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MILFORD HAVEN WATERWAY  
ENVIRONMENTAL SURVEILLANCE GROUP

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GRŴP CADW GOLWG AMGYLCHEDDOL  
AR DDYFRFFORDD ABERDAUGLEDDAU

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**BUSINESS REPORT 2007**



**MILFORD HAVEN WATERWAY  
ENVIRONMENTAL SURVEILLANCE GROUP  
BUSINESS REPORT 2007**

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**Use of this document to inform environmental decision making in the Milford Haven waterway is welcomed by the MHWESG; however all use should be appropriately acknowledged and referenced.**

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## **Milford Haven Waterway Environmental Surveillance Group Report 2007**

### **Distribution**

#### ***Members***

Chevron Ltd  
 Countryside Council for Wales  
 Environment Agency Wales  
 Dwr Cymru-Welsh Water  
 Milford Haven Port Authority  
 Pembrokeshire Coast National Park Authority  
 Pembrokeshire County Council  
 Sem Logistics  
 Total UK Ltd

#### ***Corresponding & observing members***

South Wales Sea Fisheries Committee  
 Wildlife Trust South & West Wales  
 WAG Environment Division

#### ***Potential future members***

Dragon SEM Group  
 RWE nPower  
 South Hook LNG

#### ***Educational & research establishments***

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 Department of Maritime Studies & International  
 Transport, Cardiff University  
 School of Ocean Sciences, Bangor University  
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 Department of Zoology, National Museum &  
 Galleries of Wales, Cardiff  
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 Field Studies Council:  
     Dale Fort Field Centre  
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 Milford Haven School  
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#### ***Libraries***

National Assembly for Wales Library  
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 Pembrokeshire County Council Public Libraries:  
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     Milford Haven  
     Pembroke Dock  
     Tenby

#### ***Elected representatives***

Carmarthen West & South Pembrokeshire MP  
 (Nic Ainger)  
 Preseli Pembrokeshire MP (Stephen Crabb)  
 Carmarthen West & South Pembrokeshire AM  
 (Angela Burns)  
 Preseli Pembrokeshire AM (Paul Davies)  
 Regional Assembly Members  
     Nick Bourne  
     Alun Davies  
     Nerys Evans  
     Joyce Watson

#### ***Others***

Pembrokeshire Marine SAC  
 Pembrokeshire Coastal Forum  
 DEFRA Environmental Protection Directorate  
 (Beth Greenaway)  
 JNCC (Jane Hawkrige / OSPAR link)  
 EA Environmental Monitoring and Assessment,  
 Peterborough (Alison Miles / WFD link)  
 Marine Life Information Network (MarLIN)  
 Dave Levell (via MHPA)  
 Robin Crump (Chair Skomer MNR Adv C'tee)  
 Skomer Marine Nature Reserve  
 David Harries

***Current, former and contractors previously submitting tenders but not awarded contracts***

**MILFORD HAVEN WATERWAY ENVIRONMENTAL  
SURVEILLANCE GROUP**

**Chevron Ltd**

**Countryside Council for Wales**

**Environment Agency Wales**

**Dwr Cymru-Welsh Water**

**Milford Haven Port Authority**

**Pembrokeshire Coast National Park Authority**

**Pembrokeshire County Council**

**SemLogistics Ltd**

**Murco Oil (UK)**

*South Wales Sea Fisheries Committee (corresponding)*

*Wildlife Trust West Wales (corresponding)*

*Welsh Assembly Government Environment Division (observer)*

**Milford Haven Waterway Environmental Surveillance Group  
Report 2007**

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## **1. CHAIRMAN'S FORWARD**

Welcome to the latest report as to the activities and progress of the Milford Haven Waterway Environmental Surveillance Group in assisting a variety of individuals and organisations including those involved in Integrated Coastal Zone Management (ICZM).

A product of the 1990's, ICZM is frequently used to describe the holistic co-ordination, delivery and management of the disparate interests and uses of our coasts. It requires flexible long term planning, working with both natural processes and ecosystem capacity.

As one of the largest natural deep water harbours in the world, the Milford Haven Waterway is very fortunate to have a wealth of data gathered over the years. This information is vital to ensure that effective decision making takes place based on valid, objective and reliable facts.

Milford Haven Waterway Environmental Surveillance Group continue to be a key provider of survey data that can be used directly or in combination with other work to enhance knowledge of what has rightly been called 'a gem'.

The Group itself comprises a mixture of organisations from the public and private sector working in partnership for mutual benefit. I have no doubt at all that the continued success of the Group is due in no small measure to the effort and time committed by each of the members to achieving the work program. Something for which I am very grateful.

Finally, the day to day delivery of the program is down to a very experienced and enthusiastic part-time Project Officer, to whom I give my personal thanks.

Captain Mark Andrews  
Milford Haven Port Authority  
*Chairman*



## **RHAGAIR Y CADEIRYDD**

Croeso i'r adroddiad diweddaraf ar weithgareddau a chynnydd Grŵp Goruchwylio Amgylcheddol Dyfrffordd Aberdaugleddau, sy'n cynorthwyo amrywiaeth o unigolion a sefydliadau, gan gynnwys y rhai sy'n gysylltiedig â Rheolaeth Integredig ar Barthau Arfordirol (RhIBA).

