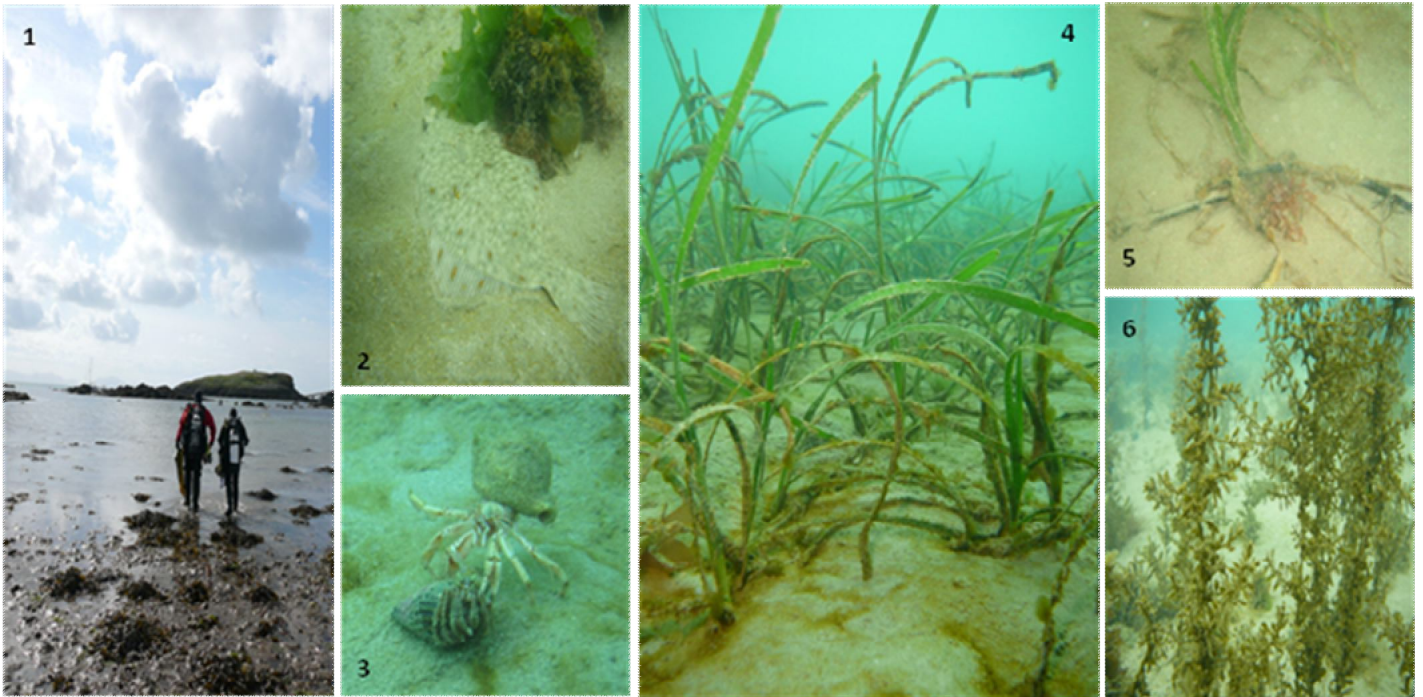


Seagrass Beds of Borthwen Bay, Rhoscolyn, Anglesey 2012.



