and use of new materials and technology • Globalisation of the market place • Increasing demand for higher quality and specialisation • Potential availability of sites in Millbay Docks • Expansion plans of key companies (Marine Projects)
Devonport: • Largest Dockyard in Europe - fundamental infrastructure in place • Government funded investment in	Devonport: • Over reliance on government defence spending • No large dry dock facility	Devonport: • DML diversification plans into commercial sector • Positive developments at DML

new infrastructure underway		have significant local economic impact • Strategic Defence Review favourable to Devonport providing job security in naval base, but requiring Dockyard restructuring

Strengths	**Weaknesses**	**Opportunities**
Fishing:		
• Diversity of fishing stock (80 available species) in local fishing grounds compares favourably with the region and UK in general • Strong prevailing market prices • Well developed export market • Availability of modern handling/processing and auctioning facilities • Centralisation of activities in Sutton Harbour aids efficiency	• Under developed UK market • Capacity constraints at existing facilities in Sutton Harbour • Local price premium on marine fuel oil affects margins • Peripherality to markets • Burden of legislation	• Development of UK market • Business development potential of electronic auctioning • Landside aspects of the industry (processing, auctioning) are not harbour bound, therefore development in out-of-city locations or industrial estates is a possibility • Developing local market niches
Tourism & Leisure:		
• Established tourist destination offering a range of visitor attractions, both natural and built assets • Recent addition of quality new attractions including the National Marine Aquarium, Sutton Harbour, Mountbatten Centre • A "marine" heritage and USP • A well developed special events calendar • Reasonable supporting transport infrastructure • An active working harbour is a tourist "pull" • Naval facilities provide an additional tourist attraction	• Lack of an overall tourism "strategy" leading to a piecemeal approach by disparate organisations • A middle market destination, possibly lacking in high end appeal • No "5 star" hotel accommodation locally • Natural assets not sufficiently exploited – waterfront • Seasonality aspects • Poor traffic management • Poor signage to attractions • Landing facilities for cruise passengers require improvement • Parking restrictions	• Coordination between responsible parties (development authorities, attractions, tour operators) • Revival of cruise tourism sector • Potential for development of new attractions and augmentation of existing attractions (Sutton Harbour cable car, waterbus concept, development of Mountbatten Centre as a centre of excellence for sailing/special tuition for disabled people)

Strengths	**Weaknesses**	**Opportunities**
Marine science and R&D:		
• Worldwide reputation of Plymouth R&D institutions for high level "blue sky" scientific research PML: • Fundamental financial support provided by government supported research programmes • Highly motivated and well trained staff • Well resourced laboratories and equipment University: • Wide variety of University courses on offer and innovative new courses under development • 70% of undergraduate students are from UK • Locational advantages in Plymouth in terms of nearby siting of scientific test areas • Strong in technological resources • Strong links with industry	PML: • Over dependence on single source funding • PML existing site is congested and constrains development of commercial initiatives • Low staff turnover hinders entry and development and progression of "new blood" • Lack of business experience and acumen may hinder pursuit of commercial initiatives University: • Majority of University post-graduates are overseas students, therefore acquired knowledge is exported • Poor retention of non-engineering students in Plymouth (e.g. marine business/law)	• Centres of Marine Excellence being established as part of the Marine South West initiative PML: • In relevant areas of research (e.g. climate change) NERC reorganisation provides opportunity and incentive to expand commercial activities • Possibility of new forms of funding (e.g. ERDF) for which PML previously not eligible • New public initiatives • Revitalisation of "Green agenda" and "Green Peninsula" perception of the SW region • PML development plans including proposals for reorganisation and commercialisation University: • New course development in 2000/01 (e.g. nautical studies, surf science)

3.3 Common factors

Certain common themes and factors can be identified that affect some or each of the sub sectors under review to a greater or lesser degree. The objective of the SWOT analysis is to provide an indication of the issues uncovered by our research and which may be used to inform the process of developing a strategy for the marine sector in Plymouth via approaches that may yield cross-sector benefits.

Strengths:

- The South West Region, and Devon in particular, has an established tradition and economic specialisation in the marine sector that provides a strong foundation for the expansion of related activity.
- A number of key companies and institutions in Plymouth, such as DML, Marine Projects, PML and the Institute of Marine Studies, have a high profile or status within their related sub sector that consolidates the actual and perceived strong marine tradition and profile of the area.
- There is a strong engineering skills base within the local population built on the marine heritage of the area and particularly a direct result of the presence of the Devonport complex. DML along with some other Plymouth based companies are important skills training providers.

Weaknesses:

- An overriding weakness appears to be the fragmentation of companies involved in the various sub sectors and a lack of an overall vision or strategy for that sector. This is as true for tourism and leisure as it is for the commercial port, where there are number of parties involved that are generally committed to achieving something positive, but with little cooperation or coordination between them to maximise the effectiveness of their actions. This clearly has implications for how future partnerships are structured.
- Over 50% of jobs in the marine sector are very largely (and most entirely) defence-dependent , which is considered a serious weakness and also threat to the sub regional economy
- In a number of areas, notably ship repair and marine R&D, there is an over dependence on a single customer, i.e. the government, which exposes the companies involved to possible spending cuts in these areas. The relevant companies are responding through diversification programmes, but so far these are progressing slowly and need to be developed as a matter of urgency.
- The Devonport Naval Base and Dockyard complex has been shown to have a major economic impact on Plymouth where previous studies have suggested that it is responsible for approximately 10% of all workforce jobs and local income. The complex currently employs over 4,000 people. Future changes in the way the complex, in particular the Royal Dockyard and DML, conducts its business will have major knock-on effects within the local and regional economy.

- A shortage of available waterside sites is restricting development potential in a number of areas.
- Despite the traditional skills base referred to above, various surveys of the sector have indicated the existence of skills shortages in certain areas.

Opportunities:

- In general our consultations revealed a desire for better organisation within the sector and encouragement of networking between firms with related interests. To be effective, such actions need to be industry led, with support from other organisations such as SWRDA, Plymouth City Council, National Training Organisations and Industry Associations. Certain initiatives are already underway in this respect, such as the creation of Marine Southwest Task Force, which is supported by SWRDA, South West Tourism, Prosper (Devon and Cornwall TEC), Dorset TEC and the BMIF. The Plymouth based industry needs to establish how it will respond to and participate in this initiative in order to maximise the potential benefit to Plymouth, whether it is best handled on a sub sector basis or whether there are some areas in which the Plymouth marine sector as a whole can be represented. This may be an early agenda item to be addressed by the Marine Plymouth Group.
- Despite the overall shortage of available land, particularly at the waterfront, there are nevertheless areas that still retain development potential and may have been overlooked. However, these represent small pockets of land rather than major sites.

Threats:

- Clearly a threat that is common to a number of sectors is lack of land space in general in the city for businesses looking to expand and lack of waterside sites in particular for businesses where access to the waterfront is important. When available sites do come up there is generally pressure from a number of potential users and waterfront land prices are rising beyond the grasp of local firms. The imminent redevelopment of waterside sites in Millbay and the Cattewater, where alternative development proposals have developed a degree of momentum, and the potential allocation of these for marine sector use, needs to be addressed as a matter of urgency.
- Several sectors are threatened by lack of or changing government funding support.
- Wider policy developments at national and EU level may not be supportive of public sector funding for certain types of infrastructure development.
- Other ports in the South West have similar development aspirations to those of Plymouth, therefore the need for wider industry cooperation and coordination across the region is indicated.

4 POLICY REVIEW

4.1 Introduction

The development of a strategy for the marine sector in Plymouth needs to take into account the local impact of various local, regional, national and European policies and planning frameworks. This section provides a review of relevant aspects of policies relating to transport, fishing and tourism as these affect the marine sector in Devon and Plymouth in particular. The review takes into consideration:

- European policies
- Central government policies
- Regional and local policies

The reason that the marine sector development strategy needs to be seen in the context of transport policies at European and national levels is that much of the public sector funding that may be available for port and harbour projects in Devon will come from these sources. The funding available for infrastructure financing will inevitably be limited and only the highest quality proposals are likely to be accepted. It will therefore be important that any proposals for transport infrastructure projects are sympathetic to the policies of the bodies that will evaluate their suitability for funding. Regional and local land use and transport policies provide the context for planning decisions by the relevant authorities.

4.2 Transport policy context

4.2.1 European policies and programmes

Common Transport Policy and main roles

The fundamental objective of the EU's Common Transport Policy (CTP) is to foster a transport network and markets that will support the completion and enhancement of the functioning of the Single Market. This requires affordable, safe, and efficient transport infrastructure that is compatible with environmental realities.

In the context of this study, the European Union has two main roles:

- European legislation provides statutory backing for the existence of the Transport Trans-European Network (TEN-T).
- Some funding for transport infrastructure and feasibility studies is available, as well as for relevant R&D and pilot projects. Funding for port infrastructure, however, is limited unless ERDF funding is also available.

Transport Trans-European Network (TEN-T)

The objective of the Transport Trans-European Network (TEN-T) is to integrate land, sea and air transport infrastructure networks throughout the European Union. Infrastructure in this case includes traffic management systems and navigational systems, as well as "hard" infrastructure such as roads, railways and port infrastructure.

The TEN-T was formally created in 1996 and the TEN-T Guidelines, which made the TEN-T a legislative reality, include maps showing selected infrastructure links of "European significance". The TEN-T includes road infrastructure, railway infrastructure, inland waterways, airports and combined transport links. There are at present no ports or intermodal terminals on the network.

There is a limited amount of funding available from the European Commission to support the TEN-T financially. In 1996 some 75% of the funding was allocated to fourteen "Priority Projects". In the UK, the following projects have benefited from this funding as a Priority Project:

- The Channel Tunnel Rail Link, as part of the Paris-Brussels-Cologne-Amsterdam-London high-speed train corridor.
- The Cork-Dublin-Belfast-Larne-Stranraer conventional rail corridor.
- The Ireland-United Kingdom-Benelux road link (via Merseyside/North Wales, the Pennines and the Humber ports)
- The West Coast Main Line from London to the West Midlands, North West England and Scotland.

The south west of England has not therefore benefited significantly from TEN-T funding.

TEN-T Road Network

In the UK roads are categorised as "existing" routes and "planned" routes. The "existing" routes are usually motorways or trunk roads that are complete and do not require additional investment. The "planned" roads are usually existing trunk roads that require substantial additional investment.

The A38 from Exeter to Plymouth is shown as a "planned route", but there is no extension of the TEN-T road network into Cornwall.

TEN-T Rail Network

Railway lines are categorised as either high speed or conventional lines. The only high speed lines on the network in the UK are the Channel Tunnel Rail Link, the East Coast Main Line, the West Coast Main Line and the Great Western Main Line from London to Bristol and South Wales. The Bristol-Exeter-Plymouth-Penzance section is on the TEN-T, but only as a conventional line.

Combined Transport Network

This network includes both railways, which are suitable for the long distance carriage of containers on intermodal trains. The combined transport TEN-T in the south west only links Bristol to South Wales and London.

Ports in the TEN-T

Contrary to the statement made in the draft RPG for the SW, there are no 'TEN-Ports', only ports that are located on existing road and rail TEN-T networks. This means that, for marketing purposes only, Plymouth could claim to be "on the TEN-T" because it is rail-connected and is immediately adjacent to the Great Western Main Line. However, this would not reflect the legal reality.

At present TEN-T funds are available for feasibility studies at any port in the European Union, as shown below.

FUNDING SOURCE:	**TRANS-EUROPEAN NETWORK**
Source:	Directorate-General TREN of the European Commission
Funding for:	Currently funding available for feasibility studies related to port infrastructure at any port in the European Union
Main criteria:	- Infrastructure projects only - Preference for studies on rail links - Preference for ports which are located on existing road or rail TEN-T link
Amount of funding:	Currently 50% of cost of feasibility studies
Comments:	Whole TEN-T is being revised and should include selection of ports. Likely that only selected ports will have access to future funds.

The European Commission has been criticised for not including seaports in the TEN-T in 1996. It has subsequently produced a proposal to include a large number of ports in the TEN-T, based largely on objective traffic volume criteria. The proposal has been agreed with the Member States, but not the European Parliament which wants a greater degree of selection, thereby reducing the number of ports in the network. At the moment progress to include seaports in the TEN-T is stalled.

The significance of legal inclusion of ports within the TEN-T is two-fold:

- It improves the prospects of obtaining funding from the TEN-T budget line and, more significantly, from ERDF.

- Being a "port of European significance" may be a useful marketing tool

Apart from the seaports proposal, the Commission is currently carrying out a review of the TEN-T. This has been delayed, but is planned for the end of 2000 and will lead a legal revision of the Guidelines. The revision of the Guidelines is likely to concentrate on bottlenecks and how to alleviate them and on creating a more multi-modal network. The Guidelines are therefore likely to be amended to take into account nodes such as ports and intermodal terminals.

User pays principle

In 1998 the European Commission produced a White Paper entitled *Fair Payment for Infrastructure Use: a phased approach to a common transport infrastructure charging framework in the EU*, which developed a rationale and strategy for charging all transport infrastructure according to the user pays principle.

The Commission argued that there is no consistency in the way users are charged for the different transport modes, with very little attention being paid to the environmental and other external costs of transport. The aim of such a policy would be to ensure that users pay for the full costs of using the transport infrastructure at, or as close as possible to, the point of use. This would mean that economic resources would be allocated more efficiently, taking into account the costs of congestion and pollution, because transport users would be able to make the appropriate modal choice based on full information. This is expected to mean that road users (both cars and HGVs) should be paying higher charges for their use of the road network due to the environmental pollution and congestion they cause. If such a policy was ever introduced, perhaps based on electronic tagging, it could radically improve the economics of rail and coastal/shortsea shipping.

However, such an initiative would be politically very sensitive and the Commission has suggested that it would have to be phased in gradually to give transport users and providers time to adjust.

Very slow progress has been made on this issue due to the political consequences of such a controversial measure. The Commission's arguments in support of the user pays principle have been accepted by the Member States, but practical implementation remains a medium to long term objective.

In the medium to long term it is quite possible that European legislation will phase in road pricing, particularly as national governments accept the arguments, but would prefer to be able to blame "Brussels" for its implementation. Road pricing plus increasing congestion on many parts of the UK road (and rail) networks could provide a major opportunity for coastal and short sea shipping and therefore a potential opportunity for the medium to long term development of the Port of Plymouth.

Ports policy

In 1998 the European Commission published its *Green Paper on Sea Ports and Marine Infrastructure*, which presented the views of the Commission on European ports policy generally and in particular on how free and fair competition should be ensured in the ports market.

The key conclusions were as follows:

- Ports should be fully integrated into the TEN-T, in particular to ensure links to the more peripheral areas of the EC and to encourage short sea shipping.

- The ports have an important role to play in the door-to-door transport chain and therefore need to be developed as intermodal nodes for freight. The streamlining of procedures in ports should be pursued to improve the efficiency of short sea shipping.

- There is strong competition between ports in Europe and in order to ensure that there is free and fair competition in the port sector, port infrastructure should be priced so that users bear the full cost of its provision. Such a policy will have to be integrated into an overall policy of making all users of transport infrastructure pay for their full costs. A corollary of this approach is that there should be more transparency concerning the amount of public subsidy that is provided to ports.

- There should be a fully liberalised market for port services such as stevedoring and pilotage throughout the EC.

Many of these provisions, if ever implemented, would not apply in the UK because most ports are self-financing and there is very little public investment in port infrastructure.

The Green Paper was welcomed in some Member States (e.g. Britain) but was condemned in others such as France. The Commission has therefore proceeded cautiously and in early 2001 introduced a first proposal on the liberalisation of port services and a proposal on state aids in port financing. Many of these provisions, if ever implemented, would not apply in the UK because most ports are self-financing and there is very little public investment in port infrastructure. Any legislation as a result of the Green Paper is unlikely to have much impact on ports in the South West region.

Short sea shipping policy

The EC has pursued a policy of encouraging short sea shipping (SSS) as an environmentally friendly and safe mode of transport, particularly when compared to road transport; in addition SSS is seen as strengthening the cohesion of the EC as it provides connections between the core of the Community and peripheral regions and outlying islands.
Generally the EC has tried to raise the profile of the SSS industry, but has lacked the resources to make a significant impact. Funding has been made available for some feasibility work, for a few pilot routes and for R&D work. The Commission has also encouraged Members States to establish

"roundtables" of industry experts and practitioners, but these have been perceived as being "talking shops" by many in the shipping and ports industries.

The EC may, at last, be moving towards a more active role in promoting SSS as the Council of Ministers agreed in 1999 to examine the possibility of earmarking more existing EC financial resources for the mode. Any such funding would be justified on the grounds that road users are not paying the full economic costs of infrastructure use. At the moment, however, the main source of funding for short sea shipping (for unit load traffic only) is the Pilot Actions for Combined Transport (PACT) Programme. Details are provided below.

FUNDING SOURCE:	**PILOT ACTIONS FOR COMBINED TRANSPORT**
Source:	Directorate-General TREN of the European Commission
Funding for:	Feasibility studies and (preferably) short term (max 3 years) operating subsidies for combined transport services, including short sea shipping unit load services.
Main criteria:	- International combined transport service - Highly innovative technically or commercially - Saving lorry miles - Funding required to make service viable in short term, but viable after 3 years
Comments:	Only a small budget, so highly competitive; may be worth considering for innovative international combined transport projects, particularly if European recognition is important; last year for applications is 2001 in present programme; programme currently under review, but new scheme, perhaps with increased funding, is likely.

In theory at least, it is possible that an SSS initiative operating out of Plymouth would qualify for funding under the PACT scheme. An investigation of the feasibility of establishing a ferry service between Plymouth and Bilbao (the EMMA Project) has been undertaken previously by the former Plymouth Port Development Group. The economic argument for establishing a fast ferry service to Bilbao is also included in Working Paper 1 in the Appendix to this report.

4.2.2 Central Government Transport Policy

1998 Transport White Paper

The Government's 1998 Transport White Paper entitled *A New Deal for Transport* was an important framework document that has guided subsequent public sector transport policy. It set out the Government's policy of promoting integrated transport and has been followed by more detailed "Daughter White Papers" for individual transport modes and for Scotland, Wales and Northern Ireland.

The White Paper represented a significant change in the philosophy of Central Government towards transport policy. There was an emphasis on pragmatic intervention in the operation of markets by means of economic regulation, fiscal instruments, public sector grants and new planning regulations, to pursue public policy objectives. The most important of these objectives was to reduce road congestion and environmental pollution. There was a new emphasis on planning at local, regional and national levels, which is more in tune with public sector philosophies on the Continent. Overall, the policies proposed in the document were consistent with key European Union transport policies to promote sustainable transport.

Ports policy

The 1998 White Paper was not particularly clear on the future of ports policy in the UK, which had previously adopted a "hands off" approach. There was recognition that ports are a vital part of an integrated multi-modal transport network for freight and passengers. There were hints that, as with road infrastructure, there would be an emphasis on making efficient use of existing infrastructure rather than expansion in port infrastructure. There were also references to the promotion of best environmental standards in the design and operation of ports, including where new development is justified.

In an important section on the future potential of UK ports, the White Paper mentioned that road mileage can be reduced by routeing ships to the nearest port to its cargo's origin/destination, which demonstrates that the Government recognises the potential role of "regional ports" in counties such as Devon.

Trust Ports

The previous Conservative administration had used the Ports Act 1991 to compel the sale of trust ports that had a turnover above £5 million. Both Dover and the Port of Tyne were threatened with compulsory sale before the 1997 General Election. Soon after the election the Labour Government decided that there would be no further compulsory sales of trust ports, but a review of them was undertaken in 1998. The review examined issues of accountability, operations and relevant legislation reaching the following main conclusions:

- The DETR should set national standards to ensure that trust port boards are fully accountable and are able to fulfil their wider economic and transport role.

- All larger trust ports should prepare and publish business plans.

- There was no difference in customer perception between levels of service provided by trust ports as opposed to private ports. In other words there is perceived to be a level playing field between trust and private ports.

- Corporate accountability of trust ports should be improved.

Following this review the DETR Ports Division produced *Modernising Trust Ports: A Guide to Good Governance*, which provides detailed guidance on corporate governance for trust ports. It sets out how trust port board members should be appointed, the qualities and qualifications the members should possess, explains the members' role, provides guidance on probity and remuneration issues. It provides some guidance in general terms on how trust ports should be managed and on establishing consultation groups so that accountability with the local community is improved. It states that all trust ports should publish their annual report and accounts and those with a turnover of over £100,000 should supplement this with an annual strategy document. There should be greater transparency and fairness in the levying of port charges from port users.

The Cattewater Harbour Commission is fully aware of its duties and obligations under the new guidelines and is responding to these.

Shipping Policy

The Government's shipping policy is set out in its Daughter White Paper entitled *British Shipping: Charting a New Course*. The document proposed a more interventionist policy on the part of Government in order to secure the future of UK shipping, based on 33 inter-related measures. The majority of the measures were designed to promote employment of British seafarers and to promote the UK shipping registers, but a few measures were relevant to the potential impact of ports and shipping in encouraging the modal shift from roads and other spatial issues.

In the opinion of the Government, short sea and coastal shipping could be encouraged by:

- Better marketing and promotion of short sea shipping

- Better communication between the various SSS providers

- Logistical and technical innovation

- Research and development programmes to investigate the potential contribution of new shipping designs and technologies

- Better intermodal (i.e. rail) connections from ports

- Innovation and efficiency improvements to reduce handling

- Use of high speed technology on longer freight routes

In line with European Transport policy, the White Paper recognises that shipping suffers a cost penalty against road transport in that road hauliers are not paying the full cost of the use of the road network. The increases in VED and fuel tax levies are intended to reduce the cost differential.

Perhaps controversially, the Daughter Paper suggests that port costs can account for up to 80% of the total door-to-door costs in a transport chain including a short sea leg, although the cost can be lower where there are economies of scale at so-called "gateway" ports. It argues therefore that increases in efficiency and reductions in port charges would increase the competitiveness of the short sea shipping mode. It therefore concludes that the Government will collaborate with industry in joint case studies in streamlining port handling in any ports that are willing actively to seek short sea and coastal shipping business.

The Daughter Paper recognises that that there are clear environmental benefits from siting manufacturing industry and distribution facilities near docks or ports and therefore the Government agreed to consult on the revision of planning guidance to encourage more freight to be carried by rail and water and to give better protection to sites and routes which could be critical in developing freight infrastructure, including facilities for waterborne freight.

Overall, the Government's shipping policy is encouraging for regional ports that have aspirations to encourage SSS services as it recognises the potential of the mode. The White Paper also stated that the Freight Facilities Grant scheme would be extended from rail and inland waterways to include coastal and short sea shipping.

Transport Action Plan

The Transport 2010 plan, produced during the summer of 2000, provides a long-term strategy for delivering a more efficient, safer and more environmentally friendly transport system. To a great extent it was a re-packaging of previous measures, but it also provided more resources for infrastructure investment. Ports did not have a high profile in the Plan, which concentrated on rail and road investment. However, there is a reference to the significance of "strategic gateway ports" which are viewed as being important for international trade. According to the plan, some expansion of the trunk road network may be needed, but there should be a greater emphasis on new and improved rail access to these ports. It is believed that these "gateway" ports are the deep sea container ports (Felixstowe, Thamesport, Southampton and Tilbury) and the major ferry ports, such as Dover and Portsmouth. Bristol may also be a beneficiary.

Transport Act

The recently passed Transport Act 2000 concentrates on aviation and local transport issues, as well as providing full legal status for the SRA (see below).

The only measure of direct significance for ports is the provision of grant assistance for short sea and coastal shipping. The exact administrative rules for such a scheme have not yet been drawn up, but

are likely to be based on securing environmental benefits by removing lorries from the road network. Further details are provided below.

Funding source:	**FREIGHT FACILITIES GRANT FOR COASTAL AND SHORT SEA SHIPPING**
Source:	DETR
Funding for:	To be clarified, but could be capital grants towards port infrastructure, handling equipment and even for ships; also possible that some form of operational subsidy will be available; both unit load and bulk traffics could be eligible
Main criteria:	To be clarified, but could be: • Calculation of environmental benefits from removal of lorries from road network • 'Strategic' importance of scheme • -Need for grant, in terms of improving short sea shipping economics
Comments:	Could be a significant source of funding for coastal/short sea shipping; exact criteria not yet known.

Conclusions

UK transport policy has moved on during the current Parliament, with an intention on the part of the Government to be much more interventionist where it is pragmatic to be so. Policies are very largely in tune with European transport policy.

Ports policy has been more cautious, perhaps acknowledging the major role of the private sector in the UK ports industry. There is recognition of the role of ports in the multimodal transport chain and as a necessary part of an integrated transport policy. The DETR has therefore accepted that there is a case for improving hinterland access to ports, if only to the larger ports. The government has recognised the role of ports in fostering short sea shipping and reducing lorry mileages, although little has been done in a practical sense.

The DETR has intervened most strongly in respect of trust ports, which have been subjected to close scrutiny. In the future, they will be much more closely monitored in terms of accountability to stakeholders, in operational activities, commercial approach and financial strength.

The most practical measure has been the inclusion in the Transport Act of provision for grants being made to assist short sea and coastal shipping. The exact administrative rules are not yet known, but they are likely to be based on environmental criteria and should closely follow the approach taken by the SRA.

There is also likely to be a strong emphasis in the future on protecting environmentally sensitive coastal/marine sites and a strong presumption against new infrastructure unless it can be shown to be essential.

The recently produced ports policy White Paper *'Modern Ports'* provides guidance on a number of these issues.

Policy on hinterland infrastructure

Roads

The Roads White Paper put forward a radically new approach to national roads policy, with priority being given to the maintenance and management of existing roads before building new ones. The emphasis in the future will therefore be on improving road maintenance, investing in network control and traffic management measures and in minor improvements. Only carefully targeted improvements to address existing congestion on the network will be promoted.

Investment will therefore be concentrated on improving the maintenance of trunk roads and making better use of existing roads through network control, traffic management measures, safety improvements and tackling some of the most serious and pressing problems through a more limited programme of road infrastructure improvements.

Investment decisions will be based on the five criteria of accessibility, safety, economy, environment and integration. There would be a "strong presumption" against schemes that could damage environmentally sensitive sites.

As a result of the Government's review of trunk roads in England, the Government decided to fund only 37 schemes, costing £1.4 billion (compared to £6 billion of expenditure inherited from the previous Government) and 36 projects were removed from the Programme.

The Government has subsequently commissioned multi-modal studies from consultants, that are designed to consider the most urgent transport problems, taking into account the objectives of the Government's integrated transport policy. The road schemes have been categorised as:

- Schemes in targeted programme of improvements
- Schemes to be considered as part of multi-modal studies
- Schemes withdrawn from the National Programme

In Cornwall the A30 Bodmin-Indian Queens Improvement scheme has been retained within the targeted programme of improvements. Other schemes have been included for consideration within the London to South West and South Wales multi-modal corridor study encompassing the M4/M5/A303/A30/A38 and parallel rail routes from the south east to Penzance. The objective of this study is to examine the scope for reducing congestion by better management and modal shift, as well as options for taking forward focused improvements, particularly on the A303.

Rail

DETR Policy

The present Government has concentrated on trying to improve the existing privatised industry structure, so that it can pursue its own policy objectives and John Prescott has, to some extent, staked his political reputation on improvements.

The overall strategic objective of the DETR is to increase the use of the railway by passengers and freight, to provide new capacity to meet demand and to improve the quality of the service to customers. These policies are intended to make the rail mode a more attractive option and to secure a modal shift from road transport in order to provide environmental benefits and reduce congestion.

The DETR has therefore retained strategic policy responsibility for the railways and is able to exert its influence by:

- Deciding how much funding should be made available to the SRA to fund new infrastructure
- Exerting political influence on the Rail Regulator and the SRA

The DETR was also responsible for drafting the Transport Bill, now the Transport Act 2000. This formally established the SRA, which had been operating only in 'shadow' form.

Strategic Rail Authority

The SRA, which had been operating in shadow form since July 1999, acquired full legal status in early 2001 after the passing of the Transport Act. The Act places a duty upon the SRA to:

- Promote the use of the railway network for the carriage of passengers and goods
- Secure the development of the railway
- Contribute to the development of an integrated system of transport of passengers and freight

The SRA works to directions and guidance from the DETR and is therefore subject to political influence.

The SRA will primarily be responsible for a more strategic focus for the development of the passenger and freight railways and published its Strategic Plan in early 2001. It also took over responsibility for freight grants in England and Wales.

The SRA has significant resources available to it. It will have responsibility for a Rail Modernisation Fund that will provide some £7 billion over the period 2000-10 for infrastructure improvements.

