Wales' Marine Evidence Report (WMER)

Summary Report

October 2015

plastic r



www.gov.wales



gated live escapes Marine Environment sustain

sustainable tourism minimised Historic Environment environmental impacts Water

marine organisms Climate Change current status Coastal Comm

Marine Planning for Wales: Wales' Marine Evidence Report

Strategic Scoping Exercise (SSE)

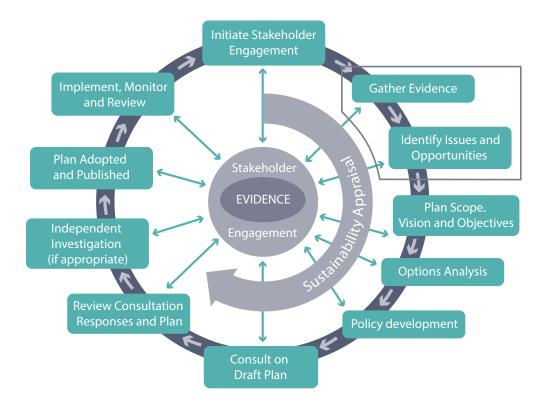
This exercise was undertaken in 2014 to identify the best currently available evidence on Welsh seas. It collates available evidence and highlights marine issues.

The Strategic Scoping Exercise (SSE) was informed by two main sources:

- The Charting Progress 2 (2010) report, which is a comprehensive report of UK marine research and monitoring by the UK Marine Monitoring and Assessment community
- The 2012 initial assessment of UK seas that forms part of the Marine Strategy Part One.

The evidence that the SSE collated, has resulted in the production of Wales' Marine Evidence Report (WMER) and will inform the Welsh National Marine Plan (WNMP).

The Welsh National Marine Plan



Summary of Wales' Marine Evidence Report (WMER)

This document provides a summary overview of the topics covered by the WMER and presents some of the key findings alongside maps showing our current understanding and use of our marine natural resources.

In addition to the WMER, the Welsh Government marine planning portal provides access to a wide range of data layers showing the distribution and use of marine natural resources in Wales. This online tool can be accessed at: http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/evidence-portal/?lang=en

For further information on marine planning in Wales, see: http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/?lang=en

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Figure 1: The Welsh National Plan – Inshore and Offshore Regions

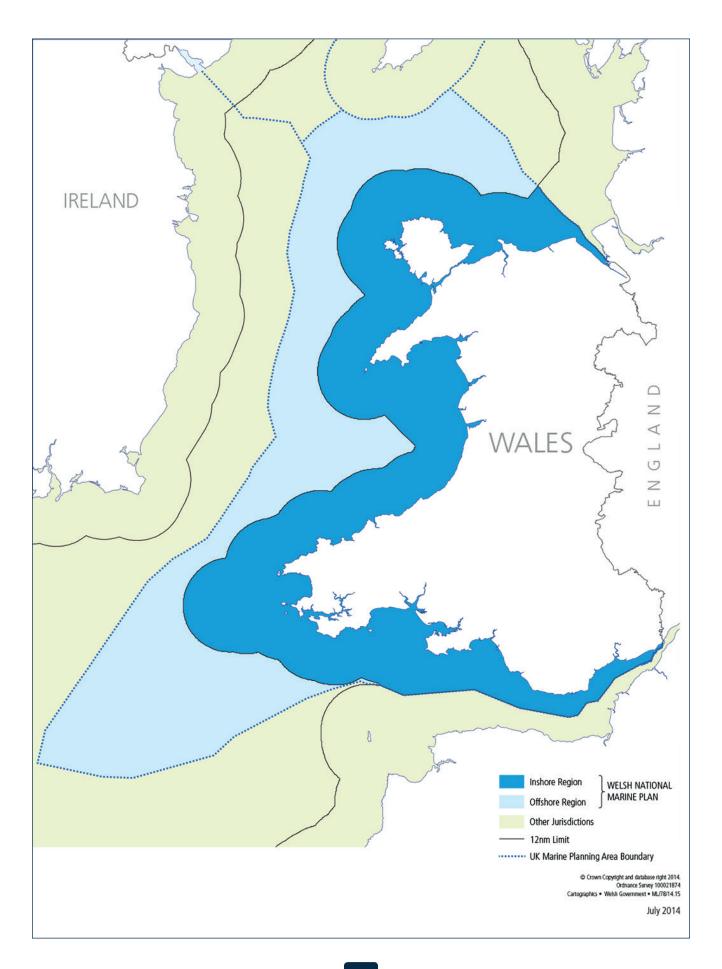


Figure 2: Relevant Development Plans Assessed for the Welsh National Marine Plan

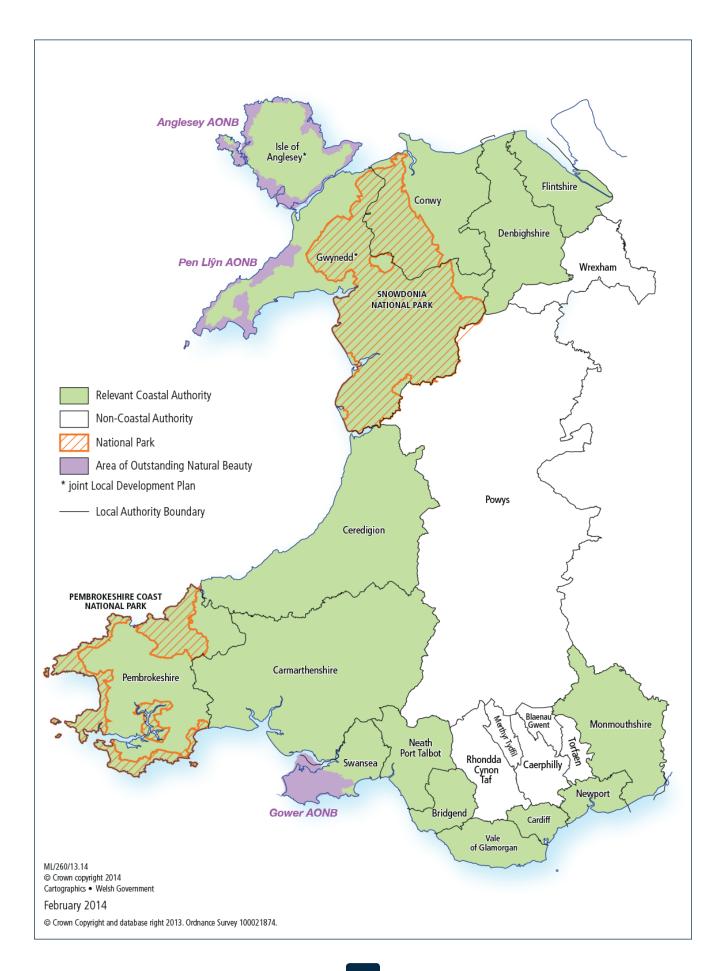
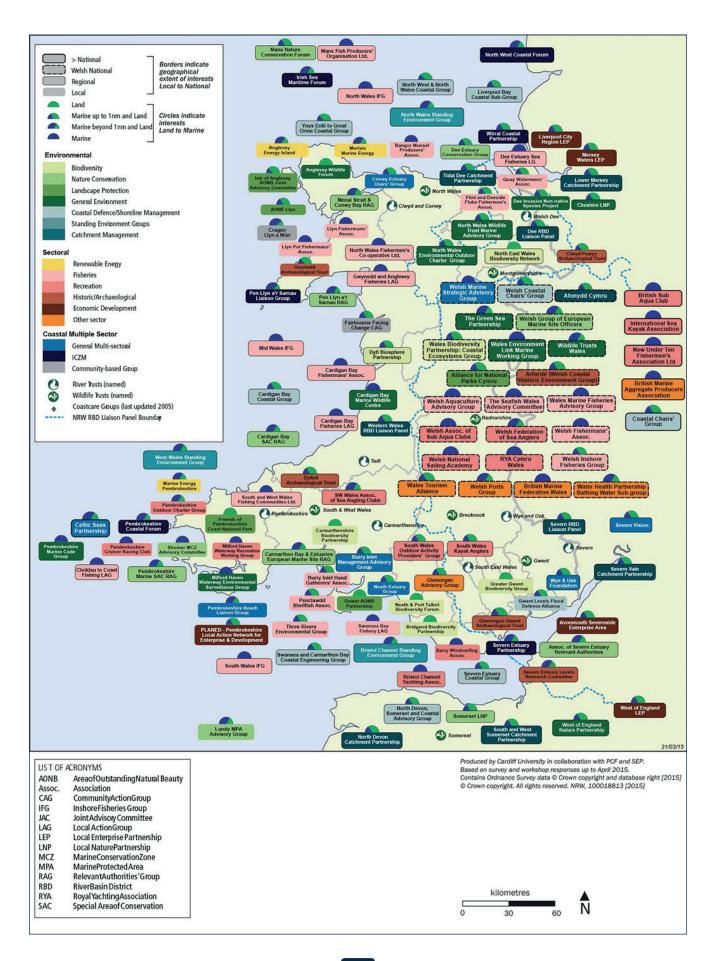


Figure 3: Groups, networks and forums with Welsh coastal/marine interests: 2015





COASTAL COMMUNITIES



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Social and economic characteristics used to Create 'coastal typography' map

OVER 60% of the population of Wales lives and works on the coast

Recreational, cultural and spiritual experiences, well-being and sense of place



Poverty, health and disability indicators, appear better at the coast than inland

People at the coast MORE LIKELY to be skilled, but LESS LIKELY to be employed full-time