A report by Vicki Greenhalgh and Liz Morris for Seasearch

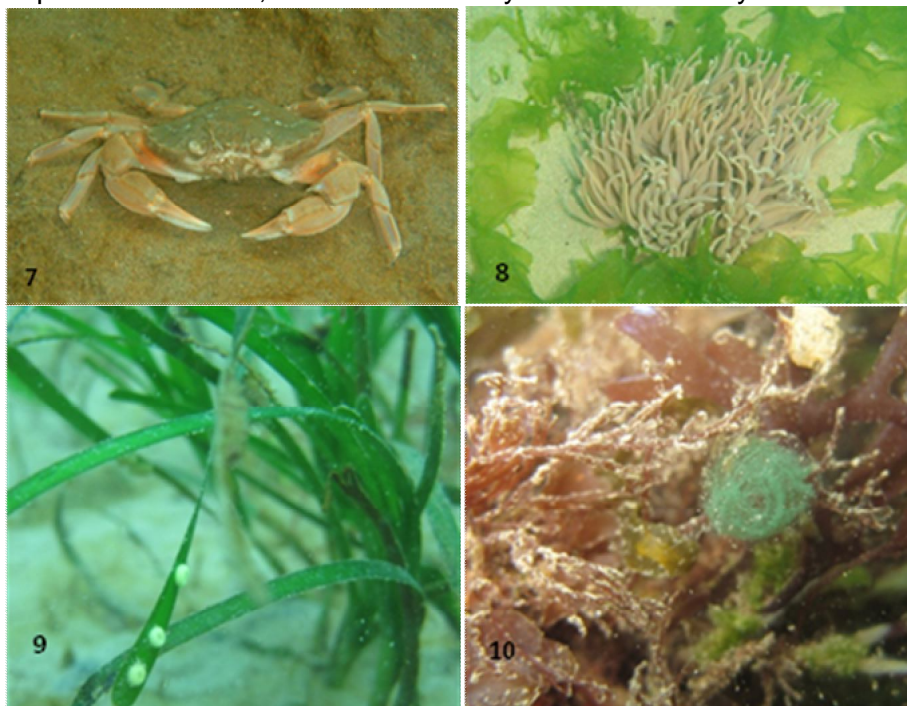
Seagrasses are flowering plants able to tolerate inundation or total submergence by the sea. Unlike seaweeds (algae) they have a networking root system of rhizomes ^(image 5) which help to bind the sediment, a characteristic which supports their important role as 'ecosystem engineers'. Stabilising the bed supports their growth and potential to develop a three dimensional profile capable of slowing currents which help buffer the shore from waves and erosion and supporting the deposition of fine sediment and nutrients. As a result water clarity and light penetration improve in a positive feedback loop for both themselves and the many species they shelter and support. In a nutshell – established seagrass beds are important for themselves, their environment and the species they support.

Sea grass is found around the world, typically on sand or muddy sand and in sheltered areas like bays and harbours. Globally seagrass beds are in decline as a result of 'black spot' disease during the 1920-30's and the ever increasing pressures placed on the sea, particularly in coastal zone activities. As photosynthesising plants they are sensitive to decreasing water quality such as excess nutrients and pollutants from land run off, increased turbidity via land disturbance. The plants are vulnerable to trampling and detachment, which can cause direct damage, but also habitat fragmentation increasing the risk of exposure to competitive invasive species and disease. Worldwide they are considered an important carbon sink, and important nursery area for juvenile species leading to their designation as a Biodiversity Action Plan habitat (BAP) requiring recording and monitoring.

There have been several reports of washed up seagrass at Borthwen Bay near Rhoscolyn, Isle of Anglesey since 2002 or earlier. Seasearch attempted to locate a bed at Borthwen in 2003, but only floating plants and occasional shoots were recorded from the south east of the bay. On an annual Seasearch skills refresher day on April 14th, 2012, a group of keen North Wales Seasearchers determinedly set out to confirm the presence and location of a Borthwen seagrass bed and associated species. Some Seasearchers carried a GPS tracking buoy (a GPS on 'track' tied to a surface marker buoy of a lawn mower inner tyre).

Surprisingly, there was a relatively large bed of *Zostera marina* present in the south west of Borthwen bay (Seasearch positions marked with circles on Map 1) and a smaller less dense bed (very approximately 2,250 m²) on the east of the bay. Following our exciting find, some Countryside Council for Wales staff followed up the initial Seasearch survey with a snorkel visit with GPS to the western bed on May 30th, 2012. CCW aimed to establish a better idea of the perimeter of the western bed (approximately 6,770 m² in area, Map 1, of which 454m² were considered 'dense' by CCW staff) and sought to map the densest patches.

In total 98 different taxa were recorded by Seasearchers on 15 Observation and 5 Surveyor forms. All species observed have been presented in Table 1, showing a diverse site with over 39 species of algae, including *Bonnemaisonia hamifera* ^(image 16) and *Sargassum muticum* ⁽⁶⁾, both of which are non native species. Of particular interest was a patch of peat with piddocks on the east of the bay (marked in Map 1), a BAP habitat, and the Welsh BAP species *Arctica islandica*, the Arctic cyprine or Ocean quahog, as well as several species of egg and fish including rockling ⁽¹⁵⁾ and flounder which are rarely spotted by keen eyed Seasearchers locally. We were also seen off at the end of the day by a happy grey seal (*Halichoerus grypus*), another BAP species of interest, which was a lovely end to the survey.



