



Seasearch Cymru/Wales 2011 Summary Report



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Seasearch Wales 2011

Seasearch is a volunteer marine habitat and species surveying scheme for recreational divers in Britain and Ireland. It is coordinated by the Marine Conservation Society on behalf of the Seasearch Steering Group.

This report summarises the Seasearch activity in Wales in 2011. It includes summaries of the sites surveyed and identifies rare or unusual species and habitats encountered. These include a number of Welsh Biodiversity Action Plan habitats and species and also sites which have subsequently been proposed as Marine Conservation Zones (MCZs). It does not include all of the detailed data as this has been entered into the Marine Recorder database and supplied to the Countryside Council for Wales for use in its marine conservation activities. The data is also available on-line through the National Biodiversity Network.

During 2011 we continued to focus on Biodiversity Action Plan species and habitats. These included horse mussel and carpet mussel beds (North Llŷn and Caernarfon Bay), crawfish (North Pembrokeshire), native oyster (Dau Cleddau), historic seahorse sites (Cardigan Bay) and Icelandic cyprine (West Anglesey).

Data from Wales in 2011 comprised 216 Observation Forms, 135 Survey Forms and 43 crawfish records. The total of 394 represents 19% of the data for the whole of Britain and Ireland.

Seasearch in Wales is delivered by two Seasearch regional coordinators. Kate Lock coordinates the South and West Wales region which extends from the Severn estuary to Aberystwyth. Liz Morris coordinates the North Wales region which extends from Aberystwyth to the Dee. The two coordinators, are assisted by a number of active Seasearch Tutors in North Wales who are listed at the end of this report. Overall guidance and support is provided by the National Seasearch Coordinator, Chris Wood.

Seasearch Cymru 2011

Cynllun gwirfoddol sy'n arolygu rhywogaethau a chynefinoedd y môr yw Seasearch. Cafodd ei lunio ar gyfer deifars sy'n deifio yn eu hamser hamdden ym Mhrydain ac Iwerddon. Caiff ei gydlynu gan y Gymdeithas Cadwraeth Forol ar ran Grŵp Llywio Seasearch.

Mae'r adroddiad hwn yn crynhoi gweithgareddau'r prosiect *Seasearch* yng Nghymru yn ystod 2011. Ynddo ceir crynodebau o'r safleoedd a arolygwyd a nodir y rhywogaethau a'r cynefinoedd prin neu anarferol y daethpwyd o hyd iddynt. Mae'r rhain yn cynnwys nifer o gynefinoedd a rhywogaethau a restrir yng Nghynllun Gweithredu Bioamrywiaeth Cymru, yn ogystal â safleoedd yr awgrymwyd wedyn y dylid eu dynodi'n Barthau Cadwraeth Morol. Nid yw'r adroddiad yn cynnwys yr holl fanylion, oherwydd cofnodwyd y rhain yn y gronfa ddata *Marine Recorder* a chawsant eu rhoi i Gyngor Cefn Gwlad Cymru i'w defnyddio yn ei waith ar warchod y môr. Mae'r manylion hefyd ar gael ar-lein trwy'r Rhwydwaith Bioamrywiaeth Cenedlaethol.

Yn ystod 2011, parhau i ganolbwyntio ar rywogaethau a chynefinoedd a restrir yn y Cynllun Gweithredu Bioamrywiaeth a wnaethom. Roedd y rhain yn cynnwys gwelyâu marchfiglod a misglod gwyrdd (Gogledd Llŷn a Bae Caernarfon), cimychiaid cochion (Gogledd Sir Benfro), wystrys (Afon Daugleddau), safleoedd hanesyddol ar gyfer morfeirch (Bae Ceredigion) a chocos mawrion (Gorllewin Ynys Môn).

Roedd y data a ddeilliodd o Gymru yn ystod 2011 yn cynnwys 216 o ffurflenni arsylwi, 135 o ffurflenni arolygu a 43 o gofnodion yn ymwneud â chimychiaid cochion. Mae'r cyfanswm o 394 yn cynrychioli 19% o'r data ar gyfer Prydain ac Iwerddon.

Caiff y prosiect *Seasearch* yng Nghymru ei gyflawni gan ddau o gydlynwyr rhanbarthol. Kate Lock sy'n cydlynu'r gwaith yn Ne a Gorllewin Cymru, sef rhanbarth sy'n ymestyn o Fôr Hafren i Aberystwyth. Liz Morris sy'n cydlynu'r gwaith yng Ngogledd Cymru, sef rhanbarth sy'n ymestyn o Aberystwyth i Afon Dyfrdwy. Caiff y gydlynwyr eu cynorthwyo gan nifer o Diwtoriaid *Seasearch* yng Ngogledd Cymru, a rhestrir y rhain ar ddiwedd yr adroddiad. Gellir cael cymorth a chanllawiau cyffredinol gan Chris Wood, Cydlynnydd Cenedlaethol *Seasearch*.

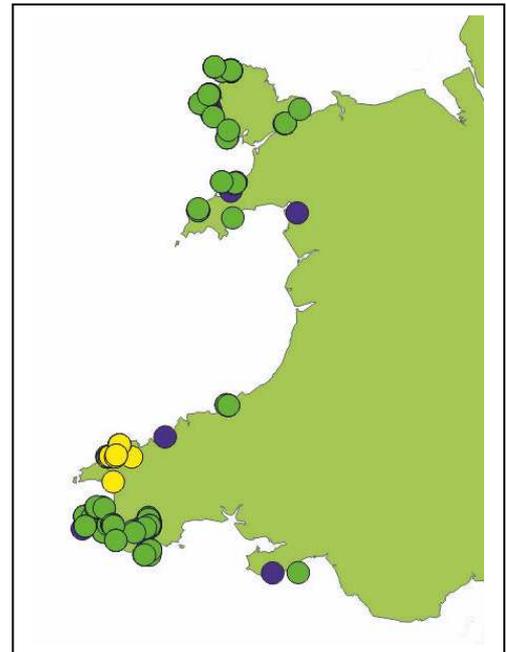
Seasearch Recording in 2011

The map shows the sites from which Seasearch Data was recorded in 2011.