SEA LEVEL RISE an increasing **priority** for coastal communities

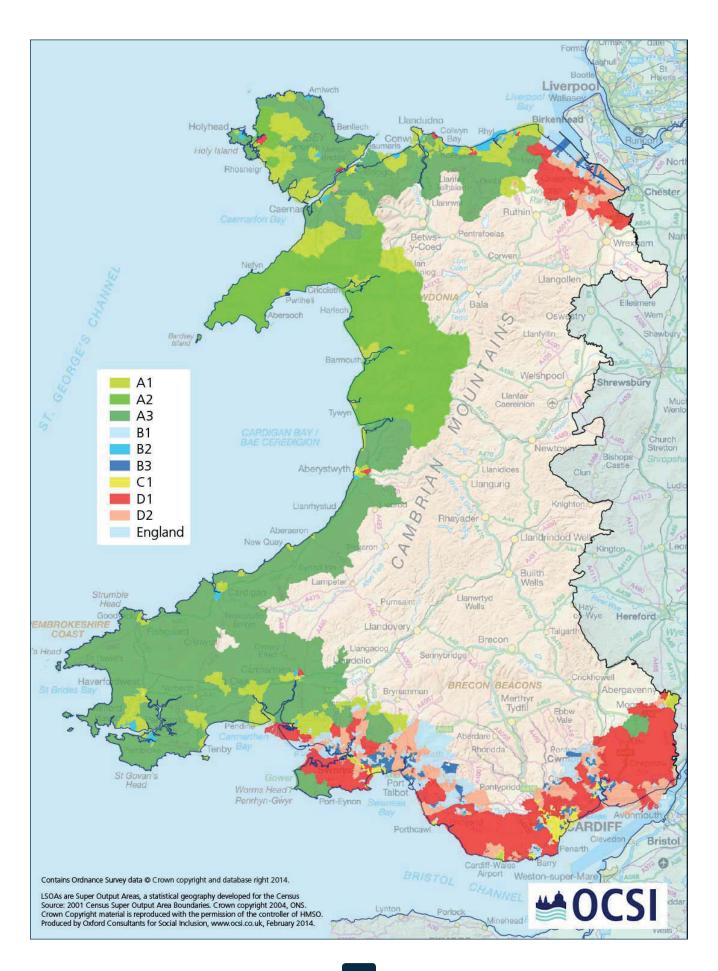


Ensuring that the **ECONOMIC** and **SOCIAL** needs of coastal residents are **promoted** and enhanced

Retaining high skill levels, a good balance of **full** and **part-time** work and promoting full employment

PROTECTING human health and well-being with special regard to vulerable groups in society

Figure 5: Coastal Communities Typology Groups





© CLIMATE CHANGE



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Facilitating **SUSTAINABLE DEVELOPMENT** and actions to mitigate climate change

WALES EXPERIENCING

hot, dry Summers, warm, wetter Winters, and changes in intensity of weather events

Measured SEA-LEVEL RISE, increased water temperature, changes in ocean circulation and acidity



Increased risk of DROUGHT. **HEAT-WAVES**, and changes in intensity of weather events

impact on (

biodiversity with many key species **predicted** to **migrate** or vacate WALES over next 100 years

Future developments **ENCOURAGED** to take account of potential

impacts (over their lifetimes



Promoting locally adaptive responses

to GLOBALLY **CHALLENGING PROCESS**

SEA-LEVEL RISE,

increase in risk of coastal erosion,

damage to infrastructure, and habitats

Limited data on

climate change

scenarios available for MARINE **ENVIRONMENT**

Figure 7: Potential changes to sea surface temperature (2070-2099)

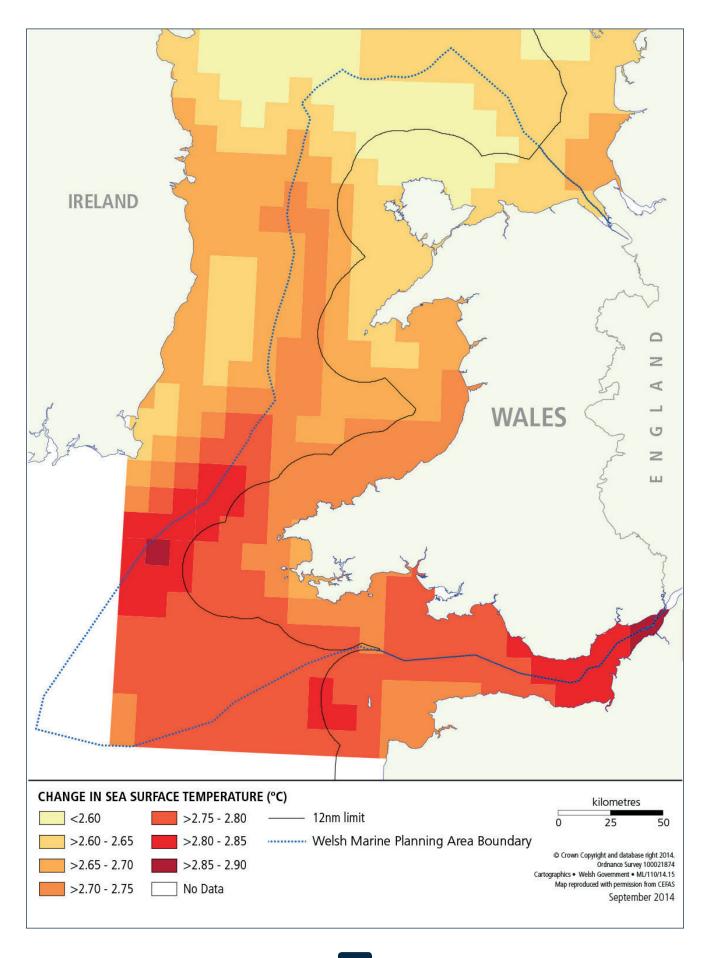
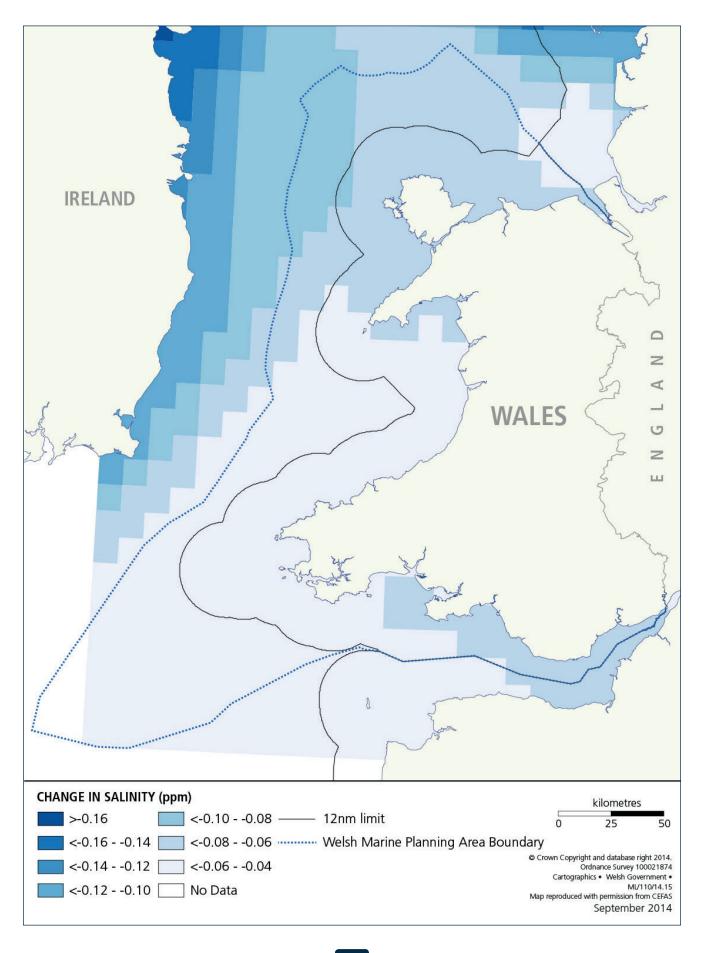


Figure 8: Potential changes to sea surface salinity (2070-2099)



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COASTAL CHANGE and FLOODING



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To help protect

£8 billion

of coastal assets 415km network of hard sea defence is in place

We spend approximately

£50 million

a year on **FLOOD** and COASTAL RISK **MANAGEMENT**

Erosion occurs along 23% of the Welsh coastline



More support for COMMUNITIES to adapt

and increase self-sufficiency and resilience

Locally developed and delivered shoreline management plans coastal communities Sustained investment in coastal flood defence and erosion management systems



PROTECTING and ENHANCING

the physical features of the marine

environment

COASTAL EROSION

- risk of damage to infrastructure and

habitats

IMPROVING

information on flood defence and

COASTAL EROSION

management systems



| WATER QUALITY



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Water Framework Directive established protection for ground, surface, transitional and coastal waters

Target to achieve and maintain **Good Environmental** Status (GES) for Welsh Seas by 2020

UPDATED

River Basin Management Plans

published in December 2015



Increased flooding

in turn leads to increased sediment load and **sewerage** overflows

Increased demand

clean water supply, sewerage

and waste water disposal network

MSFD vision of

clean, healthy, safe, productive and biologically diverse marine environment



IMPROVING

quality of ground and surface water. rivers and estuaries. inlets, bays and coastal waters

TOURISM and recreation, fishing and shell-fishing all rely on a healthy marine environment