The Freight Facilities Grant scheme will be subject to some change over the next few months having become the responsibility of the SRA in the New Year. As the Freight Director of the SRA has significant experience of the FFG scheme, it is possible that the administrative rules will change to some extent in the future. A consultation document was produced asking for views on how the rail freight grants can be used more effectively to deliver the policies set out in the DETR's 10 Year Transport Plan. The consultation document put forward some fairly radical suggestions. For example, it asked how a common approach to evaluating both passenger and freight schemes could be developed, and whether a more strategic approach to the provision of grants would be appropriate.

The new organisation's rail freight team published its Freight Strategy in March 2001 for incorporation within the strategy for the railway as a whole. It includes details of the proposed new Company Neutral Grant Scheme, which will effectively replace Track Access Grant and part of the Freight Facilities Grant Scheme. Grants for terminals will probably be made on a gap funding basis ***if*** SRA think terminals are strategically justified.

The SRA will be the key body for ports in the South West seeking new or improved rail connections, as it will be the main provider of funding to projects. Railtrack generally argues that rail freight connections do not provide an adequate return, without public sector support.

4.2.3 Regional and Local Policies

Regional Planning Guidance

In August 1999 the South West Regional Planning Conference published the Draft Regional Planning Guidance for the South West region. The objective of the guidance is to provide a framework for the plans and strategic decisions of public (local authorities in particular), private and voluntary organisations in relation to land use, transport, economic development and the environment. The key concept is sustainable development, which is generally defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

The Regional Planning Guidance provides the focus for the integration of land use planning and transport policy, within the context of sustainable development. The vision proposed for the sustainable development of the whole region is as follows:

> "Developing the region, in a sustainable way, as a national and European region of quality and diversity, where the quality of life and environment for residents, the business community and visitors will be maintained and enhanced."

The document's section on transport spatial planning closely follows national transport policies. One of the key objectives of the RPG is to provide "integrated, efficient and environmentally appropriate transport and communications systems to meet regional, national and international priorities".

Policy 65 relates directly to ports and sets out the key policies at a regional level. It suggests that land-based links should be improved to the region's ports, with an emphasis on the most sustainable means of transport. In practice this should mean improvements to rail links, wherever possible, but does not preclude improved road links. It supports the development of individual roles for ports

where the development provides economic benefits and can occur without environmental damage. It specifically supports the maintenance and enhancement of reliable services to the Isles of Scilly.

Regional planning guidance provides the strategic guidance for planners at a County and District level. The concept of sustainable development is at the heart of the guidance and the role of ports within the necessary land use strategies is recognised.

Devon Structure Plan

Introduction

The Devon Structure Plan, adopted in February 1999, sets out the strategic planning framework for land use development in Devon and covers the period up to 2011. At the heart of the document is the concept of sustainable development, which is repeated in the stated aims and objectives of the plan.

The stated objectives of the Structure Plan are as follows:

- To plan for the future of the County in such a way as to help safeguard the global environment by seeking to ensure that all development is consistent with the principles of sustainability
- To conserve and enhance the quality of Devon's environment and its local distinctiveness – including the special beauty and characteristics of the countryside, coasts, buildings and historic heritage – together with the diversity of its wildlife and habitats
- To seek to ensure that the County's natural resources are conserved
- To enable the people of Devon to live within settlements or communities which are as self sufficient as possible, give access to an appropriate range of facilities, including employment opportunity, and whose distinctive functions and needs are recognised
- To ensure the economic well being of Devon by enabling the local economy to develop and improve in a sustainable way, recognising the specific economic assets of the County
- To develop an integrated and sustainable transportation system, in conjunction with the land use strategy, able to meet the environmental, economic and social needs of Devon whilst reducing the need to travel
- To ensure that the physical infrastructure of the County is maintained and enhanced to meet the needs of existing and planned development, and to ensure that there is a coordinated approach to the necessary infrastructure serving new development.

The strategic aims reflect three key areas of concern for the future – the environment, the economy and the social well being of Devon and its residents.

The Strategic Role of Plymouth

In defining a framework for the development of the County the Structure Plan acknowledges the fact that economic activity in Devon is not evenly distributed and that certain areas have become established as major centres of employment and commercial activity. These centres act as focal points for wider hinterlands and neighbouring settlements and have the greatest potential for attracting new investment. Within this context, Plymouth is identified as one of four Areas of Economic Activity along with Exeter, Newton Abbot/Torquay/Paignton and Barnstaple/Bideford. The development strategy for Devon recognises that it is within these areas that new economic investment is most likely to occur and that these Areas should therefore accommodate an increased proportion of overall development provision in the period to 2011.

Both Plymouth and Exeter are identified as Regional Centres which should be developed as major focal points for economic investment, new development and the provision of facilities and services which can meet the higher order needs of their surrounding areas – which in the case of Plymouth include significant parts of south eastern Cornwall.

The role of Plymouth as the county's major commercial port is also recognised for its contribution to the local economy and the maintenance of trading links with Brittany and Spain, and is linked to the Trans European road and rail networks. The need for intermodal facilities is also mentioned as part of a longer-term strategy and the strategic transport strategy identifies a need for such facilities to be located at Plymouth and Exeter as part of the "combined transport" system serving the County.

Sustainable Transport Strategy

These objectives are carried through to the sustainable transport policy contained in the Structure Plan, which seeks to reduce the need for travel (via land use location policies) and promoting environmentally sustainable modes of travel.

Expenditure on road schemes will be targeted on the management of road traffic, with a much reduced road construction programme. Any road schemes will be carefully targeted to achieve the most economic benefit with the least possible environmental harm.

Freight Transport Strategy

With respect to freight transport, which is directly relevant to the development of the port of Plymouth, the Structure Plan states its policy objective as follows:

Policy T16: to provide for the development of freight handling facilities by:

1. *Having regard to the need to encourage the carriage of freight by rail and coastal shipping in allocating future freight generating land use;*
2. *Making provision for the development of central distribution points;*
3. *Making provision for an intermodal facility at Plymouth for the transfer of freight*
4. *Making provision for an intermodal freight facility in the Exeter area*
5. *The development of freight management strategies for the Regional and sub Regional centres.*

The Structure Plan Authorities consider the rail network to be an under-utilised resource and that there is considerable scope for the expansion of long distance rail freight services. They therefore will support the expansion of rail freight operations with the County and applications from hauliers for Government grants that seek to improve existing rail freight facilities. The Authorities will also support and promote the use of coastal and short sea shipping and ferry links for both freight and passenger traffic.

Within this full support is given to the South West Regional Planning Conference's promotion of Plymouth as an appropriate location for a freight transport intermodal terminal as part of the European combined transport network.

Meanwhile the Authorities are also committed to protecting urban and rural communities from the environmental impact of road based freight haulage and in part will achieve this with the use of Freight Quality Partnerships with hauliers which are compensatory agreements to restrict HGVs from unsuitable roads where an alternative route exists, as well as improved traffic management and traffic regulation orders.

Ports

On the specific subject of ports the Structure Plan recognises the relevance of Devon's ports in terms of the peripherality of the County, the need for integration of its transport systems with the rest of the country and Europe and the locational advantages the County offers in terms of its position in the Atlantic Arc region and proximity to the main shipping route into the North Sea.

Article 7.139 of the Structure Plan importantly states:

> "*In view of the number of existing ports in the County, proposals for new commercial ports or harbours, or for extensions to existing facilities will need to be carefully examined to ensure that there are adequate dockside storage and supporting facilities. Proposals will also need to be acceptable in terms of local transport and amenity considerations within or adjoining the port itself. The particular nature of waterfront development needs to be carefully balanced against the environmental considerations of increased activity, and the ability to meet sustainability criteria will be important."*

Within the framework for ports, as mentioned previously, Plymouth has an elevated status that recognises the port as an important regional asset with a potential strategic role in international trade and passenger movements.

Policy T20 of the Structure Plan therefore designates Plymouth as a commercial and fishing port linked to the European Transport Networks. In addition, the contribution of Teignmouth and Bideford to commercial activity is acknowledged and therefore the Structure Plan acknowledges the need to secure appropriate transportation facilities and development to complement the operation of both of these ports.

Devon Local Transport Plan

The Local Transport Plan (LTP) presents local transport strategies that go beyond land use planning for the County for the period 2001-2006. The transport aims of the LTP are: to increase the efficiency of the local transport system; to improve safety for travellers; to support an efficient local economy and support sustainable growth; to promote accessibility for all people; to integrate all forms of transport, reducing demand for travel; to integrate tourism and public transport; and to protect the natural environment and historic heritage of Devon. Much of the LTP therefore addresses issues such as local road safety and the integration of public transport, which are not of direct relevance to the study.

On the important topic of freight transport the LTP highlights the proposals contained in the Structure Plan relating to the development of freight handling facilities (including intermodal, rail and coastal shipping provision) and identifies the key elements of current and future facilities for rail and sea freight in Devon as:

- Regional intermodal terminals at Marsh Mills in Plymouth and adjacent to Exeter airport
- Local rail terminals at Heathfield (Newton Abbot) Okehampton, Barnstaple and other local rail heads; and
- The development of the ports of Bideford and Teignmouth in the context of the major port at Plymouth.

Assessment
The Devon Structure Plan provides an important level of support to the development of commercial port operations at the Port of Plymouth and makes notable policy provisions concerning the promotion of Plymouth as a focal point for economic development, the promotion of coastal an short sea shipping, the development of an intermodal freight transport facility and the strengthening of linkages to the European TEN-T. The Local Plan identifies the potential location for an intermodal facility in Plymouth, however it does not appear to address linkages between this site and the port area.

4.3 Fishing policy context

This section sets out the policy context regarding the development of the fishing industry in Devon. This includes the identification of the implications of these policies for the future development of the sector, identifying the key constraints and opportunities.

4.3.1 European Policies and programmes

PESCA is a specific European initiative set up to address the problems of areas that are particularly dependent on the fishing industry. Its core aim is to reduce the dependence of such areas on fishing.

Following the reform of the structural funds in 2000 (Agenda 2000), the PESCA initiative was not renewed. However most areas which were previously eligible for PESCA funding will still be eligible as 'regions facing economic and social reconversion problems' which would provide access to Financial Instrument for Fisheries Guidance (FIFG) funding and other structural funds, such as the European Regional Development Fund (ERDF) and the European Social Fund (ESF).

The other key element of policy regarding fisheries at a European level is the Common Fisheries Policy (CFP). The CFP regulates numerous aspects of the fishing industry including such factors as vessel size, the methods by which fish are caught, the amount of fish caught, and the size of fish of landed. The UK government handles the management of the CFP for the UK.

In order that fish stocks are maintained at sustainable levels the European Council of Fisheries Ministers sets an annual quota of for the amount of fish that can be caught from important species. This quota is then allocated across the member states of the EU. One of the key issues for the industry is the extent to which these quotas vary from year to year. Another issue surrounds the setting of different quotas for different species of fish that causes problems for mixed fisheries that catch quantities of fish for which they have no quota. These issues make it difficult for fishermen in the industry to be forward looking. The future management and distribution of quotas will be a key issue for the industry.

CFP requirements for further reductions in the size of fishing fleets are also a major issue for the industry. The size of the UK fishing fleet has been reduced as a result of decommissioning programmes and further reductions are required if targets are to be met. Specific segments where there is still deemed to be over-capacity are pelagic fishing, fixed shellfish and distant water fishing.

The Financial Instrument for Fisheries Guidance (FIFG) is part of the European Union Structural Funds. The FIFG is a specific fund to aid the restructuring of the fisheries industry in a coherent manner. The existence of the fund also reflects the recognition of the scale of restructuring required in the industry and the financial resources that are necessary to bring about the required changes.

The objective of the FIFG is to contribute to the aims of the CFP while also strengthening economic and social cohesion. Thus the fund principally involves the decommissioning of vessels and the reduction of the fishing effort. However funds are also available for fleet modernisation, investment in processing activities, port facilities, protection of marine areas and aquaculture development.

During its Comprehensive Spending Review in 1999, the UK Government announced that no new applications for FIFG funding would be accepted. No announcement has yet been made as to the extent to which the programme may be reinstated across England for the 2000-2006 programme period. However, FIFG funding is available in Objective 1 areas and MAFF has already publicly announced a three-year, £5 million scheme in Cornwall and the

Isles of Scilly for which expressions of interest have been invited.

In Objective 2 areas, all measures except those concerning fishing fleet restructuring will come from FIFG and will be programmed along side other Funds. Outside Objective 1 areas funding will only be available up to a ceiling of 50% co-financing, with the maximum rate of assistance to private enterprises of 15%.

National Policy Context

The extent of UK Government regulation of the fishing industry is recognised by the Government as being unpopular within the industry, particularly when viewed against the more proactive policies of some other countries within the European Union. The Government's rationale for its policy stance has been the need to control the level of fish stocks and enforce the management of the Common Fisheries Policy of the EU. The Government has identified five key objectives of its policy towards fisheries. It should:

"Promote the sustainability of resources, to safeguard the long term success of both the stocks and the industry;

Ensure that the stocks are exploited in the most efficient way, so that fishermen are not drawn into a race for fish;

Encourage the profitability and competitiveness of the fishing industry from vessel to retailer:

Minimise both the cost to the public purse and the level of Government intervention; and

Minimise the complexity of regulation while maximising the responsibility for that process given to the industry consistent with ensuring compliance."

This policy stance is to some extent driven by the EU Common Fisheries Policy (CFP).
Also at a national level, the Sea Fish Industry Authority is a body established under the Fisheries Act of 1981 to serve the interests of the industry and consumers.
Its key functions are to:

Conduct research and development in the sector

Provide advice and training

Promote marketing, consumption and export of sea fish and sea fish products

Provide loans for the construction and modernisation of fishing vessels and processing plants

Provide financial advice to co-operatives.

The core objectives of the SFIA are to expand the market for fish; to assist fishermen improve conservation techniques, raise standards in working practices and training, and to promote networking across the industry.

4.3.3 Regional and Local Policy Context

SWRDA has identified the Food and Drink sector as a priority sector for development in its Regional Economic Strategy (RES). The definition of Food and Drink includes Fishing. The RDA is likely to actively support the development of the food and drink sector in the region, with a particular focus on developing higher value added processing activities.

Devon Structure Plan First Review 1995 – 2011

Within Devon, the Devon Structure Plan for 2006 –2011 states that port facilities and their associated infrastructure should be maintained and developed in order to ensure that ports fulfil an identified strategic function. In this context Plymouth is identified "as a commercial and fishing port linked to the European Transport Networks."

Economic Strategy for the Plymouth Sub-Region 2001-2004

Plymouth City Council and its partners published an economic strategy for the Plymouth sub-region in March 2001. The Strategy sets out a framework for the future development of the Plymouth economy and makes specific mention of the fisheries sector. The main thrust of the suggested policy measures are to diversity and re-invest in sectors in transition – for fishing the focus appears to be on the diversification of this mature industry, though the wider marine sector is identified as a key industrial sector for the City and its hinterland.

Assessment

European and national policy stress the importance of ensuring the sustainability of fish stocks and hence measures aimed at reducing the size of the fishing fleet and reductions in quota allocations. European and national policies also emphasise the importance of promoting the development of the fishing industry, particularly improving its profitability and competitiveness where this is consistent with the principles of sustainability of fish stocks.

4.4 Tourism policy context

This section sets out the policy context regarding the development of the tourism and leisure industry in Plymouth, with a particular focus on marine-related tourism and leisure. This includes the identification of the implications of these policies for the future development of these sectors in the county, identifying the key constraints and opportunities.

National Policy Context

The UK Government's Department of Culture Media and Sport (DCMS) published its strategy for the development of tourism in England in 1999. Entitled "Tomorrow's Tourism" the document contains a variety of initiatives with the following objectives:

To provide a new support structure for tourism in England

To develop and promote quality tourism experiences

To provide better information about tourism

To promote improved career opportunities within the tourism industry

To promote the sustainable development of tourism

To increase access to tourism for those with low incomes, families, the elderly and disabled people.

The English Tourism Council (ETC) was formed in 1999 to address the first of these objectives. The ETC's role is to "*support the business of tourism and drive forward a long-term vision for the fragmented tourism industry*". Within this body the role of regional tourism support structures has been recognised and all the existing regional tourist boards have an input to the ETC.

In seeking to improve the quality of tourism experiences across the UK a specific initiative has been launched to address the needs of the seaside tourism sector. Currently the Government's SRB programme supports 35 coastal areas with funding amounting to £100 million going to seaside resorts.

Regional and Local Policy Context

The tourism strategy for the South West '*Towards 2020: A Tourism Strategy for the South West'* is the main policy document for the tourism sector at a regional level. The overall aim of the strategy is to:

> *"Maximise the overall contribution of tourism to the wider economic, social and environmental well-being of the region."*

The key policy objectives identified within the strategy are:

Improving the quality of the region's tourist offer and focusing on markets which have higher value and longer seasons

Building linkages between tourism and other economic activities

Raising the status of the industry and rewards

Increasing tourist expenditure in the region.

SWRDA has identified Tourism and Leisure sector as a priority sector for development in its Regional Economic Strategy (RES). The RDA is likely to actively support the South West Tourism strategy with the key issues for its future development being raising the quality of the region's tourism offer; targeting higher value markets, improving the quality of training provided; and enhancing marketing information and collection.

The South West Cultural Consortium is currently in the process of developing a strategy for the cultural industries in the South West, which include the likes of events and festivals,

museums and galleries and historic environment, all of which may have important linkages to the marine sector. The emerging themes of the strategy mirror those of the South West Tourism strategy: encouraging access to cultural activities, improving the quality of existing facilities and celebrating the diversity of the South West's cultural life and tradition.

The recently published Economic Strategy for the Plymouth Sub-Region recognises the importance of tourism to the local economy and the requirement to cater for the needs of this growing sector in a sustainable and environmentally friendly manner.

The strategy also echoes the wider aims of the Regional Economic Strategy, notably the need to improve the quality of tourist facilities, maximising visitor expenditure and extending the tourist season. The Strategy also highlights a number of flagship tourism projects in the sub-region, the enhancement of which will improve the tourism infrastructure of the sub-region. These are:

Naval Base Museum and Visitor Centre

Royal William Yard

Hoe/Tinside

National Marine Aquarium Phase II

Marine Leisure Policies

The Government's general objective for water recreation is that "*the water environment should contribute appropriately to the wider provision of opportunities for recreation and sport, providing for as broad range of interest groups as practicable and ensuring that the recreational needs of the surrounding area are fully taken into account*"[2].

It is Government policy to support the development of sport and recreation. Planning Policy Guidance (PPG) 17 'Sport and Recreation' sets out the government's policy in more detail. It states that in developing sports and recreation the government is seeking to "*enable people to participate in sport, whether as players or spectators, and to encourage the provision of a wide range of opportunities for recreation, so people can choose which suit them best".*

PPG 17 also makes specific reference to water-based activity, ensuring that the planning system allocates sufficient land and water resources for organised sports and informal recreation. PPG 20 specifically encourages the regeneration of harbour areas for tourist developments.

The links between recreational activities, tourism and economic development is also recognised in national policy:

[2] The Environment Agency and Sustainable Development, The Environment Agency, November 1996

> *"Sport and recreation can be the motive for tourists to visit an area and thus influence economic growth there. Local plan polices should take into account the recreational needs of tourists and where appropriate encourage the development of facilities that benefit both visitors and residents." (PPG 17)*

National policy has recognised the need for additional mooring facilities in the UK's coastal waters. PPG 17 states, "*There is a widespread shortage of mooring facilities for boats both on inland waters and on the coast".* PPG 20 confirms this and identifies a continuing demand for such facilities for the "*foreseeable future*".

Local policies are also generally supportive of new water based recreational activities:

> *"New recreational development affecting river estuaries, Plymouth Sound or Tor Bay should only be provided for where it would be consistent with Policies C13 and C24 and would not adversely affect their value as wildlife habitats." Devon Structure Plan First Review 1995 – 2011*

Policy C13 requires all new developments to have respect to the biodiversity of the surrounding area while Policy C24 states a requirement for developments not to have an adverse effect on fisheries, nature conservation or the environment.

Landscape and Nature Conservation Policy

By their nature, marine related leisure activities normally take place in areas that have attractive and valued environments. Such areas are often protected by various environmental designations. Planning policies aim to achieve a balance between conservation issues and the demand for recreational uses.

In protected areas, most developments are restricted in some way, unless they make a positive contribution to improving the environment. Specific designations which apply in many coastal areas include:

Sites of Special Scientific Interest (SSSIs)

Special Protection Areas (SPAs) and

Special Areas of Conservation (SACs), covering tidal waters under the EC Birds Directive and the Habitats Directive. Special Areas of Conservation (SACs).

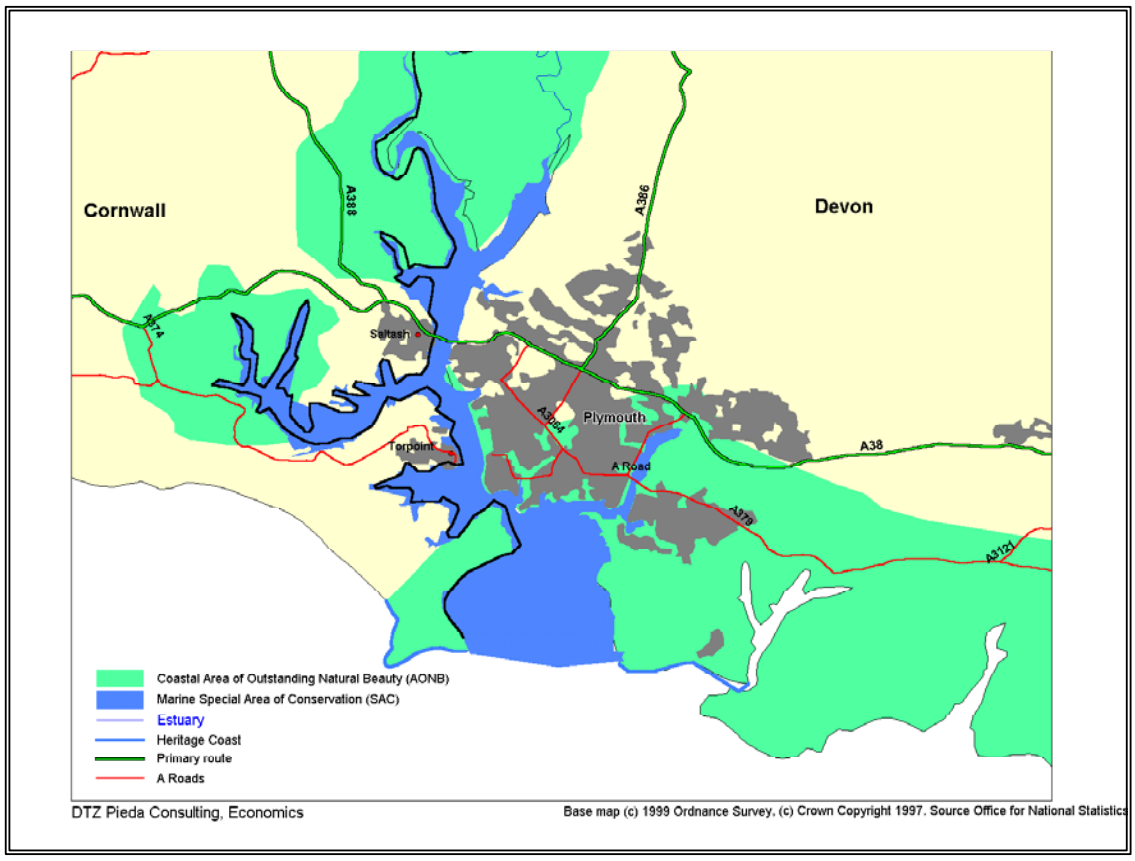
National Parks, Areas of Outstanding Natural Beauty (AONB), and Heritage Coast. However in the case of Heritage Coast, sport and recreation developments are not necessarily restricted. One of the objectives of Heritage Coast is to enhance the enjoyment of such areas by improving or extending recreational, sporting and tourist activities, though there remains a requirement to ensure that such developments are consistent with conservation objectives.

PPG 20 on Coastal Planning recognises tourism and recreation developments (which

include marinas) as being one of a limited number of uses that require a coastal location. As noted above PPG17 provides guidance on how such developments can be accommodated.

The map below shows the environmental designations that apply in and around Plymouth.

Figure 6



Assessment

There is a generally supportive policy context for the development of tourism and leisure projects. National policies support the improvement and extension of tourism facilities and special provisions have been made to support developments in coastal areas where there will be no adverse environmental impact.

4.5 South West RDA Regional Strategy

SWRDA's *Regional Strategy for the South West of England 2000-2010* provides a supporting policy framework for the development of the marine sector in Plymouth in a number of areas, some of which have already been referred to. The overall Mission of the Regional Strategy is given as follows:

> ***To improve the competitive position of the South West of England within the EU and internationally in order to increase sustainable prosperity for the region and all its people.***

The key objectives of the Strategy are to

- Improve business competitiveness;
- Address social and economic imbalance; and
- Improve regional coherence

Frameworks for Action

The Strategy is being implemented through a number of *Frameworks for Action*, which describe in detail the actions required in order to meet the strategic objectives for the region. The Frameworks for Action are being developed with partners (including the Regional Chamber; Government Office for the South West; Regional Planning Conference, the SWRDA Board Advisory Groups; and the Sustainable Development Round Table as well as Sub Regional Partnerships and other business and voluntary sector partners) for each of the following sectors:

- Inward Investment
- Innovation and Technology
- Skills and Learning
- Business Support
- Sector Development
- Community Regeneration
- Improvement of Economic Infrastructure
- Improving the Image of the Region
- Partnership and Capacity Building
- Understanding the State of the Region

Priority Sectors

Agreed actions under each of these headings will give priority to capitalising on the region's unique cultural and environmental assets; skills development, encouraging innovation and working in partnership. Within these guiding principles the Regional Strategy has also committed to actively promote the following key economic sectors:

- Advanced Engineering (aerospace, automotive, medical devices)
- Direct Marketing
- Environmental Technologies
- Food and Drink (including agriculture and fisheries)
- ICT
- Leisure and Tourism
- Marine and Offshore Technologies

Clearly the Plymouth marine sector as defined in this document overlaps these priority sectors in several areas. This presents an opportunity for the sector and the Marine Sector Strategy needs to ensure that this is fully exploited.

A synopsis of SWRDA's Priority Sector Working Paper for Marine Technologies is included in Working Paper 2 in the Appendix to this report.

Marine Southwest

In recognition of the importance of the marine sector to the economy of the South West Region as a whole has created a new initiative, *Marine Southwest*, which has the specific objective to promote and support the region's marine industry. Marine Southwest has the dual aims of increasing competitiveness in the south west marine sector and addressing the problem of skills for the region's marine industry employers. More than 20 private and public organisations across the region are represented on the Marine Southwest Task Force, the partnership which is spearheading the programme.

Partners include SWRDA, the BMIF, South West Tourism (also involved with the development of the Sail South West Initiative) and the new Learning Skills Councils. The steering group will act together to advise and lobby business support agencies, Government and the European Union and oversee funding from these sources.

A regional marine coordinator has been appointed to run the programme and develop a strategic plan for the sector.

4.6 Plymouth Local Plan

The City of Plymouth Local Plan adopted in 1996 sets out the strategic planning framework for land use development in the City covering the period 1991- 2001. This plan is currently in the process of revision to cover the period 2001-2011 with a new plan due to be published in the autumn of 2001. It is a statutory requirement that the local plan interpret the policies of the Devon Structure Plan on a local basis.

The stated objectives of the current City of Plymouth Local Plan are as follows:

To improve the environment of the city

Provision of better job opportunities

Further improvements to housing and other conditions of the older part of the City

Supporting Plymouth's role as the Regional Centre for the South West and the economic development of the region

Expansion and protection of leisure facilities in the City for the benefit of its citizens and visitors

Improvements to the communication system in the city

Seeking a high standard of design in the implementation of proposals

Providing a lifestyle in the City centred on local communities, using the framework created by the communication system, major areas of open land, and topography, and the linkages of locally based community facilities, to heighten the individuality of each area as far as is possible in physical planning terms

Co-ordinating development to make the best use of limited resources

Ports

Port facilities are also a key component of the Local Plan – recognised to be "essential to the economic welfare of the City". The Plan makes provision for planning permission to be granted for commercial port facilities (which include fishing fleet activities) and for the extension of existing facilities. The Plan also contains a provision that proposals for non-port related development in existing port areas will only be permitted where "there is no present or foreseeable need to retain land for port-related use".

The importance of port related employment is fully recognised in the Plan although there is concern over the degree of dependence on defence related activities. A consultation paper on proposed revisions to the local plan states that "the Council's aim is to promote economic diversification while seeking to consolidate defence and defence-related activities within the city"

Tourism and Water Recreation

Tourism is a significant income generator for the City of Plymouth and its role as such is reflected in the Local Plan with the Council backing the conservation, enhancement and improvement of the City's waterfront for tourism purposes (among others) in order that its full potential can be realised.

The Plan also recognises the regional and national importance of the area's waters as a recreational facility. As such, the Council seeks to protect and improve water based recreation facilities, where appropriate.