The green circles are Survey Forms and obscure Observation Forms from the same sites. The blue circles show additional sites from which Observation Forms were received and the yellow circles represent Crawfish records.

The makeup of forms was as follows:

	North Wales	South/West Wales	Total
Observation	141	75	216
Survey	49	86	135
Crawfish	0	43	43
Total	190	204	394



The great majority of the records are from surveys arranged by the two coordinators and these are summarised below. In addition 15 sites in North Wales and 6 in South and West Wales were surveyed independently by volunteers who have been through the training programme. In North Wales these independent forms contributed 16.8% of the total number forms received, which was double the previous year's.

Survey Planning

Early in the year meetings were held between the coordinators and CCW staff to discuss priorities. In the case of West Wales it was agreed to continue with a focus on BAP species and habitat recording. This included native oysters and tidal reefs at Cleddau sites. An additional focus was information gap filling in St Brides bay and south Pembrokeshire.

In the case of North Wales the following priorities were agreed:

1. Concentrate tutor time on developing marine identification skills of existing Seasearchers
2. Ensure that new Observers have plenty of opportunity to join boat diving to increase their Seasearching skills
3. To ensure good quality recording and skill development of Observers, try to buddy existing Seasearch Surveyors with new Observers (attempting to get at least 3 good Surveyor forms per CCW subsidised boat trip)
4. Re-visit carpet mussel (*Musculus discors*) reefs off the North Llŷn Peninsula in order to establish whether this Welsh BAP habitat is ephemeral and infaunally diverse (with help from a CCW supported masters student). On the same surveys, ground truth areas of *Musculus discors* reefs predicted by HABMAP modelling.
5. Seasearch areas where there is a lack of recent information, including the Skerries, The Ormes, offshore Colwyn Bay and the South East Anglesey coast.
6. Maximise boat time by encouraging dedicated and experienced local Surveyors to help marshalling on boat days, to enable more boat diving days to be chartered onto the calendar.
7. Encourage Seasearchers to complete records in their own time, not only on Seasearch organised dives (including a prize for 'Best Independent Seasearcher').

In addition The Wales Biodiversity Partnership requested assistance with a 'Seahorse' project. Seasearch was asked to dive sites with historical records of seahorse sightings in south Cardigan Bay and assess their suitability for seahorse habitat. The project was in partnership with the Anglesey Sea Zoo who had successfully bred native seahorses and were investigating the potential of a rehabilitation project in Wales.

Environment Wales also supported a baseline survey of crawfish populations at a selection of north Pembrokeshire sites.

Summary of Surveys Undertaken

Due to high winds a number of the planned survey areas could not be dived and surveys were relocated to more sheltered locations. Despite this there were 20 boat survey days covering the following locations:

- North Llŷn Peninsula 10 sites
- Anglesey and the surrounds 8 sites
- Menai Strait 4 sites
- Dau Cleddau waterway 9 sites
- Entrance of Milford Haven 3 sites
- South Pembrokeshire 3 sites
- St Brides bay 2 sites
- Skomer MNR 4 sites
- Skokholm 1 site
- South Cardigan Bay 2 sites
- North Pembrokeshire Crawfish survey sites



In addition to the boat based surveys there were also training dives, mostly from the shore. A good combination of experienced Seasearch divers along with a number of new keen divers participated on the surveys. This allowed a good quality of survey data to be collected and the new divers to gain experience and complete qualifications.

Some of the survey highlights were as follows:

- Native Oysters, *Ostrea edulis* and slipper limpet *Crepidula fornicata* recording at Cleddau sites;
- Crawfish *Palinurus elephas* at north Pembrokeshire sites.
- Tidal rapid reef site Barnlake in the Cleddau waterway;
- Nudibranch *Onchidoris oblonga* and brittlestar beds at Hand Marks, St Brides bay.
- Sponge rich communities at reef off Freshwater West, South Pembrokeshire.
- a long-awaited sunny weather window meaning that Seasearchers spent a day on the Skerries off North Anglesey
- spending several days surveying the *Musculus discors* beds (Section 42 Welsh BAP habitat) off the North Llŷn Peninsula. Included collecting samples for a MSc project to look at diversity associated with *Musculus* beds.
- visiting a newly discovered, shallow *Modiolus modiolus* reef in Caernarfon Bay.
- a mud dive offshore from Douneray, West Anglesey where there was a surprising number of live *Arctica islandica* (Section 42 Welsh BAP species), *Philine aperta* and large blonde and thornback rays.



Sites Surveyed

West Wales

South Pembrokeshire

Three weekends diving were planned for the south Pembrokeshire coast. However due to strong winds only two days were possible. Dives were completed at Greenala Point, Church Rock and Freshwater West.

At **Greenala Point** boulders and cobbles were found overlying a low lying rocky reef at 15m bsl. A rich community of sponges with the golfball sponge *Tethya citrina*, the crater sponge *Hemimycale columella* and goosebump sponge *Dysidea fragilis* all recorded as common. The potato crisp bryozoan *Pentapora foliacea* and pumice bryozoan *Cellepora pumica* were frequently recorded. A diverse range of crustaceans was found, including the long clawed squat lobster *Munida rugosa*. 6 species of nudibranch were recorded the most notable being *Thecacera pennigera* a nationally scarce species.



Church Rock is a popular shallow site where past records have shown mass numbers of sea hare *Aplysia punctata* in the spring and large shoals of the grey trigger fish *Balistes carolinensis* in September.