4

Developments at coast and sea

> can have adverse effects on

coastal and offshore water quality





Figure 11: River Basin Management Plans Areas

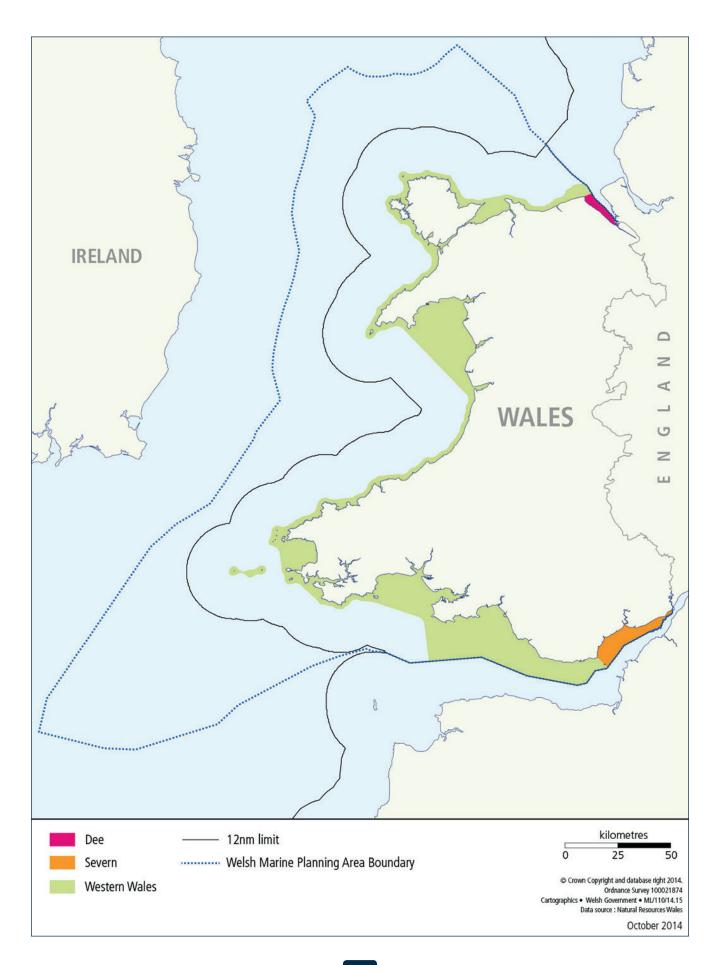


Figure 12: Water Framework Directive – Overall Status of Water Bodies

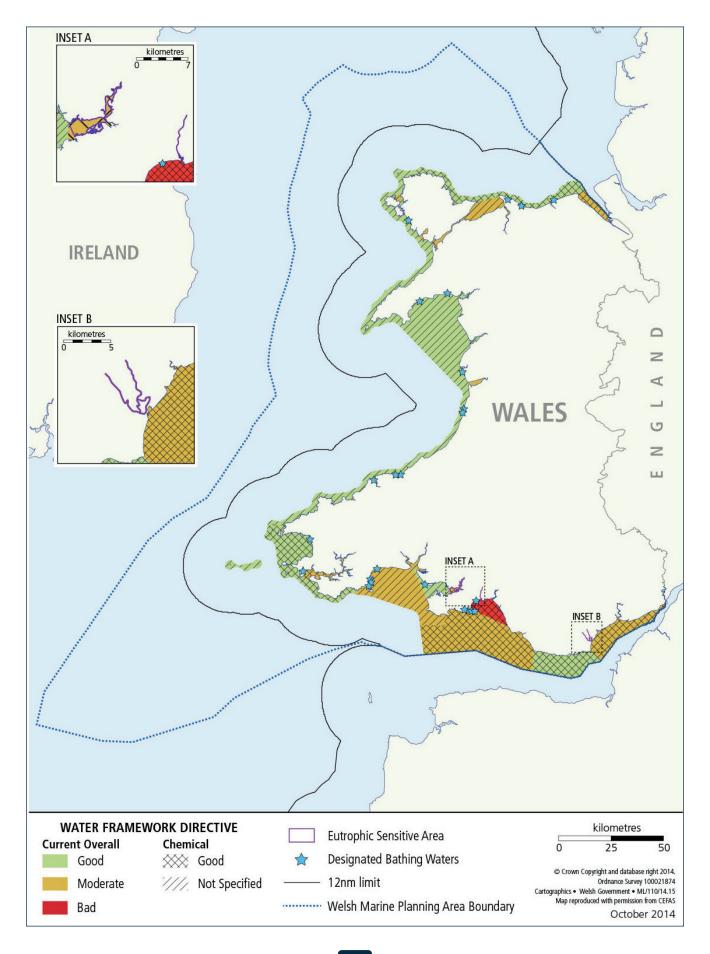
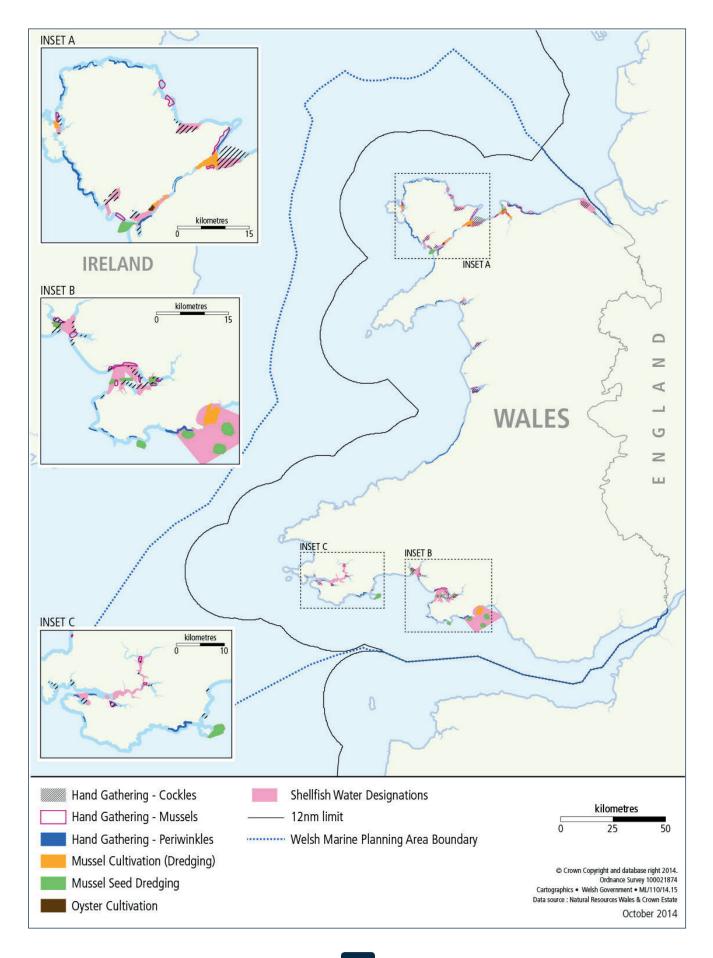


Figure 13: Aquaculture and Shellfish Water Designations





GEODIVERSITY



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The physical variety of GEOLOGY, SUB-STRATA, MINERALS, FOSSILS and hydrography plus physical processes

PROTECTION and ENHANCMENT of soil quality, designated geological sites and sustainable use of land

minimising and mitigating any significant changes that development has on the



Better surveying and **sampling** IMPROVING the effective targeting of marine extractive industries

Climate Change will lead to **significant changes** in the physical and natural environment

There is a greater awareness of

human impact

on the local natural physical environment



Mining or dredging for mineral resources a potential threat to geodiversity

Large-scale seabed and infrastructure development could lead to significant changes in the physical environment **Detailed understanding** of physical processes and solid geology VITAL in maintaining a healthy environment





NATURE CONSERVATION and BIODIVERSITY



BIODIVERSITY

is an **indicator** of the

health of our seas

Designation provides protection for habitats and species.

35% of inshore area

75% of coastline designated

Historically significant species and habitat loss.

Examples: native oyster beds and saltmarsh



ADDRESSING

potential

impacts on

species and habitats from development and climate change COMMITMENT

to contribute to an ecologically coherent network of

Marine Protected Areas (MPAs)

Managed realignment allows the sea to reclaim land.

For example: saltmarsh being recreated on North Gower



Climate change, pollution, coastal squeeze, invasive species, fisheries and marine litter **ENSURING**

appropriate decisions about the

marine environment

as level of activity and developments increase

the potential opportunities so appropriate decisions can be made to restore ecosystems