The importance of tourism in to the future of the City is highlighted in the new vision for the City, prepared as part of the process of revising the local plan.

5 STRATEGY AND OBJECTIVES

5.1 Introduction

It has been established that the marine technologies sector together with marine based tourism are the most important components of the marine industry in Plymouth. The commercial port of Plymouth is a modest employer and there are few market opportunities for expansion. The fishing industry is small and under pressure, but offers potential in terms of the development of value-added activities. The marine science and research institutions in Plymouth are important in terms of developing new commercial opportunities in the marine sector that could create new high income jobs and add to the image and reputation of Plymouth as a marine centre of excellence.

The emergent strategy for this sector needs to reflect these realities, and therefore has at its centre the objectives of:

- Retaining and building on the existing strengths in marine technologies, tourism and marine science, while
- Supporting fishing and commercial port operations in order to ensure that these continue to compete effectively.

The strategy also needs to reflect future opportunities and potential, and the objectives of the overall Plymouth Sub-Regional Economic Strategy.

5.2 Strategic Objectives

The fundamental aim of the strategy can be summed up in the following vision statement:

> ***To secure the greatest economic benefit for the City of Plymouth from its established strengths in port and marine activities and make best use of the unique natural resource represented by the waters of the Tamar and associated land based activities.***

This can be achieved by pursuing the following five strategic objectives:

Strategic Objective 1	To maintain and build upon the City's established strengths in marine engineering and boat building
Strategic Objective 2	To promote the use of the Waters of Tamar and waterfront for marine tourism activities
Strategic Objective 3	Working with existing port operators and others to ensure that the Port can compete effectively with other ports
Strategic Objective 4	To support the retention of the established fishing fleet at Plymouth and to assist with the diversification of activity
Strategic Objective 5	To develop new economic activities by building on the strengths of Plymouth marine sciences and R&D

The rest of this document presents the strategy for achieving the vision set out above. The aim of the strategy is to provide a framework for the development of the marine sector over a 10-year period. It concentrates on:

Setting objectives to ensure realisation of the vision;

Identifying development opportunities for each of the five key components of the strategy;

Identifying the type and mix of projects/actions required to achieve the objectives set

5.3 Marine technologies

SO1	**To maintain and build upon the City's established strengths in marine engineering and boat building**

Rationale

The marine engineering and boat building sectors are major employers in Plymouth. Together the two sectors employ 6,800 people – more than half of all employment in the Plymouth marine sector. Each sector is dominated by a major employer. Around 4,200 people are employed by DML, and much of the employment in smaller marine engineering businesses is related to DML. Marine Projects employs 1,100 and has plans to expand. Marine Projects also has suppliers in the city.

Employment associated with DML has been declining over the long term, but has now stabilised and prospects are positive following the recent designation of Devonport as the support base for all UK nuclear submarines. It is estimated that this contract has secured a base workload for DML for the next 25 years. DML remains a very important source of employment and it is important to the economic future of Plymouth that, as far as possible, employment in the marine engineering sector is maintained. The skills and knowledge built up over the years within DML and its supply chain are strengths that SWRDA and the City Council can seek to build upon to foster growth and adaptation in the sector.

Marine Projects has grown rapidly in recent years and plans further expansion. There is scope to build upon the success of Marine Projects to further enhance boat building and related activities in Plymouth. There is the opportunity for SWRDA and the City Council both to seek to work with Marine Projects to build up the local supply chain and the pool of relevant skills and to attract or grow related economic activities in Plymouth.

The promotion of the marine sector is consistent with SWRDA's Regional Strategy and the Economic Strategy for the Plymouth Sub-Region. Developments in the marine engineering and boat building sectors offer the potential to deliver significant economic benefit to the City.

Development Opportunities

There are a range of opportunities for development of the marine engineering and boat building sectors. These can be broadly summarised under the following headings:

- Collaborative working with major employers to assist their expansion and diversification
- Action to enhance the competitiveness of the DML supply chain and encourage diversification.
- Action to foster growth among businesses supplying Marine Projects and to develop the local supply base
- Skills Task Force for Marine Businesses
- Strengthening the voice of marine businesses in Plymouth

Indicative Actions:

Action MT1	**Collaborative working with major employers to assist expansion and diversification.**
Action MT2	**Action to enhance the competitiveness of the supply chain to DML and Marine Projects and encourage growth and diversification of SMEs supplying these two major companies**
Action MT3	**Action to foster the growth and increased competitiveness of SMEs in the marine technologies sector, including the creation of a Skills Task Force in conjunction with Marine South West.**
Action MT4	**Strengthening the voice of marine businesses in Plymouth**

MT1: Collaborative Working with Major Employers to assist Expansion and Diversification.

DML and Marine Projects account for the vast majority of employment in the marine engineering and boat building sectors, and support many more jobs in supplier firms. The prosperity of these two businesses is therefore crucial to the economic future of the marine sector in Plymouth and indeed to the economy as a whole. It is therefore important that public sector agencies responsible for economic development – principally SWRDA, the Local Learning and Skills Council and Plymouth City Council – work with both firms to help them realise their development plans.

In this context it is important to note that Marine Projects have major plans for expansion. The company's immediate requirement is for a 60,000 sq. ft. Testing Centre, which will require waterfront access – though deep water is not a requirement. SWRDA and PCC should work with Marine Projects to identify a suitable site for this facility in Plymouth. Specific consideration needs to be given to the best location for the Testing Centre since

one option is that this be located in Millbay. This should be considered as part of current work being undertaken on the preparation of a land use and regeneration strategy for Millbay. In the longer term, Marine Projects has plans to construct a further 60,000 sq.ft. production facility. This does not need to have water frontage and may be located alongside the company's existing facility at Langage.

DML do not have plans for expansion that involve additional land requirements. DML is keen, however, to exploit its intellectual property assets and to utilise the skills and knowledge base of the firm to diversify into new business areas. SWRDA could support such efforts and discuss with DML ways in which it could support the business. This might be through building productive links with Higher Education Establishments, or through helping DML access DTI assistance for research and development. Other support agencies may include for example, the Defence Diversification Agency.

If DML foresees the possibility that diversification might be taken forward through spin out businesses then SWRDA and its partners may be able to assist with provision of incubator facilities for emergent firms and venture capital.

The systems that are already in place to ensure collaborative working between the two major firms and PCC and SWRDA must be maintained and strengthened, forming a fundamental constituent of the marine sector strategy.

MT2: Action to enhance the competitiveness of the supply chain to DML and Marine Projects and encourage growth and diversification of SMEs supplying these two major companies.

A significant number of marine and related businesses in Plymouth are dependent on the fortunes of DML and Marine Projects. These two companies are also a source of opportunity for the development and strengthening of the Plymouth marine technologies sector. We understand that PCC and SWRDA/RSO are committed to working with both companies, and a Marine Sector Advisor is already in place. Nevertheless we recommend that this commitment becomes a recognised constituent of the overall strategy for the marine sector.

DML

There is the scope for a joint initiative between SWRDA, the Small Business Service, the Defence Diversification Agency and DML for action to enhance the competitiveness of the local firms that supply DML.

The aim of such an initiative would be to improve the competitiveness of businesses supplying DML. This should help to secure employment within the DML supply chain. Such an initiative should also help local businesses to diversify their client base so that they

become less dependent on DML. This will help secure the employment base of such firms and offer a platform for expansion.

The initiative would involve working with DML to identify what action suppliers need to take to meet the quality and design standards of the buying firm and providing targeted business support to help supplier businesses adapt to the changing requirements of their customers. A whole raft of action may be required to help supplier businesses to adapt to a more competitive environment including investment in new equipment, development of enhanced quality systems, redesign of work systems or product improvement. This often has implications in terms of training. New investment may give rise to a need to raise new finance.

Core funding for such an initiative could be provided out of existing SWRDA budgets for the Regional Supply Office and through provision of staff time from the Small Business Service franchise. This core funding could probably be matched by ERDF funding made available from the Objective 2 programme. The role of the Defence Diversification Agency should also be considered in the context of assisting SMEs supplying DML.

Marine Projects

Marine Projects has grown rapidly and continues to grow. At present, the company sources a significant proportion of its inputs from outside the City. There is the opportunity therefore to help develop the marine sector in the City by helping local firms secure business from Marine Projects. Equally, action can be taken to help existing local suppliers of Marine Projects explore new markets for the products and services they currently supply to Marine Projects.

Such an initiative would ideally be a joint venture between the SWRDA Regional Supply Office, the Small Business Services, with the involvement of the Local Learning and Skills Council on skills development issues. The initiative would ideally be undertaken with the active involvement and support of Marine Projects. The benefits for Marine Projects would be the development of closer links with its local suppliers and identification of new locally based suppliers able to compete on both price and quality with established suppliers.

MT3: Action to foster the growth and increased competitiveness of SMEs in the marine technologies sector, including the creation of a Skills Task Force in conjunction with Marine South West.

The concentration of marine sector activity in Plymouth and the formal acknowledgement of marine technologies as a Priority Sector in the South West region warrants specific actions to foster the growth and development of existing SMEs and encourage the start up and growth of new marine businesses in Plymouth. Further detailed surveys and analysis of the particular needs of SMEs in the marine technologies sector should be carried out, to identify barriers, opportunities and incentives to growth and competitiveness.

In addition to the key area of skills development, which is addressed specifically below, the availability and affordability of sites and premises in suitable waterside locations may be an issue and should be investigated, possibly with the assistance of Marine South West. The opportunity represented by the regeneration of Millbay Docks should be considered in this context.

Skills Task Force

There is evidence from survey work undertaken by Plymouth University and by the University of Bournemouth that marine engineering and boat building businesses face significant issues concerning recruiting skilled staff and up-skilling existing staff. Skills and recruitment issues will almost inevitably arise out of the expansion of Marine Projects and DML and the possible supply chain development initiatives outlined above. It would be valuable to put in place now a mechanism through which the skills needs of marine sector employers in Plymouth can be addressed.

This focus group might be best convened under the auspices of a Plymouth sub-group of Marine South West (see below) with the participation of the Local Learning and Skills Council and the Plymouth and Tamar Learning and Skills Partnership. The group would need to involve employer representatives, FE Colleges and other training providers. The Skills and Learning team within the SWRDA would also have an interest in the work of the group. The group would require limited funding of its own. Its main purpose would be to identify training needs common to a number of firms and to ensure than appropriate provision is put in place.

Any training initiatives emerging from the work of the Task Force might be funded from a variety of sources. The majority of programmes would probably be able to attract LLSC funds, which might be matched by European Social Fund monies as part of the Objective 3 programme.

We understand that Marine South West is about to set up a Skills Task Force for the region, funded by the Skills Development Fund and Objective 2. Participants include representatives of the Plymouth College of Further Education, University of Plymouth and a number of other representatives of the Plymouth business community. The basis for the formation of a Plymouth sub-group, therefore, is already in place. The Plymouth LSP should be actively involved with the sub-group so that local plans are fed back to the Devon & Cornwall Learning and Skills Council.

The next step would be for SWRDA through Marine South West to discuss with local industry representatives and the Plymouth Learning & Skills Partnership the need for a Skills Task Force for the Marine Sector in Plymouth, and agree terms of reference and leadership for the group.

MT4: Strengthening the voice of Marine Businesses in Plymouth

The task of developing a co-ordinated plan of action to develop the Marine Sector in Plymouth would be made easier if there was a single organisation that represents the interests of marine businesses in the City. SWRDA has fostered the development of Marine South West and this organisation has an important role to play in the development of the sector in the South West as a whole. But there are members who would not be interested in specific initiatives being taken forward in Plymouth. Equally there are organisations not part of Marine South West, but who should be involved in the development of the sector in Plymouth if the recommendations of this report are adopted. At present in Plymouth a group already exists in the form of Maritime Plymouth, albeit not yet fully representative of the industry.

It is therefore recommended that the SWRDA and PCC strengthen their links with Maritime Plymouth as the representative group for the marine sector in Plymouth. Amongst other activities, in the context of MT4 of the Strategy, Maritime Plymouth should seek to provide employer led input to development of supply chain and skills development initiatives as outlined above, and the science based initiatives described below.

Funding for some core costs, though these would be modest, would probably need to come from SWRDA and PCC.

5.4 Marine Tourism

SO2	**To promote the use of the waters of the Tamar for marine tourism activities**

Rationale

Tourism is a major employer in Plymouth. All told, an estimated 1,300 jobs are directly reliant on marine related tourism in the City – around 17% of all tourism employment. Most of the City's major tourism destinations are located on the waterfront, the historic heart of Plymouth – and many of those tourism attractions have a marine flavour. This, combined with the unique natural setting of the City, bordered on three sides by water, make marine tourism of key importance to the City. Yet there is perceived to be considerable scope to enhance the tourism offer of the City, and thereby sustain existing jobs in the tourism sector and create new jobs.

Development Opportunities

There are three major opportunities for the expansion of marine tourism in Plymouth.

- Expanding Plymouth's share of the cruise market – by increasing the volume of cruise passengers landing at Plymouth and, if commercially viable, by establishing Plymouth as a home port for cruise ships so that passengers embark and disembark at Plymouth.

- Developing the use of the waters of the Tamar for watersports events and watersports tourism.
- Enhancing the tourism offer of the waterfront to encourage longer stays, higher levels of expenditure and repeat visits.

Indicative Actions:

Action TO1:	**Enhanced Marketing of Plymouth as a Cruise Port**
Action TO2	**Marketing of Plymouth as a Venue for Watersports Events**
Action TO3	**Promoting the Development of Watersports Tourism**
Action TO4	**Enhancing the Tourism Offer of the Waterfront**

TO1: Enhanced Marketing of Plymouth as a Cruise Port

The coordination of a cruise tourism marketing through an initiative that aims to maximise the potential benefit to Plymouth of the cruise tourism market in terms of local employment and revenue generation is warranted. In 2000, 20 cruise ships called at Plymouth, bringing total revenue of approximately £1.1 million to the sub region. An initiative aimed at attracting more cruise liner operators to Plymouth should involve the City Council and Plymouth Marketing Bureau with the cooperation of port operators, harbour authorities, Queen's Harbour Master, shore based entertainment venues, excursion companies and other interested parties.

The aspiration to promote Plymouth as a home port with a dedicated cruise terminal would require a substantial capital investment programme, including the dredging of a new berth in Millbay and reclamation of the Millbay outer harbour creating approximately one hectare of developable land. Thus, although cruise tourism does provide a positive contribution to the sub regional economy, as a result of the large capital costs involved, a cruise terminal would not be commercially viable as a stand alone project. However, the redevelopment of the Millbay area may offer an opportunity to integrate a cruise terminal as part of the wider development of the area.

The recommendation therefore is to set in process a series of actions aimed at the development of Plymouth as a destination/home port. Recommended actions include:

- Undertaking further detailed cruise market research and a cruise terminal feasibility study
- Establishing a cruise tourism task force
- Improving landing facilities for cruise passengers in Millbay. Assessing practicalities of using Phoenix Wharf as an alternate/secondary landing stage.
- Launching a targeted marketing campaign to cruise lines and tour operators
- Identifying initiatives which increase spending opportunities for cruise tourists visiting the city and the surrounding area

TO2: Marketing of Plymouth as a Venue for Watersports Events

Over the past 25 years Events Marketing has become a significant feature of local tourism strategies. When combined with the historic setting of the waterfront, Plymouth Sound is a wonderful setting for watersports events. Already the City hosts the Single Handed and Two Handed Transatlantic Yacht Races, the Two Handed Round Britain and Ireland Race and the finish to the Fastnet Race. Other events include the Plymouth Maritime Festival. But there is a perception that the City could attract a fuller programme of watersports events and seek to win some of the more high profile events from competing locations in the UK and overseas. This would require enhanced investment in marketing Plymouth as a venue for such events.

Such marketing would need to be undertaken in collaboration with a range of interested parties. The harbour authorities, marina owners, yacht clubs, other watersports operators and the hospitality industry would need to be involved. Events management requires effective liaison with transport operators, police etc. The costs of both marketing and event management can rarely be fully recovered – indeed some events can only be secured by the offer of sponsorship. So the cost of marketing the City and events co-ordination could require public funding. .

The initiative would be best taken forward by a specialist unit established specifically to market the marine tourism sector in Plymouth and is best taken forward by the Plymouth Marketing Bureau in collaboration with Maritime Plymouth. As indicated above this unit might embrace all the different marine tourism marketing initiatives described here.

TO3: Promoting the Development of Watersports Tourism

A less ambitious way of developing marine tourism is to promote the use of Plymouth Sound and associated waters for watersports tourism. There are a number of established sailing schools, marinas and yacht clubs in Plymouth. The City Council should look favourably on proposals to enhance the facilities available to sailors and other watersports users of Plymouth Sound. In the main, proposals for improvements will need to be put forward and funded by clubs or operators themselves. But there may be cases where public funding is justified because of the wider benefits that would accrue to the city, or where proposals are put forward by clubs that are open to membership by all comers.

Recommended actions include:

- City Council to work in partnership with existing operators and clubs to identify opportunities for improving watersports facilities and for joint marketing initiatives. It is possible that through proactive action the City Council could, over time, enhance the quality of watersports facilities available in Plymouth. Joint marketing initiatives,

which might merit public support, could expand usership, underpinning further investment and thereby generating a virtuous circle of increasing use, justifying enhanced investment, and generating greater economic benefits for the City.

- To ensure exploitation of synergies between special events, cruise tourism marketing and watersports marketing and given the fact that success of any marine events marketing depends at least in part on the quality of local watersports facilities, there would be merit in this initiative being pursued by the one and the same organisation, i.e. the Plymouth Marketing Bureau, in collaboration with Maritime Plymouth.
- Efforts in this area should also take into account the *Sail South West* initiative, which is a joint project between Marine South West and South West Tourism aimed at promoting and developing the marine leisure industry in the region. The Plymouth Marketing Bureau and representatives of the watersports based companies in Plymouth should ensure that full advantage is taken of the provisions being offered under this initiative.

TO4: Enhancing the Tourism Offer of the Waterfront

It has not been part of this study to look specifically at tourism initiatives on the waterfront. Major new developments are proposed – for example the expansion of the National Marine Aquarium, the proposed Naval Base Visitor Centre and the redevelopment of Tinside Pool and the Mayflower Heritage Centre in the Barbican. Such developments will clearly complement the development of marine tourism activities. On the one hand expanding visitor attractions will help market Plymouth as a port for cruise ships and help sell Plymouth as a venue for watersports events. On the other hand success in developing the cruise business, in attracting watersports events and building up watersports tourism will help bolster the viability of the hospitality industry and existing tourist attractions in Plymouth.

A key project that could encourage the integration of the tourism offer of waterfront Plymouth is the development of water-based transport. Many of the City's tourism attractions are located on or close to the waterfront, but at some distance from one another. It is clearly desirable to encourage people to use public transport between different attractions. But there is a strong public aversion to using buses – which may mean that people drive between attractions, with the attendant implications for congestion. Or simply that they do not make supplementary visits to different destinations in the City.

The development of a waterbus service between key locations on the waterfront, could overcome some of these problems, because such a service, if sufficiently regular and reliable, could become part of the tourist experience. The financial viability of such a service, and the scope for drawing in revenue funding equivalent to that enjoyed by bus companies operating in the City, would need detailed investigation. Key requirements of such a service are that it should be comfortable, all weather, competitive and cost-effective. If such a study was undertaken and the service found not to be viable with the existing disposition of visitor attractions and visitor numbers, then the study should specify how viability might change over time as new visitor destinations grow, as constraints are put on vehicle use and as visitor numbers grow.

It is probable that the development of a waterbus service would require investment in additional landing stages or improvements to existing facilities. Investment in improved landing facilities may be required to improve facilities for cruise passengers landing in Plymouth. The need for and cost of new landing stages or improvements to existing facilities should be undertaken as part of the investigation of the viability of waterbus services.

A previous water transport study undertaken on behalf of the Plymouth Development Corporation in 1996 is due to be updated by the Tamar Estuary Consultative Forum. The terms of reference for this study should take into account the recommendations outlined above.

5.5 Commercial port activities

SO3	**Working with existing port operators and others to ensure that the Port can compete effectively with other ports**

Rationale

Total employment directly associated with commercial port operations is estimated to amount to approximately 700 jobs. Jobs directly associated with cargo handling (including passenger traffic) in the port amount to less than 80 jobs. Linkages between the port cargo handling operations and the local economy are fairly weak as few businesses make direct use of the local port facilities and shipping services.

The port provides a greater asset in terms of the wider regional economy, serving regional as well as longer term national transport needs given the emphasis being placed on sustainable transport policies and the development of coastal and short sea shipping. The strategic role of Plymouth as a regional hub for short sea shipping is also identified within SWRDA's Regional Gateways Study.

However, whereas the port operating companies are able to meet existing demand with the existing infrastructure, the further development of cargo handling operations at the port is seriously constrained by the lack of available land for the development of port working sites and premises.

In this type of environment, where space is a constraint, there is a case to be made for greater cooperation between the port operating companies and the local and regional planning authorities, so as to ensure that the port operators have adequate support when responding to emerging or apparent opportunities. The device that is recommended is a port operators' group as a subset of Maritime Plymouth that facilitates the coordination with SWRDA and the City Council and other relevant local and regional business forums.

Particular action is required by Plymouth City Council as Local Planning Authority to ensure that any waterfront sites are not released for alternative use or development without due

regard to the need for commercial port and other marine sector activities; such planning policies to be incorporated in the current Local Plan Review Process.

There is also a need to improve liaison and cooperation between MOD(N), SWRDA, Plymouth City Council in order to ensure that potential opportunities/requirements presented by the MOD(N) on port usage and spatial and R&D opportunities are identified at an early stage.

Development Opportunities

- To improve coordination and cooperation between the planning authorities and port operating companies so that all parties are aware of developments and emerging opportunities and to safeguard the commercial development of the port
- Future MOD(N) port usage requirements

- Identification of land reclamation opportunities to provide additional land for commercial port (and marine sector) activities.

Indicative Actions:

Action PO1:	**Improve cooperation and coordination between port operating companies and planning authorities**
Action PO2	**Development of an MoD(N)/SWRDA/Plymouth City Council/Marine Sector Liaison Group**
Action PO3	**To undertake a survey of opportunities for land reclamation for commercial port/marine sector use**

PO1: Improve cooperation and coordination between port operating companies and planning authorities

Establishing the full representation of the Plymouth port operators within Maritime Plymouth should be seen as a priority. Past difficulties in gaining the full support of the port operators appear to be receding, while recent changes in management at the various operating companies, together with the development of this strategy, provide an opportunity to encourage more active participation of the Cattewater operators, Harbour Commission and ABP in the discussion of port issues and the role of PCC and SWRDA in assisting them.

PO2: Development of an MOD(N)/SWRDA/Plymouth City Council/Marine Sector liaison group

In order to ensure requirements/opportunities presented by the MOD(N) on potential port

usage and any spatial and R&D developments are identified at an early stage the formation of an MOD(N) liaison group is recommended. For example, the possible use of Millbay Docks by new MOD side-loading roro vessels has been mooted. To date, the MOD(N)'s ad hoc requirements have been met by ABP. However the possibility of MOD support for port infrastructure, although not a short term issue, could become a possibility in future with the ongoing building programme of the new assault ships, OCEAN, ALBION, and BULWARK plus the two larger LSLs. Plymouth City Council needs to be kept up to date on these issues and should address how this can be done, either through direct contact or through Maritime Plymouth. In addition future requirements for (or more likely, the release of) land, as well as R&D spin-offs could be identified at an early stage.

PO3: To undertake a survey of opportunities for land reclamation for commercial port/marine sector use

A survey is required to identify opportunities for land reclamation for commercial port and/or marine sector use. This would probably need to be undertaken by Plymouth City Council and SWRDA, in conjunction with Maritime Plymouth.

5.6 Fishing

SO4	**To support the retention of the established fishing fleet at Plymouth and to assist with the diversification of activity**

Rationale

There is a significant fishing fleet at Plymouth though overall the number of jobs associated with the fishing industry – some 300 – is not particularly significant in the context of total employment in the City (although numbers of self employed fishermen will boost this number). The fishing fleet and associated activities however are an important part of the range of activities that make up the port and that contribute to its vitality and attraction as a visitor destination. It is important therefore to seek to retain and support the fishing fleet and associated activities, both because of the importance of the fleet itself, and because of the wider benefits of maintaining an active fleet at Plymouth.

Development Opportunities

There is limited scope for local action to support the local fishing fleet. The future of the fleet will be determined largely by EU policy and national initiatives. The existing fish quay and supporting infrastructure works well and no proposals for further investment in quayside infrastructure have been suggested during the course of consultations. The Sutton Harbour

Company is keen however to relocate the existing fish auction and processing facilities from the quayside to a larger inland location.

The rationale for this is reported to be that, were facilities relocated inland, it might be possible to persuade more major fish processors to establish operations in the South West of England. Were this to be the case, it would be consistent with SWRDA's Regional Economic Strategy. The Food and Drink Sector is one of SWRDA's priority sectors and the it is keen to encourage investment that adds value to locally grown (in this case locally landed) produce. At present a large proportion of fish from Plymouth are transported to Aberdeen for processing.

The absence of more than basic fish processing facilities in the South West is attributed to the fact that the volume of fish landed at each port in the South West provides insufficient volume to justify more than basic processing at each port. It is argued that an inland facility could source fish from a number of South West ports, and together this would provide sufficient volumes to justify more substantive processing. It should also be noted that the relocation of processing facilities from the fish quay would free up valuable waterside land.

Indicative Actions:

Action F1	**Establish the feasibility of establishing a new Inland Fish Auction and Processing Plant.**

F1: Establish the feasibility of establishing a new Inland Fish Auction and Processing Plant.

There is a need to investigate the implications of relocating fish auction and processing activities from Sutton Harbour to an inland location. The City Council as planning authority needs to be satisfied that such activity will not disadvantage the existing fleet and undermine the commitment to take action to ensure the retention of the existing fleet at Plymouth. The implications for the businesses and employees currently working on the fish quay also need to be understood.

This study would need to assess the prospects for attracting investment in a new, larger fish processing plant that would process fish from a number of ports in the South West peninsula. In the light of this the study would need to identify potential investors and potential locations for a new fish processing plant. This could provide the basis for marketing specific sites in the South West to companies that might in principle be interested in investing in new fish processing facilities.

SWRDA and Sutton Harbour Company should jointly undertake this study.

5.7 Marine science, research and development

SO5	To develop new economic activities by building on the strengths of Plymouth marine sciences and research

Rationale

Plymouth has significant strengths in Marine sciences and research. Plymouth Marine Laboratory has considerable research strengths in marine sciences – the management of marine resources and of marine environments. Plymouth University has strengths in marine technologies R&D. The Advanced Composites Manufacturing Centre (ACMC) is a world leader in its field, which involves the application of new materials to marine boat building, among many other applications. The major marine employers in Plymouth – DML and Marine Projects – are also sophisticated users of advanced technologies and materials, and contribute to the knowledge base of the City.

These strengths provide a platform for the development of new commercial enterprises within the city. These might spin out of the established centres of expertise in the City or be attracted to the City because of those centres of expertise. Such science-based enterprises offer the prospect of building a local economy well placed to take advantage of technological change. They may well provide the basis on which the development of the growth industries of the future can build.

Development Opportunities

The government is keen to promote the development of the UK science base and to encourage technology transfer from Higher Education Institutions (HEIs) to business and commercialisation of publicly funded research. Funding has been made to HEIs through the Higher Education R O Business in the Community Fund (HEROBIC) to help Universities foster technology and knowledge transfer to the business community. The RDAs have also been provided with funding to support the development of incubator space for knowledge based businesses linked to HEIs. Opportunities therefore exist both to build on the existing strengths of Plymouth's HEIs in marine science and technology and secure benefits for the local economy of the presence of these centres of excellence.

Indicative Actions:

Action MS1	**Liaison with the Plymouth Centres of Excellence**
Action MS2	**Establishment of a Marine Science Park/Incubator Facilities**
Action MS3	**Marketing Plymouth as a Location of Marine Engineering and Sciences**

MS1: Liaison with the Plymouth Centres of Excellence

Both the Plymouth Marine Laboratory and the University of Plymouth have their own development plans, designed to build upon their established expertise and research interests. It is important that SWRDA in particular, develop a dialogue at senior level with each organisation in order to identify where SWRDA, and potentially other partners can support the HEIs realise their plans. This is most likely in terms of assisting with provision of premises for commercial developments/spin outs. But SWRDA may also be able to help the HEIs through its networking with businesses throughout the region.

MS2: Establishment of a Marine Science Park/Incubator Facilities

The possibility of establishing a Marine Science Park has been raised during the course of our consultations. The time would seem opportune to explore further the feasibility of this possibility. It is known that the Plymouth Marine Laboratory wishes to expand, and that the Advanced Composites Manufacturing Centre is keen to widen their involvement in commercial projects. SWRDA is relatively well placed to draw down funds for such a development, and match funding could be secured for capital costs through the ERDF.