A series of limestone gullies were found with a depth of 12m and up to 4m width. In the shallows there was a kelp forest with both oarweed *Laminaria digitata* and forest kelp *L. hyperborea*. In the gullies the walls were encrusted in sponges, hydroids, anemones and ascidians. These included the staghorn sponge *Axinella dissimilis* and the trumpet anemone *Aiptasia mutabilis* (above right), a nationally scarce species.



Offshore from **Freshwater West** a series of rocky ridges 0.5-1m height were found at 20m bsl running parallel to one another with patches of sand and cobbles between. A thin layer of silt covered the reef which was dominated in red algae, encrusting pink algae and sponge communities. Erect sponges included *Homaxinella subdola*, *Raspailia ramosa*, *Stelligera stuposa* and the staghorn sponge *A. dissimilis*. Photographed too was the coral worm *Filograna implexa* (left) and the stalked jellyfish *Haliclystus auriculata*, a Biodiversity Action Plan species.

Recording conditions were not ideal with visibility only 1m and the site merits another visit in better conditions.

Dau Cleddau, Milford Haven

7 sites were selected based on historical records of native oysters. At these sites additional data was collected on the abundance of native oysters and the non-native slipper limpet *Crepidula fornicata*. A full report has been completed for this data adding to those surveyed in previous years and site descriptions for all these sites included.

New sites in 2011 that Seasearch had not previously surveyed were: Llangwn Ferry, Rhooseferry Moorings, Rudders Moorings, Pennar Gut and Pwllcrochan Flats, these are summarised below:

Llangwn Ferry: A flat river bed of muddy shell gravel with abundant slipper limpets *C. fornicata* and occasional blue mussels, *Mytilus edulis*. In some areas ridges made up of pits of shells were found. Occasional pebbles and small boulders with sponges: mermaids glove, *Haliclona oculata* and breadcrumb sponges *Halichondria panicea*, *H. bowerbanki* and spiky lace sponge, *Leucosolenia complicata*. There were groups of horseman anemone, *Urticina eques* and dahlia anemone, *Urticina felina*, as well as numerous gobies and shore crabs, *Carcinus maenas*.



Rhooseferry Moorings. A steep slope characterised by rock rubble encrusted in breadcrumb sponge *H. bowerbankii* leading down to a level mixed ground with large scoured boulders near the moorings. The mixed ground was highly mobile with very few sessile animals except for white striped anemones, *Actinothoe sphyrodeta*. Patches of slipper limpets *C. fornicata* were present with occasional shredded carrot sponge, *A. fucorum* and sea orange, *S. ficus* attached. The moorings were made from concrete blocks and tyres, these were encrusted with finger bryozoan, *Alcyonidium diaphranum* and sea squirt *Diplosoma spongiforme*. Hydroids *Hydramaria falcata* (above) grew around the mooring ropes along with occasional oaten pipe hydroids, *T. indivisa*.

Rudders Moorings. Mobile mixed substrate of pebbles and shell debris with occasional, breadcrumb sponge, *H. bowerbankii* and shredded carrot sponge, *A. fucorum* attached. Moorings made from tractor tyres acted as artificial reefs. These were covered in short animal turf including finger bryozoan, *A. diaphanum*, the sea squirt *Diplosoma listerianum* and hornwrack, *Flustra foliacea*. Some large native oysters, *O. edulis* were found in the vicinity of the moorings along with numerous empty shells and the slipper limpet, *C. fornicata* was notably rare at this site. Many bottom dwelling fish including dragonet, *Callionymus lyra*, scorpion fish and black blenny, *Gobius niger*.

Pennar Gut. Steep rubble slope densely covered in shredded carrot sponge, *A. fucorum* in concentrated patches together with other sponge species. Interlaced amongst the sponges were feathery hydroids *Kirchenpauria sp* and feather stars, *A. bifida*, elegant anemones, *S. elegans* and fried egg anemone, *A. sphyrodeta*. The remainder of the slope was covered in dense expanses of slipper limpet, *C. fornicata* (right), leading down to a flat expanse. Occasional gooseberry sea squirts, *Dendrodoa grossularia* and *D. listerianum* were found, as well as large specimens of sea orange, *S. ficus* and occasional native oysters, *O. edulis*.



Pwllcorchan Flats. A gently sloping muddy expanse with sparse groups of bryozoans and encrusting ascidians on small pebble and shell outcrops and hydroids including *Kirchenpaueria sp* and *Sertuarella gayi* and the hermit crab fur hydroid *Hydractinia echinata*., Large numbers of black gobies, *G. niger*, hermit crabs, *Pagurus berhandus* and small spider crabs. Numerous holes and evidence of burrows. In some areas muddy sediments with abundant slipper limpet, *C. fornicata* forming a dense bed with sea orange sponge, *S. ficus* (above), fluted sea squirt, *Ascidella aspersa* and red sea squirt, *Ascidia mentula* along with common whelks *Buccinum undatum*.

One new site was selected to investigate tidal rapids rock reefs that had been identified by CCW staff with multibeam sidescan This was Barnlake reef located on the western side of the Cleddau bridge on the north side of the river.

A steep silt covered rock wall from 8 m to 17m was found dominated by sponges with a super abundance of the shredded carrot sponge, *Amphilectus fucorum* and abundant mermaids glove, *Haliclona oculata*. Antenna, oaten pipe and helter-skelter hydroids were found amongst the sponges along with abundant finger bryozoan, *Alcyonidium diaphanum* and a high diversity of sea squirt species. Shell fragments, especially slipper limpets, were found in shallow crevices.



Entrance to Milford Haven Waterway

3 new sites were surveyed in the Milford Haven Entrance. The sites were selected as sheltered locations due to windy conditions and visibility was limited to 1-2m.