Cynnyrch y 1990au yw RhIBA, sef yr enw a roddir yn aml ar gydgysylltu, cyflawni a rheoli yn holistig yr holl fuddiannau amrywiol a'r dulliau defnyddio a geir ar hyd ein harfordiroedd. Mae'n galw am gynllunio hyblyg a hirdymor, ac am gydweithio â phrosesau naturiol yn ogystal â chyraeddiadau'r ecosystem.

Dyfrffordd Aberdaugleddau yw un o'r porthladdoedd dwfn naturiol mwyaf yn y byd, ac yr ydym yn dra ffodus bod cyfoeth o ddata amdani wedi eu casglu dros y blynyddoedd. Mae'r wybodaeth honno yn hollbwysig ar gyfer gwneud penderfyniadau effeithiol sy'n seiliedig ar ffeithiau dilys, gwrthrychol a dibynadwy.

Mae Grŵp Goruchwylio Amgylcheddol Dyfrffordd Aberdaugleddau yn parhau i ddarparu data arolygon y gellir eu defnyddio yn uniongyrchol neu ar y cyd â gwaith arall i gynyddu'n gwybodaeth am ddyfrffordd a ddisgrifiwyd yn deg fel 'gem naturiol'.

Cyfansoddir y Grŵp o gasgliad o sefydliadau cyhoeddus a phreifat, sy'n cydweithio mewn partneriaeth er budd pawb. Yn ddiamau, gellir priodoli llwyddiant parhaus y Grŵp i raddau helaeth i'r ymdrech a'r amser a gysegrir gan bob aelod unigol er mwyn cwblhau'r rhaglen waith. Rwyf yn dragwyddol ddiolchgar iddynt am hynny.

Yn olaf, rhaid cofio bod y gwaith o gyflawni'r rhaglen o ddydd i ddydd yn syrthio i ran y Swyddog Prosiect rhan-amser brwdfrydig a phrofiadol iawn, a chynigaf fy niolch personol iddo yntau.

Y Capten Mark Andrews

Awdurdod Porthladd Aberdaugleddau

*Cadeirydd*



## 2. INTRODUCTION

This is the ninth business report of the Milford Haven Waterway Environmental Surveillance Group (formerly the Milford Haven Waterway Environmental Monitoring Steering Group). It covers the period 1 April 2006 to 31 December 2007.

The Milford Haven Waterway Environmental Monitoring Steering Group was established in 1992 following a highly successful one-day conference to examine the issue of oil pollution in Milford Haven. The Group let a series of contracts to collect data across the full suite of marine habitats within the Haven and, in collaboration with the Environment Agency, carried out systematic water quality surveillance for several years. The value of the Group's data became very clear during the assessment of the environmental impacts of the 1996 Sea Empress oil spill.

During the early 2000s, the need to strengthen and increase the formality of the Group's constitution, not least for reasons of financial management and VAT recovery, became increasingly important. The development and agreement of a formal Memorandum of Agreement that met the needs and business concerns of all members of the Group took a considerable time. Following ratification and adoption of the MoA by all the Group's members, financial management of the Group transferred from Pembrokeshire County Council to Milford Haven Port Authority.

During the same period, the surveillance and monitoring obligations on several public bodies arising from, in particular, European directives developed and become clearer; for example the monitoring requirements of the Habitats & Species and the Water Framework Directives. Whilst the Group welcomes the use of data it collects to inform such monitoring, it does not wish to duplicate the efforts of public bodies, or be seen to be undertaking their duties. Rather it wishes to fill the gaps between such work, focus on tasks of the widest common interest to its members, and to synthesise and summarise the information available on the environmental health of the waterway.

### 3. GROUP ACTIVITY 2006 - 2007

#### 3.1. INTRODUCTION

The Group's outputs during the period are summarised below. Although this year's outputs appear sparse, the output from a substantial review is anticipated in the near future and other tasks are ongoing. Whilst the recent focus on desk-studies has continued, the emphasis on field-based surveillance has resumed.

The re-evaluation of the Group's priorities and the revision of the work programme resulting from the review of Group work in 2000 (Bent, 2000<sup>1</sup>) has continued. A contract to review the last of four major topics and data-sets has been let and is at a preliminary report stage. Dr David Little was commissioned to review sediment contamination and sediment transport within the waterway and to develop a sediment contaminant surveillance programme. Recently retired from the international consultancy A D Little, prior to 1989 Dr Little worked for the Oil Pollution Research Unit near Pembroke where he carried out the early work on sediment transport and contaminants in the Haven.

An initially one-year contract to begin a long-term programme of bioaccumulation surveillance has been let to Dr Bill Langston from the Marine Biological Association, Plymouth. Dr Langston has over 30 years experience in the investigation of bioavailability and impacts of contaminants. His specialities include metals and organometals analysis (including TBT) and PCBs. He has undertaken a substantial number of bioaccumulation and environmental assessment projects in similar estuaries / marine inlets throughout the UK, including in Milford Haven in the 1980s, and was a key player in the development of what have become national contaminant surveillance protocols and strategies. This experience is expected to enable a robust comparison of Milford Haven with a wide range of both industrialised and undeveloped UK estuaries and marine inlets.

A sublittoral sediment biology surveillance programme specification was drawn up based on the recommendations detailed in Dr Richard Warwick's 2006 review of benthic and intertidal sediment macrofauna data<sup>2</sup> (reported and summarised in the previous Group business report). Following meetings with the Countryside Council for Wales and the Environment Agency, an integrated programme of work was developed whereby the CCW's Habitats Directive monitoring, the EA's Water Framework Directive monitoring and the Group's surveillance programme did not duplicate but complemented each other, adopted comparable methodologies to enable shared data analysis and identified economies of scale and opportunities for collaboration; for example sampling was undertaken from the EA's research vessel as a contribution in kind to the Group in spring 2008.