Figure 16: Marine Protected Areas

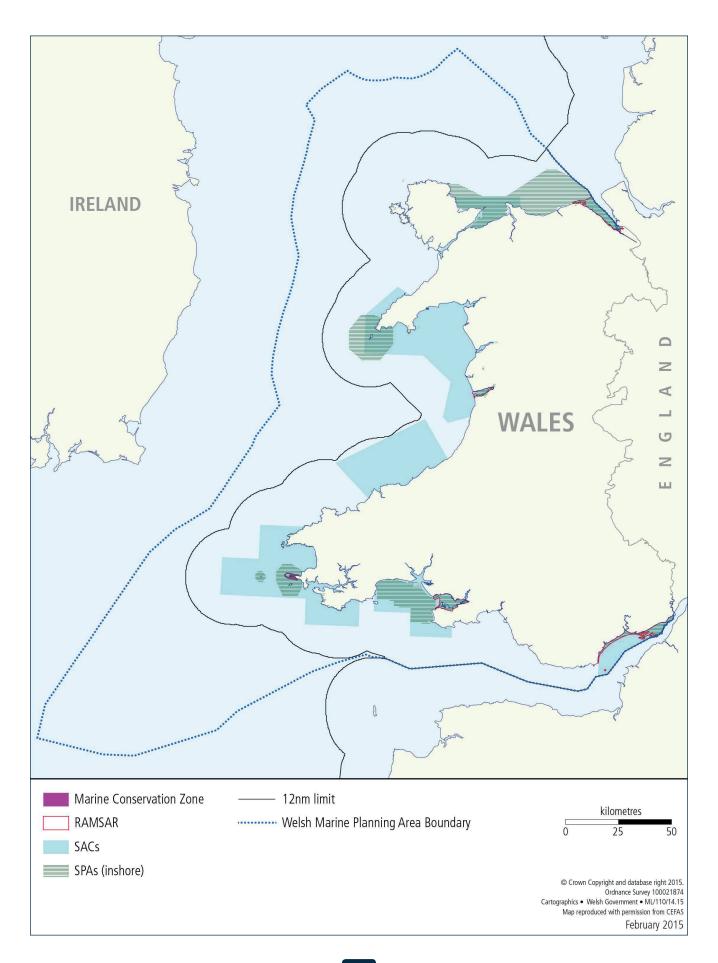


Figure 17: Seabed sediments

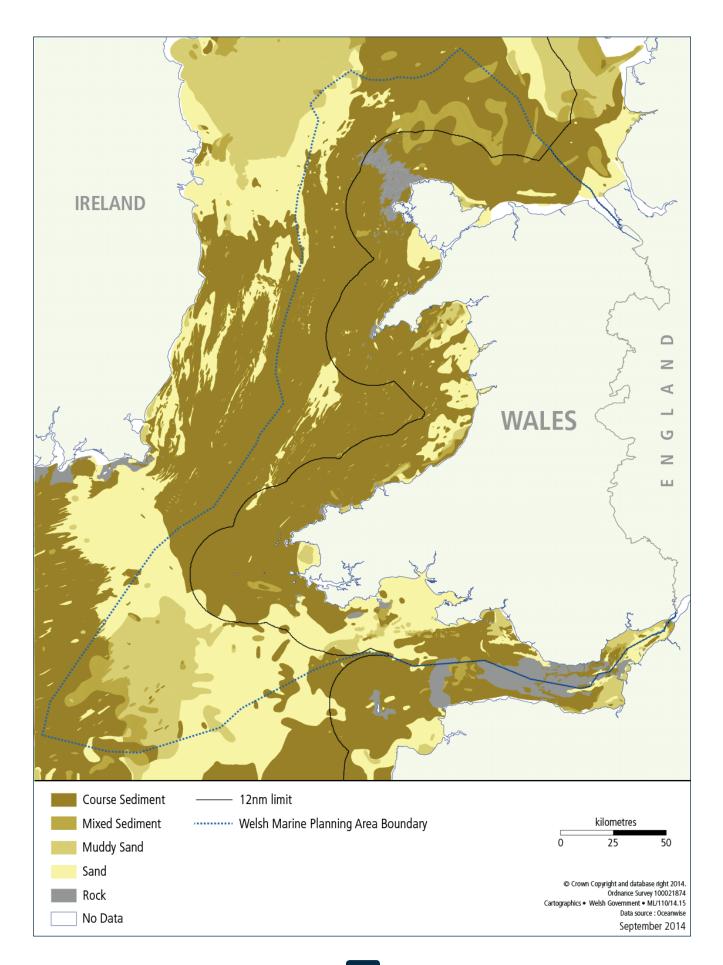
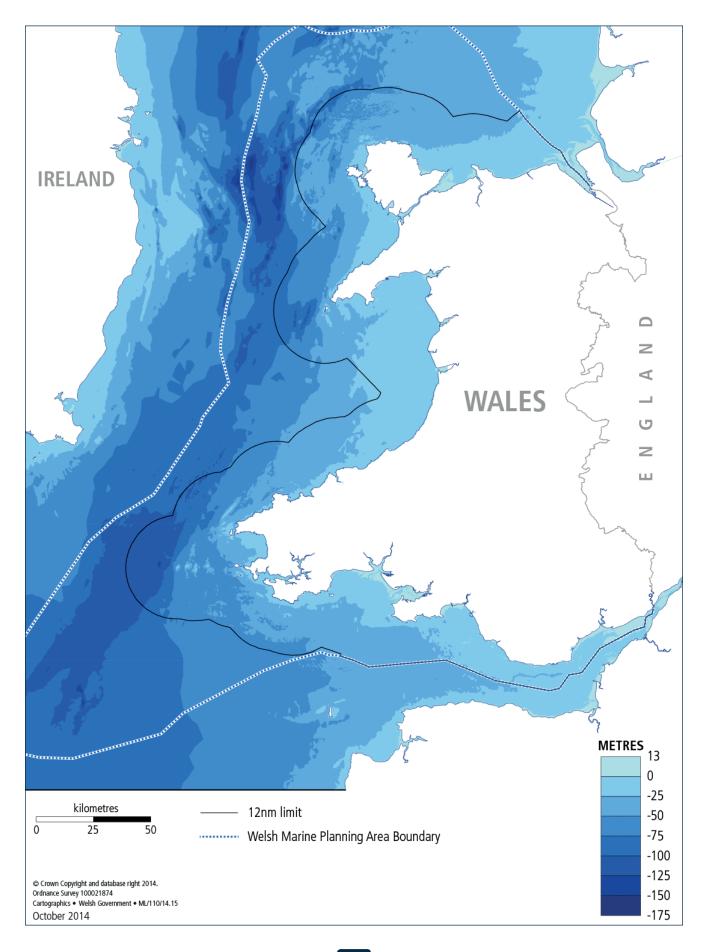


Figure 18: Bathymetry



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Figure 19: Mean Spring Tidal Range