Millbay is located just south of St Anne's Head and was the location that the oil tanker 'Sea Empress' ran aground in 1996. A sandstone bedrock reef raised up 0.5m with gravel sand filled gullies around 0.5m wide. A kelp park and red algae meadow dominates the reef with *L. hyperborea* and occasional *S. latissima*. Hydroids and bryozoans encrusted the kelp stipes and fronds with the rocks hosting sponges including the chimney sponge *Polymastia penicillis* and the staghorn sponge *A. dissimilis*. The potato crisp bryozoan *P. foliacea* and hornwrack *Flustra foliacea* were also occasionally recorded.

Monk Haven point is located on the north side of Dale Bay. A rocky reef from 6m to 9m forms a vertical wall with sponges, ascidians and hydroids. Notable was the presence of the indian feather hydroid *Gymnangium montagui*. Below the wall a uniform mixed sediment extends out with occasional small boulders. The site was rich in fish and crustacean species, with king scallop *Pecten maximus*, burrowing anemones and worms frequently recorded.

Chester Point is located on the west side of Sandy Haven Bay. A sandstone reef was found raised only around 1m in height at 9m bsl. Rock covered by a kelp forest dominated by furbelows *Saccorhiza polyschides* and some sugar kelp *Saccharina latissima*, along with mixed algae. The vertical rock faces were covered in faunal turf including encrusting sponges and colonial sea squirts. Seven *Tritonia lineata* sea slugs were found by one recorder alone. From the reef a coarse sand seabed extended outwards with the sand mason worm *Lanice conchilega*, dragonet *Callionymus lyra* and gobies all being recorded.

St Brides Bay

Further sites in St Brides Bay were explored, building on those surveyed in previous years.

Hand Marks is located offshore in St Brides Bay it has been previously surveyed but merited further exploration. The reef is made up of long ridges of rocks running north/south with wide flat plateau interspersed with deep gullies and vertical faces up to 6m height. The reef ranged from 15m down to 28m bsl from which an extensive mixed sediment plain extended away and made up of coarse sediments and cobbles.

The reef was dominated by antenna hydroids *N. antennina* and *N. ramosa* interlaced with abundant brittlestars *Ophiothrix fragilis* and the twiggly bryozoan *Cellaria fistulosa*. A rich selection of sea squirts was recorded with *Asciidiella scabra* being common and *Lissoclinium perforatum* and *Sidnyum elegans* both frequent. The reef contained a variety of anemone species and nudibranchs including *Gonidoris castanea*, *Onchidoris oblonga* and *Lomanotus genei*, but sponges were notably sparse. On the sediment plain old native oyster and Icelandic cyprine shells were found. Long clawed squat lobsters *Munida rugosa* were found among the cobbles, a scattering of king scallops *Pecten maximus* and congregations of spiny starfish *Marthasterias glacialis* in spawning mode.



West Mill Haven is located on the mainland close to Stack Rock.

A steep wall from 8m to 17m bsl was found with massive boulders at the bottom and leading out to a sediment bed of gravel and shell fragments interspersed with small boulders. The top for the wall, in the shallows, there was a kelp park of *L. hyperborea* with mixed weeds covered the rocks. On the steep wall deadmen's fingers *A. digitatum*, jewel anemones *Corynactis viridis* and the white striped anemone *Actinothoe sphyrodeta* were found, along with communities of sea squirts and hydroids. Sponges were notably scarce. Amongst the boulders there was a high diversity of crustacean and territorial fish species and a total of 12 species of nudibranch including *Gonidoris castanea*, *Coryphella browni* and *Eubrancus farrani*. Seaweed records were very good with 23 species identified.

Skomer Marine Nature Reserve

The Skomer MNR is managed by the Countryside Council for Wales, and there is an established programme of littoral, sublittoral and oceanographic monitoring.

Although habitat and species records are considerable, the MNR management plan identifies that these need continued updating with new records. To assist with this, Seasearch forms were completed at East Hook, Howney Stone and Prothroes Dock.

East Hook and the **Howney Stone** are both found along the north Marloes Peninsula at the East end of the Reserve. A jumble of large boulders was topped with forest kelp *L. hyperborea* and red seaweeds. Fissures and crevices contained lobsters *H. gammarus*, squat lobsters *Galathea strigosa* and numerous prawns *Palaemon serratus*. A selection of sea squirts, hydroids and anemones including the tidy peppercorn anemone *Isozoanthus sulcatus* were found and the white crevice dwelling sea cucumber *Pawsonia saxicola* was common.

Prothroes Dock is an offshore reef located north of the Neck on the north side of Skomer. The reef is made up of irregular broken bedrock patches surrounded by sloping plains of fine gravel and sand. The tops of the rocks were dominated in the seaweed landladies wig *Desmerestia aculeata* and furbelows *S. polyschides* with red seaweeds on steep sides. In places the tassel weed *Carpomitra costata* was abundant. Devonshire cup coral *Caryophyllia smithii* and the pumice bryozoan *Cellaria* sp. were common on the rocks. The potato crisp bryozoan *Pentapora foliacea* was found occasionally and a medium sized seven armed starfish *Luidia ciliaris* (right). Velvet swimming crabs *Necora puber* were recorded in high numbers.



Skokholm

A single site was dived off Skokholm on the north side near North Haven. Very poor visibility restricted recording dramatically but some useful records were made in, particular from photographs, including yellow staghorn sponge *Axinella dissimilis* and the nationally scarce crumpled duster sponge *Axinella damicornis*.

North Wales

Pen Llŷn a'r Sarnau Special Area of Conservation and surrounds

13 sites were surveyed in and around the area the Pen Llŷn a'r Sarnau SAC. Most of the other Llŷn sites were chosen to fill in knowledge gaps around the SAC and had been identified by the Countryside Council for Wales. The most interesting of these are summarised below. *Musculus discors* surveys (at several sites off the North Llŷn Peninsula) are summarised in the 'Special Projects' section below.