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<sup>1</sup> Bent, E J (2000). *A review of environmental studies in Milford Haven Waterway 1992 – 2000*.

<sup>2</sup> Warwick, R M (2006). Review of benthic and intertidal sediment macrofauna data and development of a surveillance programme. Report to the MHWESG from the Plymouth Marine Laboratory.

### **3.2. ANNUAL WADERS & WILDFOWL SURVEY 2006 – 2007**

A Haycock

#### **Executive Summary**

The Wetland Bird Survey was carried out on the Cleddau estuary complex between September 2006 and March 2007, with additional counts for June and July 2006 made by Jane Hodges during the annual survey of summer shelduck populations.

Methodology followed that set out by the British Trust for Ornithology, as in previous years.

Four species reached levels of National Importance: Wigeon (max. 7643 in November), Teal (max. 1398 in January), Greenshank (max 40 in September), Curlew (max 1869 in July).

A total peak count of 23362 birds confirms the estuary system is of International Importance for its waterfowl populations, even though these peak counts were lower for several species than they have been in recent years.

### **3.3. ANNUAL SHELDUCK SURVEYS 2006 – 2007**

J E Hodges, PCNP Ecologist, 2007 & 2008

#### **Amalgamated and condensed executive summaries**

The Daugleddau Estuary and Milford Haven Waterway hold nationally important numbers of shelducks during the winter months. In addition, there is a small summer population which has been the subject of annual boat surveys carried out since 1991. The summer boat survey was repeated in June and July 2006 and 2007, as part of a co-ordinated programme of environmental surveillance in the estuary system. The aims, objectives, methods used and results obtained from the surveys are described.

The results indicate that, in terms of number of broods recorded, 2006 was one of the most successful years since 1998, although the average size of broods was slightly smaller than in 2005. Predation by ground and avian predators is thought to have been a significant factor in the size of broods recorded, and may also have limited the number of broods recorded. Disturbance (on water and/or from land) may also have played a part, together with poor weather in May.

In contrast, the results indicate that, in terms of number of broods recorded, 2007 was the poorest year for shelducks in the estuary system since 1994, although the average brood size was similar to that recorded in 2006. The cold, very wet weather in June and July in 2007 is thought to have played a major part in limiting the number of broods seen. Disturbance and predation may also account for the poor results.

Data collected for other wetland birds once again underlined the importance of the estuary system during the autumn migration period, especially for species such as curlew.

The reports conclude with a recommendation for the continuation of the annual surveillance of summer shelduck populations in the estuary system, as part of the MHWESG annual work programme.

### 3.4. REVIEW OF STATUS OF WETLAND BIRDS IN MILFORD HAVEN WATERWAY AND DAUGLEDDAU ESTUARY

A Haycock, 2008

#### Executive Summary

The Milford Haven Waterway - Daugleddau Estuary system (“the estuary system”) is an important wintering ground for waders and wildfowl because of its sheltered location and open mudflats.

The estuary system is of international importance by virtue of hosting an average of over 20,000 waterbirds each winter. It is of national importance for its populations of wintering wigeon, teal and greenshank, and for migrating curlew. Other species have reached nationally important levels here in past winters, but either numbers have declined, or the threshold for national importance has been raised, and they no longer reach that threshold. The estuary system holds some 13.5% of the Welsh waterbirds (on WeBS sites) in mid-winter, and just under 1% of the UK waterbirds on WeBS sites.

- Almost all the **shelduck** in Pembrokeshire in winter are found on the estuary system. Numbers of wintering shelduck have fallen, both here and across the UK.
- **Wigeon** numbers have increased dramatically over the past five years, particularly on Pembroke River. They move on, either to other parts of the estuary system or out of the estuary system altogether, as soon as the food supply is exhausted in mid-winter.
- **Teal** numbers have declined over the past decade, but are still within the limits of previous fluctuations. The cause is thought to be the recent run of mild winters and an increase the protected areas on mainland Europe allowing larger numbers of birds to remain further north and east.
- Mid-winter peak counts of **curlew** have decreased both on the estuary system and in Carmarthen Bay, although the UK trend shows an increase. However, data indicate that the estuary system is an important migratory stopover for curlew.
- **Redshank** numbers dropped by half in the early 1990s, but have been reasonably stable since then. The cause is almost certainly that warmer winters mean fewer birds using the west coast estuaries.
- **Greenshank** numbers have increased following a period of low counts in the 1990s. The estuary system holds the fourth largest wintering population in the UK, and almost half of the birds wintering in Wales are found here.
- **Little egret** numbers have increased rapidly during the past decade, but seem to be levelling out somewhat now.
- **Little grebe** numbers have declined, despite an increase in the Pembrokeshire breeding population. The trend for both Wales and the whole of the UK is for increasing numbers in winter.
- The **Canada goose** population rose considerably in the 1990s, in line with the trends for the Welsh and the UK populations. Birds are most often found between Llangwm and Boulston, though they also feed away from the estuary. There is no evidence yet that they are affecting the numbers or distribution of other bird species, however, they may have an effect on the flora through trampling and eutrophication.