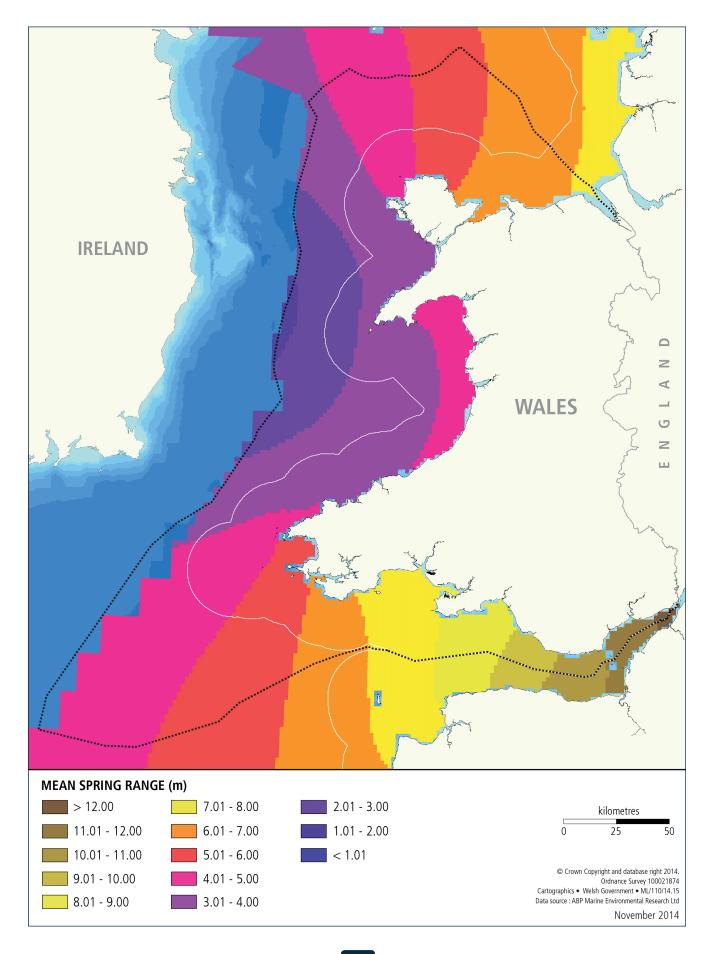


Figure 20: Mean Spring Tidal Flow

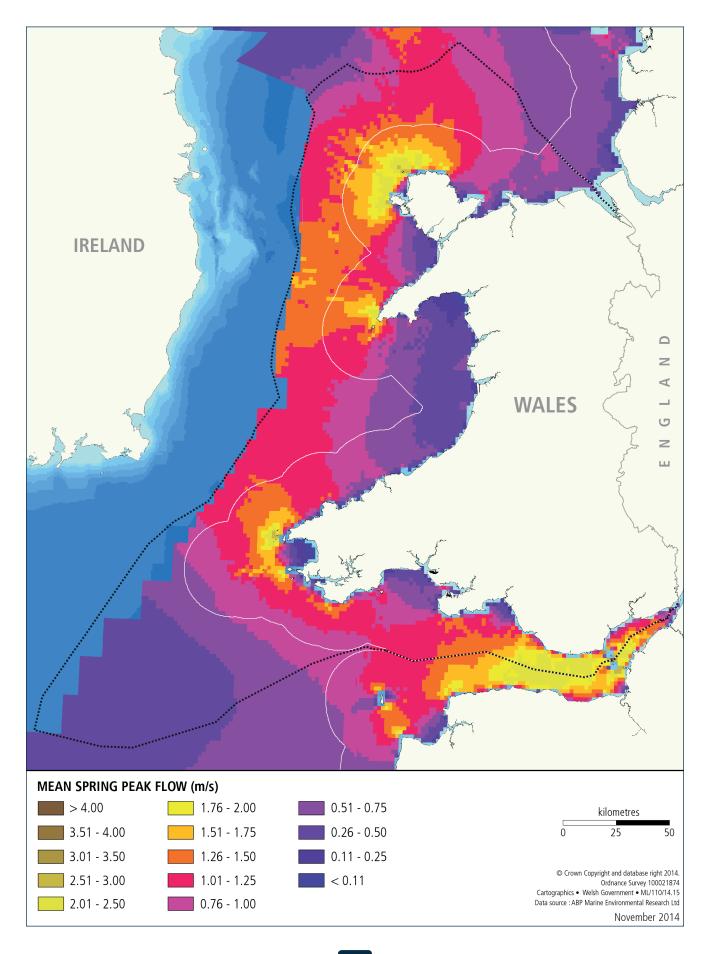


Figure 21: Marine Annex 1 Habitats

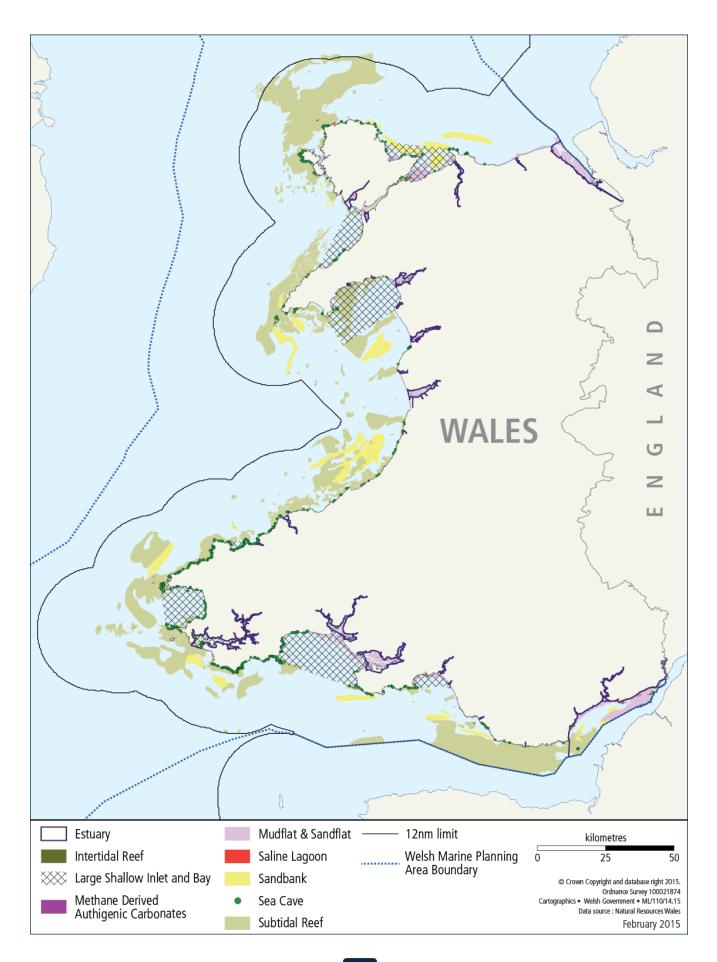


Figure 22: Broadscale Habitats – Subtidal

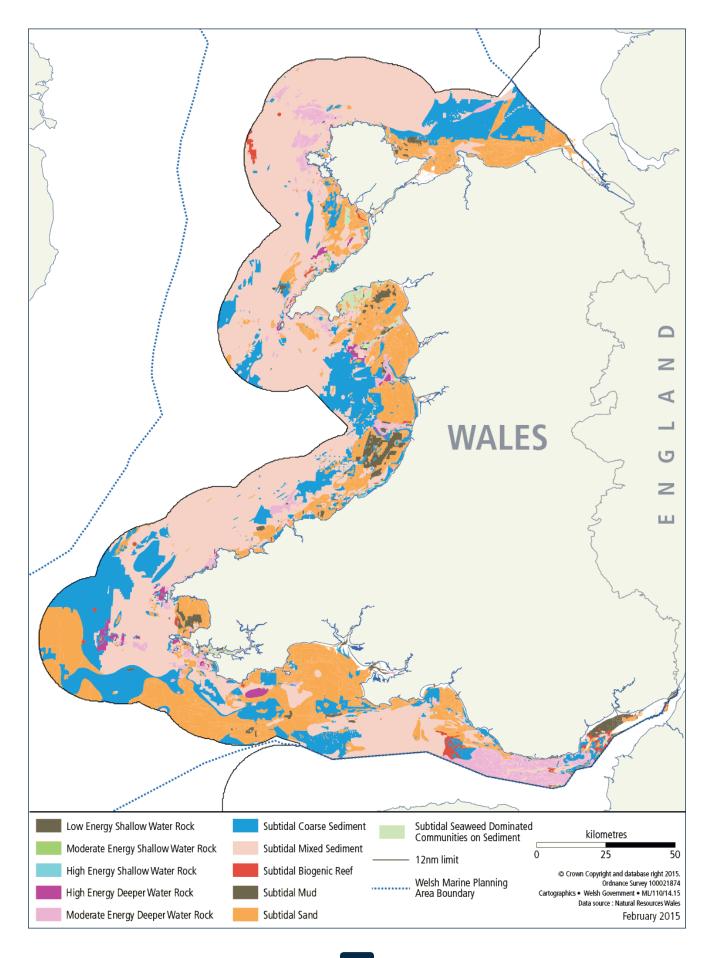


Figure 23: Grey Seal breeding grounds in Welsh waters

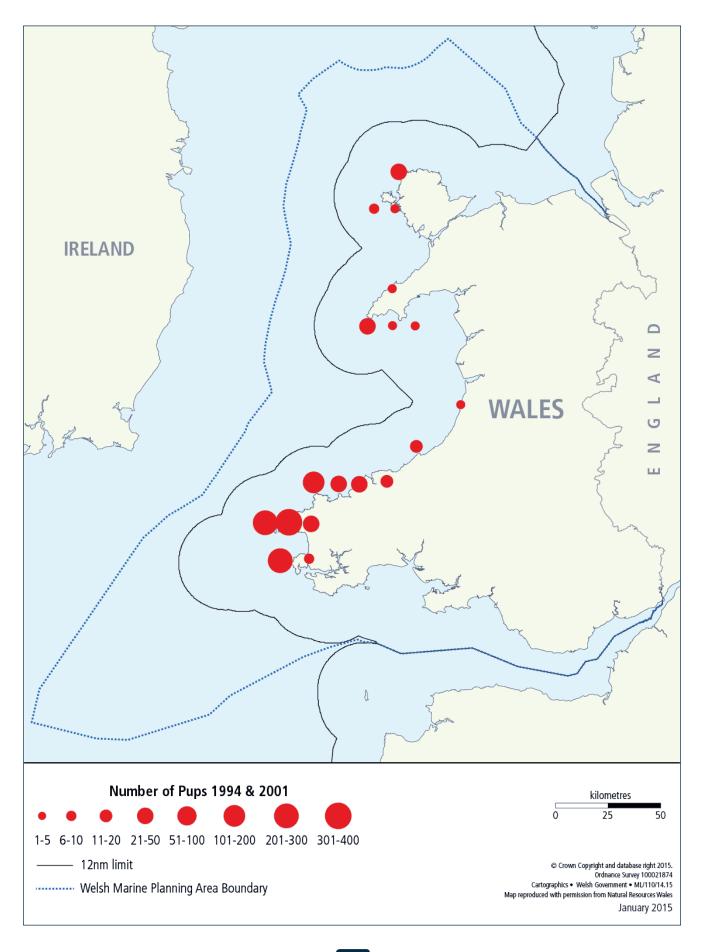
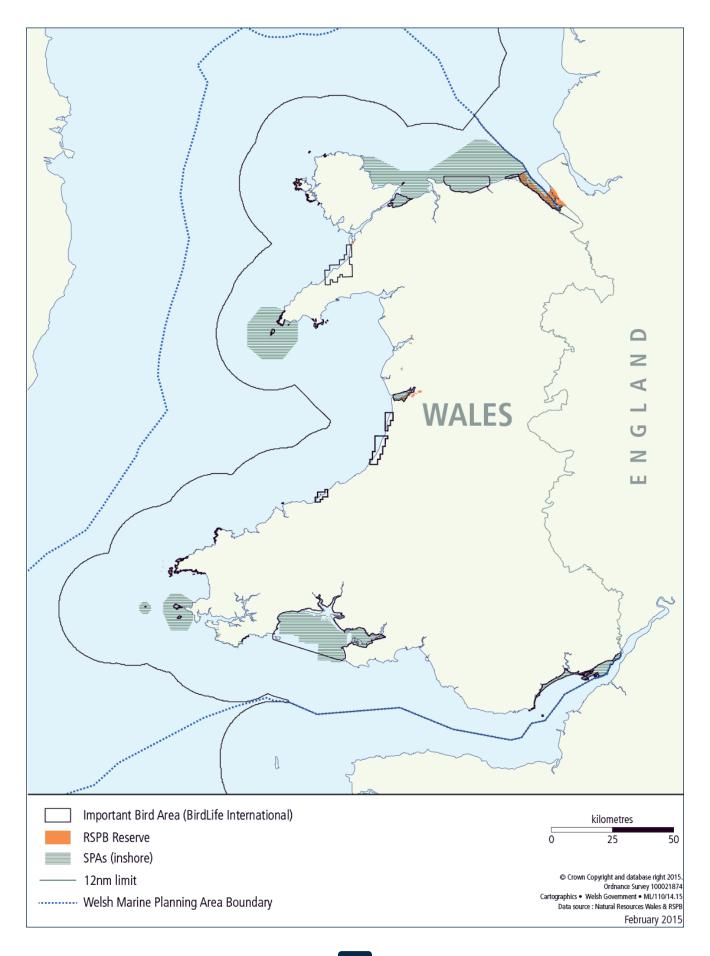


Figure 24: Marine and Coastal areas of Interest for Birds





HISTORIC ENVIRONMENT



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POWERFUL DRIVER

and for **sustaining** successful places to LIVE and WORK

All surviving physical remains of

past human acivity whether visible, buried

or submerged



IMPROVING access to cultural, historic and industrial heritage resources Increased pressure

on heritage assets from developments and tourism

PROTECTING,

investigating, recording and promotion of the

historic environment



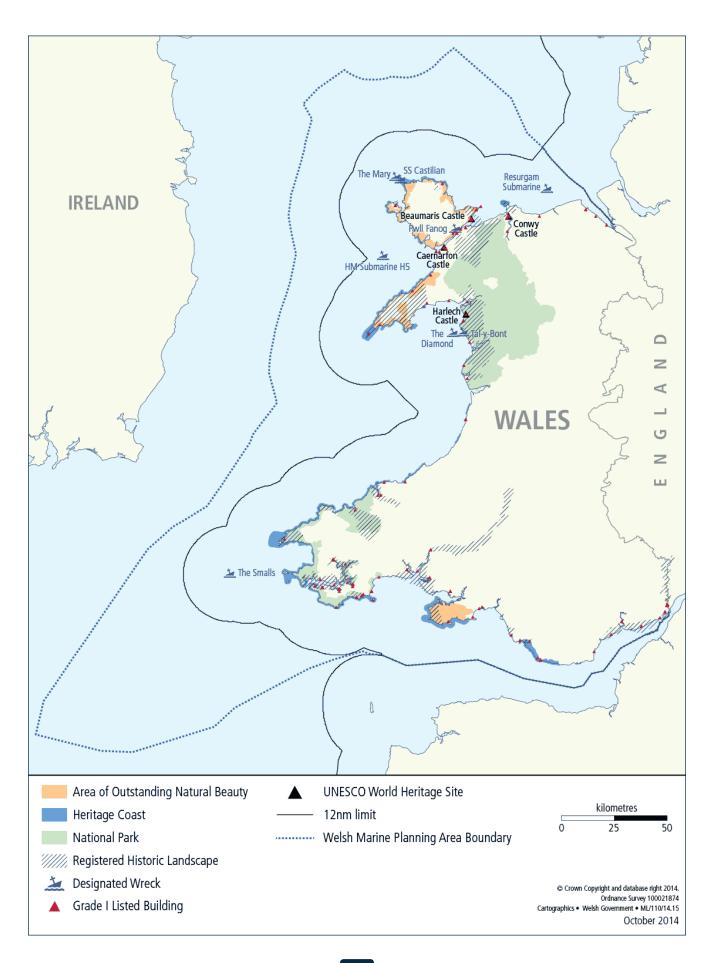
HISTORIC and archaeological remains are finite and non-renewable