Carreg y Defaid, South Llŷn Peninsula

This site was the only south Llŷn site successfully visited in 2011. It was surveyed independently by two keen surveyors (Paul Brazier and Kathryn Birch). The very fine sand plain on the low shore (to 0.4m above chart datum) revealed at least two large, live Icelandic cyprine *Arctica islandica* (a Section 42, Welsh Biodiversity Action plan species), in addition to a high number of other bivalve species (including *Macoma balthica*, *Tapes aureus*, *Venerupis senegalensis*, *Chamelea gallina* and empty *Gari depressa* shells) and super abundant lugworm, *Arenicola marina*. Shallow and sublittoral fringe beach rock (consolidated sand and gravel in a calcified matrix from 1.2m above chart datum to 0.4m below chart datum) hosted a plethora of dense red algae dominated by *Cystoseira nodiculis* and *Chondrus crispus* (both abundant), and including *Calliblepharis jubata*, *Polyides rotundus*, *Polysiphonia elongata* and serrated wrack *Fucus serratus* (all common), sea oak *Halidrys siliquosa* (O) and sugar kelp *S. latissima* (R). This site is in the St Tudwals East and Llandbedrog proposed MCZ.

Porth Colmon to Penrhyn Glas (1nm north west of Morfa Nefyn), North Llŷn Peninsula



There were focussed specialist surveys around Porth Colmon as part of a search for carpet mussel, *Musculus discors* beds. Details of *M. discors* reefs are provided in the Special Projects section later in this report. At eight other local sites where no *Musculus* infralittoral silted kelps (forest klep *L. hyperborea* and sugar kelp *S. latissima*) were recorded on boulders and bedrock, commonly giving way at depths greater than 8m below chart datum to circalittoral mixed grounds of boulders, cobbles and pebbles with beautiful diverse sponge (often dominated by carrot sponge *A. fucorum*, goosebump sponge *D. fragilis* with crater sponge *Hemimycale columella* and Raspalids), sea squirt (*Clavelina lepadiformis* and *Botryllus schlosseri* amongst others) and bryozoan communities typical of subtidal rocky reefs off the North Llŷn Peninsula. Often between these areas of bedrock and boulder outcrops are sandy shale environments. These sites included those

surveyed off Porth Ysgadon and Penrhyn Glas (named Lost Property and Inachomania), where the John Dory (*Zeus faber*) – above left, was spotted. These sites are all within the proposed North Llŷn Peninsula MCZ. Two areas of the Biodiversity Action Plan habitat 'Mytilus edulis beds on sublittoral sediment' (SS.SBr.SMus.MytSS) were spotted outside of the proposed MCZs at 'Harry's Hump' and 'Featherweights', but it should be noted that the mussel spat settlement from 2010 seems to have not developed into full *Mytilus* reefs along this section of coast.

Modiolus reef, approximately 3nm west of Trefor, North Llŷn Peninsula

Two new sites of horse mussel, *Modiolus modiolus*, reef were surveyed following their discovery by CCW and Bangor University using drop down video. This new area of reef in Caernarfon Bay is shallower than other local North Llŷn *Modiolus* reefs, making the depths (recorded 14-21m below chart datum) easily accessible by Seasearchers. This beautiful reef was teeming with diverse life characterised by abundant keelwoprms *Pomatoceros* sp. and common barnacles *Balanus* sp., dead men's fingers *Alyconium digitatum* (occasional to abundant), a variety of sponges, bryozoa and nudibranchs amongst other mobile epifauna. This is the Section 42 Biodiversity Action Plan habitat SS.SBR.SMus.ModT. One area of *Ophiothrix fragilis* brittlestar bed on sublittoral mixed sediment (SS.SMx.CMx.OphMx) was recorded on sediments between areas of live *Modiolus* reef.



Approximately 1.5km west of Trefor, North Llŷn Peninsula.

A site close inshore to Trefor was chosen as a sheltered gap filling site on a day of high winds and provided a surprisingly nice site of gravel and cobbles (10-12m below chart datum) with dead men's fingers *Alcyonium digitatum* (common) and antenna hydroids *Nemertesia antennina* (frequent), at least 10 sponge species, 6 ascidian species and many more cnidarians. One surveyor was lucky enough to see a *Upogebia* mud shrimp out of its burrow (right), whilst another found a recently hatched thornback ray (*Raja clavata*) eggcase 'posted' between cobbles (lower right).



Trefor Pier, Caernarfon Bay

Trefor is a popular dive site just outside of the SAC from which Seasearch regularly receives records. Trefor is a Pier still in disrepair, with broken wooden pier legs falling in to the sea and lots of angling litter scattered around the site. That said, it hosts a wealth of marine life as detailed in the 2010 Wales report. In September 2011 Seasearchers observed and recorded a 'school' of catsharks, *Scyliorhinus canicula* under the pier (below right).



Menai Strait and Colwyn Bay SAC

The Central Menai Strait

Five sites in the Menai Strait were independently surveyed in 2011. These were the regularly re-visited Telegraph Cable, Pig Island, the Nature Trail, Plas Newydd and the wreck of the HMS Conwy. The typical biotopes of CR.HCR.XFa.FluHocu, hornwrack *Flustra foliacea* and mermaid's glove *Haliclona oculata* with a rich faunal turf on tide swept circalittoral mixed substrata, and IR.MIR.KT.LdigT, oarweed *Laminaria digitata*, ascidians and bryozoans on tide swept sublittoral fringe rock were recorded at these sites (where forms were sufficiently detailed to assess biotopes).