- **Grey herons** breed at two main sites on the Cleddau system, totalling 20-30 nests each year. However, counts are sporadic and no conclusions can be drawn about the breeding population.

Most of the changes in bird populations are reflected in other sites, either in Wales or in the UK as a whole. Some of the observed changes in numbers using the estuary system in winter may reflect the recent run of mild winters (which may or may not suggest long-term climate change), so birds do not have to travel so far south and/or west to escape harsh winter weather. Data suggest that large numbers of birds are more likely to visit the estuary system during periods of extreme weather, but during normal weather would prefer the conditions (including a better food supply) on the east coast.

Winter distribution may also be affected by the increase in protected areas on the European mainland, which have resulted in birds, eg teal, that are susceptible to hunting pressure, to remain in those areas.

The data collected during the annual shelduck surveys in July and early August since 1992 have demonstrated the importance of the estuary system as a migration stopover for several species, notably curlew.

The estuary system is clearly of national importance for wintering and migrating wetland birds, and it is vital that the full range of their requirements (eg undisturbed good quality feeding habitat and high tide roosts) continue to be met within the estuary system.

It is important to continue with annual surveillance of wetland birds within the estuary system, both as part of the UK dataset and in terms of SSSI monitoring.



#### **4. FUTURE WORK PROGRAMME**

Following completion of the necessary reviews of previous Group work and information and data available, the Group has returned to more field-based projects rather than desk-studies.

The Group's priorities will be revised during the current year to take account of the recommendations contained in the reviews and also because of slippages in the work-programme resulting from the reviews taking considerably longer to complete than envisaged in the Bent's work programme review. However, immediate priorities include:

- completion of the review of sediment contamination and sediment transport pathways in Milford Haven, and development of recommendations for sediment contaminant monitoring;
- assessment of the initial year's results from the contaminant bioaccumulation programme and determination of future frequency of sampling;
- assessment of the initial year's results from the targeted macrobenthic surveillance;

as well as continuing the annual summer shelduck breeding surveillance and wetland bird data collation and reporting.

Beyond these, the priorities are subject to confirmation following the work programme review, but are anticipated to include:

- review the requirements for future water quality surveillance by the Group in light of EA monitoring for the Water Framework Directive, revision of current draft specification and recommence revised programme;
- determine and let contract for second phase of inputs budget development;
- repeat rocky intertidal surveillance (long overdue).

Whilst the Group's budget remains healthy at the present time, the costs of the current bioaccumulation and macrobenthic analyses have are considerable; should the Group decide to repeat these at the recommended time intervals, as well as recommence routine water quality surveillance and let the other rolling programme projects, the budget would rapidly become insufficient to meet all planned tasks. The level of contributions of most of the Group's members have not increased for a decade or more. If the Group wishes to undertake an ambitious work programme, within the forthcoming one to two years there will be a need either for additional contributing members or an increase in contributions from existing members, or both.

**APPENDICES**

## **APPENDIX 1: PURPOSE AND TERMS OF REFERENCE**

### **Preamble**

The Milford Haven Waterway<sup>3</sup> is an extensive natural inlet of the sea with a long and distinguished maritime history. Its deep waters provide a natural harbour of significant economic importance. It is one of the best examples of a ria system in Britain and supports a particularly diverse range of high quality marine and estuarine habitats and biological communities.

The identification and consideration of political and management issues or the setting of environmental standards are specifically excluded from these Terms of Reference. However, group members are free, and are expected to use the group's outputs to help meet their own requirements.

### **Purpose**

To provide high quality environmental information to enable members of the Group, and other authorities and industry working in and adjacent to the Waterway, to contribute to the maintenance and enhancement of the rich and diverse marine environment of the Waterway.

### **Terms of Reference**

The Milford Haven Waterway Environmental Monitoring Steering Group will:

1. Maintain surveillance of the quality of the marine physico-chemical environment, marine biology and ornithology of the Milford Haven Waterway
2. Undertake surveillance of the foreshore, seabed and waters of the Milford Haven Waterway from a line between St Anne's Head and Sheep Island to the tidal reaches of the Eastern and Western Cleddau Rivers and other tributaries to normal tidal limits by:
  - 2.1 keeping under review all relevant survey, surveillance and monitoring;
  - 2.2 commissioning surveys to fill gaps in knowledge and to establish baselines;
  - 2.3 undertaking surveillance projects;
  - 2.4 maintaining a literature and information database.
3. Jointly maintain, and keep under review, a prioritised programme of survey and surveillance projects.
4. Share technical output equally under joint ownership and copyright.
5. Function as a technical, science based, group.
6. Form and appoint specific sub-groups to undertake specific responsibilities as required.
7. Publish an annual report which will comprise a summary of work undertaken, the executive summaries from individual project reports, a financial statement and the planned work programme.
8. Make its output available to the wider community in addition to its membership.

### **Membership and Funding**

Membership is comprised of statutory authorities, industry and others with an interest in the environmental quality of the Waterway. Membership will be at the invitation and discretion of the Group's existing members.

Each member will contribute to the functioning of the group, either in monetary terms or 'in kind'.

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<sup>3</sup> The term Waterway in this document specifically refers to the waters, seabed and foreshore of the Milford Haven Waterway and the Dagleddau Estuary from a line between St Anne's Head and Sheep Island to the tidal reaches of the Eastern and Western Cleddau Rivers and other tributaries to normal tidal limits.