Remains are **HIGHLY FRAGILE**

and vulnerable to damage or destruction

Assessing the significance and uniqueness of each heritage asset against proposed development

Figure 26: Protected Coastal Landscape and Heritage Features





SEASCAPE



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Planning authorities consider visual, cultural, historical and archaeological

impacts

EXISTING

seascape assessment

suitable only for local planning needs

SPECTACULAR SEASCAPE

coastal National Parks

Areas of Outstanding **Natural Beauty**



Consideration of the **WIDER**

socio-economic effects

of a development

Seascape assessment on a case by case basis by activity, location and **setting**

Coastal typography map developed to place value on existing seascape character



To ensure **PROTECTION**

for landscape and seascape character and features

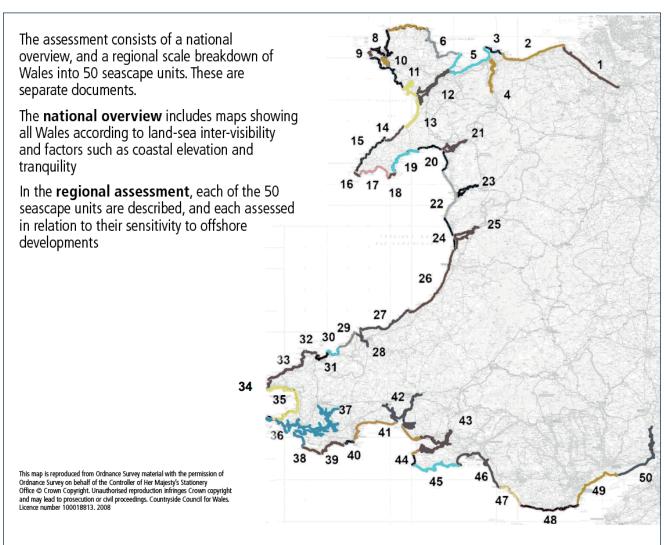
Broad strategic assessment of

seascape character

is currently missing

MITIGATION by encouraging appropriate siting and consideration of alternatives

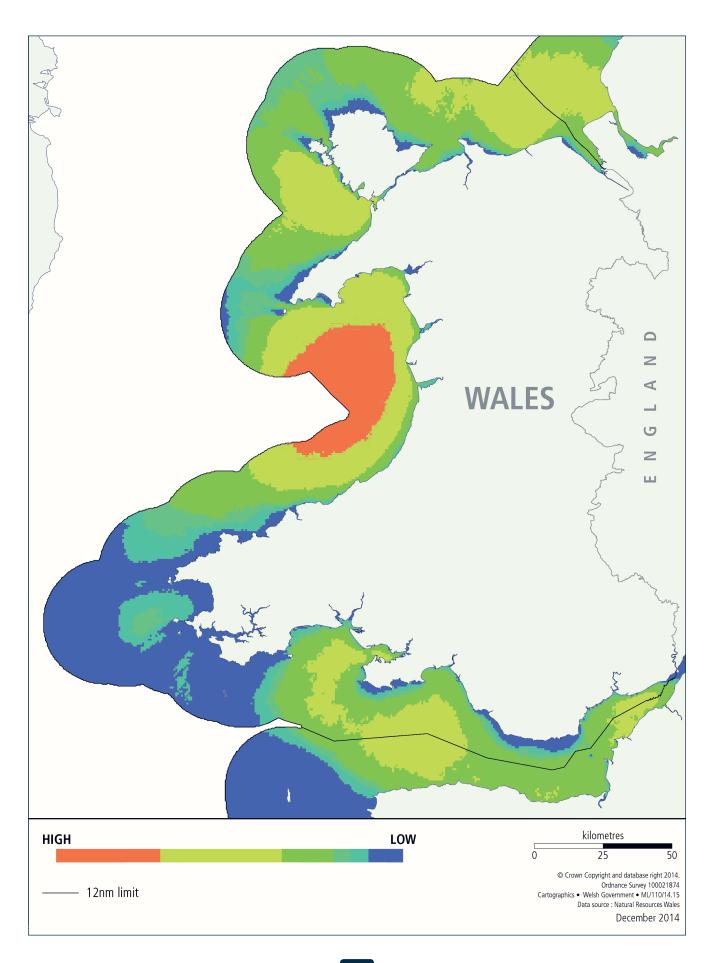
Figure 28: Welsh National Seascape Units



- 1 Dee Estuary
- Point of Ayr to Colwyn Bay
- 3 Rhos Point to Great Ormes Head
- 4 Conwy Estuary
- 5 Great Ormes Head to Puffin Island
- 6 Puffin Island to Point Lynas
- 7 Point Lynas to Carmel Head
- 8 Carmel Head to Holyhead Mountain North Stack
- 9 Holyhead Mountain North Stack to Penrhyn Mawr
- 10 Penrhyn Mawr to Pen-y-Parc/Maltraeth Bay
- 11 Holy Island Straits
- 12 Menai Straits
- 13 Maltraeth Bay to Trefor
- 14 Trefor to Porth Dinllaen
- 15 Trywn Porth Dinllaen to Braich y Pwll/Mynydd Mawr
- 16 Braich y Pwll and Bardsey Island
- 17 Bardsey Island to Trwyn Cilan
- 18 Trwyn Cilan to Penrhyn Du (Porth Ceiriad and St Tudwal's Island)
- 19 Penrhyn Du to Pen-ychain (Abersoch and Pwllheli)
- 20 Pen-ychain to Morfa Dyffryn (Tremadog Bay)
- 21 Porthmadog Estuary
- 22 Morfa Dyffryn to Pen Bwch Point (Barmouth Bay)
- 23 Mawddach Estuary
- 24 Pen Bwch Point to Upper Borth
- 25 Dyfi Estuary

- 26 Upper Borth to Newquay (central Cardigan Bay)
- 27 Newquay to Cardigan Island
- 28 Teifi Estuary
- 29 Cemaes Head to Trwyn y Bwa
- 30 Trwyn y Bwa to Dinas Head (Newport Bay)
- 31 Dinas Head to Crincoed Point (Fishquard Bay)
- 32 Crincoed Point to Strumble Head
- 33 Strumble Head to St David's Head
- 34 St David's Head to Ramsey Island
- 35 Ramsey Island to Skomer Island (St Brides Bay)
- 36 Skomer Island to Linney Head
- 37 Milford Haven
- 38 Linney Head to St Govan's Head
- 39 St Govan's Head to Old Castle Head
- 40 Old Castle Head to Giltar Point/Caldey Island
- 41 Giltar Point to Pembrey Burrows (Carmarthen Bay)
- 42 Taf, Tywi and Gwendraeth estuaries
- 43 Loughor Estuary
- 44 Whiteford Point to Worms Head Rhossili Bay
- 45 Worms Head to Mumbles Head South Gower
- 46 Mumbles Head to Porthcawl Point (Swansea Bay)
- 47 Porthcawl to Nash Point
- 48 Nash Point to Lavernock Point
- 49 Lavernock to Gold Cliff
- Gold Cliff to Chepstow

Figure 29: Sea Surface Visibility





AIR QUALITY



Offshore air quality

is not routinely monitored so it is difficult to assess the current status



WALES has a target of 40%

reduction in all greenhouse gas emissions by 2020



Concentrations of

AIR POLLUTANTS

causes harm to the wider environment, biodiversity and human health



General air quality

But improvements are required especially with nitrogen dioxide pollution

Atmospheric Carbon Dioxide

concentrations are contributing to making the seas

INCREASINGLY acidic

As atmospheric nitrogen levels

IMPROVE

so does the status of sensitive habitats



ENSURING

compliance with conservation policy targets and obligations

PROVIDING a

sound evidence base for marine air quality in

WALES

EXPANSION in

MARINE ACTIVITIES

will need careful consideration in respect of air quality impacts



NOISE







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NOISE can occur on many spatial and temporal scales and be impulsive, continuous or repetitive

Very limited knowledge of current levels of **noise** in **MARINE ENVIRONMENT**

Several marine species use

NOISE for communication, navigation and hunting



Work ongoing to **increase** the

knowledge base on the distribution of impulsive and ambient noise

Consideration of the effect of noise on marine life and how it can be mitigated or minimised

More human activity is **increasing** underwater noise

and also surface noise for

> COASTAL **RESIDENTS**



BALANCING

socio-economic benefits against potential cumulative effects and protection of wildlife