Fryars Road, North East Menai Strait

A depression in the navigable channel of the Menai Strait at 1.06m - 12.06m below chart datum. Consisted of a sloping sand seabed which gave way to sloping /flat slightly mixed ground. There was a small amount of litter on seafloor, but otherwise no signs of disturbance. The majority of seabed composed of rippled coarse to medium sand sloping into sandy gravel with shell ground, pebbles and occasional cobbles supporting many burrowing anemones *Cerianthus lloydii*, frequent sponge *Hymeniacidon perleve* and a varied faunal turf attached to larger stones. Dead shell included native oyster. The habitat here is thought to be the Section 42 Welsh Biodiversity

Action Plan Habitat SS.SMx.CMx(.CllOx.Nem.), image right. This site is on the southern edge of the proposed North East Menai Strait MCZ.



Wreck of the Rothsay Castle, Dutchman's Bank, North East Menai Strait

This site is contained another Section 42 Welsh Biodiversity Action Plan Habitat SS.Sa.IMuSa.AreISa. This rippled fine sand, slightly muddy, at depths of from 2.2 - 10m below chart datum hosted frequent lugworm *Arenicola marina* casts and some mobile fauna with many very small juvenile flatfish *Pleuronectiformes*. Stones under the sediment surface supported a few colonies of squirrel tail hydroid *Sertularia argentea*. From 1.36m - 2.26m below chart datum, there were still remains of an old wooden wreck (dating from 1831) dominated by plumose anemones *Metridium senile*. No other human impacts were recorded from the site. This site is on the northern edge of the proposed North East Menai Strait MCZ.

Puffin Sound, Menai Strait

On a windy Sunday Seasearch was once again blown into the Menai Strait, but to reveal a very tidally swept Penmon Sound. This site is a characteristic example of a very tide swept faunal community (CR.HCR.FaT). Drifting the divers rapidly surveyed habitats over boulder, cobble, pebble and gravel substrates (5 - 7m below chart datum), followed by a gently sloping seabed of sandy gravel, shell gravel and pebbles with superabundant burrowing anemones *Cerianthus lloydii* (BAP Habitat SS.SMx.CMx.CllOx with BAP species plaice *Pleuronectes platessa* present), leading into a more steeply sloping area of boulders interspersed with shell gravel. Plumose anemone *Metridium senile* was the characterising species abundant on the boulders, although there is no biotope to reflect this. No evidence of human impacts were observed at the site. This site is in the proposed Puffin Island MCZ.



North East Puffin Island, Menai Strait



This site just north east of Puffin Island was another tidally swept diverse survey for Seasearchers in the company of grey seals, *Halichoerus grypus*. Shallower depths supported mixed kelp and red seaweeds on infralittoral boulders, cobbles and gravel in tidal rapids (IR.MIR.KT.XKTX). From 4-8m below chart datum bedrock and very large limestone boulders were covered with short dense red algae and a short faunal turf dominated by sponges including carrot sponge *Amphilectus fucorum* and *Stelligera rigida* (IR.MIR.KR.XFoR). Bedrock sloped into small boulders with patches of gravel and pebbles (8-9.5m BCD), where boulders were again dominated by plumose anemones *Metridium senile* with some sponges frequent antenna hydroid *Nemertesia antennina*. The reef slopes away into a flat seabed of sandy gravel and pebbles with occasional cobbles beyond 9.5m BCD

(BAP Habitat SS.SMx.CMx.CllOx), where burrowing anemones *Cerianthus lloydii* were again superabundant, with frequent dahlia anemones *Urticina felina* and occasional peacock worms, sponges, hydroids and a variety of mobile species.

One species of interest was the nudibranch *Caloria elegans* (right), only recently recorded at a handful of sites in Britain and Ireland. This site is also within the proposed Puffin Island MCZ.



Other sites around Anglesey

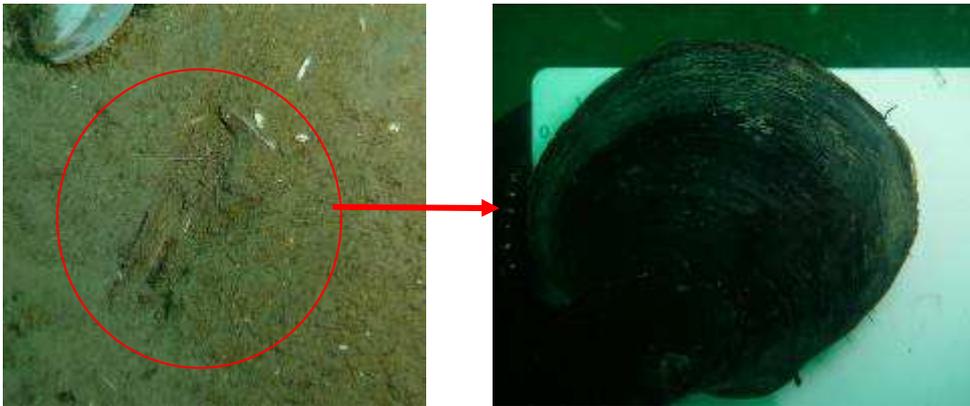
A total of 14 Anglesey sites were surveyed outside of marine SACs, only the highlights of which are presented in this report. Seasearch 2011 sites were chosen to fill in knowledge gaps around the Anglesey coast identified by the Countryside Council for Wales.