The key issues that a feasibility study would need to address are:

- What would be the demand for Science Park or incubator facilities?
- What sort of space and how much accommodation would be required?
- Where might such a facility be located?
- Could the Tamar Science Park have a role in this respect?
- What would the nature of the relationship with the HEIs/Research Centres be?
- What supporting measures could be put in place to foster the commercialisation/spin out of research from the supporting institutions?
- Could/should Marine Project's Testing Centre form part of any proposed development?
- Is there any likelihood of DML generating any requirements for space through its efforts to exploit its research and knowledge base?
- Costs, management, funding and viability.

It is not possible to predict the outcome of such a study. We would have thought it as likely that the conclusions might be that the City would be better served by a number of relatively small incubator developments in the inner area as by a formally designated Science Park.

MS3 Marketing Plymouth as a Location of Marine Engineering and Sciences

Regardless of decisions on the feasibility of developing a science park or incubator facilities, SWRDA and PCC should jointly market Plymouth as a location for marine engineering and marine science businesses. This requires a good understanding of the specialist skills of the marine Research Centres in Plymouth – and a recognition that the best marketing leads may come through the client base and networks of those who work in these centres of expertise. Hence the importance of liaison with the established research centres. There may also be

an opportunity to use major employers, such as Marine Projects, to promote the City at special events and exhibitions, boat shows and so on.

The locational attractions of Plymouth for marine engineering and science and R&D activities should be fully reflected in SWRDA's inward investment marketing campaigns

6 ACTION PLAN FRAMEWORK

Ref/ Action	Project/Description	Cost in £000		Funding	Agencies involved		Ex
		C	R		Leading	Supporting	
SO1	**Marine technologies**			Obj.2 ERDF/ESF Measure P2 2.1, 2.2, 2.3, 2.4, 2.5	SWRDA	PCC	
MT.1	Collaborative working with major employers to assist expansion and diversification		25.0 pa		SWRDA	PCC LLSC DDA	Work with help them developm
MT.2	Action to enhance the competitiveness of the supply chain to DML and Marine Projects and encourage diversification of SME suppliers		80.0	Existing SWRDA budgets for RSO SBS Budgets LLSC Budgets Matched by Obj.2 ERDF and ESF	SWRDA	DML Marine Projects SBS LLSC Marine SW DDA	Improve t businesses Help to se within DM Developm with Mari suppliers. locally bas compete o quality wi suppliers
MT.3	Action to foster the growth and increased competitiveness of SMEs, including the creation of a Skills Task Force		20.0	LLSC funds Matched by Obj. 2 ESF SDF/Obj. 3	SWRDA Marine SW	Plymouth LSP LLSC Employer reps FE colleges Other training providers Skills & Learning Team within SWRDA	Identify tr to a num ensure provision
MT.4	Strengthening the voice of Marine Businesses in Plymouth		10.0	SWRDA & PCC to meet modest core costs	SWRDA PCC	Maritime Plymouth	Establishm representa marine employer chain, developm

Ref/ Action	Project/Description	Cost in £000		Funding	Agencies involved		Ex
		C	R		Leading	Supporting	
SO2	**Marine Tourism**			Obj. 2 ERDF/ESF Measure P3 3.2, 3.3			
TO.1	Enhanced marketing of Plymouth as a cruise port			SWRDA/PCC	SWRDA PCC	Maritime Plymouth	Increase ships calli
i)	Establish Cruise Tourism Task Force			SWRDA/PCC to meet modest set up costs	PCC Plymouth Marketing Bureau	Maritime Plymouth	Increase i regional £1million million by
ii)	Cruise berth feasibility study		20.0	SWRDA/PCC	SWRDA PCC	Maritime Plymouth	month lea of cruise i
iii)	Improvement of cruise passenger landing facilities	£500-1000		Obj 2	SWRDA PCC	Maritime Plymouth	Monitorin feasibility
iv)	Targeted marketing campaign to cruise operating companies		50.0		SWRDA PCC	Maritime Plymouth	cruise ber aim of pr
v)	Initiatives to increase onshore spending opportunities				PCC Plymouth	Maritime Plymouth	a home increased

					Marketing Bureau		region by

Ref/ Action	Project/Description	Cost in £000		Funding	Agencies involved		Exp
		C	**R**		**Leading**	**Supporting**	
TO.2	Marketing of Plymouth as a venue for Watersports Events		50.0	PCC Matched by Obj. 2 ERDF	PCC Plymouth Marketing Bureau	Maritime Plymouth Harbour authorities Marina owners Yacht Clubs Other w/sports operators Hospitality industry Tourism SW	Attracting of water winning s profile ev locations overseas Initiative a speciali market ma Plymouth. marine initiatives
TO.3	Promoting the Development of Watersports Tourism		50.0	Most proposals have to be funded by clubs or operators themselves May be some cases where public/Lottery funding can be used	PCC	Existing operators and clubs	Proactive over time of wa available i Joint mar might m could underpinn investmen virtuous c & greater the City
TO.4	Enhancing the Tourism offer of the Waterfront – Water Bus Feasibility Study		40.0	Jointly funded by SWRDA and PCC	TEC-F	Potential operators Harbour authorities	A brief fo on water-b landing sta

Ref/ Action	Project/Description	Cost in £000		Funding	Agencies involved		Exp
		C	**R**		**Leading**	**Supporting**	
SO3	**Commercial port**						
PO.1	Improving cooperation and coordination between port operating companies and Plymouth planning authorities	-			PCC	Maritime Plymouth	Strengthen Plymouth additional port opera to assess competitiv public sup emergent opportunit
PO.2	Development of MOD(N)/SWRDA/PCC/Marine Sector Liaison Group	-	-	PCC	PCC	Maritime Plymouth MOD	Identifyin requireme earning operators
PO.3	Survey of potential land reclamation sites for port/marine use				SWRDA PCC	Maritime Plymouth	Identificat for port/m
SO4	**Fishing**						

F.1	Establish the feasibility of establishing a new inland fish auction and processing plant		35.0	SWRDA as part of Food and Drink Sector initiative	SWRDA Sutton Harbour Company	PCC	Study de establishir processing

Ref/ Action	Project/Description	Cost in £000		Funding	Agencies involved		Exp
		C	**R**		**Leading**	**Supporting**	
SO5	**Marine science, R&D**			Obj.2 ERDF/ESF Measure P2 2.1, 2.3			
MS.1	Liaison with the Plymouth Centres of Excellence		50.0	Additional funding for a specialist position for 3 years SWRDA matched by Obj 2 ERDF	SWRDA	PML Plymouth university	Develop level with order to RDA, ar partners, to realise t Provision commerci outs
MS.2	Establishment of a Marine Science Park/Incubator facilities – Feasibility Study		40.0	SWRDA Match funding for study costs from ERDF Capital costs likely to be SWRDA/ERDF	SWRDA	PCC HEIs	Identificat needs and
MS.3	Marketing Plymouth as a location of Marine Engineering and Sciences		100.0	Enhancement to existing SWRDA and PCC Inward Investment budget, matched by ERDF	SWRDA PCC	Plymouth Marine Research DML/Marine Projects	Promotion location o and Scien

Working paper 1 - Commercial port activities

Contents

1 INTRODUCTION

1.1 Overview

This working paper examines the current status of commercial port operations within the port of Plymouth and considers the development potential of these, taking into consideration the recent development of existing port traffic and wider industry trends. The paper focuses on the activities of the four port operators of Cattedown Wharves, Victoria Wharf, Pomphlett Quay and Millbay Docks.

The port of Plymouth is encompassed within the Devonport Naval Complex which extends over 3.5 miles of the River Tamar waterfront and covers an area of over 250 hectares. The complex incorporates HMS Drake, the Devonport Naval Base, which are home to a fleet of frigates and submarines and the helicopter carrier HMS Ocean as well as the survey ships of the Royal Navy Hydrographic Surveying Squadron. The RN's two new amphibious support ships, HMS Albion and HMS Bulwark will also be based at Devonport and, following the award of their construction contract to the Dockyard (DML), the new Vanguard class nuclear submarines will also be built and based at Devonport. The Royal Dockyard is Europe's largest marine engineering complex. Now under the private management of Devonport Management Ltd, the Dockyard is responsible for the repair and maintenance of RN vessels and repair, refitting and refuelling of nuclear submarines. Devonport is one of only few locations in the UK with official Nuclear Site Safety Justification – a status that has to be maintained by the imposition of strict safety codes that also affect and impact on commercial shipping activities within the port.

As a consequence of the port's naval status, the de facto statutory harbour authority for the port is the MoD with overriding powers vested in the Queen's Harbour Master (QHM) over all activities carried out within the Devonport and Plymouth port limits. The QHM's jurisdiction extends over an area of 6,000 hectares of water space stretching from 1.5 miles south of the breakwater to the limit of the tidal flow on the Rivers Tamar, Plym and Tavy. The QHM is therefore also the authority in charge of all matters of conservancy in this area including dredging, maintenance of approach channels, supply and maintenance of navigational aids and vessel traffic management systems. All of these essential services are covered by central government funding and as such the related costs are not passed onto to port users in the form of port or light dues, as is the norm in commercial UK ports, therefore providing a direct cost benefit to users and operators alike.

In commercial terms, the Port of Plymouth is Devon's principal port and the SW region's second ranked port after Bristol. Plymouth is a Trust Port and has been involved in discussions with the Government on the future status of the UK trust ports. Port activities are split between the commercial docks of the Cattewater harbour, which focuses on bulk and breakbulk cargo handling, and the Millbay Docks, which encompasses a modern ferry port, owned and operated by Associated British Ports (ABP). Millbay also provides principal facilities for the cruise ships calling at Plymouth – a business that has undergone a revival over the last two years.

The Cattewater Harbour Commission is the Competent Harbour Authority for the whole of the Port of Plymouth, responsible for the safe navigation of vessels and conservancy functions and for providing commercial pilotage to vessels on a 24 hour basis.

The Cattewater operators are currently handling approximately 1.7 million tonnes per annum of mixed bulk cargoes per annum, of which 1.1 million tonnes is represented by imports of petroleum products. The other significant trades are in imported agribulks, namely animal feeds and fertilisers and exports of china clay and aggregates. A bunker barge operation, managed by Conoco is also berthed alongside Cattewater Wharves for supply of marine gas oil to vessels berthed alongside or at anchor in Plymouth Sound.

ABP owns and operates Millbay Docks with operations centring on the Continental ferryport. The ferryport has benefited from substantial investment by ABP supported by ERDF funding, including the construction of a new terminal building; two covered automated walkways for passengers, a second ro-ro linkspan and new freight and car marshalling areas. The Millbay ferryport revolves around the Brittany Ferries year round services into Roscoff and Santander. In 1999 more than 630,000 passengers, 178,000 cars and 7,000 goods vehicles transited the port using the Brittany Ferries operation. In addition in 1999, 20 cruise ships called at the port with berthing provided either at the ferryport ro-ro berths draft and ferry timetable permitting, or else in Plymouth Sound anchorages with passengers being ferried to shore by tenders.

1.2 Port facilities

Table 1 Plymouth port facilities

Facility	No of berths	Quay Length (m)	Max draft (m)	Max ship size	Comments
Cattedown Wharves	2	217	7.6	8,000 dwt 160m loa 28m beam	3 level luffing cranes: 5t, 6t, 12t for dry cargo handling Exports of petroleum products by 4 marine discharge arms at common user facility west end of berth 5,100m^2 covered storage
Tanker berth	1	170	7.6		
Victoria Wharf	3	144(W) 106(E)	7.0	5,000dwt 130m loa 17m beam	Mobile cranes, bulk conveyors 5,000m^2 covered storage 2 grain silos
Pomphlett Quay	1		6.0	4,000dwt 100m loa 15m beam	Dedicated stone export facility
Millbay Docks:	1	145	6.1	200m loa 20m beam	6 tugmasters 6 10t forklifts
Ro-ro berth 1	1	200	8.5	8.5m draft	5,420m^2 covered storage
Ro-ro berth 2					West Wharf also used for cruise ships

(West Wharf) Trinity Pier Outer basin	1	100 412	4.6 8.5		approx 6 acres on E. side of docks unused

Source: Port of Plymouth brochure; Fairplay World Port Directory, MDS Transmodal

Cattedown Wharves

Cattedown Wharves Ltd is the private owner and manager of three berths at the eastern end of the Cattewater. The firm is part of the Everard Group of companies which also owns and operates a fleet of coastal bulk carriers and tankers.

The main activity of the Wharves is the import of petroleum products, including petroleum, diesel, heating and marine gas oil. Products are delivered by coastal tankers from refineries in the North East and Swansea to storage tanks, owned by Esso, Shell, BP and Conoco, which are located directly adjacent to the berth. These represent the main terminals at the centre of the oil companies' distribution networks for the South West region. Discharge of products is effected via a common user facility at the west end of the wharf. The volume handled at the berth has stabilised recently at around 1.2 million tonnes a year. In 1999 a total of 245 tankers called at the facility, the majority of which are typically small vessels of 5-6,000 dwt although an increasing number of 16-20,000 dwt vessels are handled.

Cattedown Wharves is also the main import facility for animal feeds, which represents 45-50% of all dry bulk traffic handled by the port as a whole. Other goods include fertilisers, timber, cement, coal, and small quantities of salt, clay and grit. A significant volume of fish is also discharged here for direct delivery to an adjoining fish processing company.

The company has recently invested heavily (£800,000) in two new purpose-built warehouses, both of around 2,500-3,000t capacity and each with the potential to handle a throughput of 25,000 tonnes pa. These are committed to existing business/customers and expansion potential of the current site is exhausted. Part of the development has only been achieved by issuing notice to the existing coal yard to quit the site. Quoted discharge speeds for bulk are 2,000tph subject to road transport, where discharge is direct from ship by grab unloader to trucks waiting on the quayside.

Cargoes handled at Cattewater are distributed throughout Devon and Cornwall and West Somerset by road. An increase in cargo handling would lead to traffic issues. For example, it is not unusual for 1,000 tonnes to be moved in a day, requiring 50-80 truck movements. In a direct delivery operation (i.e. direct from ship to consignee) trucks must be queued and waiting in the access road.

The volume of dry cargo handled at Cattedown Wharves represents about a 35% share of the total dry cargo throughput at the port, while it is the only facility offering liquid bulk facilities.

Victoria Wharf

Victoria Wharf has undergone significant upgrade and improvement in recent years by the private operator of this facility, the company being owned by a local entrepreneur. The facility and is well equipped and offers three berths over a total quay length of 250m, although the configuration means that berthing of only one vessel at a time is possible. Victoria Wharves is the primary facility in the port for handling exports of china clay. Around 160,000 tonnes were exported in 1999/00. Other exports include grain and scrap, while imports include small parcels of feedstuffs, timber and general cargo. The wharf's back up area includes 5,000m^2 of warehousing and two grain silos.

Currently Victoria Wharves handles around half of the port's total dry bulk cargo throughput.

Millbay Docks

Millbay Docks is located to the west of the city centre and includes the most significant area of designated port related land in Plymouth. It is operated by ABP and is one of 23 ports owned by the UK's largest port operator. Plymouth is designated as one of 12 ports in ABP's recently created shortsea shipping division. Other ports in this group include King's Lynn, Lowestoft, Ipswich, Whitby, Teignmouth, Garston and Fleetwood, Barrow, Silloth and Ayr and Troon. Day to day management of the port is the responsibility of the local ABP Port Manager who is accountable to the manager of the shortsea ports group. ABP employs a total of 23 people on site.

Today, operations are focussed around two ro-ro berths forming the continental ferryport and the base for Brittany Ferries' daily services into Roscoff in northern France and less frequent operation into Santander in Spain. The terminal is the principal facility of this kind in the Southwest. The two Ro-ro berths can accommodate vessels of up to 200m in length and 8.5 metres draft. Cruise liners are also accommodated here, however pressure on the use of the berth by Brittany Ferries imposes time constraints on other vessels. Deeper drafted cruise ships anchor in Plymouth Sound with ship to shore transport for passengers arranged by the ships' agents.

Berthing for other ship types of up to 100m length and 4.6m maximum draft is possible at Trinity Pier. Part of the pier is also leased to Serco Denholm for use by the company's supply vessels and tenders, both for services to commercial and navy vessels. All other berths are no longer in active use and the inner basin is closed to shipping.

While ABP has invested heavily in upgrading the Ro-ro terminal, including the second linkspan, new terminal building and improved marshalling areas, the remaining site, including the Middle Basin berths, sheds and open storage space covering an area of around 30,000m^2, is virtually unused and in poor condition.

The southern end of the dock area together with Millbay Pier, which delimits the Outer Basin area, was disposed of some time ago and is now being developed for waterfront housing and apartments and 100-berth marina forming the Millbay Village development.

Pomphlett jetty

The Pomphlett jetty on the south bank of the Cattewater harbour is a dedicated user facility operated by Bardon Aggregates Plc for the export of limestone from its nearby Moorcroft Quarry. The quarry produces up to 1 million tonnes of stone a year, about 10% of which (90-100,000 tonnes annually) is shipped out over the stone jetty in Plymouth. Volumes have contracted recently from the 200,000 tonnes pa volume that was typically shipped out in the early1990s. Shipments are normally destined for Northfleet in Kent for firms involved in production of construction materials in the South East. Occasional shipments are to other destinations in the UK and Europe.

1.3 Employment

Total direct employment generated directly by the port's commercial activities is estimated at approximately 80 people as follows:

Organisation	Number of employees
Cattewater Harbour Commission	13
Cattedown Wharves	19
Victoria Wharf	15
Millbay Docks (ABP)	23
Pomphlett Jetty	6
Total	**76**

1.4 Operational constraints

Tidal restrictions

Plymouth is a relatively deep drafted port in terms of approach channels and at some berths, compared with other regional south coast ports. Drafts of 8.5m are maintained in Millbay Docks roro berth no 2 at all states of the tide. However deep drafted cargo ships have to wait for the tide for sufficient depth on entry and exit to the Cattewater berths and in order to comply with QHM keel clearance requirements.

Channel approach

The swinging basin in the Cattewater limits the maximum vessel size to the Cattewater berths to 150m

Pilotage

Pilotage is compulsory for all vessels in excess of 100m.

Naval restrictions

The commercial port is subject to navigational safety requirements of the QHM. The port is currently subject to a recently revised under keel clearance requirement of 2 metres while underway and 1 metre at anchor. Specific draft restrictions for vessels at anchor are: Vessels up to 200m – maximum draft of 7.1m plus low water depth; Vessels over 200m – maximum draft 6.6m plus low water depth.

One of the reasons for this requirement is that larger vessels that cannot be accommodated at the port's berths have to anchor in Plymouth Sound. Here, vessels may be prone to drift into the main approach channels, which is not permissible. This has had an impact on some of the deeper drafted cruise ships using the port, which consequently may be unable to call at Plymouth in future. Deeper moorings are located in the Sound but are not accessible to commercial vessels.

In normal commercial situations, it would be normal to allow 1.5m under keel while under way, but this would not address the issue of length.

A further limitation on cruise ship entry to the port are Operational Sea Training activities, which means that the harbour is busy on most weekdays between 0700-0845. Most cruise liners would prefer to get into port early, but are restricted by the navy's first call over the channel. Again to be fair, because the MOD is responsible for all matters of conservancy within the Sound, visiting vessels are not required to pay any harbour dues (these are normally charged on the basis of gt or length), therefore Plymouth is a relatively cheap port

The port is also subject to occasional ad hoc closure to commercial shipping for periods of 2-3 hours to accommodate specific Navy manoeuvres.

1.5 Hinterland access

Road: In general the hinterland access into Plymouth is good and has improved greatly in recent years as a result of the upgrading of the A38 Devon Expressway. This feeds into the M5 at Exeter, providing fast access to the Midlands and North.

From the point of view of adequacy of immediate port access Plymouth is an example of a City of two halves, with access to the Cattewater operators to the east superior to that of the Millbay area to the west of the city centre, but with the paradox that because of space constraints, the Cattewater has little potential for the expansion of port operations. The immediate road to Victoria Wharf is considered to be unsatisfactory in terms of access for trucks and with the road pavement being of poor condition. Nevertheless, the area has benefited from a recent major land reclamation and regeneration project including the construction of link roads direct to the A374, which is for the most part a dual carriageway link to the A38.

On the other hand, Millbay has become the focus of port development aspirations recently because of the amount of unutilised quayside space, however a limiting factor, though not the primary one, is traffic congestion through the city centre.

Rail: Rail links into the port are virtually non-existent. A single gauge siding runs from the main network to the Cattewater tank storage area and is used infrequently by freight trains transporting fuels to regional distribution centres. The only other link direct to waterfront area is in the Devonport Dockyard. This is routed through a secure area and is not accessible to users other than DML and HMS Drake.

2 PORT TRAFFIC DEVELOPMENT

2.1 Total port traffic 1990-2000

A summary of port traffic development at the port of Plymouth over the last ten years is provided in Tables 2 to 5. A detailed breakdown of this traffic by commodity is provided in Annexe A. Total port throughput amounted to 1.67 million tonnes in 2000, 68% of which is accounted for by the main trade in imported petroleum products. The number of ship calls, which in recent years has totalled around 1,100 a year, declined to just over 800 in 1999 mainly reflecting a fall in the number of visits by ro-ro vessels and also to an extent dry cargo ships. Over 90% of calls to Plymouth are by vessels of less than 5,000 dwt, reflecting the traditional shortsea/coastal orientation of the port.

2.2 Liquid bulk traffic

Imports of petroleum products to Plymouth have increased by 36% in volume over the last ten years and currently amount around 1.1 million tonnes. The average annual growth rate in this traffic over the period was 3%. Tank storage capacity is sufficient at present, although plans to dispose of some of the tanks have apparently receded, possibly in view of the increase in volume. Exports of bunkers fuels have fallen over recent years, and currently total around 23,000 tonnes a year.

Consignment sizes for products are typically of 3-5,000 tonnes and the trade remains essentially a small ship trade. The principal users of the facility are the Everard Group and James Fisher, whose vessels are 3,700 dwt and 4,500 dwt. However the number of ship calls generated by this traffic has decreased, reflecting a growth in the proportion of larger coastal tankers in use. Vessels in excess of 10,000 dwt and up to 20,000 dwt currently account for nearly 30% of calls compared with 20% ten years ago.

2.3 Dry bulk traffic

The current throughput of dry bulk traffic amounts to around 500,000 tonnes per annum. There are four primary traffics including two traditional local export trades of stone and clay which have stabilised or declined recently, counterbalanced by the development of trade in imported animal feeds, which increased from 20,000 tonnes in 1999 to over 100,000 tonnes in 2000 following the successful negotiation of new contracts by Cattewater Wharves Ltd; and imports of fertilisers, which have built up to around 90,000 tonnes a year.

Consignment sizes for animal feeds are small at an average of 2,000 tonnes and this traffic alone generated more than 60 ship calls in the last year. The trade has a seasonal element linked to the requirements of cattle farmers and during peak months 10-12 vessels may call at the berth. Vessels are turned around quickly with discharge rates averaging 150tph, however during peak times the operation is under pressure, not helped by shortage of back up area and storage space.

Other growth trades include imported fish, which has developed over the last six or seven years into a 13,000 tonne trade in 2000. Volumes of timber imports have also revived slightly in the last three years, but are less significant at 3-4,000 tonnes a year. Exports of scrap metal have also become a feature since the mid 1990s now totalling around 10,000 tonnes a year.

2.4 Ro-ro traffic

ABP has along term agreement in place with Brittany Ferries, which runs a year round ro-ro service out of the Millbay ferryport to Roscoff, ranging from twice weekly in the winter months up to 14 sailings a week at high season. A seasonal service is also operated to the Spanish port of Santander, running twice weekly from March to November. Brittany Ferries also operates three further West Channel services, including two services out of Poole to Cherbourg and St Malo and its major Portsmouth-Caen service, which is currently used by close to 1 million passengers and 270,000 cars every year.

Freight traffic

Plymouth traffic volumes are generally down compared with five or six years ago. Goods vehicle traffic in particular has declined by 70% on the Roscoff route and by 24% on the Santander route. There are various reasons for the decline, principally being the growth in Cross-Channel competition, the introduction of the Channel Tunnel and Eurotunnel road and rail options after 1995 and the impact of the abolition of duty-free sales in 1999. Brittany Ferries has also reduced the frequency of sailings on both routes in recent years while in 1999 results will have been affected by the withdrawal of the *Val de Loire* from service for two weeks in 2000 because of technical problems.

Also contributing to the decline, particularly in goods vehicle transits, is Brittany Ferries' own strategy which places emphasis on the Caen-Portsmouth route. The company's recently announced fleet renewal programme has begun with a Ffr800m order for a new car ferry on this route for delivery in early 2002. The new vessel will have a capacity for 2,120 passengers, 800 vehicles and 130 lorries. This will replace the *Duc de Normandie*, the smaller of the two vessels currently operating on the Caen-Portsmouth service, which will be used to replace the *Quiberon* on the Plymouth-Roscoff line. Part of the pressure to increase capacity on the Caen-Portsmouth line has come from the Normandy local authorities, which are shareholders in Brittany Ferries' partner shipowning company Senacal, and which were concerned over the impact of insufficient capacity for the growing freight business. Britanny Ferries' freight division Truckline had chartered a ro-ro vessel *Purbeck* to operate a back-up freight service on the Caen-Portsmouth route during the summer.

Table 2

Total bulk and dry cargo traffic – 1990-2000

(thousand tonnes)

Year	Total	Liquid bulk		Dry bulk		General cargo[1]	
		Imports	Exports	Imports	Exports	Imports	Exports
1990	1,392.7	840.5	36.5	161.8	349.4	3.1	1.3
1991	1,290.0	850.8	36.8	110.5	289.7	0.7	1.6
1992	1,346.5	855.1	40.2	117.5	333.2	0.0	0.5
1993	1,439.7	941.4	32.6	83.3	381.9	0.0	0.4
1994	1,481.6	1,020.4	28.8	105.7	324.7	2.1	0.0
1995	1,502.9	1,042.7	26.6	152.6	272.4	7.8	0.7
1996	1,626.2	1,069.7	27.7	192.8	332.2	4.1	0.7
1997	1,730.3	1,171.6	42.6	157.8	348.5	10.1	0.6
1998	1,680.3	1,111.8	22.4	152.1	390.4	5.3	0.7
1999	1,640.4	1,119.7	22.9	145.6	351.1	1.2	2.1
2000	1,668.7	1,140.3	23.2	221.7	281.7	1.8	0.0
Average growth pa (%)	1.9	3.2	-1.4	6.9	-1.0	4.8[2]	20.5[2]

(1) includes imported paper (2) refers to five year period 1995-00

Source: based on data supplied by Cattewater Harbour Commissioners

Table 3

Ferryport traffic 1989-1999

Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Passengers (thousands)											
Plymouth - Roscoff	409	490	555	436	551	530	487	425	500	511	494
Plymouth - Santander	127	150	151	131	154	176	161	167	144	144	138

Total	536	640	706	567	705	706	648	592	644	655	632
Cars (thousands)											
Plymouth - Roscoff	99	121	142	112	145	139	128	112	140	140	139
Plymouth - Santander	43	52	52	43	44	44	42	45	50	38	39
Total	142	173	194	155	189	183	170	157	190	178	178
Coaches (thousands)											
Plymouth - Roscoff	1	inc	1	1	1	1	1	1	1	1	1
Plymouth - Santander	0	inc	-	-	0	0	0	0	0	0	0
Total	1	0	1	1	1	1	1	1	1	1	1
Goods Vehicles (thousands)											
Plymouth - Roscoff	15	11	10	10	9	8	7	5	4	4	3
Plymouth - Santander	3	4	5	5	4	4	4	4	4	4	3
Total	17	16	16	15	13	12	10	9	8	8	7

Source: Cruise & Ferry Info

Table 4

Number of freight units by route

Year	*Number of freight units by route*	
	Plymouth - Roscoff	**Plymouth Santander**
1990	11,434	4,165
1991	10,142	5,493
1992	9,658	4,910
1993	9,217	4,243
1994	8,082	3,695
1995	6,654	3,748
1996	4,654	4,153
1997	4,213	4,000
1998	3,934	3,768
1999	3,392	3,149

Source: Cruise & Ferry Info

Table 5

Ship arrivals*, by type and deadweight

Ship type	Size (dwt)	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Tankers	1 to 4999	206	215	222	235	222	197	224	157	173	175	176
	5000 to 19999	46	51	24	38	68	71	50	59	78	69	64
	20000 to 99999	4	3	5	7	4	10	3	5		10	5
	100000 plus								1			
Ro-Ro	1 to 4999	615	610	619	565	611	573	535	445	526	467	299
	5000 to 19999	7	8	11	6	5		7	8	2	4	2
	20000 plus		1						1			
Container	1 to 4999		2	1						3		
	5000 to 19999											
	20000 plus											
Other Dry Cargo	1 to 4999	437	337	348	292	239	290	275	234	335	285	239
	5000 to 19999	5				9	9	11	4	6	11	15
	20000 to 99999		1				1		1	1	2	2
	100000 plus								2			
	Unknown								164			
	Total	**1320**	**1228**	**1230**	**1143**	**1158**	**1151**	**1105**	**917**	**1124**	**1023**	**802**

* Arrivals relate to movements of sea-gong vessels of 100gt and over. Excludes vessels of war and those carrying goods for government departments, tugs and other similar vessels, other dredgers, supply, support and research vessels, fishing vessels, pleasure yachts and vessels entering to land sick or injured crew members.