Difficult to understand the links between underwater noise and the

impact on marine organisms

ENSURING

that anthropogenic noise sources are assessed for

impact on marine receptors



AGGREGATES







Essential to meet demand sand and gravel sold in **WALES** is marine aggregate

In South Wales fine aggregate demand is met from marine sources



Effective management of licenced areas to **OPTIMISE**

the area dredged

ADDRESSING environmental) impacts (Aggregates Levy Sustainability Fund





Aggregate wharves need to be

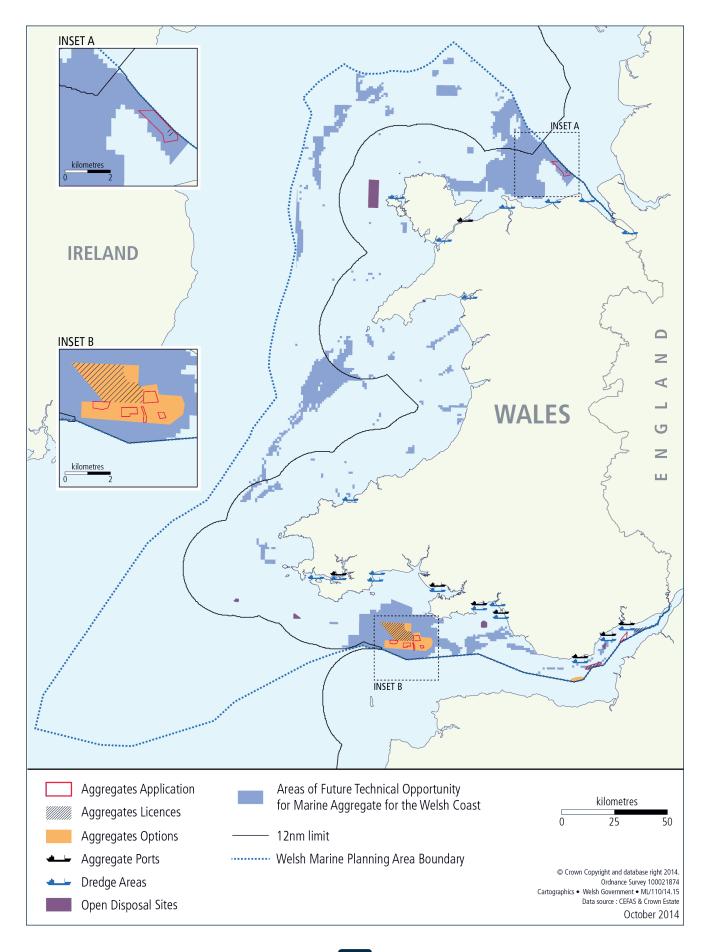
SAFEGUARDED

to enable continued access to local markets

POTENTIA co-existence conflict as aggregate industry

tied to certain areas where deposits are found New dredging vessel costs twenty-five YEAR LIFE SPAN

Figure 33: Aggregates, Dredge Areas & Open Disposal Sites



CONTENTS



AQUACULTURE



There are **nine**AQUACULTURE
BUSINESSES
across **13** sites
Employing **23** FTE

Bulk of Welsh production is live MUSSELS 37% of UK tonnage

Welsh Government
IS SUPPORTING
innovation
and
growth

Llywodraeth Cymru
Welsh Government



Plan to DOUBLE output by 2020
1000-2000t finfish 8000-1600t shellfish

Continuing export to
MAINLAND
EUROPE
of bulk of
PRODUCTION

Reintroduction and habitat restoration OPPORTUNITIES: native oysters to SWANSEA BAY





Research to assess
SPATIAL
opportunities
for expansion of
AQUACULTURE





DEFENCE





committed to PROTECTION of natural & historic ENVIRONMENT

Sustainable Development Strategy 2011









minimising and ELIMINATING environmental risk



POTENTIAL
impact from:
marine litter
contaminants
noise

as MOD activity
low in WELSH
MARINE area

Contamination from HISTORIC dumping of munitions at sea



DREDGING and DISPOSAL



Dredging PORTS
HARBOURS and
MARINAS to
remove silt and maintain
navigable depth



Dredged material can sometimes be a

valuable aggregate

RESOURCE

Dredged material can be used for FLOOD DEFENCE, LAND RECLAMATION, and BEACH NOURISHMENT



98% of dredged material is DUMPED or USED at sea

Dredged material INCREASINGLY used for HABITAT CREATION and ENHANCEMENT

More regular dredging of PORTS and HARBOURS due to growth in

ship size and amount of traffic



larger vessels
require improved access
and longer and optimal
TIDAL WINDOWS

Open sea disposal for unusable dredged sediment (15 licensed sites)

POTENTIAL
risk of mobilising
CONTAMINATES
and
HEAVY METALS



ENERGY









Growth of low carbon energy of Wales' electricity

generated from renewable sources Wave and tidal test demonstration zones. offshore wind farms and cables

Significant OIL and GAS infrastructure

in Milford Haven and Point of Ayr



2004-2010 Wales generated 9% of UK energy needs but energy generation **fell** 10% overall

Transition to low-carbon

renewable energy economy underway **UK LICENSING** of blocks for OIL and GAS exploration ongoing



Tidal range and **stream** could generate 50% of Welsh energy consumption

Planned replacement

of WYLFA Nuclear Power Station. Minimising the environmental impact of pylons and cables

INCREASING production while maintaining **ENVIRONMENTAL PROTECTION**

Figure 38: Nuclear, Oil, Gas and Coal Gasification

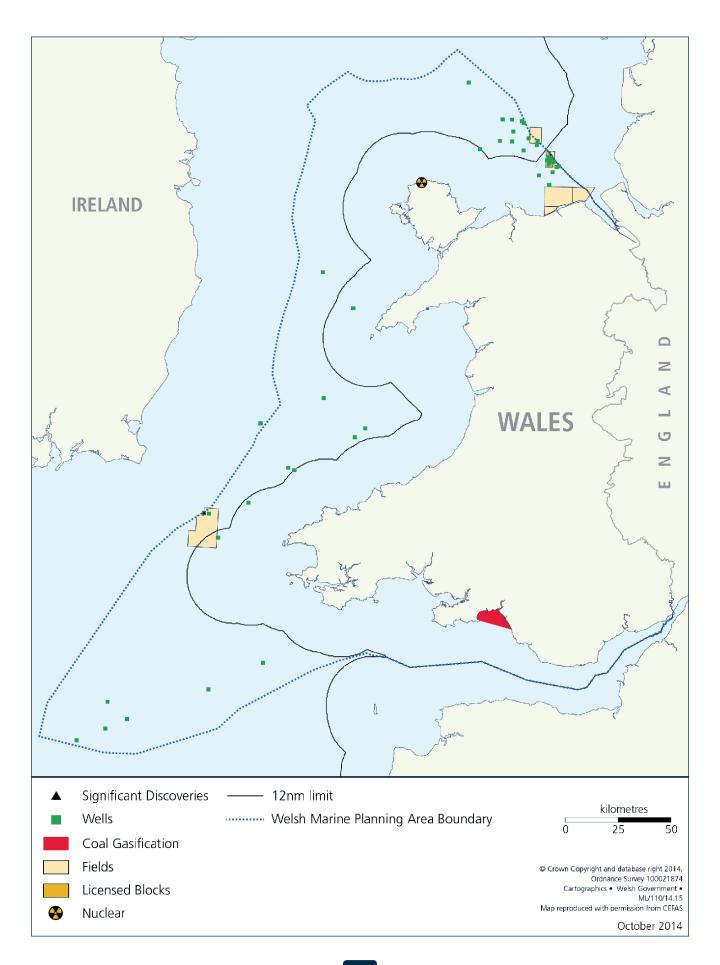
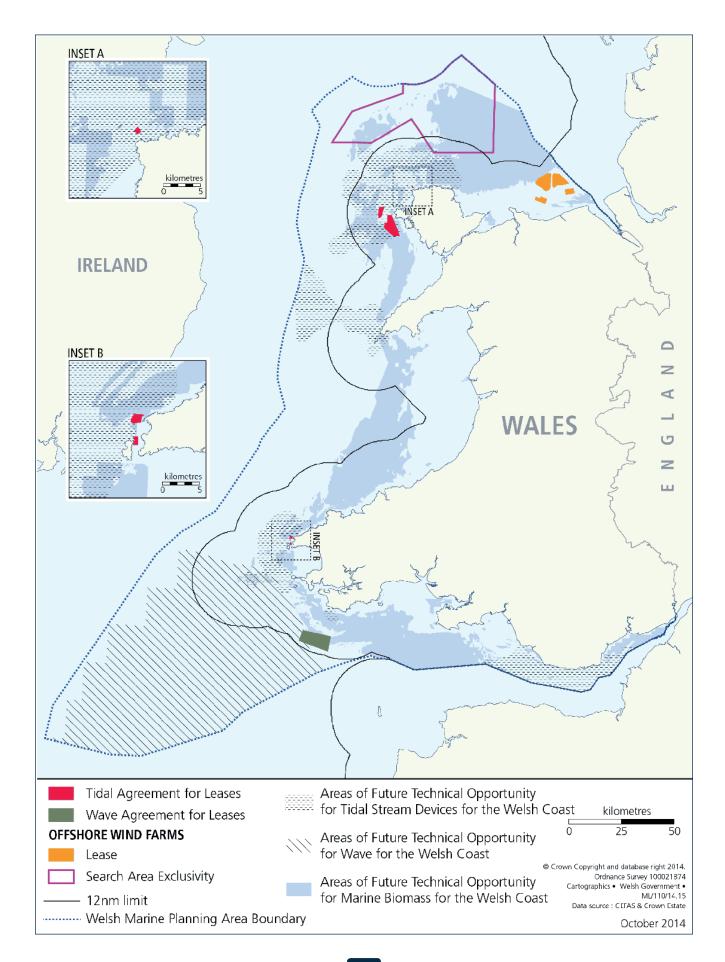


Figure 39: Renewable Energy



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TOURISM and RECREATION



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National Coast Path 870 MII FS 2.89 million visits £23.6 million **ECONOMIC BOOST**