## **APPENDIX 2: CURRENT MEMBERSHIP**

Chevron Ltd

Countryside Council for Wales

Environment Agency Wales

Dwr Cymru-Welsh Water

Milford Haven Port Authority

Pembrokeshire Coast National Park Authority

Pembrokeshire County Council

SemLogistics Ltd

Murco Oil (UK)

*South Wales Sea Fisheries Committee (corresponding)*

*Wildlife Trust West Wales (corresponding)*

*Welsh Assembly Government Environment Division (observer)*

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**APPENDIX 3: MEMORANDUM OF AGREEMENT**

**THIS AGREEMENT is made the 1<sup>st</sup> day of July 2004**

**BETWEEN:**

- (1) **ChevronTexaco Limited** whose principal office is at Pembroke Refinery, Pembroke SA71 5SJ
- (2) **Countryside Council for Wales** whose principal office is at Llanion House, Llanion Park, Pembroke Dock, Pembrokeshire. SA72 6DY
- (3) **Environment Agency (Wales)** whose principal office is at Rivers House, Hawthorn Rise, Haverfordwest, Pembrokeshire. SA61 2BQ
- (4) **Milford Haven Port Authority** whose principal office is at Gorsewood Drive, Hakin, Milford Haven, Pembrokeshire SA73 3ER
- (5) **Pembrokeshire Coast National Park Authority** whose principal office is at Llanion Park, Pembroke Dock, Pembrokeshire SA72 6DY
- (6) **Pembrokeshire County Council** whose principal office is at County Hall, Haverfordwest, Pembrokeshire SA61 ITP
- (7) **Petroplus Tankstorage (MH) Ltd** whose principal office is at Waterston, Milford Haven, Pembrokeshire SA71 IDR '
- (8) **South Wales Sea Fisheries Committee** whose principal office is at Queens Buildings, Cambrian Place, Swansea SA1 1TW
- (9) **Total Refinery** whose principal office is at PO Box 10, Milford Haven, Pembrokeshire SA73 3JD
- (10) **Welsh Water-Dwr Cymru** whose principal office is at Pentwyn Road, Nelson, Treharris, Caerphili. CF46 6LY
- (11) **Wildlife Trust South and West Wales** whose principal office is at The Welsh Wildlife Centre, Cilgerran, Cardigan SA43 2TB

Here and after referred to as "the Parties"

**RECITAL**

The parties have agreed to enter into this agreement to record and regulate the terms of their co-operation in order to provide high quality environmental information to the parties so enabling the parties to contribute to the maintenance and enhancement of the rich and diverse marine environment of the Waterway (as hereinafter defined) and to perform the objects set out in clause 2.2 under the terms of this Agreement

## **AGREEMENT**

The parties agree as follows:

### **1. INTERPRETATION**

1.1 In this agreement unless there be anything in the context inconsistent therewith the following expressions shall have the following meanings:-

"Committee" has the meaning ascribed to it by clause 3.1 1. "Group" means the Milford Haven Waterway Environmental Surveillance Group created by this agreement and any agreement supplemental to it

"Group Members" means all of the parties listed above or some of them as the context admits and Group Member shall have a corresponding meaning

"Objects" means the objects of the Group more particularly itemised in clause 2.2

"Waterway" means the waters, seabed and foreshore of the Milford Haven Waterway and the Daugeleddau Estuary from a line between St Anne's Head and Sheep Island to the tidal reaches of the Eastern and Western Cleddau Rivers and other tributaries to the normal tidal limits.

### **2. SCOPE OF THE JOINT VENTURE**

2.1 The Group Members agree with one another to enter into this Agreement to provide high quality environmental information to enable the Group Members to contribute to the maintenance and enhancement of the rich and diverse marine environment of the Waterway and to perform the objects set out in clause 2.2 under the terms of this agreement

2.2 The Objects of the Group are:-

2.2.1 to maintain surveillance of the quality of the marine physico-chemical environment and marine biology, and ornithology, of the Waterway;

2.2.2 to undertake surveillance of the Waterway by:-

2.2.2.1 keeping under review all relevant survey, surveillance and monitoring as well as undertaking surveillance projects when necessary;

2.2.2.2 commissioning surveys to improve current knowledge and establish baselines; and

2.2.2.3 maintaining a literature and information database.

2.2.3 to share technical output equally under joint ownership and copyright

2.2.4 to function as a technical, science based, group

2.2.5 to make its findings available to the wider community in addition to Group Members

2.3 For the avoidance of doubt, nothing in this Agreement shall be deemed to override or in any way restrict the statutory duties or obligations of any of the Group Members

### **3. CONTROL AND MANAGEMENT**

3.1 A committee ("the Committee") comprising of a representative nominated by each of the Group Members will be established for the purposes of-