Thanks go to the 17 strong group whom dived on the 14th April 2012, and CCW for contributing their data to this report:

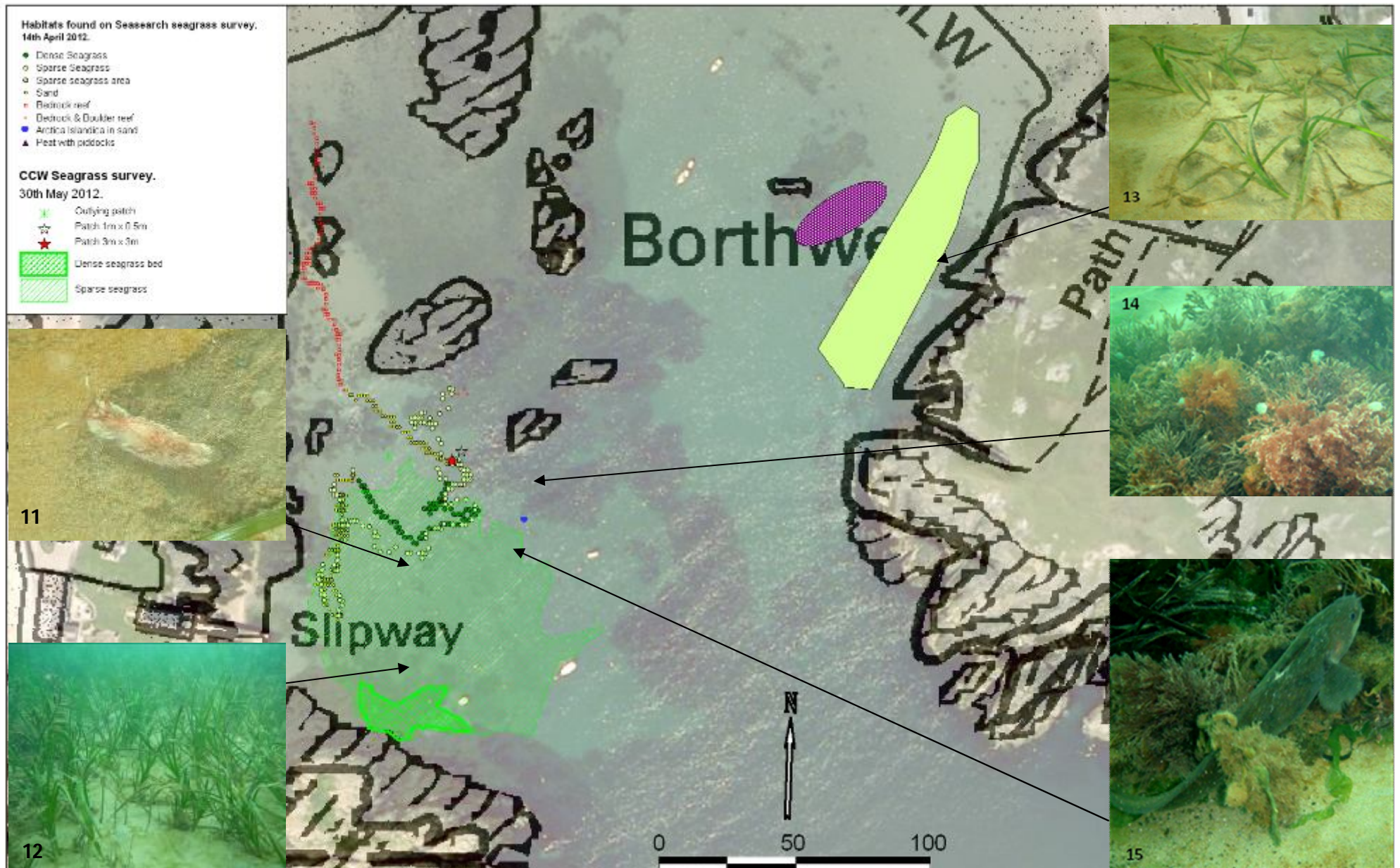
Paul Brazier, John Parkin, Mae Dorricott, Stephen Dorricott, Tim Porter, Ruth Sharratt, Wendy Northway, Phil Darlington, Pat Spencer, Angela Burton, Bernd Baufeld, Carole Horne, Liz Morris, Andy Bickerdale, Kathryn Birch & Vicki Greenhalgh.