Coastal World Heritage sites at Harlech Conwy Caernarfon and Beaumaris castles **Pembrokeshire Coast** is the only **National Park** in the UK designated for coastline



Rising demand for sustainable ecotourism

Growth in coastal tourism. 2013 estimated to be worth £602 million

Tourism market is competitive. Growth figure set at up until 2020



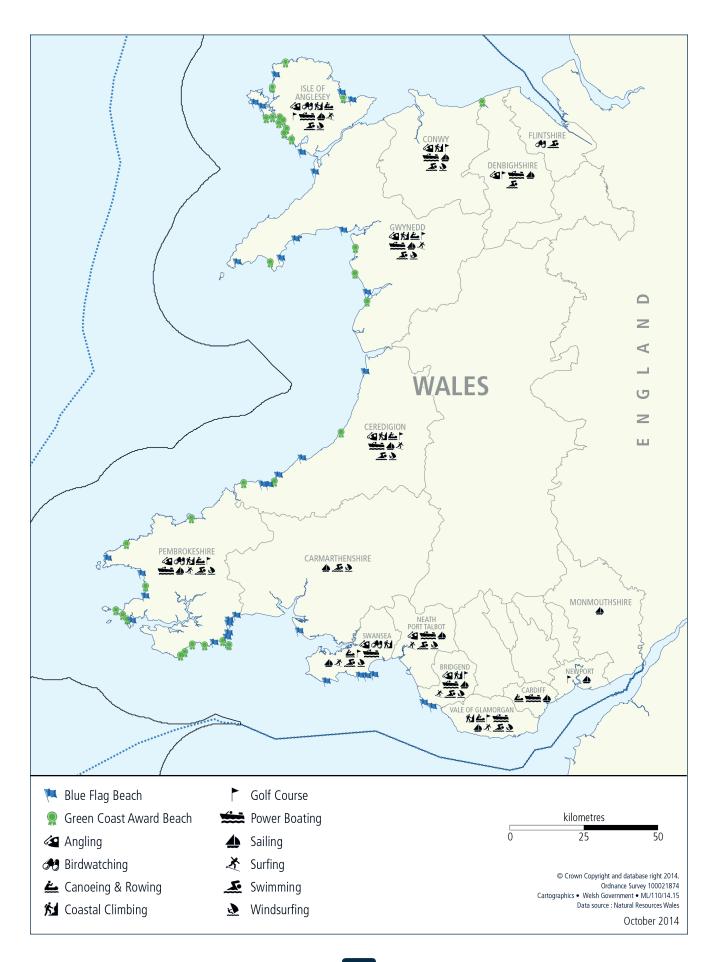
POTENTIAL — impact on sensitive habitats

and marine life

POTENTIAL + impact on jobs and provision of local services

How to **PROMOTE** sustainable tourism while supporting the NATURAL **ENVIRONMENT**

Figure 41: Tourism





FISHING



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Primary activity CATCHING of

FISH and SHELLFISH M



Secondary activity **PROCESSING**

DISTRIBUTION and SALE



33 Fishing ports

382 Boats < 10m **35** Boats > 10m

842 FTE



Review of legislation TO SUPPORT sustainable fishing industry

Intention to develop capacity and + VALUE to PROCESSING and RETAILING

Recreational Sea Angling a growth sector for FISHING and **TOURISM**



Challenge to gather **RANGE** of

quality spatial data

for this sector

How to increase the consumption of **locally** caught produce

ACHIEVING VIABLE and **SUSTAINABLE FISHERIES**



TELECOMMUNICATION CABLING



Laying operation and maintenance of submarine cables and facilities Majority of international communication through fibre-optic submarine cables

VALUE of telecommunications cabling to Wales GVA estimated at £260 million



Technological achievement leads to replacement with HIGHER QUALITY CABLE

Ongoing UK lead research into EMF and potential

on marine species

Development of fibre-optic corridor linking IRELAND and WALES to EUROPE

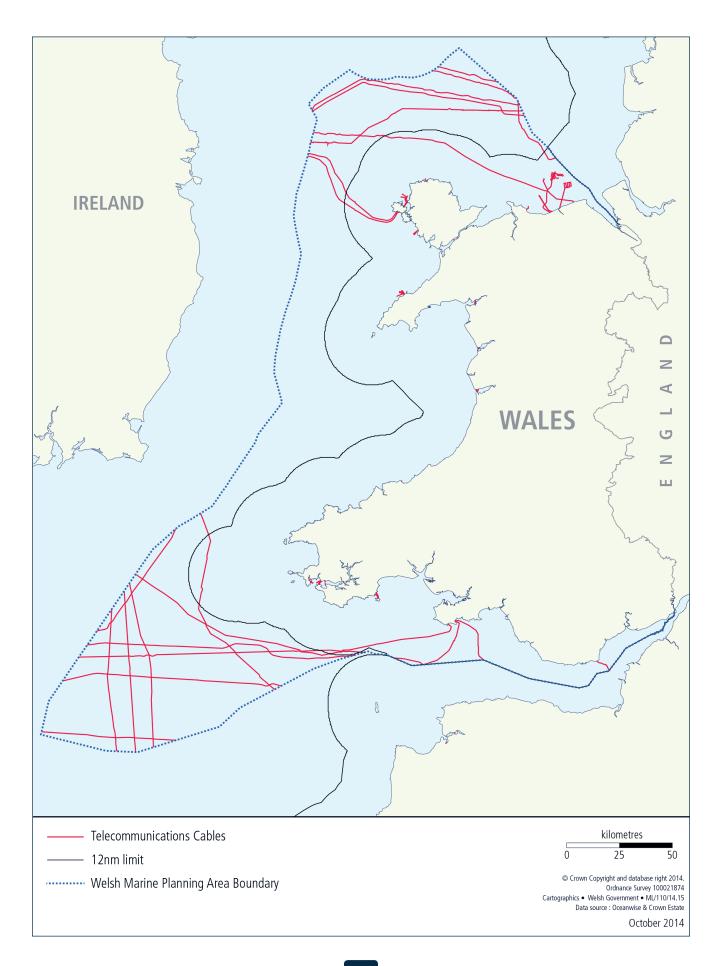


POTENTIAL co-location ISSUES

IDENTIFING geologically stable
SUITABLE SEABED

POTENTIAL snagging of fishing gear and damage from anchoring

Figure 44: Telecommunication Cabling





PORTS and SHIPPING



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Welsh ports handled

cargo in 2014

representing 12% of total UK throughput



important statutory duties including; navigation, security and environment

All 3 models

of port ownership in Wales; trust; municipal and privatised



Tin plate and aluminum

continue to be a large export market for Welsh Ports

INCREASING

the availability and quality of existing land side facilities Deregulation and use of

Codes of Practice

A good example is the Port Marine safety Code



Capitalise fully on **NEW MARKETS**

and growth in MARINE and **COASTAL** activity e.g. short sea shipping; offshore energy

Improve provision for tourists, incuding

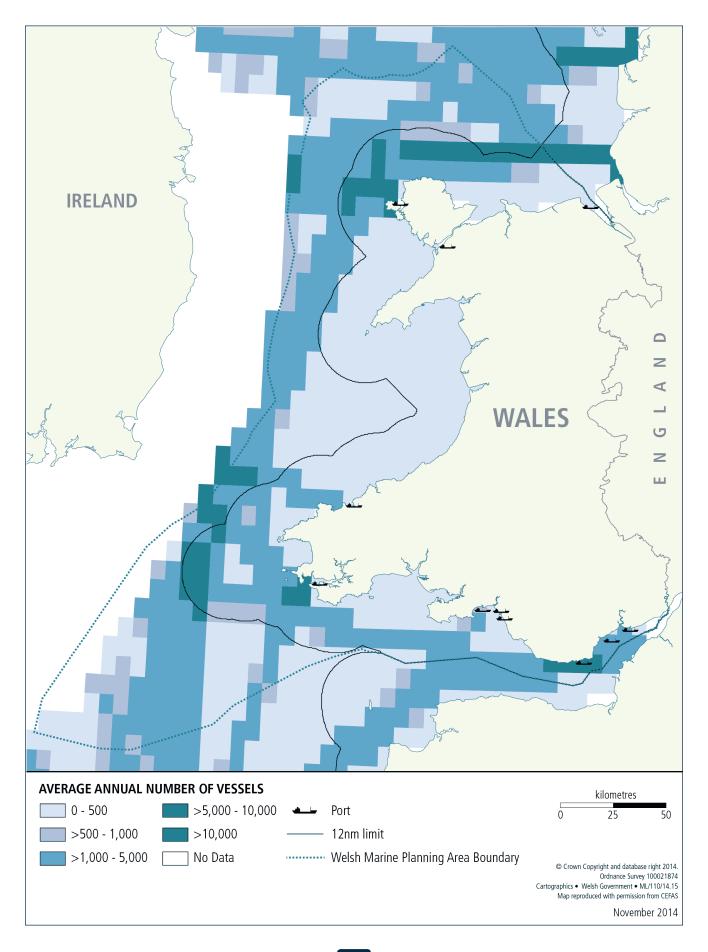
the cruise line sector

such as investing in **berthing** and mooring facilities The training scheme **Port Skills and** Safety (PSS)

promotes best practice

AND reduces risk for all workers

Figure 46: Shipping Density and Port Locations





SURFACE and WASTE WATER



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Collection treatment and **DISPOSAL** of **WASTE WATER** from housing and industry

Minimising flood risk

and improving drainage of storm water and runoff

Protecting and improving

COASTAL and MARINE water quality



£1 billion

spent since 1995 on reducing the volume and proportion of

UNTREATED WATER

Increasing concern

for waste transport, recycling, treatment, disposal. utilisation. and energy use

Fly-tipping and dumping of waste

Widespread plastic MICRO-BEADS in marine environment



MITIGATION of the

effect and frequency

of pollution incidents

PROTECTING water quality

supports human activities reliant upon it

MITIGATION of the effects of diffuse pollution by

management and drainage