Source: UK Maritime Statistics, DETR

Passenger traffic

International Passenger Survey data (Table 6) shows that 50% of all passengers, using the Plymouth-Roscoff service originate from Devon and Cornwall, while passengers from the South West region including Avon, Dorset and Somerset account for approximately 57% of all journeys. Other key source locations for passengers are the Midlands and North West. The Santander service is less dependent on the southwest for passengers, reflecting the fact that there are fewer alternative services offering options into Spain.

2.5 Cruise shipping

The Port of Plymouth's heritage as a destination for cruise liners, remembering the days of mail ships and elegant ocean liners to the United States, South Africa and Australia had faded into memory and, until recently, the cruise business had declined to perhaps a half dozen calls a year by smaller vessels operating in niche North European cruise markets. However, a focussed marketing campaign by ABP, with the assistance of the City Council, has lifted the profile of Plymouth as a cruise destination over the last 18 months. So far the campaign has targeted selected European and US operators

It resulted in an increase in the number of calls by cruise vessels to 20 between April and November 2000 the highest number in 40 years. These included visits by Princess Cruise Line's 45,000 tonne *Royal Princess* and the 69,845 tonne *Crown Princess* and Royal Caribbean Line's similar *Splendour of the Seas*. These vessels carry 1,200-1,500 passengers on each visit.

Most of the cruise calls were for day visits, however the *Deutschland* took on passengers at Plymouth joining the ship's round-world tour and later in the year the 9,470 tonne *Funchal*, operated by tour operators Travelscope and Festive Cruises, made five turnaround calls from Plymouth for cruises for the Iberian Peninsula and Mediterranean.

Most of the cruise ships are able to berth at the West Wharf in Millbay Docks. Vessels of more than 6.5m in theory could use the ro-ro berth no.2, but are under pressure to vacate by Brittany Ferries' sailing schedules, which take precedence. Occasionally criticism has been levelled at ABP concerning landing conditions for cruise passengers arriving by tender in Millbay and alternative solutions need to be considered.

Our research has shown that the total expenditure in the sub region by the cruise ships calling at Plymouth and their passengers amounted to approximately £1.3 million in 2000. This figure includes port charges, agency fees, expenditure on organised shore excursions and casual spending by passengers and crew while ashore. This figure equates to approximately £50 per passenger landed.

Table 6
O/D for UK passengers from Plymouth in 1999 (thousand trips)

Plymouth - Roscoff						Plymouth - Santander			
COUNTY	France	Italy	Portugal	Spain	Switz	COUNTY	France	Portugal	Spain
Avon	9289			2170	1639	Avon			6838
Cardiff	5311					Cardiff			3698
Cheshire	8071					Cumbria			3278
Cornwall	48003	1639		1085		Cheshire			2351
Devon	134087		1515	8025		Cornwall			5253
Dorset				2170		Devon	3684	836	17767
Gloucester	10671					Dorset			5096
Here&Worcs	11707			1085		Here&Worcs			3887
Hertfordshire	3457			2170		Manchester	836		5743
Lancashire	6962			1085		Monmouth			2045
Leicester	4917			2600		N Ireland			2372
Lothian	4917					N Yorks			2475
Manchester	8071					Notts			4363
Merseyside	6432			1085		Somerset			5075
S Yorks	8556			1085		Staffords			2351
Somerset	7269			1085		W Midlands			3990
Staffords	1639			3685		W Yorks			3278
Swansea	2348			1085		Warwicks			2372
W Midlands	12649					Wiltshire			2059
W Yorks	3560								
Wiltshire	4396		1085	2170					
Others	44702								
Total	347014	1639	2600	33840	1639	Total	5356	3187	106881
Grand total	386732					Grand total	115,424		

Source: IPS

Table 7
Cruise ship visits 2000

Vessel	No of visits	gt	Loa (m)	Beam (m)	Draft (m)	Max passengers
Sea Cloud	1	2,532	110	15	4.9	68
Berlin	1	9,570	140	17.5	4.8	420
Funchal	6	9,563	153	19	6.3	442
Astra II	1	9,848	130	19.5	5.3	509

Maxim Gorky	3	24,220	195	27	8.3	600
Deutschland	1	22,400	175	23	6.0	600
Ocean Majesty	1	10,417	131	19	5.4	613
Royal Princess	3	44,588	231	32	7.8	1,260
Crown Princess	1	69,845	245	32	8.1	1,900
Splendour of the Seas	2	69,130	264	36	7.5	2,066

Source: QHM

3 SHIPPING MARKET TRENDS

3.1 INTRODUCTION

This section considers the key issues related to maritime markets and competitor modes (road and rail) and therefore describes the market environment in which the Port of Plymouth operates. It addresses the following issues:

- Trend analysis for regional port traffic
- Ship size analysis
- Key requirements and developments in key shipping sectors
- Key requirements and developments in the cruise market
- Developments in the road haulage and rail freight industries

3.2 Regional port traffic

Table 8 shows freight traffic volumes through the range of ports from Gloucester to Dover for selected years for the period 1985-99.

The analysis suggests that there is generally a concentration of traffic on the larger ports, particularly after 1990. In the West Country all ports, except Plymouth have lost traffic since 1990. Plymouth port traffic now represents a 25% share of all traffic through West Country ports. A similar trend is seen with the English Bristol Channel ports, with a concentration of traffic on Bristol. On the south coast there is an increasing concentration of traffic through the largest ports of Southampton, Portsmouth and Dover.

The main reason for this is that the larger ports offer economies of scale to shippers as deeper water ports can accommodate larger ships, providing shipping economies of scale; the larger ports are also becoming transhipment/distribution hubs for a wide variety of traffics due to the economies of scale provided by a concentration of activities. The larger ports tend to have excellent road rail hinterland connections. Larger ports such as Southampton, Portsmouth, Bristol and Dover are located relatively close to major markets such as the West Midlands and London/South East England.

This trend has accelerated since 1989, following the abolition of the National Dock Labour Scheme. The larger Scheme ports, such as Southampton, Bristol and Felixstowe have become more efficient and therefore have been able to capitalise on their natural geographical markets

Table 8
Freight traffic volumes through SW and South Coast ports 1985-99
(Thousand tonnes)

	1985	1990	1995	1999	*Change 85-90*	*Change 90-99*
West Country Ports						
Falmouth	221	591	504	398	*167%*	*-33%*
Par	594	753	695	605	*27%*	*-20%*
Fowey	1,511	1,566	1,656	1,451	*4%*	*-7%*
Plymouth	1,589	1,498	1,650	1,671	*-6%*	*12%*
Teignmouth	608	889	691	654	*46%*	*-26%*
Exmouth (incl. Exeter)	572	37	38	-	*-94%*	*-100%*
Poole	1,538	1,891	1,727	1,581	*23%*	*-16%*
Other West Country	598	465	357	239	*-22%*	*-49%*
Total	**7,231**	**7,690**	**7,318**	**6,599**	***6%***	***-14%***
Bristol Channel Ports						
Gloucester & Sharpness	730	499	398	427	*-32%*	*-14%*
Bristol	3,834	4,852	7,319	7,615	*27%*	*57%*
Bridgewater	431	165	80	59	*-62%*	*-64%*
Other Bristol Channel	484	483	199	206	*0%*	*-57%*
Total	**5,479**	**5,999**	**7,996**	**8,307**	***9%***	***38%***
South Coast Ports						
Southampton	25,162	28,849	32,383	33,289	*15%*	*15%*
Portsmouth	1,991	2,637	4,392	4,317	*32%*	*64%*
Littlehampton	371	319	249	173	*-14%*	*-46%*
Shoreham	2,662	2,641	2,030	1,708	*-1%*	*-35%*
Newhaven	1,608	1,964	898	461	*22%*	*-77%*
Other Sussex & Hants	477	376	492	706	*-21%*	*88%*
Folkestone	476	659	73	462	*38%*	*-30%*
Dover	9,267	13,031	12,671	19,387	*41%*	*49%*
Total	**42,014**	**50,476**	**53,188**	**60,503**	***20%***	***20%***

Source: DETR Port/Maritime Statistics

At the regional level, the comparative throughput statistics for Plymouth are encouraging, however, as the previous section has shown, the principal element of this trade is petroleum products, for which there is no regional competitor. In the dry bulk market on the other hand, Teignmouth and Fowey are competitors, particularly animal feeds and fertilisers, although both have exhibited a decline in overall volumes recently. Fowey can handle vessels of up to 17,000 dwt while Teignmouth is draft restricted both at the berths and in the approach over sandbanks fronting the entrance to the River Teign. However, the reported future expansion plans for the port include a substantial dredging programme to improve the

navigable channel for larger vessels and the provision of further quayside warehousing.

3.3 Bulk commodities

As a general rule, bulk commodities such as fertilisers, scrap metal and animal feedstuffs are low value and will not justify significant inland distribution costs. They are, however, ideal cargoes to be handled by ports such as Plymouth in the Southwest, where road mileages can be minimised by taking cargoes to the port closest to the inland origin or destination.

There is believed to be generally no shortage of port capacity for bulk commodities in the UK as a whole. However, MDS Transmodal has predicted in the past that additional dry bulk capacity would be required by 2010 on the Tees, the Humber and at Bristol, but not in the rest of England, unless there is a demand generated by an individual new processing or manufacturing plant.

The key issue in this market is the trend in ship sizes of short sea dry cargo vessels. These vessels are generally getting larger, largely driven by shipowners seeking operational economies of scale, as well as some demand from shippers for larger consignments. The following table provides an analysis of dry cargo short sea vessels on order in North West Europe between 1992 and 2000.

Table 9
Percentage of dry cargo newbuilds by DWT

DWT	1992	1994	1996	1998	2000
<1000	0	3	4	1	0
1,000-2,999	25	20	20	11	15
3,000-4,999	36	25	25	22	35
5,000-6,999	21	17	23	22	12
7,000-8,999	9	15	5	12	12
9,000-10,999	2	5	7	7	8
>10,000	8	15	17	25	18
% < 3000 dwt	25	24	23	12	15
% > 3000 dwt	75	76	77	88	85

Source: Fairplay Newbuilds

Even in 1992, only a small number of vessels under 1000 dwt were being built and about 25% of vessels were less than 3000 dwt. By 2000, only 15% of newbuilds were under 3000 dwt. This means that there are fewer and fewer vessels under 1000 dwt that are available for shippers and there is a trend towards vessels over 3000 dwt. In favour of Plymouth, we see that the number of vessels on order in the 3-5,000 dwt category, which is an important sector for Plymouth port, has increased in the last two years.

Conclusion: Plymouth is an important port for local import and export of bulk commodities and newbuilding trends show that this market will continue to be serviced the small ships

sector, i.e. vessels of less than 5,000 dwt. The trend towards vessels of more than 3,000 dwt may favour Plymouth over some regional ports with greater draft restrictions. Victoria Wharf may be at a disadvantage in this respect, while both Victoria and Cattedown Wharves are restricted by availability of storage and back up space. Competitors for markets served by Plymouth include Teignmouth and Fowey.

3.4 Coastal tanker market

Coastal tankers are operated by both the oil companies' (e.g. BP Oil and Shell UK) and independent operators. The main independent operators are P&O Tankships, which was purchased by James Fisher a few years ago, and Everard. Both of these are regular callers at Plymouth. The traditional size of vessel is between 2,000dwt and 6,400 dwt due to the relatively short distances involved and the nature of the port facilities. On some routes, such as between Finnart on the west coast of Scotland and Swansea/Plymouth, much larger tankers of about 14,500 dwt are employed, making far fewer voyages. The tankers form part of the distribution chain between oil refineries and the end user, transporting clean petroleum products from oil refineries to storage, prior to distribution, often by road tanker. The operators' man customers are therefore the oil companies.

Tankers represent major capital investments and the operators therefore seek to secure future revenues by entering into medium-term contracts of affreightment (COAs) for a duration of 1-3 years. James Fisher (now including the former P&O Tankships) obtains the greater proportion of its turnover from Shell. Operators seek to optimise revenues by obtaining further cargoes on the spot charter market.

The oil companies use COAs to ship base levels of refined product and use the spot markets to ship any additional cargo. They are always seeking to reduce costs and so are generally open to more cost efficient and operationally more efficient methods of shipping their product. Some already use rail, for example, BP from Grangemouth to NW England and in and out of Saltend; Phillips Petroleum fro Tees to NW England, Yorkshire and the Midlands, and Conoco from Immingham to the Midlands. They are therefore generally positive about rail as an alternative.

Conclusion: In the case of Plymouth, the coastal tanker trade is secured by the presence of the oil company tank farms, while newbuilding trends indicate that the companies involved remain committed to building vessels of less than 8,000 dwt (Table 10). For the foreseeable future therefore this traffic will continue to represent a central activity for the port. The rail link into the Cattewater could offer greater competition to distribution by road in the future, rather than being a competitor to coastal tankers.

Table 10
Short Sea Tanker New Buildings

	July

	1992	1994	1996	1998	2000
Number Vessels					
tdw					
<1,999	58	43	36	19	17
2,000-3,999	47	44	50	34	26
4,000-5,999	62	31	59	39	22
6,000-7,999	43	36	24	50	26
8,000-9,999	31	13	19	18	8
10,000-11,999	9	9	20	17	4
Total Vessels	250	176	208	177	103
% Vessels					
tdw					
<1,999	23	24	17	11	17
2,000-3,999	19	25	24	19	25
4,000-5,999	25	18	28	22	21
6,000-7,999	17	20	12	28	25
8,000-9,999	12	7	9	10	8
10,000-11,999	4	5	10	10	4
% < 4,000	42	49	41	30	42
% > 4,000	58	51	59	70	58

Source: Fairplay newbuilds

3.5 Deep sea container market

According to historical trends the two fastest growing sectors in port traffic over the period 1973-99 have been trailers to and from the Near Continent (over 400% increase) and deep sea containers (over 300% increase). The annual growth rate for deep sea containers was 5.4% per annum between 1973 and 1983 and 6.6% per annum thereafter. This is due to trade liberalisation and the globalisation of the world economy.

In the last five years there has been a rapid increase in the size of deep sea container vessels being operated and ordered by the world's largest lines. Over the last five years the size of container vessels has increased dramatically, so that by 1998 about 12% of all container ship capacity is over 4500 TEU whereas in 1993 there were no ships of this size in operation. The average size of vessels under construction is now about 5000 TEU and the largest have a theoretical capacity of 8000 TEU. The lines have increased the size of their ships in order to achieve operational economies of scale and these economies can mainly be achieved on their Europe-Far East and Transpacific services.

The implications for deepsea container ports are twofold. Firstly, the ports need to be able to accommodate ships of at least 14 metres in draft. This not only means that the depth alongside the quays needs to be more than 14 metres, but the approach channels also need to be dredged to the correct depth to allow the deep drafted vessels to enter the port for about 12 hours a day. Secondly, the ports need more land to allow the new larger ships to be loaded and discharged rapidly. As a rule of thumb, the ports will need 500-600 metres of depth behind the quay for container storage and handling, excluding the space required for any ancillary services or a rail terminal.

There are, at present, only two existing ports in the UK that can provide the depth of water required to compete in this market:

Southampton	15 metres
Felixstowe	14 metres

The deep sea lines have adopted two main strategies to maintain the frequency of their services and still fill the larger ships they are now building and operating. Firstly, the lines have adopted a strategy of **consolidation** by forming alliances to combine fleets and selling slots on each other's ships. The second strategy is **transhipment,** where the deep sea vessels call at only a few very large "transhipment hub" container ports, with traffic from smaller ports being fed to and from the hub on short sea feeder vessels. This means that deep sea lines are, as a general rule, only making one call at a UK port, one call at a Benelux port (Zeebrugge, Rotterdam or Antwerp) and one port in Germany (either Bremerhaven or Hamburg).

Although most deepsea container ports have multi-user facilities, the combination of consolidation and transhipment has resulted in the larger alliances increasingly pressing for very large dedicated terminal facilities of about 1,000 quay metres at their chosen hub ports. By about 2010 the larger alliances may be seeking sole use of up to 2,000 metres of quay.

The SE of England is the ideal location in the UK for deep sea container ports as the region is close to the main UK domestic market and there is minimum diversion from the Gibraltar-Channel-Benelux route (see Table 10 below). A diversion to the Humber or Mersey would be too expensive in ships' time and ports further west on the English Channel (including Plymouth) are too remote from the major domestic markets.

To handle UK import and export traffic (as opposed to transhipment traffic, which is not moved inland) a deep sea port requires proximity to the major markets, particularly London and the West Midlands, and good road and rail links inland. The Table below shows the road distances from the main deep sea container ports to London, Birmingham, Manchester and Glasgow in comparison to Plymouth.

Table 11
Road distances from deep sea container ports to major cities

	London	Birmingham	Manchester	Glasgow
Thamesport	43	169	252	459
Felixstowe	89	166	228	422
Southampton	80	134	227	433
Tilbury	30	149	231	438
Liverpool	216	101	35	222
Plymouth	241	203	287	497
Falmouth	300	263	346	552

Source: AA Milemaster

In summary, container ports require the following to compete in the deepsea market for the foreseeable future:

- location in SE England
- 14 metres of water at the quay
- 14 metres depth in access channel to allow access for 12 hours a day
- 500-600 metres of quay space behind the quay
- adequate road and particularly rail hinterland infrastructure for national inland distribution
- at least 1000 metres of quay to accommodate the requirements of an individual alliance; this could rise to 2000 metres of quay by 2011

Conclusion: a deepwater port in Plymouth is very unlikely to be an economic proposition, particularly given the huge cost of developing a deepsea container transhipment port. Even if sufficient depth of water and sufficient land for container storage was available, Devon is remote from major markets relative to other existing container ports. Even rail distribution inland is unlikely to be economic, particularly as the loading gauge is not cleared for 9 foot 6 inch high boxes, which are increasingly being used by the deepsea container operators.

3.6 SHORT SEA CONTAINER MARKET

Some of the short sea container traffic handled at ports such as Southampton and Bristol is genuine intra-European short sea boxes for trade between the UK and Ireland (e.g. from Bristol) and the Iberian Peninsula (e.g. from Southampton). Integrated door-to-door operators, such as Seawheel and Andrew Weir, provide these services. However most short sea traffic to Southampton is feeder traffic, carried by specialist feeder operators and short sea operators. At Southampton the feeder boxes are transhipped from the small short sea vessels to the "mother ship" for deepsea transit.

This means that, although short sea container vessels can access much smaller ports, they tend to serve the large deep sea ports such as Felixstowe, Southampton, Tilbury and Thamesport in order to take advantage of feeder opportunities. There are services to ports that are not deep sea container ports, but generally only where there are good road links to major markets. Integrated short sea operators such as Seawheel and Andrew Weir want to be as close as possible to their end customers**.** Ports such as Southampton and Bristol provide fast access to the London and West Midlands markets.

The integrated short sea container operators across the Irish Sea and to the Iberian Peninsula/Mediterranean have not so far suffered from intense competition from ro-ro ferry services, as on the North Sea. In recent years on the North Sea, ro-ro operators have been able to undercut the short sea operators by carrying short sea boxes double-stacked on special trailers. It is likely that the use of ro-ro technology to carry containers will increase on the Atlantic Arc and to Ireland.

Dedicated short sea terminals generally require about 300 metres of land behind the quay, so a short feeder container berth of 250 metres in length would require 7.5 hectares of land.

Conclusion: It is unlikely that Plymouth would be able to attract a short sea container service based on general containerised cargo. Container services are generally focused on the larger deep water ports, to provide the opportunity for feeder services and to ensure proximity to major markets. In most short sea markets, lo-lo technology is under threat from ro-ro services. Only a high volume of base load traffic such as china clay would support a short sea lo-lo service.

3.7 Short sea ro-ro market

Market development

In the period since the opening of the Channel Tunnel there has been considerable growth in the size of the cross-Channel ferry market, but this has been concentrated on the Dover Straits routes. This is shown in Table 12 below, which provides passenger traffic flows on services for selected years from 1985 to 1999. The total market has grown by over 80% during the period 1985-99, but growth on the Western Channel (including services from Plymouth) has been 7% over the same period. Since 1990, the Western Channel's market share has fallen from 27% to 14%.

The Channel Tunnel increased capacity on the Dover Straits from 1993 onwards and this led to a dramatic reduction in rates, particularly for freight. As the Dover Straits routes were able to offer keener rates (due to greater utilisation rates for their ships) both passengers and freight were dragged to the shorter routes. Other factors, such as the frequency and length of crossing are also important. The market is now stabilising after consolidation of operators on the Dover Straits and the abolition of tax and duty free allowances, which has forced operators to increase rates.

Plymouth has managed to achieve greater passenger traffic growth than elsewhere on the Western Channel and has been able to maintain its market share during this period. This is likely to be due to the low base from which the services were starting and the niche holiday markets to Spain and Brittany.

Table 12
Passenger ferry statistics

(Thousand passengers)

	1985	1990	1995	1999	Growth 1985-99	Share 1990	Share 1999
Dover Straits (including Eurotunnel)	15,415	17,021	25,444	31,563	**105%**	**73%**	**86%**
Western Channel	4,902	6,224	7,516	5,229	**7%**	**27%**	**14%**
Total market	**20,317**	**23,245**	**32,960**	**36,792**	**81%**		
Plymouth-Roscoff	292	490	487	494	**69%**	**1.4%**	**1.3%**
Plymouth-Santander	91	150	161	138	**52%**	**0.4%**	**0.4%**
Total passengers	**383**	**640**	**648**	**632**	**65%**	**1.9%**	**1.7%**

Source: Passenger Shipping Association/MDS Transmodal

The same trends can be seen in the freight market, as shown below. The total market has grown by over 200% during the period 1985-1998, but Dover Straits routes have seen over 250% growth in traffic. The Plymouth services have been losing market share in the freight market.

A key factor in this, as mentioned earlier, is that Brittany Ferries has found it more profitable to concentrate freight on its services from Cherbourg and Caen, using larger ships able to address a larger market than from Western Brittany, at lower unit cost. Most hauliers will prefer to land trailers at Portsmouth or Poole because of their proximity to London and the south east relative to Plymouth.

Table 13
Freight ferry statistics

(Thousand trailers)

	1985	1990	1995	1999	Growth 1985-99	Share 1990	Share 1999
Dover Straits (including Eurotunnel)	874	1,260	2,073	2,985	**242%**	**81%**	**89%**
Western Channel	190	300	521	359	**89%**	**19%**	**11%**
Total market	**1,064**	**1,560**	**2,594**	**3,344**	**214%**		
Plymouth-Roscoff	12	11	7	4	**-67%**	**1.1%**	**0.1%**
Plymouth-Santander	3	4	4	4	**33%**	**0.3%**	**0.1%**
Total trailers	**15**	**15**	**11**	**8**	**-47%**	**1.4%**	**0.2%**

Source: Cruise & Ferry Info/MDS Transmodal

Physical requirements

The key constraint on the development of ro-ro terminals is the amount of space required for the parking of road trailers and passenger cars. This is particularly the case where unaccompanied trailers are the main traffic. Although ro-ro berths do not require much quay length, as trailers and passenger cars can be stored some way behind the quay, the ferries generally need to be able to access the berth at all states of the tide and need to be moored in sheltered water. Preferably 7-8 metres depth of water is required, to accommodate the latest generation of ro-ro ferries.

Good road access to key markets and major population centres is generally required to ensure that a critical mass of traffic is available for a ferry service. The peripherality of Devon and Cornwall from major markets and major population centres tends to make this unlikely unless a specific niche market or local base load traffic can be found.

Sufficient depth of water and land exists in Millbay Docks to accommodate a ferry berth and terminal. However, at present the existing terminal is under utilised and a new ferry service may well find it difficult to attract sufficient traffic, given the remoteness of Devon from major markets and population centres. There may be some limited potential if a significant local base load traffic or niche market can be found.

Conclusion:

It may prove difficult to identify freight ferry companies who will prefer to serve Plymouth instead of ports further to the east. Ship productivity is very similar whichever ferry crossing is chosen, but much larger cargo volumes are available for ports closer to London and to Paris. One cannot mount a sustainable transport argument for services serving a national market from Plymouth because they would increase lengths of road haul, even though they would reduce peripherality. A more sustainable argument is for short sea or coastal shipping of bulk and semi bulk cargoes which utilise stockpiles of goods (e.g. aggregates, fertilisers, animal feeds etc.). This fits the description of the small wharves such as at Cattewater, Teignmouth and Truro etc.

Iberian services

There have been several attempts over the years to launch direct ferry services between the UK and the Iberian Peninsula. From a cost point of view they would be justified; the unit cost of a freight ferry service from North Spain to the southern UK of around £400 per trailer is significantly less than haulage across France (say 1,000 extra km @ £0.5) plus a ferry crossing at £200, a total of £700. However, that condition only applies if the Spanish market (like the German, Benelux or Scandinavian markets) includes large numbers of unaccompanied trailers. The route is too long for accompanied trucks. The lack of unaccompanied trailers creates a “chicken and egg” problem, even though from a service point of view, a maritime service could offer as fast a service as a haulier (who must rest after 8.5 hours driving). A new service about to start from Portugal plans to address the problem by also supplying trailers.

One argument available for Plymouth is that a round voyage from Bilbao (around 420 nautical miles) could be completed within 48 hours by the most modern freight ferries currently available (22-23 knots), but a service to Southampton could not. Of course, faster ships still (a Japanese service uses 30 knot vessels) could reach Southampton on a 48-hour round trip basis, but fuel costs would be much higher. The consequence of higher ship utilisation could give Plymouth an advantage.

The introduction of even faster ships of (say) 40 knots would probably require catamarans. These ships consume very high quantities of fuel and will carry 40-50 trailers instead of 100+ on existing modern freight ferries. They would not be viable ex-Spain because of the very high unit costs involved. Analysis of the deployment of very fast ships shows that they are generally used on short crossings where a conventional crossing can be cut from (say) four hours to two, doubling ship productivity and making day tripping (for car passengers or hauliers) feasible. These conditions would not apply to Plymouth.

3.8 Cruise market

The worldwide cruise market has been booming, although there are now concerns that cruise operators are providing too much capacity. Europe is generally seen as a good alternative market to the increasingly competitive Caribbean market for worldwide cruise operators.

UK market evolution

Growth for cruise holidays out of the UK has been very strong, with demand reaching 635,000 in 1998 compared with only 254,000 in 1993. Much of this growth has gone into the Mediterranean area fly-cruise segment, which alone grew from 39,000 in 1993 to 215,000 in 1998. These figures for the Mediterranean include the Atlantic Islands, which accounted in 1998 for 19,000 of the total, comparable data are not available for earlier years. Growth since 1993 has average over 40% per annum, although there are signs that the market is now stabilising at its new higher level, with more modest year on year growth expected in future.

Studies of the wider leisure market in Europe show that the UK is certainly an important generator of travel. However, Germany, with a considerably larger population of 80 million compared with that of UK, France and Italy (each around 60million), is Europe's major source market, with the other three about the same in size.

In 1999, after years of 20% plus expansion the UK market growth slowed to about 14%, reaching 729,000 passengers, partly as tour operators started to rationalise their capacity. Future growth rates are expected to settle down to about 10% a year, less than half previous levels, but still significant nonetheless.

The innovations of UK package tour operators, most notably Airtours, which entered the cruise market in 1995, and to a lesser extent Thomson, have pushed the UK into the prime position as a European market source, followed by Germany at 420,000, then France and Italy at around the 200,000 mark. It should be noted that the figures for Germany include the important river cruise market there, and therefore tend to inflate the size of the ocean cruise market. Overall, the UK accounts currently for around 40% of the European cruise market.

Looked at simply, the growth of the UK cruise market has come form two sources – the entry of the holiday group tour operators into the market and strength of premium grade operators such as P&O and Cunard. The two offer two different types of product, the likes of Airtours and Thomson go for mass budget holiday market appeal operating three-star vessels, although Airtours recently introduced the four-star Sunbird, but admits that that is a far up-market as the company is likely to go. P&O and others like it meanwhile carry on with the traditional top end style of five-star cruising serving primarily the 50-60 year old age bracket and where cruises can cost twice as much as the package operators'.