Ynys Meibion and End of the Rifle Range, north of Porth Cwyfan, West Anglesey

These two sites were in close proximity and contained steeply sloping bedrock to approximately 7m below chart datum. The sublittoral was fringed with dabberlocks *Alaria esculenta* (but not surveyed), dominated by forest kelp *Laminaria hyperborea* and landladies wig *Desmerestia aculeata* on horizontal boulder tops and bedrock ledges to 6m. Circalittoral vertical and steeply sloping bedrock gullies and were lined with faunal turf of bryozoans (*Scrupocellaria* and *Bugula*), Cnidarians (antenna hydroids *Nemertesia antennina* with *Doto* sp., white striped anemone *Actinothoe sphyrodeta* and dead men's fingers *Alcyonium digitatum*) and *Rhodymenia holmesii*. At the base of the reef was a mixed ground of pebble and sand scoured fauna at depths of 5m - 8m below chart datum, which gently sloped into fine sand with rare small boulders. The sea hare *Aplysia punctata* was common mating, and with eggs present. There was lost fishing tackle and line in this habitat.

Douneray, near Aberffraw, West Anglesey

This site was selected as it seemed to be a steep unsurveyed pinnacle. However it proved to be steeply sloping gravel at approximately 20m below chart datum sloping into sandy mud and levelling out at 24m BCD. The mud was teeming with life, quite a surprising find for its inshore location so close to the west Anglesey coast. There were lots of large burrows (possibly mud runner crabs *Goneplex rhomboides*), Icelandic cyprine *Arctica islandica* (live and dead, siphons of which can be seen below), *Philine aperta* and mobile fish and crustacean epifauna. No human impacts were recorded.



The Skerries (East), North Anglesey

After three years of trying, at last Seasearch managed to get one dive in on the Skerries, and, as on the previous survey in 2007, no sea fans were recorded despite an earlier unconfirmed report. It was a stunning habitat however, with steep-sided vertical bedrock gullies dominated by *Dendrodoa* sp. to 3m below chart datum with cobble and boulder upper surfaces covered with *Laminaria hyperborea*, *Heterosiphonia plumosa* and *Cryptopleura* sloping to 6m BCD. This was followed by an impressive steeply sloping boulder and cobble reef with muddy gravel, covered in unusually densely packed gooseberry sea squirts *Dendrodoa*, various Raspailid sponges, antenna hydroids *Nemertesia* and occasional dead men's fingers *Alcyonium digitatum* to 16m. The slope gave way to more gently sloping muddy gravel with burrowing anemones *Cerianthus lloydii* and bryozoans to 18m BCD. Human impacts observed were an abandoned ghost lobster pot and active potting in the area. The gully had occasional litter and pieces of metal boat wreckage.



Trwyn Y Gader, Carmel Head, North Anglesey

The sheltered bay just east of Carmel Head afforded a beautiful scenic algae dive on kelp topped boulders and bedrock at 1.75m - 4.25m below chart datum, with dense, diverse algal turf dominated by *Desmarestia* and *Cryptopleura* with occasional *Niccaria wiggii* (a perfect opportunity to practise those newly acquired seaweed skills from our 2011 specialist course). Vertical sides of larger boulders and outcrops hosted patches of ascidians such as light bulb sea squirt *Clavelina lepadiformis*. Silted rocky outcrops on the seaward side of the dive had a surprising number of leopard spotted gobies *Thorogobius ephippiatus* in a very small area. A crust of carpet mussels *Musculus discors* was present on some boulders, but not forming a 'bed'. No evidence of human impacts was observed.

Independent and Training Records

9 further sites were surveyed as part of training events and independent Seasearch dives, many of which are popular shore dives sites from which we regularly receive records. Nothing unusual was noted from these, although it should be noted that the large mussel spat settlement observed in 2010 does not seem to have become established at several sites revisited around West Anglesey. Sites surveyed independently and at training events included Cable Bay, Englishman's Rock, Rhoscolyn Beacon, Carreg y Môr Reef and Ravenspoint Road (both Trearddur Bay), the wreck of the Hermione, Porth Dafarch, Newry Beach and Cemlyn Bay.

Special Projects

Crawfish *Palinurus elephas* surveys, North Pembrokeshire.



Crawfish has now been identified as a species that needs protection and is on the UK Biodiversity Action Plan species list. In Wales, it is found around Llŷn Peninsula and Pembrokeshire, although numbers are now very low. Commercial fishery (netting) still exists off the Pembrokeshire coast.

In 2010 the Wales Biodiversity Partnership funded Seasearch to complete project to collect historical and current Crawfish records from recreational divers and a project report has been produced. The project highlighted two areas where further survey work was needed to gather baseline data on the current status of crawfish, these were Skomer Marine Nature Reserve and north Pembrokeshire.

In 2011 Environment Wales funded a survey to gather baseline crawfish data at 6 sites in north Pembrokeshire. The project was co-ordinated and run for Seasearch by Seasearch Tutor Jen Jones. The aim of the surveys was to record baseline information on the number and size of crawfish at different sites and to identify habitat preferences to aid any future re-stocking proposals. A total of 44 crawfish were recorded, of which just over half were juveniles. The data has been entered into the Seasearch crawfish database and is also being put on the NBN but will be restricted in accordance with CCW wishes for sensitive species. A project report has been produced.

Native Oysters, *Ostrea edulis*

About 150 years ago Pembrokeshire supported a thriving oyster industry, however exploitation of the beds led to the population almost collapsing. Today the Milford Haven waterway is the only known location for live oyster beds in Pembrokeshire and these beds are much reduced from historical levels. In 2002 a survey to assess the distribution and abundance of the native oyster in Milford Haven was completed for CCW by Emu Ltd. Over the last 5 years Seasearch has surveyed the sites identified in 2002 and additional sites in the area.

During 2010 and 2011 Seasearch surveyed 9 sites to record the current condition. At each site a Seasearch habitat and species survey was completed and in addition numbers of native oyster and abundance of slipper limpets were recorded in a two metre band along tapes either 10m or 30m depending on conditions. A survey summary report has been completed for the 2010 -11 sites and all the data has been entered onto Marine Recorder. The native oyster data has not been included in the report as this is identified by the Countryside Council for Wales as sensitive data.