- 3.1.1 discussing determining and approving the purpose, Terms of Reference and work programme of the Group
- 3.1.2 exchanging information
- 3.1.3 reporting on progress to include publishing an annual report that comprises of a summary of all work undertaken for the year, a financial statement and planned work programme for the forthcoming year
- 3.1.4 preparing an annual business plan
- 3.2 Each Group Member shall notify the Chairperson, or Secretary, in writing of their nominated representative and shall be entitled to appoint alternative representatives.
- 3.3 The Committee shall appoint a Chairperson from its number to chair Committee meetings and a Vice Chairperson to chair committee meetings in the absence of the Chairperson. In the absence of both the Chairperson and the Vice Chairperson those nominated representatives present shall appoint one of their number present to act as Chairperson for that particular meeting. The term of office of the Chairperson and the Vice Chairperson will be subject to an annual review
- 3.4 The quorum for meetings of the Committee shall be 5 nominated representatives of the Group Members. Minutes of all meetings of the Committee shall be taken and kept in designated minute books by the Milford Haven Port Authority and copies of such minutes circulated to Group Members as soon as practicable after each meeting
- 3.5 Questions arising at a meeting of the Committee, that cannot be resolved by consensus, shall be decided by a majority of votes and each nominated representative shall have one vote. In the case of an equality of votes the Chairperson of the meeting shall have a casting vote. The nominated representatives may regulate the conduct of the meetings of the Committee as they consider appropriate
- 3.6 The Committee shall be entitled to delegate any of its functions to sub-committees or to other persons as it considers appropriate for the task; provided that the delegation and the reasons therefore are recorded in writing
- 3.7 Group Members shall not make any decisions on matters of principle relevant to the Terms of Reference of the Group without consulting the Committee
- 3.8 The Committee will meet as often as necessary or desirable for the purposes of achieving the objects set out in clause 2.2 at a convenient time and venue and any Group Member may call such a meeting by giving to the other Group Members 14 days prior notice in writing to that effect designating the time venue and items for the agenda of the meeting
- 3.9 The Group Members shall at all times co-operate with each other and act in good faith to enable the Group objects to be attained

#### **4. RESOURCING**

- 4.1 Each of the Group Members will provide either a monetary contribution or some other contribution eg services, premises that shall be agreed by all the Group Members for the furtherance of the Objects of the Group in accordance with the annual business plan referred to in clause 3.1.4.. The contributions are to be provided promptly within the time frame agreed for contributions
- 4.2 Milford Haven Port Authority shall receive all financial contributions by Group Members and shall keep such monies in a separate interest bearing bank account in trust for the Group. Milford Haven Port Authority shall make payments on behalf of the Group in respect of

commitments agreed at clause 4.3 below but may not make any other payments or commitments on behalf of the Group without the prior approval of the Committee. Milford Haven Port Authority shall provide quarterly statements to the Committee in respect of such account

4.3 Under the terms of this Agreement Milford Haven Port Authority shall have the authority to enter into contracts including, without limitation, for the appointment of professionals, advisers and consultants on behalf of the Group subject to the prior approval of the Committee

4.4 No contracts shall be entered into unless there are sufficient funds available within the interest bearing bank account referred to in clause 4.2 to meet the obligations under the contract

## **5. INTELLECTUAL PROPERTY RIGHTS**

5.1 All rights which may now or in the future subsist in respect of or derived from any intellectual property including without limitation all copyright, design rights, registered designs, trade and service marks (whether registered or not) and moral rights (including in all such cases any applications for any such rights or protections and any rights to apply therefore and all renewals continuations extensions renewals and divisions)(the "IP Rights") developed or generated by the Group in pursuance of the Objects shall be owned by the Group Members jointly

5.2 Any Group Member shall be entitled to use any IP Rights free of charge provided that any such use shall not compromise the Objects of the Group and provided further that if any Group Member wishes to license or authorise any third party to use or exploit any IP Rights, such third party shall be required to pay a licence fee calculated on an arms length basis

5.3 All costs and expenses and all receipts in respect of any intellectual property shall be shared equally by the Group Members

5.4 Each Group Member shall retain all IP Rights to all materials, information etc. contributed by that Group Member



## **6. LIABILITY**

The Group Members agree that all losses, damages, costs and/or expenses incurred as a result of participation in the Group and/or any action taken in accordance with this Agreement shall be borne equally by all Group Members provided that if any such losses, damages, costs and/or expenses arise as a result of an act or omission attributable to one or more Group Members, for example a breach of clause 4.2 or if the action of one or more Group Members is not in proper pursuance of the Objects or if the action of one or more Group Members gives rise to a breach of a contract referred to in clause 4.3 or if any Group Member infringes the IP Rights of a third party, then that Group Member or those Group Members shall bear those particular losses, damages, costs and/or expenses and shall indemnify the other Group Members accordingly

## **7. TERM AND TERMINATION**

7.1 The provisions of this Agreement shall come into force on the date stated above

7.2 A Group Member may at any time terminate its participation in respect of this Agreement subject to three months' notice in writing to the Chairperson with no right of return of contribution

7.3 In the event that any Group Member is in breach of this agreement which they fail to remedy within 14 days of written request by the Committee then such Group Member's involvement in the Group may be terminated by notice given to them by the Committee at any time following expiry of the said period of 14 days

7.4 Subject to clauses 7.2 and 7.3 this agreement will terminate on completion of the Objects stated in clause 2

7.5 Upon termination of this agreement the Group shall be terminated forthwith and the parties shall take such further steps as may be necessary in order to wind up the Group in a fair and reasonable manner. The assets of the Group at winding up should be distributed pro rata to the direct financial contributions by Group Members. If a Group Member's participation in the Group is terminated in accordance with clause 7.2 or 7.3 the provisions of clauses 5.1 to 5.3 shall no longer apply in respect of such Group Member

## **8. GOVERNING LAW**

This agreement shall be governed by and construed in all respects in accordance with the laws of the European Union, England and Wales and all parties will submit to the jurisdiction of the courts of England and Wales