UK Cruise ports

Cruise itineraries with visits at UK ports tend to be either round-Britain cruises (restricted to the high summer months) or visits by ships en route to the Mediterranean and the Canary Islands. The American market is particularly important with luxury operators of small cruise vessels being prominent. Passengers embark and disembark at base ports such as Southampton, Dover and London, which have good access to London and the major south east airports. Itineraries then have calls at ports with major visitor attractions, preferably a reasonable steaming distance apart.

Facilities required are minimal as the ships can moor in the deeper water and the passengers are then taken ashore by launch. Being able to come alongside may be an advantage, but is not necessary. Parking is needed for coaches adjacent to the quay.

Plymouth is well located, with its strong visitor attractions and its position en route to the Mediterranean and the Canary Islands making it an attractive addition on cruise itineraries. Cornish ports are also a reasonable steaming distance from ports such as Southampton; the harbours provide an attractive location for mooring; ports such as Falmouth and Fowey have the necessary depth of water (about 5.5metres) for the smaller American cruise ships.

Table 14
Evolution of UK cruise market
('000s)

Sector	1993	1994	1995	1996	1997	1998	Average Growth (% pa)
UK Port cruises	81	81	100	118	126	166	15.4
Fly cruise Mediterranean including Atlantic islands	39	42	104	133	200	215	40.7
Fly cruise Caribbean	86	87	80	91	116	160	13.2
Other	33	41	44	60	65	79	19.1
Total Fly cruise	158	170	228	284	381	454	23.5
Line Voyages	16	20	12	14	14	14	-2.6
Total	244	270	340	416	522	635	21.1

Source: based on PSA data

Table 15
UK Cruise market by cruising region
('000s)

	1995	1996	1997	1998	Average Growth (% pa)
Mediterranean	141	173	242	258	41
Caribbean	87	96	120	167	26
Scandinavia	26	36	43	46	7
Other	86	111	117	164	26
Total	340	416	522	635	100

Source: based on PSA data

Table 16
Major cruise market dimensions
('000s)

	1995	1996	1997	1998	Market share (%)		Growth pa (%)
France	137	154	165	200	12	3	13.4
Italy	151	167	200	220	13	3	13.4
Germany	308	357	401	420	26	6	10.9
UK	339	416	522	635	39	9	23.3
Other	125	139	152	170	10	2	10.8
Europe total	1060	1233	1440	1645	100	24	15.8

North America total	4223	4477	4864	5243	76	7.5
Combined total	5283	5710	6304	6888	100	9.2

Source: based on Annual Cruise Market Digest, IRN, 1999

Three ports dominate the UK cruise market scene, Southampton, Dover and Harwich. Southampton booked 150 cruise calls in 2000 and handled more than 300,000 passengers. It has benefited from the recent addition of P&O's new 76,000gt *Aurora*, which uses Southampton as a home port, and a series of cruises operated for the first time this year by Airtours. Southampton has therefore regained its pre-eminence as the leading cruise port from Dover, which had 112 calls, 32 of them at its second terminal which opened in the Spring. In third place is Harwich, which had 35 calls in 2000 and has 41 booked for 2001. Holland America Line's new *Amsterdam* will use Harwich as its home port next year, when Airtours will also call there.

Among Southampton's major clients are Airtours, which operates four ships and ran 12 cruises out of the port in 2000, and P&O Cruises with which Southampton has recently secured a 10 year agreement as the operator' home port for its vessels, *Oriana, Arcadia* and *Victoria*. ABP and Cunard Line, which operates the celebrated QE2, also signed an agreement for Southampton to be the sole UK port for QE2 up to 2000. With the recent addition of the *Aurora,* P&O has four ships at Southampton offering some 61 cruises to the Mediterranean, Atlantic Islands, the Baltic and Caribbean. A fifth and even larger, 100,000gt vessel, also dedicated to the UK market is expected to come into service in 2004. Southampton has facilities to accommodate four full-sized cruise ships at once, with two cruise terminal buildings providing ample accommodation for passengers.

It is the negotiation of this contract between ABP and P&O that has provided the foundation of ABP's commitment to build a new cruise terminal on the old Mayflower site. The terminal will be a shared financial and management venture between the two companies, although the exact details of the agreement are unknown. The new terminal is expected to be operational by Spring of 2001.

Plymouth has done well to attract 20 calls in 2000 with a similar volume expected in 2001, but facilities at the port are not conducive for the turnaround of the large cruise ships – this facility can only at present be offered to vessels that are able to berth at West Wharf. Such vessels tend to be the older, medium sized ships of around 600-passenger capacity.

Home port versus port of call – some considerations

The debate as to whether Plymouth could benefit by the presence of a cruise port terminal, providing facilities for vessels home porting at Plymouth and for embarking/disembarking passengers needs to take into consideration at least some of the following factors:

Advantages/for:

- Good transport links exist to South West and Midlands via A38/M5 providing alternative embarkation point for passengers originating in these regions in particular

- Direct employment creation potential for terminal operator, but seasonal aspect

- Employment/revenue creation potential for support services, including ship supplies, waste disposal, ship agents, etc., seasonality aspect also applies

- Potential to maximise use of existing ro-ro terminal which already provides baggage handling/immigration facilities

- A source of revenue for local hoteliers, but cruise tour operators may tie up hotel accommodation for relatively short periods at a time

- Vessels that are able to berth alongside are liable for port dues to the port operator. Vessels that visit the port and stay at anchor pay no dues.

- Increasing the image of Plymouth as a maritime centre

Disadvantages/against:

- UK cruise market growth slowing

- Cruise terminals are expensive undertakings costing millions. Blasting of the rock base in Millbay in order to create sufficient depth to accommodate the largest vessels would add to the high infrastructure cost and technical difficulty, while at the same time trying to minimise disruption to normal port operations, particularly Brittany Ferries scheduled ro-ro services

- Exacting industry standards (e.g. EC package Travel Directive) concerning safety, hygiene and environmental considerations (e.g. waste reception) must be met

- Seamless handling of passengers shoreside is essential, including transfers and airport immigration with pre-clearance if possible

- Market dominated by a few large companies; Airtours, Thomson at the budget end, P&O, Cunard at the up market end, with home port agreements in place, and few if any, new market entrants in sight

- Need to develop market-leading customer facilities, secured with long term agreements with cruise operators. ABP would be unlikely to take the lead on this given the dominant position of Southampton, also an ABP port, but is committed to promoting Plymouth as a port of call

- Millbay offers the only potential development site in Plymouth, but current owners ABP are unlikely to commit to new terminal. Alternative sites (Royal William Yard, South Yard) are not realistic options and are already committed to other uses

- A new cruise terminal at Plymouth will be up against established terminals in Southampton and Dover, both of which have undergone or are undergoing

substantial improvement

- With the large cruise operators based at Southampton, Dover and to a lesser extent Harwich, Plymouth will need to focus on smaller niche operators, which are already being handled at the port

- In order to make a financial return, a cruise terminal may need to attract in excess of 50 cruise ship calls a year, over a season of about 8 months

- Cruise passenger requirements for one night stop-overs may challenge local hotel capacity as cruise tour operators may tie up accommodation for short periods. This may have an affect on classic hotel based tourism, which creates jobs and has more impact on the local economy.

Plymouth as a port of call

Advantages

- Minimal capital investment required

- Landside tourism support systems already in place, e.g. shuttle bus for arriving passengers, shoreside excursions, discount voucher system for certain retail and visitor attractions in the city. Plymouth marketing bureau provides videos, literature in advance and stations tourist information on board during vessel visits

- Possibility to increase spending opportunities from cruise tourists whereas embarking/disembarking passengers are less likely to stay in the city

Disadvantages

- Limited direct employment generation onshore

- Larger cruise ships have onboard facilities and shops, discouraging passengers from spending onshore

- Cruise ship tie-ups with retailers and entertainment venues mean that many smaller local businesses have difficulty in securing a slice of the action from visiting ships

- Vessels at anchor pay no port dues to port operator

- When people do go ashore the average spend is remarkably little, in the region of £20-30 per person

- Market research has shown that around 70% of cruise business is secured from repeat business, therefore cruise operators are under pressure to change port of call

itineraries after two or three years in order to offer a new product. Cruise ships are highly mobile and tend to play one port off against another looking for special deals on port charges, marketing support and other incentives

- Some ground tour operators may pay high commissions to cruise operators in order to secure business

Conclusion:

The development of a cruise terminal aimed at attracting vessels to Plymouth as a home port rather than a port of call will be a challenge for Plymouth, mainly because of its peripheral position in the UK. Southampton and Dover are in a dominant position in this market and ahead of the game in terms of the development of state of the art facilities, which to a large extent have depended on long term commitments from the operators that Plymouth would also be looking to pursue. This, in itself, will be difficult to do without the support and financial backing of a port operator. Plymouth meanwhile has raised its profile as a port of call, with the assistance of the current port operator and other authorities, and has the potential to secure more similar business from niche market operators albeit that passenger landing arrangements need some improvement. The challenge for Plymouth is to ensure that tourists are placed in situations where they are able to, and wish to, spend money and to monitor where the money is going in order to gain the maximum benefit from this market. The feasibility of establishing a cruise berth or cruise terminal in Plymouth requires further investigation of the potential market, engineering issues, and possible funding sources.

A preliminary financial appraisal of a cruise terminal located in Millbay Docks is presented in Annexe B to this Working Paper.

4 COMPETITOR MODES

4.1 Rail freight

Introduction

The rail freight industry has been in relative decline for most of this century. In the 20 years that immediately preceded rail privatisation rail's share of the total freight transport market (in tonne-kilometres) fell from 15% to 6%. The privatised railway industry was split into a number of businesses along infrastructure/service provider lines before being sold to the private sector. This was achieved through The Railways Act 1993, which provided the legal basis for rail privatisation. A new railway infrastructure company was formed, Railtrack plc, which owned and operated all the railway lines, signals and main stations.

The bulk rail freight businesses and one of the intermodal businesses were sold to Wisconsin Central Transportation Corporation of the USA, and merged into one new organisation called English Welsh and Scottish Railway (EWS). The Freightliner business, which provides inland distribution of containers from deep sea container ports, was purchased by a management buyout team and is now trading as Freightliner Ltd.

Since privatisation, there has been major revival in rail freight. Volumes, measured in tonne-kilometres, increased by 40% between 95/96 and 99/00. The major operator, EWS, has committed itself to purchasing new locomotives and wagons. Freightliner, which mainly distributes deep sea containers inland, has expanded its traffic by around 50% in its first four years after privatisation, has leased new wagons and is rebuilding locomotives. EWS has now re-established wagon load services (*Enterprise*) and this network now serves all the major industrialised areas.

Structure of the rail freight industry post privatisation

The maintenance and operation of railway infrastructure is the responsibility of **Railtrack plc.** The company maintains the track, signalling, cuttings and embankments, bridges and connections to their network from private sidings. In order to gain access to the network rail freight operators have to negotiate "train paths" and pay "track access charges" for the privilege.

The rail freight operators provide the rail freight services that run on the Railtrack infrastructure and are the commercial point of contact for shippers who want to use rail. They are responsible for providing the traction (the locomotives), and usually provide the wagons, although some major bulk freight users of the railway have their own wagons. The rail freight operators are responsible for negotiating train paths on the network with Railtrack. The dominant operator is EWS, although it is beginning to experience competition from Freightliner, which has entered the bulk market with contracts for Railtrack and Blue Circle and GB Railfreight, which has also won a contract from Railtrack.

Planning or funding of new or upgraded infrastructure is the responsibility of the Strategic Rail Authority, which has funds earmarked from the 10 year Plan published in 2000.

Rail freight services

Conventional services provide for railway shipments from one private siding/rail connected facility to another without any use of road. The means of loading and unloading of the cargo is often the responsibility of the shipper/receiver, with only the traction and, usually, the wagons provided by the rail freight operator.

There are often special wagons designed for carrying particular commodities; there are particular designs for carrying petrochemicals, steel coil, iron ore/coal etc. Typically, but not exclusively, heavy bulk commodities in large volumes are carried on conventional rail between dedicated handling facilities. However, some palletised consumer goods, such as pet food are also carried in standard box wagons.

The major advantage in using conventional rail wagons rather than road is that much higher weights can be carried by rail than would be possible by road. The major disadvantage of using conventional wagon services is that they are not flexible operationally, requiring dedicated rail-connected facilities at the premises of both shipper and receiver.

The wagons are designed specifically for the British rail network so there are no issues over the "loading gauge" of the track (see below) as they all comply with the W6 gauge. As they are specially designed, the rail operator is unlikely to find backloads and so the wagons tend to be repositioned empty. Wagon utilisation may therefore be relatively poor compared to intermodal wagons.

EWS has two types of conventional services. The first is a **trainload** service where the shipper has a sufficient quantity of product to justify a whole train. The shipper would approach EWS who would provide a locomotive and, if necessary, the appropriate wagons. EWS would negotiate a train path with Railtrack.

The company has also started to run a **wagonload** network, which was regarded as commercially unattractive by BR. This is where a particular shipper has one or more wagonloads, but less than a trainload of traffic. The service, called *Enterprise,* operates using a "hub and spoke" network. Trunk haul services operate between the major hubs at various regional locations, including St Blazey in Cornwall. Wherever there is demand, there are feeder services even for just a few wagons to each of these hubs and these services run to a predetermined timetable.

There are no published rates for rail freight charges as there is a dominant operator in the market and little on-rail competition. However, as a general rule, bulk conventional flows can be competitive over very short distances. The mean length of haul for bulk rail cargo is under 125 km.

Intermodal rail services: transport standard unit loads such as ISO containers, swap bodies or "piggyback" road trailers are carried by rail for a trunk haul between two intermodal terminals, but local distribution is generally by road. The intermodal units are loaded onto special intermodal platform wagons.
A typical intermodal transport chain, would consist of:

- delivery of unit by road to an intermodal terminal
- unit loaded onto train from back of truck

- trunk haul by rail to intermodal terminal
- unit unloaded from train straight onto back of truck
- delivery of unit to receiver by road

The advantages of intermodal rail over conventional wagons are that no special handling equipment is required by the shipper or the receiver; there is a high degree of flexibility in that the units can be used solely on road; the rail freight operator is more likely to find backload traffics for wagons, and standard intermodal wagons are used, so that the transport offer can be competitive with road over reasonable distances.

The major infrastructure issue for intermodal services is that of "loading gauge". The loading gauge of a railway line is, in general terms, the space available in cross-section, through which an intermodal unit on an intermodal wagon can pass safely, given the width and height of bridges and tunnels etc. The current Railtrack network is cleared to a gauge that can accommodate all conventional wagons, but the size of intermodal units that can be accommodated varies considerably throughout the network.

Rail freight services in Devon and Cornwall

Conventional rail freight services in Devon and Cornwall are sometimes complementary and sometimes in competition with short sea shipping. However, most rail freight flows appear to be "natural" traffics for rail, which would otherwise be taken by road. The services are shown below:

Table 17
Rail Freight Traffics to and from Devon and Cornwall

St Blazey to Newport	EWS Enterprise trunk haul
Penzance to Bristol	EWS Travelling Post Office
Drunnick Mill, Burngallow & Goonbarrow to Fowey	China Clay for export by sea
Drunnick Mill, Burngallow & Goonbarrow to Stoke on Trent Irvine (Scotland) & Italy	China Clay
Burngullow to Newport	China Clay slurry
St Blazey to Exeter Riverside	China Clay
Exeter Riverside to Moorswater	Cement
Bristol to Moorswater	Cement
Exeter to Cardiff	Scrap metal
Fawley (Southampton) to Penzance	Esso fuel oil to storage depot
Moorswater to St Blazey	Cement - EWS Enterprise feeder service
Bodmin to St Blazey	Box vans – EWS Enterprise feeder service

Source: Freightmaster (1999)

The major complementary flow is of china clay by conventional bulk services from extraction sites in the Par area, plus Marsh Mills (Plymouth) to English China Clay's (ECC) export terminal at Fowey. Trunk services operate to Stoke on Trent (Cliffe Vale) for the potteries, Irvine (Caledonian Paper) and Italy via the Channel Tunnel.

The flow of china clay through the Channel Tunnel could be in competition with short sea shipping, depending on the details of the particular flow. The flow of petroleum products to Penzance could be taken by sea if the oil depot was adjacent to the quayside, but this is believed not to be the case.

There are currently no intermodal services in Devon & Cornwall mainly because of a restricted loading gauge and therefore there are no intermodal terminals to handle intermodal traffic.

If intermodal rail services were technically feasible, then, as a general rule, rail can be

competitive with road over a distance of about 500 kilometres where road distribution is required at both ends of the transport chain, and at a distance of about 350 kilometres where one end of the chain is rail-connected.

Intermodal terminals

The role of the intermodal terminal is to provide an efficient interchange point between the road and rail modes and therefore road facilities and connections are as important as railway facilities.

The main features of intermodal terminals are:

- railway sidings to receive the trains
- specialist handling equipment for transhipping units between the ground/truck to the trains
- space for storage of units adjacent to the sidings
- internal roadways so that trucks can deliver/receive a unit to/from the trains
- parking for trucks waiting to collect units from an incoming train
- security fencing, lighting
- ideally, good access to the trunk road network

Both the Devon Structure Plan and Local Transport plan mention the potential development of an intermodal terminal in Plymouth and land at Marsh Mills has been reserved for the purpose with Strategic Rail Authority backing. A prerequisite for the terminal's feasibility would be enhancement of the loading gauge through Cornwall, Devon and Somerset to Bristol. It appears unlikely, given the current traffics passing through the port, that there would be significant synergies between port traffics and the terminal in the immediate future.

4.2 Road haulage

The road haulage industry in the UK is very competitive with a large number of hauliers of all sizes. Entry costs and day to day running costs are fairly low. There is fairly little regulation from government apart from safety issues. The 'cost' of road haulage to shippers is therefore set by normal market mechanisms. Severe competition has meant that road hauliers operate very efficiently and will always seek to minimise operating costs. In fact road haulage costs are little changed from 20 years ago.

Based on a fixed cost of £17 per hour and £0.32 per kilometre, road transport costs from Truro to various locations in the UK are as follows.

Table 18
Road Transport Cost from Truro to:

	KM	Time	Cost (£)	Cost/Pallet (£)	Cost/Tonne (£)
Plymouth	87	1.50	101.50	3.90	8.46
Bristol	276	3.75	225.75	8.68	18.81
Southampton	319	4.75	260.33	10.01	21.69
London (Heathrow)	404	5.50	304.31	11.70	25.36
Birmingham	407	5.50	305.33	11.74	25.44
Manchester	541	7.50	390.90	15.03	32.58
Leeds	593	8.00	418.62	16.10	34.89

NB 26 pallets per vehicle, 12 tonnes per vehicle
Source: MDS Transmodal

While these are not actual rates, they should provide an accurate indication of haulage rates. The rates include the haulage cost from shipper to customer plus an empty re-positioning of 50km and one hour in length for a return load. It is this flexibility of being able to re-position the vehicle easily and quickly, and run it 'full' on both outward and return legs that helps contribute towards road transport's low costs. Many hauliers now achieve over 80% utilisation rates thus earning the haulier revenue for virtually every mile the truck operates. The shipper gains by only having to pay for the trip from its premises to the customer.

Any initiative to increase short sea shipping traffic through Devon ports will mainly be seeking to attract traffic from the roads.

Annexe A
CARGO LOADED AND UNLOADED IN THE CATTEWATER 1989-2000

Annexe B:
PRELIMINARY FINANCIAL APPRAISAL – CRUISE BERTH PROJECT

A.1 Concept

The following Appendix sets out the results of a preliminary financial appraisal for the construction of a cruise berth in Millbay Docks.

For reasons that will become obvious, the suggested concept for development is of Plymouth as a destination port rather than as a home port where vessels start/terminate voyages and exchange passengers. This is not to say that Plymouth could not continue to handle occasional home porting vessels as it does at present, using ABP's ferry terminal facilities.

The appraisal considers two possible engineering options:

Option A: Reclamation of Millbay outer basin providing approx. 24,000m^2 (approx one hectare) of development land

Construction of quay wall for vessels to berth alongside

Developers invited to develop the reclaimed area as an up market shopping/restaurant area creating land rental values estimated at £100,000 per acre. A coach park is created at the rear of this development to take passengers on tour excursions. Development of apartments above a possibility.

Option B: Strengthening of No.1 RoRo berth so that two vessels may berth simultaneously (allowing for non-interruption of Brittany Ferries operations)

Passenger walkways to ABP ferry terminal area

No developable land created

Both options will allow for the accommodation of vessels of +/- 250m

A.2 Financial model assumptions:

A.2.1 Costs

a) Capital costs:

Item	Option A (£'000)	Option B (£'000)
Dredging	9,000	9,000
Basin infill	4,000	-
Berth	1,000	500
Terminal Building		-
EIA/archaeology	100	100
Total	14,100	9,600
Annual financial payment basis		
15yrs loan 8% interest	**1,606**	**1,094**

Dredging of new channel

Both options would require dredging by rock blasting of a new channel to a minimum dredged depth of 9m. The creation of a channel is a major expense item estimated to be in the region of £9 million. The dredged material could be used as backfill for the reclaimed area so providing some economies. An environmental impact assessment would be required to assess the impacts of blasting and quality and disposal of dredged material.

b) Annual operating costs

	Option A £	Option B £
UBR	-	-
Berth maintenance	10,000	10,000
Berth insurance	1,000	1,000
Staff	-	-
Management fees	15,000	15,000
Total	**26,000**	**26,000**

Ships handled by existing ABP staff.

A.2.2 Revenues

Summary

Item	£
Combined berthing fee/passenger levy (per passenger)	£15 per passenger
Shore spend	£55 per passenger
Land rental	100,000 per acre
No. of acres	6

a) Berth income

ABP dues and passenger levy currently charged as separate items. However, combining these charges is normal practice. Currently vessels anchoring in the Sound pay on average between £5,000-£10,000 per call (depending on vessel size) for combined port charges. This gives an average cost to the shipping line of £6-8 per passenger. Our proposal would be to double this fee to recoup capital investment and reflect improved facilities. Compares with an all-in charge of around £20 per passenger for example at Southampton.

b) Land rental

Applies only to Option A, where 6 acres of developable land are created providing an estimated maximum asset value of £1 million per acre and estimated annual land rental of £100,000 per acre.

c) Economic contribution

This is the income generated within the local/sub regional economy by expenditure on various item including agency fees, coaches, guides, entry fees, meals on tour, passenger casual spend on shore and crew casual spend. This is not a source of income for port operators.

Analysis of cruise vessel disbursements for 2000 show this figure currently to be in the region of approximately £50 per passenger. We estimate that this figure would increase slightly as a result of increased expenditure by the vessel on ship supplies made easier by the vessel being alongside.

On the downside, companies currently being paid for tendering operations would lose out.

d) Case studies

Two case studies are considered:

Case 1: The number of ship calls increases from 25 to 40 per year by year 3.

Case 2: The number of ship calls increases to no more than 30 per year

In both case studies it is assumed that the average size of ship will increase steadily over the forecast period and therefore that the average number of passengers per call also increases.

A.3 Results

The profit and loss projections of the model are presented in the following spreadsheets.

Case 1- Option A

Whereas we believe that a concerted marketing effort could generate an increase in the number of ship calls to Plymouth as a destination port, the results show that the cruise berth will show an annual loss of £800,000 in Year 1, declining to £400,000 by Year 15.

The estimated economic contribution to the sub region increases from £800,000 in Year 1 to £2.3 million by Year 15, based on an average contribution per head of £55.

Overall the project would make a positive contribution to the region (marginal in Year 1), but substantial direct losses would be incurred by the owner/operator of the facility.

Case 1- Option B

In this case the project is based on lower capital investment, but reduced income as this project does not include any land rental potential.

In this case annual losses sustained by the berth operation increase from £900,000 in Year 1 to a little under £500,000 in Year 15.

The economic benefit to the region is the same as in Option A (same number of vessels=same revenue).

The overall contribution of the project to the region is positive, although negative in Year 1. The overall contribution of the project is less than Option B.

Case 2 – Option A

As a sensitivity case, this demonstrates the potential impact if the number of cruise ships does not exceed 30 ship calls a year.

In this case the direct losses are of the order of £800,000-£550,000 per year.

The annual net gain to the region rises to £1 million by Year 15 after an initial overall loss in Year 1

Case 2 – Option B

The magnitude of losses and gains are similar to Option A above.

A.4 Conclusions

The preliminary financial analysis of a cruise berth project in Millbay demonstrates that although the project would make an overall positive contribution to the sub regional economy, the level of capital investment required would cause the incumbent owner/operator of such a facility to incur substantial direct losses, even in the case where Plymouth could attract a minimum of 40 cruise ships per year.

The optimum case requires the berth to be developed as part of the reclamation of the outer basin thereby boosting potential revenues from subsequent land rental. In this simplified case the land would be let as undeveloped land and our assumptions have estimated a maximum potential land value of £1 million per acre, with 6 acres being created. Potential income would be reduced if the land asset were designated for industrial/employment use, which carries a value in Plymouth of around £100,000 per acre.

Direct income could potentially be boosted by additional use of the berth by MOD vessels, however the MOD's call on the berth would be irregular and unlikely to affect substantially the profitability of the project.

In order to break even, land values would need to be in the region of £2-2.5 million per acre.

Case Study 1

Assumptions

	£
Overall income per passenger	15
land rental per acre	200,000
no of acres	6
shore spend	55

Terminal A

Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
No ships	20	25	30	40	40	40	40	40	40	40	40	40	40
Av pax/ship	600	600	650	700	750	800	850	900	950	1000	1010	1020	1030
Total pax	12,000	15,000	19,500	28,000	30,000	32,000	34,000	36,000	38,000	40,000	40,400	40,800	41,200
Total berth Income	*180,000*	*225,000*	*292,500*	*420,000*	*450,000*	*480,000*	*510,000*	*540,000*	*570,000*	*600,000*	*606,000*	*612,000*	*618,000*
Land rental	0	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Grand total	**180,000**	**1,425,000**	**1,492,500**	**1,620,000**	**1,650,000**	**1,680,000**	**1,710,000**	**1,740,000**	**1,770,000**	**1,800,000**	**1,806,000**	**1,812,000**	**1,818,000**
Economic contribution	660,000	825,000	1,072,500	1,540,000	1,650,000	1,760,000	1,870,000	1,980,000	2,090,000	2,200,000	2,222,000	2,244,000	2,266,000

Case study 2 - 30 ships per year

Assumptions

	£
Overall income per passenger	15
land rental per acre	200,000
no of acres	6
shore spend	50

Terminal A

Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
No ships	20	25	30	30	30	30	30	30	30	30	30	30	30
Av pax/ship	600	600	650	700	750	800	850	900	950	1000	1010	1020	1030
Total pax	12,000	15,000	19,500	21,000	22,500	24,000	25,500	27,000	28,500	30,000	30,300	30,600	30,900
Total Income	180,000	225,000	292,500	315,000	337,500	360,000	382,500	405,000	427,500	450,000	454,500	459,000	463,500
Land rental	0	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Grand total	**180,000**	**1,425,000**	**1,492,500**	**1,515,000**	**1,537,500**	**1,560,000**	**1,582,500**	**1,605,000**	**1,627,500**	**1,650,000**	**1,654,500**	**1,659,000**	**1,663,500**
Economic contribution	600,000	750,000	975,000	1,050,000	1,125,000	1,200,000	1,275,000	1,350,000	1,425,000	1,500,000	1,515,000	1,530,000	1,545,000

Working paper 2
Marine Technologies, Ship Repair and Boat Building

CONTENTS

1 THE MARINE TECHNOLOGIES SECTOR IN THE SOUTH WEST

1.1 Sector characteristics

This section summarises some of the key findings of the recent study of the marine technology sector undertaken by DTZ Pieda for SWRDA as part of a study entitled, "Research on Current and Emerging Industrial Sectors and the Implications for Skills and Business Development" (dated December2000)

The marine technologies sector consists of industries that are involved in all forms of marine construction, engineering and marine consultancy. This includes the design, manufacture and repair of all types of vessels and offshore platforms. It also includes the design and manufacture of technologies used in the marine industry such as navigation equipment as well as marine research and development. The marine technologies sector is essentially an advanced engineering sector.

- Marine technologies is one of the smaller sectors in the South West with an estimated gross value added of £297 million in 1997. This compares with figures of £2.5-3.0 billion contributed by sectors such as ICT, financial services, leisure and tourism and food and drink[3].

- There are around 360 firms in the South West employing almost 10,000 people representing around 17% of the total employment in this sector in Great Britain. Half of all firms in the South West are engaged in shipbuilding and repair activities (including offshore) and a further 30% in boat building and repair activities.