And to CCW surveyors **Natasha Lough, Karen Robinson, Kirsten Ramsay & Peter Walker** for sharing their data for this report.

Many thanks for the use of photographs (from now on referred to as numbers) from:

John Parkin ^(5, 7, 8, 11, 12, 13 & 15) **Liz Morris** ^(1, 2, 4, 6, 16, 17, 18 & 19) and **Carole Horne** ^(3, 9 & 10)

Map 1. Seagrass *Zostera marina* at Borthwen Bay, Rhoscolyn on Anglesey was identified in sufficient density for the area to be classed as a seagrass bed (defined as > 1 shoot per m²). Seasearch divers and CCW used GPS to outline the sea grass on the south west side of the bay. A second dive also noted its presence to the east although its perimeter is less certain.

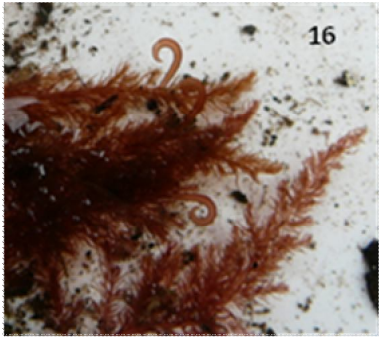


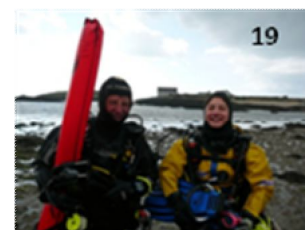
© This orthophotography has been produced by COWI A/S from digital photography captured by them in 2006. Licensed by the Welsh Assembly Government's Department for Environment, Planning and Countryside. OS base maps reproduced with permission of HMSO. Crown copyright reserved. CCW licence No. 100019741

Table 1: Summary of taxa recorded by Seasearchers at Borthwen Bay, Rhoscolyn, on April 14th, 2012.

(#) numbers in superscript refer to photos. **Numbers in bold** refer to number of taxa recorded from phyla. 98 different taxa recorded in total.