Seahorse habitat survey

The Wales Biodiversity Partnership requested Seasearch assistance with a 'Seahorse' project. Seasearch was asked to dive sites with historical records of seahorse sitings in south Cardigan Bay and assess their suitability for seahorse habitat. The project was in partnership with the Anglesey Sea Zoo which had successfully bred native seahorses and was investigating the potential of a rehabilitation project in Wales.

Ynys Lochtyn was selected as the target survey area. This is one of the few sheltered locations on the exposed Cardigan Bay coast. The area had been dived by Seasearch before and it was in the vicinity of the historical records. The visibility was not ideal (less than 2 metres) but 2 sites were surveyed. At both sites seaweed dominated habitats which are possibly suitable for seahorses were identified. A report has been produced for the survey.

Carpet Mussel, *Musculus discors*, beds of North Wales.

In 2011 Seasearch divers in North Wales targeted areas of known and predicted carpet mussel beds in collaboration with the Countryside Council for Wales and masters student Lisa Hopkinson at Aberystwyth University. As detailed in the 2010 report, *Musculus discors* beds have been a Welsh Biodiversity Action Plan habitat since 2007. Seasearch has been surveying some of these beds since 2006 and find that local *Musculus* beds around the North Llŷn seem to sometimes smother otherwise diverse boulder reefs dominated by bryozoans and sponge (as seen in the below image). CCW was interested in whether these beds support a varied infauna which may provide food for passing fish, and whether they are 'ephemeral' (lasting just one or two years). Both of these questions are of key conservation interest to the habitat.



Following gaining the appropriate permissions from CCW, 10cm² cores of *Musculus discors* were taken from four reefs in the Llŷn Peninsula by Seasearch divers (which was more difficult than it sounds with 2011's wind and often tidal conditions!). Lisa aimed to find out about the density, longevity of these reefs and the diversity of the associated species. A count of the number of individuals showed that the beds were dense with up to 529 adult individuals found in one 10m² core; with three different size classes, showing that the reefs do not appear to be transient or 'ephemeral'.

Approximately 900 small (<1mm) new recruits were also found in one 10cm³ core, giving evidence of the bed's future longevity as *Musculus discors* has 'crawling' larvae. This habitat appeared infaunally diverse for such a small area with 88 different species found in the 26 cores taken! This mainly composed of Polychaete (Bristle) Worms and even included a possible new species of Sabellid worm.

Lisa provided the *Musculus* project text above, but more detail is available in Lisa's MSc thesis held in Aberystwyth University.

L.J.Hopkinson (2011). Investigation into *Musculus discors* (L.) beds in the Llŷn Peninsula. MSc Thesis. Institute of Biological, Environmental and Rural Sciences, Aberystwyth University.

Training and Data

Training and qualifications

Seasearch **Observer Courses** were run as follows:

Month	Location	participants	Tutor(s)
March	Carmel, Flintshire	3	Harry Goudge & Mandy Knott
April	Bangor	31	Liz Morris & Lucy Kay
April	Marloes (Pembs)	10	Kate Lock
Sept	Marloes (Pembs)	9	Kate Lock
		53	

A **Surveyor Course** was run by Jen Jones in Letterston, Pembrokeshire in May for three divers.

10 experienced Seasearchers also attended a specialist **Seaweed Course** at Menai Bridge in July, tutored by Francis Bunker.

6 Observer refresher/course training dive days in North and West Wales proved very popular, with 60 participants, including experienced Seasearchers who volunteered to assist with 'spotting' for new Seasearchers. A Surveyor refresher day of boat diving in North Wales also took place in April for 12 experienced Seasearchers giving an opportunity to improve their ID skills with tutors (above right).



During 2011 10 active Seasearchers in Wales completed Seasearch Observer or Surveyor qualifications. They were:

Observer: Roger Scott, Jenny Linnell, Julie Morrissey, Shôn Roberts, Matthias Biber, Julia Riddell, Chris Sargeant and Winnie Courtene-Jones.

Surveyor: Ralf Huebner, Emily Williams and Wendy Northway
Congratulations to them all.

In North Wales two prizes of a day's free Seasearch boat diving were awarded at the end of the year; 'North Wales Best Independent Seasearcher 2011' was awarded to Shôn Roberts, and 'North Wales Best Overall Seasearcher 2011' went to Wendy Northway for her dedication to not just recording, but also training and assisting on weekends tutoring. Congratulations to them both on their prizes and we hope they will keep up the good work in 2012.

Acknowledgements

Many thanks to all the Seasearch volunteers and skippers that have taken part and supported Seasearch during the 2011 season. Jen Jones for Seasearch project support in south and west Wales and for organising and running the crawfish survey project. Kirsten Ramsay, Rohan Holt, Harry Goudge and Lucy Kay in North Wales for tutoring and assisting with marshalling on boats. Lisa Hopkinson for her research into *Musculus discors* beds through her MSc project and contributions to this report.

Photo credits: Blaise Bullimore (Trumpet anemone *Aiptasia mutabilis*, Filgree worm *Filograna implexa*, Seven armed starfish *Luidia ciliaris*); Sarah Bowen (Brittlestar community at Handmarks); Simon Ward (cover photo) and David Kipling (all other South Wales photos); Bernd Baufeld (John Dory, *Zeus faber*, at Lost Property); Richard Yorke (images of *Modiolus* reef, *Upogebia* off Trefor, *Musculus* bed); Ruth Sharratt (recently hatched Thornback ray, *Raja clavata*, eggcase 'posted' amongst boulders); Steve Barnard (breeding mass of catsharks, *Scyliorhinus canicula*); Paul Kay (*Pagurus berhardus* with *Cerianthus lloydi* and *Hymeniacion perleve* at Fryars Road); Paul Slater (*Caloria elegans* and Puffin Island); Liz Morris (all other North Wales)

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