- Small firms dominate the sector. 85% of establishments in the marine technologies sector in the South West have 10 or fewer employees. This said, more than 40% of the workforce is employed in firms of more than 200 employees. The larger firms tend to be in the sub sector of ship repair and shipbuilding, which accounts for 50%

[3] GVA is quite different to turnover in that it measures the additional value that companies in the sector add to their product or service and therefore excludes factors such as costs of materials. GVA is thus usually anticipated to be less than total turnover in a sector.

of all large firms in the sector. The Devonport complex in Plymouth is one of the largest employers in the region employing more than 4,000 people, representing 40% of employment in the regional sub sector. Other major employers are Marine Projects in Plymouth with more than 1,000 employees and A&P Appledore, also in Devon with over 500 employees. (An additional 4,000 ship and submarine based personnel and a further 2,500 shore based personnel are associated with HMS Raleigh – though this employment is not strictly related to the marine technologies industries per se, being largely defence related).

- Marine technologies has the highest location quotient of all the ten priority sectors in the region, indicating that this is one of the South West's key industrial specialisms. Within the sector this specialism is particularly evident in boat building and repair activities and also shipbuilding and repair. In the manufacture of engines and turbines, the South West performs close to the Great Britain average.

- The sector is concentrated in the sub regions of Devon, Cornwall and Bournemouth/Dorset/Poole, with two-thirds of all firms located in these three areas. Devon alone accounts for 60% of all marine technologies jobs in the region.

- As with other engineering sectors the local supply chain is considered to be weak, with lower tier suppliers finding it increasingly difficult to remain competitive in the face of lower cost suppliers from around the world.

1.2 Recent industry trends

- In recent years the marine technologies sector has been contracting in the South West, with a fall in employment of 14% (1,600 jobs) between 1991 and 1997. The largest fall has been in the manufacture of engines and turbines, while boat building and ship repair is the only sub sector to have grown in employment over the same period. Plymouth has suffered significant job losses (-1300 jobs) largely in boat building and repair. However since 1997, both DML and Marine Projects have expanded employment.

TABLE 1
MARINE TECHNOLOGIES SECTOR EMPLOYMENT – PLYMOUTH

	1991	1997	% change
Manufacture of engines and turbines	C	C	-
Building and repairing of ships	5300	4200	-21%
Building repairing of pleasure boats etc	900	700	-22%
Total	**6200**	**4900**	**-21%**
% of South West Sector	54%	49%	

Source: Annual Employment Survey 1997 (NOMIS) © Crown Copyright; Census of Employment 1991 (NOMIS) © Crown Copyright

- The above trend reflects the fact that the sector has not been performing well nationally in recent years, with a decrease in employment of 28% between 1991 and 1997 mainly from shipbuilding. This sub sector is relatively labour intensive and the decrease in demand for ships, stemming largely from increased competition from Asian shipbuilders (most notably Japan and South Korea) has had a more than proportionate effect on employment.

- Productivity in this sector (measured as a function of the value of output per employee) increased by 22% in the South West between 1993 and 1997, this is below levels of increase in other parts of the country that share similarities with the South West (East Midlands and East of England). Within the South West, productivity has increased in the manufacture of machinery and equipment, but has remained fairly static in shipbuilding, repair and boat building

Skills issues

- The marine technologies sector depends on a highly skilled labour force, including skilled craftspeople, engineers, naval architects and so on. However wider industry surveys, particularly of the shipbuilding and repair industry, have suggested that as a result of the decline of the industry, some companies are reducing investment in human resources by cutting in-house training programmes and training budgets. At the same time, more casual or temporary contract staff are being employed for whom there is less incentive to provide training and the average age of the permanent workforce is increasing. This is a particular issue for smaller firms in the sector, whereas larger firms such as DML and Marine Projects have well-established training programmes.

- A training needs analysis of the sector has indicated that 96% of craftsmen and semi skilled operators in the industry required additional skills training in a number of areas and 85% of managers required training in areas such as IT, project management, budgetary control and quality assurance

- The Engineering and Marine Training Authority found that half of all engineering establishments in the South West experience recruitment difficulties, particularly for engineering professionals, craft workers and multi-skilled workers.

- Industry research therefore indicates a requirement for the industry to address its training needs by: encouraging employers to release staff for training; encouraging young people to enter the industry (through apprenticeship schemes and so on); and addressing the general upskilling of staff across the sector.

- The South West also has a number of core providers of kills in the marine technologies sector. Plymouth University has a specialist marine facility (See Working Paper 5) and is considered to be a world leader in offshore engineering. Exeter University's EMC Centre also has a marine focus.

1.3 Future prospects

- The UK shipbuilding and repair industry finds it difficult to compete with low manpower cost countries such as South Korea, which are now the dominant force in these markets. Like other North European yards, the UK now concentrates on specialist vessels and conversion contracts, while the offshore industry is also providing more work for the industry.

- Diversification and specialisation will also become increasingly important in the South West, as the shipbuilding side of the sector is likely to remain depressed. This also indicates the use of more complex technology in both materials and manufacturing systems in order to increase competitiveness.

- The strong skills base that exists in the region in the marine technologies sector is seen as a particular strength, but one that is under threat from wider industry trends and declining image of the industry and the perception that the sector offers limited career opportunities.

- A number of investment projects are providing opportunities within the sector including the expansion of Marine Projects in Plymouth, the reconstruction of the submarine service complex at DML and the company's diversification into other non-marine engineering sectors, and the establishment at Portland of US yacht company Hunter Marine Corporation's European manufacturing headquarters.

- There are clear skills implications attached to the direction in which the industry is going. The need for more highly skilled personnel, the need to increase the level and volume of people being trained locally, and to retain locally trained people within the area are all issues which require attention. Various specific actions have been

suggested in the SWRDA report referred to at the beginning of this paper and are beginning to be addressed through the recently established Marine Sector Task Force. A summary of the relevant part of this report is included in the Appendix to this Working Paper.

2 REVIEW OF THE MARINE TECHNOLOGIES INDUSTRY IN PLYMOUTH

2.1 Overview

- Our analysis of the maritime cluster in Plymouth highlights the overwhelming importance of this sector within the cluster as a whole. A total of 144 companies are categorised as part of the marine technology group in Plymouth, including 37 ship repair and boat building firms and 107 marine equipment and engineering companies. Together these represent 57% of all maritime related firms in the Plymouth travel to work area.

- Two firms dominate the sector, Devonport Management Ltd (DML) and Marine Projects, both part of the ship and boat building sub sector. The marine engineering sub sector is characterised by a large number of small engineering firms, though there are a small number of larger firms included such as Simpson Lawrence and Cosalt International Ltd.

The sub sector generates employment for an estimated 6,800 people in Plymouth. Approximately 5,700 people are employed in ship repair and boat building activities. The vast majority of this total is accounted for by the activities of DML, which employs approximately 4,200 people, and Marine Projects employing 1,100. The remaining 1,100 jobs are associated with businesses engaged in marine engineering activities, predominantly small engineering firms providing marine services and which benefit by association with the Port, and proximity to certain key customers.

Much of employment in the sector is defence related, which while a key specialism of the city's marine sector, this dependence also makes the sector vulnerable to the continued decline in defence related activity associated with the 'peace dividend'.

The overriding message to be gained from the sector analysis is that the marine technologies sector is the primary driving force within the sector, creating employment and dominating linkages with other sectors. It includes the greatest number of firms and employs

the most people. It is also the most vulnerable, in that key firms are competing in the global market place where competition is fierce.

Whereas there is industry-wide concern over the provision of skills training in order to be able to meet the challenges of the future and compete effectively, both DML and Marine Projects are important local training providers, using both in-house and external training programmes to improve the quality of the workforce. DML currently is supporting 90 apprentices, all of whom are studying for GNVQs at the local College of Further Education and a further 25 University graduates on two year management training programmes. At Marine Projects, all workers serve three-year apprenticeships. Currently 60 staff are undergoing training at the College of Further Education, the majority undertaking courses in engineering and boat building as well as specific crafts training such as woodworking or studying for industrial management certificates. 30 managers are undertaking IOHS safety management courses and 9 senior executives are receiving training locally at Safety Services Ltd in other aspects of industrial safety. DML estimates its annual training budget at £2-3 million, while Marine Projects puts the figure at around £0.5 million.

- The British Marine Industries Federation (BMIF) provides grants to support 30% of training costs. Plymouth City Council also provides funding for off-the-job training provided by the College of Further Education.

2.2 Devonport Naval Base and Dockyard

Devonport Royal Dockyard is Europe's leading marine engineering complex and together with the Naval Base (HMS Drake) constitutes the largest naval support facility in Western Europe. The complex has 3 miles of deep water berths and numerous basins and dry docks that are capable of docking all classes of warship. It is also a major industrial concern with a wide range of workshop facilities including fabrication shops, pipeshops, machine shops and electrical/electronic work units. It also houses a major metallurgical, chemical and environmental laboratory.

The complex is a major generator of local employment and wealth for Plymouth and its surrounding region as a result of the purchasing of goods and services from local firms by the base and its employees. The importance of the complex has been the subject of a recent study undertaken by the South West Economy Centre of the University of Plymouth [(1)]. It is an extremely relevant piece of work in the context this study and some of the main

findings are summarised below:

- The Devonport Dockyard/Naval Base complex (defined to include DML, HMS Drake, HMS Cambridge and HMS Raleigh) is estimated to have generated £376 million of income for the economy of Devon and Cornwall in 1997/98 representing approximately 2.7% of local GDP.

- The complex directly or indirectly supports approximately 15,250 jobs

- The major impact of the complex is in Plymouth where it is responsible for approximately 10% of all workforce jobs and local income.

- The average wages paid to workers, working directly in the Dockyard or Naval Base are 40% above the average fro Plymouth as a whole.

- Almost 400 local firms receive orders from the Dockyard.

- The complex has a major impact on the local service and construction sectors but a smaller impact on manufacturing.

- The major individual sectors benefiting from the knock-on effects of the complex are: financial/business services; wholesale, retail and distribution; transport and communications; and construction.

- The building of the new submarine refitting complex at Devonport is likely to directly or indirectly generate an average of 235 full time local jobs per year during the lifetime of the project.

- The total impact of the Devonport complex plus other defence organisations in Plymouth is estimated to be approximately £446 million and involve 18,700 jobs.

2.3 Devonport Management Ltd (DML)

- Devonport Management Ltd (DML) is a private limited company formed in 1986 under the ownership of Brown & Root, Weir and Balfour Beatty. DML purchased the physical assets of Devonport Dockyard in 1997.
- DML is primarily engaged in the refitting, modernising and maintenance of a variety of naval ships including nuclear submarines. Its naval work also includes overhauling weapon launcher systems, producing spares and providing a range of design and technical services. Following its success in winning a hard fought contract, in future the dockyard will also be the support base for all UK nuclear submarines. It is estimated that this contract has secured a base load of work for DML for the next 25 years.

- Turnover of the company in the last financial year was £336 million, up from £263 million in 1998/99 – an increase of 28%

- DML has pursued a diversification programme in order to build up its commercial (i.e. non-MOD) business. This has been done with a degree of success with the development of three commercial strands:

  - Devonport Yachts, involved in the design, build and refit of luxury and super yachts and now established as a major yacht builder at the luxury end of the market;

  - Rail support business, involved in maintenance of HS125 locomotives for various train operating companies (involves 40 workers); and

  - Composites business, involving the development of carbon composite applications (currently with contracts for London Underground tunnel

strengthening projects)

- These activities are included in the 18% of turnover represented by what DML classes as “commercially won work”.

- After 1987, employment at the dockyard was drastically reduced from over 11,000 to a low point of 3,500 in the early 1990s. This figure has since recovered slightly and the company now provides permanent employment for 3824 workers (1999 figure) plus a further 2-300 workers on short-term contracts.

- DML’s key competitors as far as the core naval/shiprepair business is concerned include Portsmouth Naval Dockyard for surface FHS vessels and, until recently, Rosyth Dockyard for submarine work. However Rosyth will lose its nuclear licence in 2002 leaving no real competitor for submarine work in the UK. Contracts for Auxiliary vessels are competed for with commercial yards, with notable contenders being A&P Appledore in Falmouth as well as Cammell Laird and Swan Hunter in the North East.

- DML estimates that the total annual combined spend of the Dockyard and Naval Base on stocks and supplies is in the region of £60-65 million, of which around £49 million is purchased from local suppliers. Research undertaken by the University of Plymouth [(1)] indicates that just under a half of this figure, about £24 million is retained as local income (i.e. is not transferred down the supply chain to suppliers outside the region) of which £6.5 million arose from the Dockyard and £17 million from the Navy.

- DML also has links with the marine R&D institutions, most notably PML from which it has commissioned various marine science and environmental research projects. DML also carries out a wide programme of sponsorship and support to local charitable events and causes and therefore has important social as well as economic links with the local community.

Key issues

- The recent Strategic Defence Review (SDR) resulted in a number of fleet revisions

and changes which have had a direct impact of the Dockyard in terms of lost maintenance contracts following the removal from the fleet of five frigates based at Devonport. These contracts provided a total tally of around £150 million of contract work over the five years 1997-2002.

- With a view to the future stationing of two amphibious support ships and major aircraft carrier at Devonport, DML considers that its lack of a large dry dock facility is a critical factor, which could mean that refit/maintenance contracts for these vessels will be compromised. Design teams are currently working on this problem, but there is a limit on available space especially since the dockyard is already being reconfigured to accommodate the new Vanguard submarines.

- Available space in South Yard, which already houses a number of DML subcontractors, is severely limited and there is a waiting list for other contractors for premises in this area.

- The company needs to continue to develop and expand the commercial component of its business even though its long term future appears to be relatively secure

2.4 Marine Projects

- Marine Projects is a highly successful boat building company specialising in yachts and luxury motor launches marketed under the *Moody* and *Princess* brand names. The company was established in Plymouth in 1965 and now occupies four sites in Plymouth, providing employment for a total of approximately 1,100 people. A further 100 people are employed on temporary 3 month contracts.

- The company's main site is in Newport Street in Plymouth city centre. This is the main assembly site and head office occupying about 10 acres. In addition to this there are three feeder fabrication factories located at Coypool, Lee Mill and Langage industrial estate. Each of these is located within easy access of the A38 expressway.

- The turnover of the company in the last financial year is estimated at £100 million and is projected at £108-110 million in 2001. The increase in turnover has created demand for more space, new facilities and has created 200 new jobs.

- Marine Projects estimates the total annual spend of the company at about £60 million. Major items, such as primary equipment (e.g. Volvo engines) tend to be sourced from overseas and many other primary purchases are also made outside the region, particularly the Midlands. Local purchases are estimated to account for 20-30% of the total budget.

- The development of the market has seen demand growing for larger vessels both in the yacht and motorboat business. The average length of Moody yacht has increased from 34' to 46' with more orders being received for 50 and 60 footers. The largest Princess motorboats are now being built at over 80'. As a result existing premises are becoming unsuitable and new sites are being sought.

- Following feasibility studies to look at suitable sites elsewhere, the Newport St site is currently undergoing a £3 million expansion as part of an overall £8 million investment in the expansion of the business in 2000/2001. Part of this involves extension of the existing site through land reclamation, which is being funded from internal reserves, with support from SWRDA.

- The company is still looking to expand onto further sites and specifically wishes to develop a new hull test centre, which requires direct waterside access so that boats can be launched or lifted directly into the water. A 5-acre site in Millbay was considered but land prices here were unaffordable. A South Yard site was also considered as a option at one point, but was rejected on the grounds of space restrictions caused by the location of listed buildings, while the need to provide 24 hours notice to the MOD police who control secure access to the site was seen as being problematical.

Key issues

- The lack of available waterfront sites is the main issue exercising Marine Projects at the present time and considers that current efficiency levels are being compromised by space constraints in the existing set up.

- The lack of good international air connections via regional airports is also seen to be something of a limiting factor on the day-to-day conduct of the business in terms of access to suppliers and client accessibility.

References:

(1) "The Economic Impact of Devonport Naval Base and Dockyard" a report prepared by Dr Paul Bishop, South West Economy Centre, University of Plymouth

Annexe C
SWRDA PRIORITY SECTORS WORKING PAPER 10:
MARINE TECHNOLOGIES – SUMMARY SHEET

Working Paper 3
Fishing

Contents

1. THE UK FISHING INDUSTRY

1.1 Overview

The fishing industry is a major economic activity in the UK. In 1998, there were 8,300 vessels involved in the fishing industry[4] and a total of 18,600 fishermen were employed in the industry. In 1998 the UK fleet caught 923,000 tonnes of fish which were landed in the UK and abroad. The value of this catch was £660 million. 552,000 tonnes were landed in the UK, with a value of £484 million.

Employment in the industry has been in steady decline since 1994 with the number of fishermen falling from almost 21,000 in 1994 to less that 19,000 in 1998. The total size of the UK fishing fleet has also declined over this period falling by 20%, or a total of 2,000 fewer vessels. However, it is interesting to note that total fish landings (in both volume and value terms) have increased over the same period (see Table 1).

TABLE 1
THE UK FISHING INDUSTRY

	1990	1992	1994	1996	1998
Fleet Size at end of Year (no. Vessels)	11,189	10,979	10,298	8,073	8,271
Employment (no. fishermen)	no data	no data	20,703	19,044	18,604
Total landings by UK vessels (volume – tonnes)	763	811	848	892	923
Total Landings by UK vessels (value -£m)	472	486	561	637	660

Source: UK Sea Fisheries Statistics

It is important to note though that the national picture hides significant variations within the fishing industry at a sub-national level. For example, trends affecting fishermen in the South West may well differ from those in Scotland given the different types of fish caught in these regions and varying methods of fishing and vessel sizes.

Over recent years there has been a gradual shift in quotas and licences towards Scotland – in 1999 the top seven ports in terms of volume of fish landed were all in Scotland. Peterhead comes top with 98,600 tonnes landed. Plymouth ranked eighth on the list with a total of 14,500 tonnes. In value terms, the Scottish ports also dominate, though Newlyn ranks 6th on the list with a total value of £17.7 million landed in 1999. Table 2 summarises the top ten ports by volume and value in 1999.

TABLE 2
TOP TEN UK PORTS: FISH LANDINGS IN 1999

[4] UK Sea Fisheries Statistics, 1998

By Weight (000 tonnes)		By Value (£million)	
1. Peterhead	98.5	1. Peterhead	78.9
2. Lerwick	78.9	2. Lochinver	34.7
3. Aberdeen	38.7	3. Fraserburgh	27.9
4. Fraserburgh	32.6	4. Aberdeen	26.2
5. Lochinver	24.7	5. Scrabster	25.5
6. Scrabster	20.4	6. Newlyn	17.7
7. Mallaig	17.6	7. Milford Haven	17.1
8. Plymouth	**14.5**	8. Brixham	15.8
9. Kinlochbervie	11.4	9. Mallaig	15.4
10. Hull	10.5	10. Lerwick	15.3

Source: Intrafish

On the processing side of the fishing industry, 700 businesses are involved in the UK, employing a total of around 19,000 people. The raw material used in such processing activities comes not only from UK landings but also includes imports from Iceland, Denmark, Holland, Spain, Ireland and a number of other countries.

Fish processing in England is largely concentrated in the Humberside area, which accounts for around 70% (by value) of all fish processed in England and Wales. Around half of all fish processed in Humberside are imported.

The fish processing sector as a whole is experiencing a period of rationalisation across the UK as margins are squeezed due to higher costs of fish and the purchasing power of major customers, such as the supermarket multiples. The fish processing industry is also struggling to keep up with changes in EU food regulations related to the environment and food hygiene.

A larger section of businesses rely on the fishing industry to support their retail activities. There are 3,000 fishmongers in the UK, employing 7,000 people. The majority of the volume of fish landed (68%, or 66% by value) is sold through supermarkets. The trading of fish in the UK is becoming ever more demand driven as the supermarket multiples demand consistency of supply, price and quality. The influence of supermarkets on the market for fish over the next decade is likely to increase.

Consumer expenditure on fish has increased between 1985 and 1996, yet fish consumption as a percentage of total food consumption has remained fairly static, between 4.3% and 4.8%. In the UK, consumers' taste for fish is limited to a small number of species. The UK consumes around 25% of the world's cod supply (while catching only 5%). The most common fish sold in the market today are cod, haddock, plaice, salmon and trout. Other commonly caught species in the UK such as mackerel and herring are largely exported across Europe where there is greater demand for these types of fish.

1.2 Recent Trends

As noted above the volume of fish landed in Europe is regulated by a quota system. Table 3 provides a breakdown of the quotas for each species for 1998 and 1999. The UK's proportion of a species does not change from year to year. However as the total EU quotas vary in response to the size and breadth of fish stocks, so will the quota available to UK fishing vessels vary.

Demersal species are the most significant landings in England and Wales, representing almost 45% of the total volume of the total catch. While still a significant proportion, this figure represents a fall of 17% on the proportions of landings a decade earlier. Shellfish account for more than a third of total landings in England and Wales – an increase of 6% on 1989.

However, the future quota allocations for some demersal species are in doubt. Recent press reports have indicated that the European Commission is considering implementing a year-long total ban on cod fishing in EU waters. This would have a significant impact on the UK fishing industry.

The fishing industry has undergone a radical change over the past twenty years and this process of change is likely to continue in to the future. A number of different market pressures have led to a period of restructuring in the UK fishing industry. The principal drivers have been:

- Intense competition in the market which has led to pressure on quotas
- Growing environmental concern over declining fish stocks and the need to match catches with sustainable fish stocks
- An ageing fleet of fishing vessels and a lack of investment in new technology
- Low profitability in many sectors.

This restructuring has involved a reduction the size of fishing fleets in the UK, which reduced fleet tonnage by around 10%, mainly in pelagic and beam trawling. It has been estimated that the size of the English and Welsh fishing fleet declined by more than 40% between 1992 and 1997 from more than 7,200 vessels to less than 5,000. In the future, further decommissioning is planned though this involves a limited scheme aimed at specific segments of the fishing industry. However, fleet size looks set to further decline as the high cost of fuel makes it increasingly uneconomical to undertake long distance trips.

TABLE 3 TOTAL ALLOWABLE CATCH (TAC)					
	1998 UK	**1998 Total TAC for EU**	**% of Total**	**1999 UK**	**% change 1998-99**
Demersal					
Haddock	88,710	167,700	52.9	72,000	-19
Cod	70,754	368,228	19.2	62,220	-12
Whiting	38,050	125,840	30.2	28,650	-25
Plaice	28,295	118,150	23.9	29,530	+4
Megrim	4,730	35,840	13.2	4,400	-7
Lemon Sole	2,813	37,525	7.5	7,330	+161
Pollock	3,360	22,100	15.2	400	-88
Hake	6,330	67,330	9.4	5,967	-6
Monkfish/Anglerfish	7,450	52,900	14.1	20,655	+177
Salmon	112,662	499,540	22.6		-
Saithe	12,565	116,700	10.8	11,960	-5
Blue Whiting	118,570	562,500	21.1		-
Other Species	18,700	719,440	2.6	59,920	+220
Shellfish					
Nephrops	-	17,268	0.0		-
Prawns (Norway Lobster)	33,015	64,680	51.0	25,445	-23
Pelagic					
Mackerel	180,980	519,615	34.8	165,680	-8
Herring	120,350	2,445,570	4.9	82,500	-31
Horse Mackerel	36,230	462,000	7.8	5,830	-84
*We have concerns over some of the UK 1999 allowance due to species definition					

Source: European Commission

A further issue for the fishing sector is the modernisation of the fishing fleet and the implications of improved technologies for fish catches. There is some evidence that the impacts of new technologies which increase the level of catch from each boat have reduced the impact of decommissioning schemes i.e. while the size of the fleet has been reduced there has been little impact on the volume of fish catches.

The UK has an aged fishing fleet with only a quarter of the fleet less than ten years old. It has been estimated that 28% of the fleet is over 25 years old while the average age for the entire fleet is 18 years. This will be one of the key issues for the UK fishing industry in the future – it is very old and inefficient compared to that of other nations. Not only that but the fleet continues to age, suggesting that more action is required in terms of modernisation. The age of the fishing fleet also has significant implications for safety at sea.

1.3 Future Prospects

The fisheries market is changing rapidly and requires radical changes for the industry to adapt to meet the challenges facing the industry. Overall the outlook for the UK fishing industry is not promising – falling catches, reduced margins, declining fish stocks, increased regulation and rising fuel prices are all having an adverse effect on the future of the industry.

The issue of fuel prices is an important one and is making it increasingly difficult for fishermen to undertake long deep sea fishing trips. Ultimately this is likely to lead to a reduction in the number of larger vessels travelling long distances as fishermen switch to smaller, inshore vessels. This in turn will lead to greater competition in what is already a crowded market.

Current market reports indicate that for the second year running the UK cod quota will not be met due to a lack of fish stocks, despite drastic cuts in quotas in recent years.

Perhaps the most important factor to influence the future of the UK fishing industry is the proposed changes to the Common Fisheries Policy (CFP). A Green Paper on the proposals to change the CFP is due to be published by the European Commission in February 2001, to be followed by amended legislation by the end of the year. One of the key issues being discussed is whether or not the EU should be encouraging fishing-dependent communities or whether it should be promoting diversification into other forms of activity instead. Other key issues to be addressed will be the failure of the CFP to ensure sustainable fishing stocks and the wide geographical scope of the CFP, which fails to accommodate the needs of individual fisheries.

Conservation issues will continue to be at the forefront of fishing policy and fishermen need to be able to accept this requirement and adapt to the implications this has on fishing methods. A good example of positive action is the introduction of square mesh panels on trawls in Scotland to conserve haddock stocks in the North Sea. Notably this was a measure introduced by fishermen – rather than one imposed upon them.

Beyond the CFP, the other major influence on the future of the fishing industry is the market. The market for fish is changing with increasing consumer concern over food safety and environmental issues, and globalisation, which makes competition in the sector even more intense.

Vertical integration between producers, processors and retailers is an emerging trend in the industry as it tries to maintain its position in the market. This trend is likely to continue in the future and may eventually become one of the dominant forces in the industry.

The supermarket multiples will have an important role in determining the market for fish in the UK. Currently there is an under-representation of certain species in supermarkets (notably domestic cod and haddock). There are opportunities for an increased proportion of such products to be domestic produce than is currently the case. Some estimates suggest that only 28% of cod sold in UK supermarkets is domestic produce while 80% of fresh

haddock is imported.

While total demand for such products cannot be met by domestic supplies there is perhaps an opportunity of increase the representation of domestic sources in the UK multiples. The key issue in reducing supermarkets' dependence on imports will be to improve the consistency and quality of the product and ensure a consistent delivery. Some of the multiples have tried to get round the problem by making their own arrangements with individual suppliers and processors, with their own 'flagged' vessels.

The catering sector has also been identified as an alternative destination for UK produce as it is a growing market in which the use of fish is increasing. There are also a number of new markets emerging in the UK fishing industry. Currently most of these are very small in size but may offer some opportunities.

To summarise the key factors facing the UK fishing industry are:

- Declining fish stocks, which requires improved management procedures
- Fishermen require to be more responsive to the market or face being left behind
- The influence of the supermarket multiples will continue to increase
- Regulatory changes will have an impact on the industry in the medium to long term
- As stocks decline, the only way fishermen can secure a better future is to bring better quality fish to market, and processors to produce higher value added fish products.

2 REVIEW OF THE FISHING INDUSTRY IN PLYMOUTH

2.1 Summary and Overview

Plymouth's fishing industry has suffered decline in recent years though it remains an important economic activity in the city. The fishing industry is largely confined to pelagic fishing, though there is also a significant volume of shellfish landed, generally involving smaller boats. Plymouth is one of the South West's major fishing ports.

More than 80 different species of fish are landed in Plymouth, reflecting its location near the clean waters of the Atlantic Ocean. A large proportion of the fish landed in the county are exported for sale or processing outside the region - predominantly France, Germany and Italy.

2.2 Current Performance

Tables 4 and 5 detail the volume and value of fish landed in Plymouth in comparison with a number of other fishing ports in the South West. They show that, in volume terms, pelagic fish are the main type of fish landed in Plymouth, accounting for over 70% of the total volume of fish landed. Shellfish account for a further 16% of landings by volume.

However, the value of fish landed has a starkly different profile. While pelagic fish account for over 70% of the *volume* of fish landed they represent only 25% of the *value* of fish landed. Demersal species form the largest share of the value of fish landed in Plymouth (38%), consisting largely of sole and lemon sole. The value of shellfish landed is also significant (37% of total value), predominantly scallops. The total value of all fish landed in Plymouth in 1998 was £11.6 million, around half of the total for Newlyn in Cornwall, one of the UK's largest fishing ports.

Plymouth's fishing industry has been affected by the trends affecting the rest of the fishing industry in the UK – namely dealing with reduced fish stocks, a declining fishing fleet, failure to modernise fishing methods and rising fuel prices. Continuing demands for reductions in the size of fishing fleets and fish stocks, which continue to decline, will be the key issues for the industry to address in the future. Recently announced reductions in EU quota allowances for many species will also have an impact on the industry.

In terms of generating new markets, there may be potential for the re-use of decommissioned fishing vessels in the city in training facilities or even heritage facilities, though there are difficulties with such schemes due to the procedures required by the authorities to prove that decommissioning has actually taken place.