## **9. THIRD PARTIES**

Nothing in this Agreement shall create any rights for third parties under the Contracts (Rights of Third Parties) Act 1999. No variation to this Agreement and no supplemental or ancillary agreement to this Agreement shall create any such rights unless expressly so stated in any such agreement by the parties to this Agreement. This does not affect any right or remedy of a third party that exists or is available apart from that Act

## **10. NO PARTNERSHIP**

Nothing in this Agreement shall be construed as establishing or implying any partnership between the Parties hereto and nothing in this Agreement shall be deemed to constitute either of the Parties hereto as the agent of the other Party or authorize either Party (i) to incur any expenses on behalf of the other Party (ii) to enter into any engagement or make any representation or warranty on behalf of the other party (iii) to pledge the credit of or otherwise bind or oblige the other Party or (iv) to commit the other Party in any way whatsoever without in each case obtaining the other Party's prior written consent

## **11. SUCCESSORS**

References in this Agreement to the parties shall include their respective heirs successors in title permitted assigns and personal representatives This Agreement shall be binding upon and enure to the benefit of the parties and their respective successors

## **12. ASSIGNMENT**

No Member may assign its interests in this Agreement without prior approval of the Committee (not to be unreasonably withheld) except that no such approval is required for an assignment to a company in the same group as the Member

## **13. ARBITRATION**

13.1 Any dispute or difference arising out of or in connection with this Agreement shall be referred to the arbitration of a sole arbitrator to be appointed in accordance with Section 16(3) of the Arbitration Act 1996 ("the Act") the seat of such arbitration being hereby designated as London England 13.2 In the event of failure of the parties to make the appointment pursuant to Section 16(3) of the Act the appointment shall be made by the President for the time being of the Chartered Institute of Arbitrators

13.3 The Arbitrator shall decide the dispute in accordance with the substantive laws of England and Wales

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**APPENDIX 4: CHRONOLOGICAL LIST OF MHWEMSG / MHWESG<sup>4</sup> REPORTS****1992**

Hobbs, G and Morgan, C I (eds.) (1992). *A review of the current state of environmental knowledge of the Milford Haven Waterway*. Report from Oil Pollution Research Unit; xi & 140pp

Hobbs, G and Morgan, C I (eds.) (1992). *A review of the current state of environmental knowledge of the Milford Haven Waterway; Executive Summary*. Report from Oil Pollution Research Unit, 12pp

MHWEMSG (1992). *Report of the Milford Haven Waterway Environmental Monitoring Steering Group 1992*. 6pp

**1993**

Hodges, J E (1993). *Daugleddau Estuary and Milford Haven Waterway annual shelduck survey: report for 1993*. Report from Pembrokeshire Coast National Park Authority, 8pp + appendices

**1994**

Ellis, R & Poole, A (1994). *Cleddau Estuary wader and wildfowl counts 1993 – 94*. 20 pp + appendices

Hodges, J E (1995). *Daugleddau Estuary and Milford Haven Waterway annual shelduck survey: report for 1995*. Report from Pembrokeshire Coast National Park Authority, 8pp + appendices

Levell, D, Smith, J and Hobbs, G (1994). *Milford Haven macrobenthic survey October 1993*. Report from Oil Pollution Research Unit; xii, 26pp + figures, tables & data appendices.

MHWEMSG (1994). *Report of the Milford Haven Waterway Environmental Monitoring Steering Group 1993/94*. 20pp

Smith, J and Hobbs, G (1994). *Metal concentrations in Milford Haven sea bed sediments - data storage, analysis and initial interpretation*. Report from Oil Pollution Research Unit; v, 8pp + tables & maps

**1995**

Hodges, J E (1995). *Daugleddau Estuary and Milford Haven Waterway annual shelduck survey: report for 1995*. Report from Pembrokeshire Coast National Park Authority 10pp + appendices

Howe, M (1995). *Monitoring of eelgrass populations in the Milford Haven waterway and Daugleddau Estuary*. Report from Pembrokeshire Coast National Park Authority; 7pp

MHWEMSG (1995). *Report of the Milford Haven Waterway Environmental Monitoring Steering Group 1994/95*. 19pp

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<sup>4</sup> The Group changed its name in 2000

Poole, A & Ellis, R (1995). *Cleddau Estuary including Milford Haven Waterway: wildfowl and wader counts 1994 – 95*. 30pp

Rostron, D M (1995). *The macrobenthos of the foreshore soft sediments of Milford Haven, 1994*. Report from SubSea Survey; 2 vols, 17pp + maps, figures & data appendices

## 1996

Hodges, J E (1996). *Daugleddau Estuary and Milford Haven Waterway annual shelduck survey: report for 1996*. Report from Pembrokeshire Coast National Park Authority, 8pp + appendices

MHWEMSG (1996). *Report of the Milford Haven Waterway Environmental Monitoring Steering Group 1995/96*. 14pp

Poole, A (1996). *Milford Haven and Cleddau Estuary wetland bird survey 1995-96*. 18pp

## 1997

Hodges, J E (1997). *Daugleddau Estuary and Milford Haven Waterway annual shelduck survey: report for 1997*. Report from Pembrokeshire Coast National Park Authority. 10pp + tables & appendices

MHWEMSG (1997). *Report of the Milford Haven Waterway Environmental Monitoring Steering Group 1996/97*. 36pp

Moore, J J (1997). *Rocky shore transect monitoring in Milford Haven, October 1995*. Report from Oil Pollution Research Unit. OPRU Report No OPRU/14/96. 36pp + appendices