Common name	Scientific Name	Importance	Image number
Peat with piddocks.	n/a	BAP habitat	
Eel grass	<i>Zostera marina</i>	BAP habitat.	4, 5, 9, 12, 13
Ocean quahog / Arctic cyprine	<i>Arctica islandica</i>	BAP species. (Section 42).	
Plaice	<i>Pleuronectes platessa</i>	BAP Group action plan. Commercial Fish species.	2
Wire weed	<i>Sargassum muticum</i>	Invasive species compete with natives for space.	6
PHYLUM		COMMON NAME	
PORIFERA = 4		SPONGES	
<i>Cliona celata, Amphilectus fucorum, Tethya citrina, Dysidea fragilis</i>		Boring, Shredded carrot, golf ball, goosebump sponges.	
CNIDARIANS = 5		ANENOMES, HYDROIDS, CORALS	
<i>Aulactinia verrucosa, Sagartia elegans, Urticina feline, Anemonia viridis</i> ⁽¹⁶⁾ . <i>Obelia geniculata</i>		Gem's, Elegant, Dahlia, Snake locks; anemones. Knotted Thread Hydroid.	
ANNELLIDA = 7		WORMS	
<i>Arenicola marina, Lanice conchilega, Cirratulus cirratus, Nereis sp, Bispira volutacornis, Sabella pavonina, Eulalia viridis (eggs)</i> ⁽¹⁰⁾		Lug, Sand mason, Bristle, Rag, Twin fan, Peacock, Green leaf (eggs); worms.	
CRUSTACEANS = 12		CRABS, SHRIMPS, AMPHIPODS, LOBSTERS etc.	
<i>Pagurus bernhardus, Cancer pagurus, Liocarcinus depurator</i> ⁽⁷⁾ , <i>Corystes cassivelaunus, Necora puber, Macropodia sp., Inachus sp. Petrolisthes galathinus, Palaemon serratus, Homarus gammarus, Crangon crangon. Isopoda.</i>		Hermit, edible, harbour, masked, velvet swimming long legged spider, sponge, porcelain; crabs. Common prawn, common lobster, brown shrimp. Isopods.	
MOLLUSCS = 15		SNAILS, BIVALVES	
<i>Hinia reticulata, Archidoris pseudoargus, Aplysia punctata, Ocenebra erinacea & Littorina littorea, Arctica islandica, Piddocks indet, Tricolia pullus, Gibbula cineraria, Gibbula umbilicalis, Limacia clavigera, Polycera quadrilineata, Flabellina pedata, Aeolidiidae sp.</i> ⁽¹¹⁾ . <i>Sepiolo atlantica.</i>		Netted dog whelk, Sea lemon, Sea hare, European sting & common winkle, Pheasant, Grey top, flat top shells and Piddocks. Orange clubbed nudibranch, with other nudibranches. Little cuttlefish.	
ECHINODERMS = 3		URCHINS, STARFISH, SEA CUCMBERS etc.	
<i>Ophiopholis aculeata, Amphiura spp., Labidoplax digitata.</i>		Crevice & other brittle stars, burrowing sea cucumber	
ASCIDIANS = 2		SEA SQUIRTS	
<i>Aplidium punctum, Botryllus schlosseri.</i>		Club headed sea squirt, star tunicate.	
PISCES = 8		FISH	
<i>Taurulus bubalis, Callionymus lyra, Pomatoschistus spp., Gobiomusculus flavescens, Spinachia spinachia, Gaidropsaurus sp.</i> ⁽¹⁵⁾ , <i>Labridae sp., Platichthys flesus, Pleuronectes platessa</i> ⁽²⁾		Scorpion fish, Dragonet, Gobies, 2 spotted goby, Sea stickleback, Rockling, Wrasse, Flounder.	
BRYOZOANS = 1		SEA MATS & MOSS ANIMALS	
<i>Membranipora membranacea</i>		Sea mat.	

MAMMALIA = 1	MAMMALS
<i>Halichoerus grypus</i>	Grey seal.
ALGAE = 39	SEAWEED
<i>Cryptopleura ramosa, Ceramium spp., Rhodomela confervoides, Chylocladia verticillata, Phyllophora pseudoceranoides, Gastroclonium ovatum, Jania rubens, Fucellaria lumbricalis, Heterosiphonia plumosa, Bonnemaisonia hamifera</i> ⁽¹⁶⁾ , <i>Plocamium cartilagineum, Chorda filum, Sargassum muticum, Dictyota dichotoma, Petalonia sp., Calliblepharis jubata, Polyides rotundus, Nitophyllum punctatum, Corallina officinalis, Polysiphonia spp., Ulva intestinalis, Dumontia cortorta, Hypoglossum hyperglossoides, Desmarestia aculeata, Osmundea sp., Cystoclonium purpureum, Rhodophyllis divaricata, Desmarestia viridis, Fucus serratus, Phycodrys rubens, Ulva lactuca, Laminaria hyperborea, Laminaria digitata, Saccharina latissima, Halidrys siliquosa, Chondrus crispus, Colpomenia peregrina, Palmaria palmata, Gracilaria sp..</i>	Fine veined crinkle, Banded pincer, Straggly bush, Juicy whorl, Stalked leaf bearer, Red grape, Slender beaded-coral, Clawed fork, Siphoned feather, Bonnemaison's hook, Red comb, Bootlace, Wire, Brown fan, Broad leaf, False eye lash, Discoid fork; Spotted scarf, Common coral, Siphon, Gut, Dumont's tubular, Under tongue, Flat fern, Purple claw, Leafy rose; weeds. Sea sorrel, Toothed wrack, Sea Oak, Sea lettuce, Cuvie, Oar weed, Sugar kelp, Pod weed, Irish moss, Oyster thief, Dulse.
	
ANGIOSPERMS = 1	PLANTS
<i>Zostera marina</i>	Eelgrass / subtidal seagrass



A report produced by Vicki Greenhalgh & Liz Morris on behalf of Seasearch for the Countryside Council for Wales on 28 September 2012