TABLE 4

VOLUME FISH LANDED 1998 (TONNES)

	Plymouth	Looe	Falmouth/ River Fal	Newlyn
Demersal	**2,042**	**970**	**494**	**7,662**
Brill	1%	6%	0%	1%
Cod	4%	6%	4%	5%
Dogfish	7%	<1%	<1%	1%
Haddock	<1%	<1%	<1%	2%
Lemon Sole	11%	24%	5%	4%
Ling	8%	3%	15%	11%
Megrims	1%	1%	2%	18%
Anglerfish	6%	8%	11%	17%
Plaice	14%	7%	1%	2%
Skate/Rays	6%	2%	1%	8%
Sole	7%	1%	<1%	2%
Whiting	6%	29%	14%	4%
Other demersal	29%	13%	47%	25%
Pelagic	**13,424**	**1,033**	**781**	**759**
Mackerel	54%	99%	87%	95%
Horse Mackerel	12%	1%	1%	<1%
Pilchards	33%	<1%	11%	<1%
Other pelagic	1%	0%	1%	5%
Shellfish	**3,092**	**465**	**587**	**3,969**
Crabs	11%	<1%	13%	59%
Lobster	<1%	<1%	<1%	1%
Scallops	73%	11%	83%	30%
Squid	1%	23%	2%	1%
Other shellfish	14%	66%	2%	9%
Total All Species	**18,558**	**2,468**	**1,862**	**12,389**

Source: MAFF

TABLE 5

VALUE OF FISH LANDED 1998 (£)

	Plymouth	Looe	Falmouth/ River Fal	Newlyn
Demersal	**4,446,735**	**1,648,180**	**745,712**	**15,829,995**
Brill	3%	1%	<1%	2%
Cod	2%	4%	3%	3%
Dogfish	3%	<1%	<1%	1%
Haddock	<1%	<1%	<1%	1%
Lemon Sole	17%	51%	11%	7%
Ling	2%	1%	7%	5%
Megrims	1%	<1%	3%	20%
Anglerfish	7%	11%	13%	19%
Plaice	8%	4%	1%	2%
Skate/Rays	3%	1%	1%	5%
Sole	25%	2%	2%	9%
Whiting	1%	9%	5%	1%
Other demersal	28%	16%	54%	25%
Pelagic	**2,870,567**	**357,324**	**100,467**	**426,285**
Mackerel	66%	99%	95%	91%
Horse Mackerel	10%	<1%	1%	<1%
Pilchards	23%	<1%	<1%	<1%
Other pelagic	1%	<1%	4%	9%
Shellfish	**4,267,482**	**745,956**	**778,503**	**6,186,955**
Crabs	7%	<1%	10%	56%
Lobster	1%	<1%	1%	3%
Scallops	77%	8%	83%	30%
Squid	4%	52%	4%	2%
Other shellfish	12%	40%	3%	8%
Total All Species	**11,584,784**	**2,751,460**	**1,624,682**	**22,443,235**

Source: MAFF

2.3 Processors and Local Markets

There are a number of fish processors and fish merchants based in Plymouth. Interfish is the largest of these, employing more than 80 people, processing fish landed in Plymouth and elsewhere in the UK. The large wholesale companies largely export fish to Continental Europe (principally France, Spain and Italy) while smaller firms typically have lower volume production and supply mainly local hotels and restaurants. Plymouth also has the advantage of having modern fish auctioneering facilities located on Sutton Harbour.

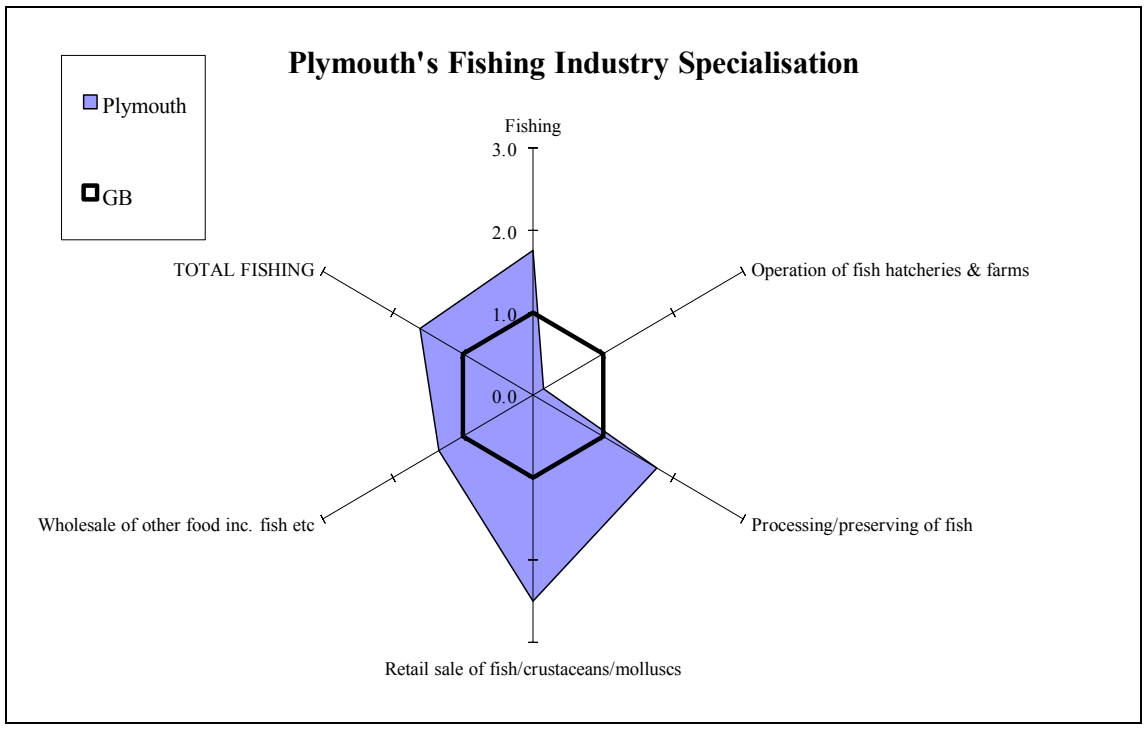
A significant proportion of fish landed in Plymouth is exported out of the area before being processed or after simple processing (such as filleting). This represents a key weakness in the local fishing industry and also a significant opportunity if the level of processing activity in the area can be increased. Currently, the main area for fish processing in Plymouth is located in Sutton Harbour, which is in the middle of prime city centre land. The rents for property along this fish quay are therefore high for fish processors, both current and prospective. Furthermore, the quantity of fish caught in Plymouth is not sufficient to attract a major processor because continuous supply cannot be guaranteed, in part, due to the size of the fishing grounds available to the fleet in Plymouth.

The solution proposed by the Sutton Harbour Company to these issues facing the fishing industry in Plymouth, is to relocate much of the current fish processing facilities to a site outside the city, most probably along the A38 on a cheaper area of land. The new facility would be the main processing facility for the fish caught in Plymouth and would also process fish caught in ports such as Brixham, which has larger fishing grounds, but limited fish processing facilities. Plans for the new facility have yet to be drawn up, although it would be significantly larger in area than the current site. The volumes processed in the new facility would justify the investment and build upon the strengths of the existing ports in the area. Plymouth's main strength lies in the processing facilities on the fish quay, which would all relocate to the new site. Brixham has large volumes and a larger catch that is retained for processing in the area (a large proportion of catches in Plymouth are processed in Aberdeen).

The new facility would have the capacity to store, process and auction fish (electronically around Europe) in accommodation that would be significantly cheaper to rent and have more potential for future development, should needs arise. The fishing fleets would still maintain a significant presence in each port, but all catches would be transported from the quayside for processing. The additional volumes processed in the centre would attract more processors to the area, thereby increasing employment. Processors would only need a presence in one site in the South West, rather than 3 or 4 separate sites at each of the main fishing ports.

2.4 Fishing Industry Specialisation

Plymouth has a very strong specialism in commercial fishing activities and fish processing activities relative to the UK as a whole. However Plymouth is underrepresented in the operation of fish hatcheries and fish farms, given the lack of space and poor water quality in Plymouth Sound. Employment statistics also show Plymouth to have a strong specialisation in both wholesale and retail activity related to fish.



Note: Location quotients (LQs) express the percentage of employment in a sector in one area (the SW) relative to a benchmark area (GB). An LQ score of two means that the percentage share of total employment accounted for by the sector is twice the national (GB) average. Scores of above one indicate a regional specialisation.

2.5 Fishing Industry Linkages to Local Communities and Tourism

There are direct linkages from the primary and secondary fishing industries to the local economy in the form of fish restaurants, fish and chip shops, and local expenditure in other retail outlets generated by those who work directly in the fishing industry.

Other important linkages are to:

- Pubs in the city and its hinterland, many of which also serve food, and specifically seafood
- Fish and chip shops, many of which use local fish purchased from local markets

- Boat builders in the area. The dependence of such firms on the fishing industry varies enormously – for some the fishing industry is a very minor part of their business while others are entirely dependent on fishing.

- Marine electronics firms, which are an essential service to the fishing fleet. Few companies specialise solely in marine electronics with the majority possessing skills and technologies, which can be applied to other industries, such as aerospace and other, advanced engineering activities.

- Various other supporting services such as suppliers of nets, chandlers and setters.

Working Paper 4
Tourism and Leisure

CONTENTS

1 THE UK TOURISM INDUSTRY

1.1 Introduction

The UK tourism and leisure Industry is one of the country's fastest growing industries. Employment in the sector has increased 8% between 1991-97. It is estimated that 7% (or 1.8 million) of all UK workers are directly employed in the tourism and leisure industry through 127,000 businesses. The sector is worth £60 billion a year to the UK economy, made up of the expenditure of overseas visitors to the UK, UK people holidaying in the country, day trips and revenues of UK carriers.

In 1998, almost 26 million people visited the UK from overseas and associated expenditure amounted to more than £12 billion. The British Tourist Authority estimates that this figure will increase to £18 billion by 2003. Within the UK, 122 million tourist trips were made in 1998 with associated expenditure of over £14 million (Table 1).

TABLE 1
THE UK TOURIST INDUSTRY 1998

	No. of Trips (000s)	Expenditure (£m)
UK Residents	122.3	14,030
Overseas Visitors	25.7	12,671
Total	148.0	26,701

Source: UK Tourism Statistics

Seaside Tourism: In 1997 more 26 million people took seaside holidays in the UK, spending £4.7 billion. As a proportion of all tourist stays, seaside holidays account for 37% of all tourist trips and almost half (46%) of UK tourist expenditure. The seaside market is also an importance one for day-trippers with more than 110 million day trips made to the UK coastline in 1996.

1.2 Marine Related Tourism and Leisure

The numbers of people taking part in water activities has steadily increased as leisure time has increased and facilities have improved. Sailing and other watersports are increasingly popular leisure pursuits in the UK. The 1996 General Household Survey indicates that 1.6% of those surveyed had participated in sailing in the previous 12 months and a further 1.1% had participated in windsurfing or boardsailing.

Sailing and cruising are increasingly popular recreational activities in the UK, ranging from board sailing through to ocean racing and cruising. A somewhat dated survey by the British Ports Federation (1989) estimated that there were around 150,000 craft over 6.5 metres moored in coastal waters in the UK. A similar survey of members of the British Marine Industries Federation (BMIF) in 1991 came up with a figure of 55,000. BMIF estimates also suggest that the stock of craft over 6.5 metres in length is increasing by 5-6,000 every year, equivalent to a growth rate of 4% per annum. Moorings and other facilities are therefore

required to meet the growing demands of this sector, though the market for moorings is predominantly a local one.

1.3 Recent Trends in the Tourism Industry

Recent trends in the sector are summarised below:

The tourism sector has benefited from the growth in leisure time, the increasing numbers of people enjoying paid holidays and growth in disposable incomes since the 1950s. However, the development of the package holiday in the late 1970s, the product of the declining cost of air travel, has popularised foreign travel. Holidaymakers no longer want to go back to the same resort year after year. There has therefore been a huge increase in the numbers of people who take holidays abroad, and a fundamental cultural change in attitudes and expectations of holidays, fuelled by still further increases in wealth and more frequent holidays.

As a consequence traditional seaside holiday destinations have lost a huge share of the market. The result has often been low levels of investment in many seaside towns, creating a rather 'down at heel' image, which does little to attract new, quality conscious visitors. Much has been done in recent years improve the appearance and the product on offer in many traditional resorts but they continue to serve a market that is very sensitive to factors such as the weather

In contrast, the growth in leisure time and incomes has boosted those areas well placed to serve the short break market. Areas within easy driving distance of the Midlands, London, and the South East have particularly benefited from this growth.

Those areas that are readily accessible to the large centres of population and close to the motorway links benefit the most from leisure day trips. The most important areas for leisure trips are therefore distinct from those primarily serving the tourist market.

1.4 Future Prospects

Overall UK tourism is expected to continue to grow in value in the future. Over the last twenty years, tourism activity in Britain has grown by around 21% in the volume of trips, 3% in the volume of nights and 60% in terms of real value.

Market prospects can be analysed for both overseas tourism and domestic tourism. In 1998, 53% of overseas tourist trips to the UK were to London with the rest of the South East accounting for a further 9.5% of trips. With the exception of Bath, the South West region has never benefited much from overseas tourism.

Overseas Tourism: the British Tourism Authority forecasts that overseas visitors to the UK will continue to grow at around 3.4% per annum; overseas visits by UK residents are forecast to grow at a slightly faster rate. In general the tourism market in the UK is fairly

mature so Britain's share of the world wide growth in tourism is lower than in other parts of the world such as the Middle East, Asia and the Pacific.

Domestic Tourism: the British Tourist Authority predicts that on average the domestic tourism market will grow by an average of 3% up to 2003. It is anticipated that much of the growth will be in short break holidays (1-3 nights), business and conference travel and visits to friends and relatives. South West Tourism predict that over the next 20 years there will be an 80% increase in tourism trips; a 40% increase in total visitor days (including tourism day visits as well as staying visitors); and a 50% increase in the real value of visitor spending.

In the leisure and cultural sub-sector other changes are taking place. These include:

The continuing shift towards the provision of leisure facilities by the private sector rather than the public sector.

The growth of the creative industries sector

Continuing growth of home entertainment market

Influence of technology on products and marketing.

2 REVIEW OF THE TOURISM INDUSTRY IN PLYMOUTH

2.1 Summary and Overview

Tourism is one of Plymouth's core industrial sectors accounting for around 6% of all employment in the City and its hinterland. It has been estimated[5] that around 729,000 people visit the City every year spending a total of more than £300 million and generating additional employment in accommodation, restaurants and other supporting activities. However the importance of the tourism sector to the City's economy goes beyond these direct and indirect effects. The sector has important linkages to other sectors, notably agriculture and fishing, by providing opportunities for diversification.

Plymouth as a tourist destination has a cultural and environmental distinctiveness and boasts a large number of tourist attractions. However the sector has a number of crucial weaknesses in that it is under increasing pressure to remain competitive against other destinations around the globe and the industry suffers from high levels of seasonality with the majority of visitors arriving between May and September.

Key problems which the sector needs to address in the coming years are:

The seasonal toughs and peaks and the knock-effects for local businesses and people;

Making the sector an attractive one to work in with higher wages and improved career prospects;

The need to adapt to changing tourist demands; and

Growing and retaining tourist expenditure within the City.

2.2 Current Performance

The characteristics of tourism and leisure in the South West region have been determined to a large extent by geography and history. It is possible to identify four distinct tourism 'products' in the region and the market segments they serve.

Short Break Destinations: for example, the Cotswolds, Forest of Dean, parts of Dorset. Due to easy accessibility to London and the South East and the Midlands, these areas have traditionally been short break destinations for holidays up to a week in duration.

Bath is a short break destination in its own right, but is slightly unique in that it is a popular destination for overseas visitors - one of the few outside London - although recently it has experienced increasing competition from other destinations.

[5] *'Economic Impact of Tourism in Plymouth' West Country Tourist Board (for Plymouth Marketing Bureau), February 2000*

Longer Break Countryside Destinations: The rural areas of Devon and Cornwall, and North Somerset include areas of high landscape beauty including Dartmoor and Exmoor National Parks. These destinations attract domestic visitors for holidays of one or two weeks

Traditional Seaside Resorts: the traditional 'bucket and spade areas' including Bournemouth and Torquay, parts of north Devon, Cornwall and much of Dorset. The core market of these resorts has traditionally been for domestic visitors from the Midlands and the South East taking a one or two week summer holiday.

Changes in the industry have worked in favour of some of these areas and against others.

Seaside resorts have benefited from the growth in leisure time, the increasing numbers of people enjoying paid holidays and growth in disposable incomes since the 1950s. But development of the package holiday in the late 1970s, the product of the declining cost of air travel, has popularised foreign travel. Holidaymakers no longer want to go back to the same resort year after year. There has therefore been a huge increase in the numbers of people who take holidays abroad. As a consequence traditional seaside holiday destinations have lost a huge share of the market.

In contrast the growth in leisure time and income has boosted those areas well placed to serve the short break market, areas such as the Cotswolds, Bournemouth and Bath. Other areas within easy driving distance of the Midlands, London, and the South East have also benefited from this growth. While most parts of the South West have benefited from the growth in the short break market, the more distant parts (including Plymouth) have not benefited to the same extent as other areas because of their relative inaccessibility.

Plymouth has a special attraction as a destination for watersports activity by virtue of its excellent physical resources, including the supply of moorings/marinas and long maritime heritage.

Boating is strongly represented in Plymouth with an estimated 33,000 visiting boat nights per year. With an average crew of three, this suggests a total of 99,000 marine tourist nights per year. Estimates of expenditure associated with such visitors suggest that they may bring up to £2.8 million in expenditure to the City each year[6]

Several high profile sailing events are hosted in Plymouth, drawing in significant numbers of visitors. The events include the Single-Handed Transatlantic Race, Power Boat Championship Racing and the Plymouth Maritime Festival.

Various other watersports activities are also featured in Plymouth, with excellent new facilities now available at the Mount Batten Centre including sailing and diving. Sea angling, canoeing, windsurfing, rowing and diving are also popular activities within the Plymouth area with numerous clubs in operation.

[6] *'Visiting Recreational Craft to the Port of Plymouth: Their Use of Facilities and Implications for Future Management' Julie Hopley, September 1998*

The City also boasts a number of attractions that are linked to the marine sector. A relatively recent addition is the National Marine Aquarium, which attracts over 300,000 visitors annually, and in 1998 was one of the top ten most popular visitor attractions in the South West. The area's natural resources are also important tourist attractions e.g. the Mount Batten peninsula in Plymouth Sound boasting a coastal footpath, waterside events space, and a marina.

In total, Plymouth attracts around 729,000 visitors each year. The vast majority (90%) of visitors to Plymouth are domestic visitors, largely visiting friends and relatives (41%). A further 28% of visitors come purely for a holiday and a further 24% for business. In 1998, expenditure associated with staying visitors in Plymouth amounted to £95 million, with an additional £209 million generated by day visitors (either day visitors staying in holiday accommodation or day visitors from their homes).

Of this total, approximately one third of expenditure is spent with the local catering industry. £88 million with retailers and £55 million on transport. Attractions and entertainment receive an estimated £28 million from the annual tourist trade. It has been estimated that the tourist industry supports around 7,700 jobs either directly or indirectly, accounting for 8% of all jobs in the City.

Table 2
Tourist jobs supported in Plymouth

	Number of Jobs	% of total
Shops	1,122	15
Restaurants and Pubs	2,189	28
Attractions & Entertainment	593	8
Garages & Transport	440	6
Accommodation	819	11
Indirect & Induced Employment	2,556	33
TOTAL	7,719	100

Source: Economic Impact of Tourism in Plymouth, West Country Tourist Board for Plymouth Marketing Bureau, February 2000

2.3 Future Prospects

The tourism industry in Plymouth is facing a number of significant challenges, many of which are common to the industry across the South West. The tourism strategy for the South West *'Towards 2020 A Tourism Strategy for the South West'*, provides a useful summary of the key factors which will affect the future of tourism in the South West. All of these factors are highly relevant to the Plymouth tourist industry. These are summarised below:

The population of the UK and Europe will continue to age. The numbers of people aged over 65 will increase, and they are likely to be significant spenders on tourism products

The numbers of single adult households will continue to increase, particularly in the older age groups, but the number of one-parent families will also increase. Tourism providers need to recognise the need to cater for these groups, not just for two adult families.

There is expected to be an increase in informal recreation, interest in art and culture and personal health and the environment. These interests will generate demand for specialist products and activity holidays.

There is expected to be continuing fragmentation of the market. People will increasingly seek to match their holidays and the way they spend their leisure to fit with their own particular interests and lifestyle. The age of mass market products and marketing is on the wane.

Disposable income is expected to continue to increase. Expenditure on leisure will also increase as a proportion of income. Yet leisure time is not expected to grow as rapidly. Higher incomes and expenditure without an increase in time available for leisure will lead to a demand for higher quality and a continual search for new experiences.

International travel costs have fallen dramatically in recent years, but it is unlikely this trend will continue. The search for new experiences and higher disposable incomes, however, means that international tourism will continue to grow rapidly.

Changes in accessibility will potentially impact the industry. Congestion may damage the market prospects of some specific locations, but more generalised congestion (or motorway tolling) could reduce the attractiveness of Devon and Cornwall, which are relatively remote from the domestic markets they serve.

The revolution in IT and communications will transform methods of marketing holiday destinations and the sales of tourism products.

The success of the industry in Plymouth is also affected each year by a number of largely unpredictable factors. These include the weather, particularly given the growth in last minute decisions about holiday destinations; the value of sterling – though whether this remains a key factor depends on the decision whether to enter the Euro. On a broader scale the cost of oil is an important variable in the cost of air travel, while political instability can also influence decisions to travel overseas.

Working Paper 5
Marine Science, Research and Development

CONTENTS

1 INTRODUCTION

Extensive marine and maritime related research and development is undertaken in the Plymouth area. Three principal organisations have been identified in this sector:

The Institute of Marine Studies (Plymouth University)

Plymouth Marine Laboratory (PML)

The Diving Diseases Research Centre

Each is discussed below.

2 THE INSTITUTE OF MARINE STUDIES

The Institute of Marine Studies at the University of Plymouth has at least 28 different undergraduate courses closely related to the activities of the marine cluster. In addition, the Institute also hosts a large number of post-graduate students in marine-based subjects.

Some of the marine related undergraduate courses on offer at Plymouth University are listed in Table 1:

Table 1
Marine Related Courses at Plymouth University

Technology related:	Marine Systems Technology Marine Technology Marine Sports Technology HND Marine Craft Technology
Business related:	Maritime Business Maritime Business with Logistics Maritime Business with Maritime Law (minor)
Science related:	Ocean Science (can be combined with other subjects e.g. chemistry) Underwater Science Marine Biology Marine Environmental Science Fisheries Science
Recreational:	Surf Science and Technology HND Marine Leisure Management
Other:	Marine Navigation Hydrography Fisheries and Aqua-Culture Nautical Studies HND Maritime Studies

Course Profiles

Table 2 presents some examples of the contents of the courses offered by the Institute, while Table 3 lists some of the post-graduate research topic areas.

Table 2
Course Profiles

Course Title	Course Content	Duration
HND Marine Craft Technology	Subjects studied include: Marine design; naval architecture; marine engineering and mathematics; navigation; computing & marine business.	2 years
BSc (Hons) Marine Technology	Subjects studied include: Mechanics; thermodynamics; marine and offshore industries; ship design; design of marine structures & vessels; design of marine plant & systems; marine navigation; maritime law and commercial practice.	3 years
BSc (Hons) Fisheries Science	Subjects studied include: The structure and process in the oceans and atmosphere; marine and environmental chemistry; biology and ecology of exploited species; technology of capture, culture and recreational fisheries; physical oceanography; underwater science; management of fisheries.	3 years
BSc (Hons) Ocean Science	Subjects studied include: Physical, chemical & biological processes of the oceans and atmosphere; hydrography; physical oceanography; marine environmental management; underwater science; meteorology & climatology; scientific diving (optional & must meet requirements to dive)	3 years

Table 3
Post-Graduate Studies

Fish Biology	Physical Oceanography
Applied Marine Science	Environmental Management (Marine)
Aquatic Eco-Toxicology	Underwater Science (Marine optics)
Coastal & Ocean Policy	Hydrography
Hydrography	Navigation
International Logistics	Maritime History
Shipping	Shipping Market Policy
Meteorology	Maritime Transport Policy and Planning
Marine Technology	Marine Biology/Chemistry
Fish Health	

The Institute of Marine Studies currently has a student population of 1,500-2,000 students directly involved in marine related courses or pursuing courses with a marine aspect incorporated within them. The mix of domestic and overseas students at undergraduate level is about 70:30 in favour of domestic students. However at postgraduate the situation is reversed with around 80% of the students coming from outside the UK.

The Institute is also involved in a range of international research activities and projects.

Much of the research is industry based with topics including beach processes, underwater optics, shipping and ports in developing states and electronic communications for shipping.

The Institute is very well equipped with a high level of specialist equipment ranging from deep water testing tanks to a marine navigation simulator amongst other facilities. There is also a high level of usage of information technology with computers used extensively throughout the department. Further examples of resources include hydrographic surveying equipment; a meteorological laboratory and a floating laboratory in the form of an 11m catamaran that is used for teaching and research work in the marine sciences.

The Institute currently has 36 full time academic staff, 9 technical staff and 4 administrative staff. In the latest Research Assessment Exercise (RAE), the Institute achieved a level 3 (out of a possible 5) and there is optimism that this rating will increase to a level 4 after the next review.

3 PLYMOUTH MARINE LABORATORY (PML)

PML is a component laboratory of the UK Natural Environment Research Council (NERC). It was established in 1988 through the merger of the Institute of Marine Environmental Research and the bulk of the Marine Biological Association of the UK. PML undertakes multi-disciplinary research in estuarine, coastal, shelf and oceanic waters. PML receives around half its funding from the NERC and the remainder from a number of public and private sector organisations in the UK and abroad, including the European Union (EU). Other sources include DoE/DETR, MAFF, NRA/EA, and MOD/DERA (Defence Evaluation and Research Agency).

A key responsibility is the joint running of the National Marine Biology Library, one of the foremost marine reference libraries in the world that has existed in Plymouth for 112 years.

PML research activities are supported by sophisticated scientific and technical services and facilities which are managed by the Well Found Laboratory (WFL). The NERC co-ordinates national programmes of R&D in marine science and technology and the facilities it supports, including the PML, are regarded as national assets. Core research programmes are summarised in Table 4.

PML has 250 full time employees consisting of 130 professional scientists and 80 students (many studying for PhDs). There are also a number of contract scientists located at the firms two sites in Plymouth.
The PML together with the MBA has been closely involved with the development of the National Marine Aquarium in Plymouth which opened in May 1998.

In June 2000 the NERC announced a major reorganisation whereby the Centre for Coastal and Marine Sciences (CCMS), of which PML was a component, was to be rationalised. This partly reflects the fact that some core research programmes are non-profit, or loss making, and it is a priority for NERC to reduce some of these liabilities. The previous CCMS prefix to

PML has been deleted. The intention is for PML together with the sister research facilities at Dunstaffnage and Merseyside to become separate profit centres.

The working budget for PML in 1999 was £7m, though changes are expected to this soon as PML looks to adopt a more commercial focus. PML's proposal is to establish PML as a separate company that will undertake the core research programme. PML would become a charity or a limited company owned by shareholders and a separate company, Plymouth Marine Applications (PMA), will be established to undertake commissioned research i.e. non-NERC research and commercial contracts. A Business Development Manager has been appointed to guide this transition.

Table 4
PML Core Research Programmes

Project	Key Questions
Estuarine and Coastal Function and Health (ECFH)	• What key processes, particularly the physical, chemical and biological interactions, control estuarine form and function? • How can estuarine and coastal processes be synthesised and used to develop a quantitative and generic understanding of estuarine function and health?
Scale Biodiversity and the Consequences (SBCC)	• How can biodiversity measures be extrapolated across phylogenetic and spatial scales, in order to detect change? • What functional consequences result from biodiversity change?
Microbially Driven Biogeochemical Processes, Exchanges and Controls (MDB)	• How does the composition of the autotrophic and heterotrophic community affect carbon cycling and ecosystem stability? • How will variation in nutrient availability influence carbon export and trace gas production? • What factors determine the air-sea exchange of climate-reactive gases? • How can regional studies be integrated and extrapolated to larger space and time scales?

4 THE DIVING DISEASES RESEARCH CENTRE

There are 15 full time people employed at the diving Diseases Research Centre (formerly the Hyperbaric Medical Centre), located in the Science Park next to Derriford Hospital. In addition to NHS treatments, the centre is involved with the treatment of diving related injuries caused by pressure effects. It principally treats divers suffering from the "bends".

ANNEXES