Poole, A (1997). *Milford Haven Waterway and Cleddau Estuary bird survey 1996-97*. 13pp + appendices

## 1998

Hodges, J E (1998). *Daugleddau Estuary and Milford Haven Waterway annual shelduck survey – report for 1998*. Report from Pembrokeshire Coast National Park Authority. 9pp + tables & appendices

Munro, C (1999). *Monitoring of the rocky sub-littoral of Milford Haven: May-July 1998*. Report from Marine Biological Surveys. v, 38pp + appendices, photographs and videorecording

Poole, A (1998). *Milford Haven Waterway and Cleddau Estuary bird survey 1997-98*. 12pp + appendices

## 1999

Hodges, J E (1999). *Daugleddau Estuary and Milford Haven Waterway annual shelduck survey – report for 1999*. Report from Pembrokeshire Coast National Park Authority. 8pp + tables & appendices

Irving, R and Worley, A (1999). *Survey of sublittoral Zostera marina bed in Milford Haven. Field Report*. Report from Posford Duvivier. 4pp

Kitts, H (1999). *Quantification of inputs to Milford Haven*. Report from Hyder Ltd. 29pp + tables & appendices

MHWEMSG (1999). *Report of the Milford Haven Waterway Environmental Monitoring Steering Group 1997 - 1999*. 25pp

Poole, A (1999). *Milford Haven Waterway and Cleddau Estuary Bird Survey 1998-99*. 13pp + appendices

Posford Duvivier (2000). *A survey of subtidal Zostera beds in Milford Haven*. 36pp + appendices

## **2000**

Bent, E J (2000). *A review of environmental studies in Milford Haven Waterway 1992 – 2000*. iv, 65 pp + tables & maps

Hodges, J E (2000). *Daugleddau Estuary and Milford Haven Waterway Annual Shelduck Survey – Report for 2000*. Report from Pembrokeshire Coast National Park Authority. 10pp + tables. 10pp + appendices

MHWESG (2000). *Milford Haven Waterway Environmental Surveillance Group Annual Report 1999 - 2000*. 20pp & appendices

Poole, A (2000). *Milford Haven waterway and Cleddau Estuary Bird Survey 1999-2000*. 15pp + appendices

## **2001**

Hodges, J E (2001). *Daugleddau Estuary and Milford Haven Waterway surveillance of summer shelduck populations: report for 2001*. Report from Pembrokeshire Coast National Park Authority. 8pp + appendices

Poole, A (2001). *Milford Haven Waterway and Cleddau Estuary bird survey 2000-01*. 14pp + appendices

## **2002**

Hodges, J E (2002). *Daugleddau Estuary and Milford Haven Waterway surveillance of summer shelduck populations: report for 2002*. Report from Pembrokeshire Coast National Park Authority. 8pp + appendices

Poole, A (2002). *Milford Haven Waterway and Cleddau Estuary bird survey 2001-02*. 12pp + appendices

## **2003**

Bent, E J (2003). *Milford Haven Waterway review of work programme 2000 – 2010*. 32pp

Hodges, J E (2004). *Daugleddau Estuary and Milford Haven waterway surveillance of summer shelduck populations: report for 2003*. Report from Pembrokeshire Coast National Park Authority. 9pp + appendices

Poole, A (2003). *Milford Haven Waterway and Cleddau Estuary bird survey 2002-03*. 16pp + appendices

Prosser, M V & Wallace H L (2003). *Milford Haven salt-marsh survey 2002*. Report from Ecological Surveys (Bangor). 2 vols. 58pp + appendices, photographs & maps

**2004**

Hodges, J E (2004). *Daugleddau Estuary and Milford Haven Waterway surveillance of summer shelduck populations: report for 2004*. Report from Pembrokeshire Coast National Park Authority. 7pp + appendices

Haycock, A (2004). *Milford Haven Waterway and Cleddau Estuary Bird Survey 2003-04*. 14pp + appendices

**2005**

Atkins (2005). *Development of an Inputs Budget for Milford Haven Waterway*. 68pp + cd database & GIS data

Hodges, J E (2005). *Daugleddau Estuary and Milford Haven Waterway surveillance of summer shelduck populations: report for 2005*. Report from Pembrokeshire Coast National Park Authority. 8pp + appendices

Haycock, A (2005). *Milford Haven Waterway and Cleddau Estuary Bird Survey 2004-05*. 7pp + appendices

**2006**

Hodges, J E (2006). *Daugleddau Estuary and Milford Haven Waterway surveillance of summer shelduck populations: report for 2005*. Report from Pembrokeshire Coast National Park Authority. 8pp + appendices

Haycock, A (2006). *Milford Haven Waterway and Cleddau Estuary Bird Survey 2004-05*. 7pp + appendices

Warwick, R (2006). *Review of benthic and intertidal sediment macrofauna data and development of a surveillance programme*. 105pp + electronic data annex

**2007**

Hodges, J E (2007). *Daugleddau Estuary and Milford Haven Waterway surveillance of summer shelduck populations: report for 2006*. Report from Pembrokeshire Coast National Park Authority. 8pp + appendices

**2008**

Haycock, A (2008). *Wildfowl and wader counts on the Milford Haven Waterway 2006-07* 20pp

Haycock, A (2008). *A review of the status of wetland birds in the Milford Haven waterway and Daugleddau estuary*. A report to the Milford Haven Waterway Environmental Surveillance Group. 122pp