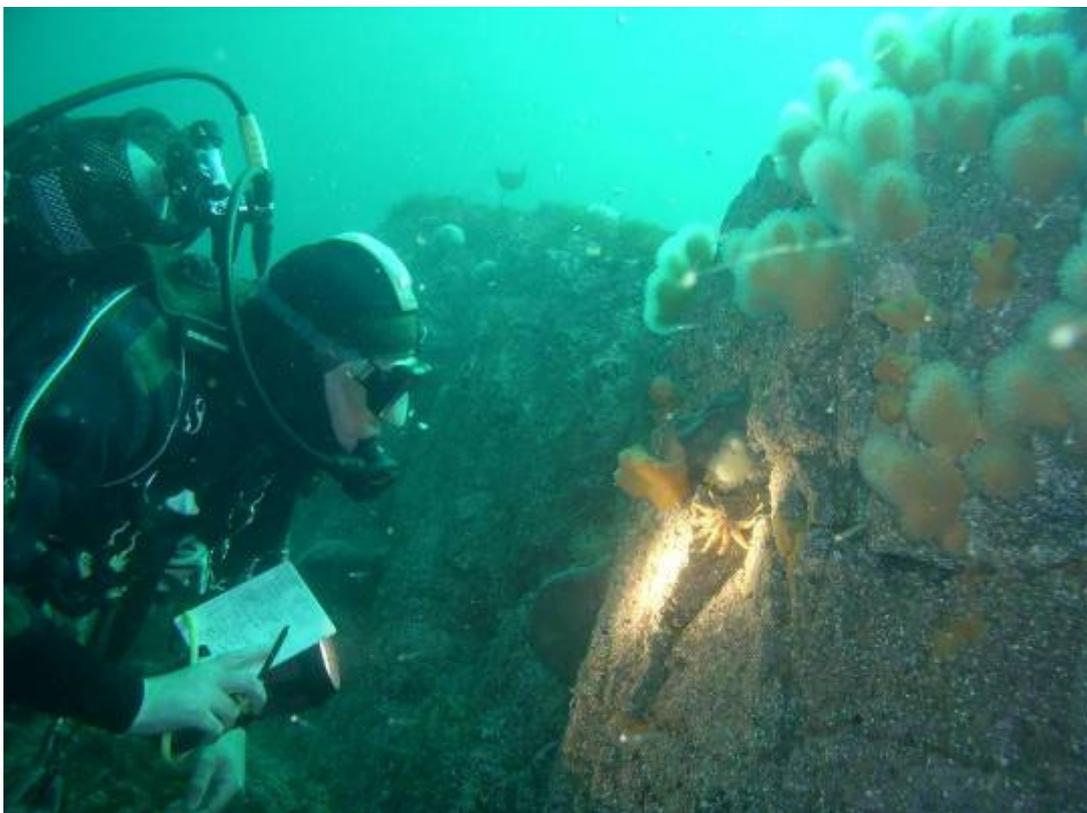




Seasearch Scotland 2011 Diving Summary Report



Seasearch diver Mike Bramham at Soay Beag, Isle of Harris (CD)

Report prepared by Calum Duncan,
MCS Scotland Programme Manager / Seasearch Scotland Co-ordinator

Financial support for Seasearch in
Scotland during 2011 has been given by:



“Seasearch Observer recording has rapidly improved my knowledge of marine life – particularly useful nowadays when rock-pooling with my grandsons. I also realise that multiple Seasearch reports provide much more meaningful information and thereby potentially improve the decisions that impact on ocean life. It is therefore well worth the effort to submit even the most unremarkable report. My hope is that my grandsons’ and future generations can still delight and benefit from our oceans as I and previous generations have done.”

Graham Jackson, Seasearch Observer and organiser of
Seasearch trip to Shetland 2012

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Background to Seasearch in Scotland

Seasearch is a project for volunteer sports divers who have an interest in what they're seeing under water, want to learn more and want to help protect the marine environment around the coasts of Britain and Ireland. The main aim is to map out the various types of sea bed found in the near-shore zone around the whole of the United Kingdom and Republic of Ireland. In addition we are recording what lives in each area, establishing the richest sites for marine life, the sites where there are problems and the sites which need protection. MCS co-ordinates <http://www.seasearch.org.uk/> across the UK and Republic of Ireland.

With support from Scottish Natural Heritage there were three Seasearch co-ordinators in Scotland during this reporting phase, one national and two regional. Calum Duncan (MCS Scotland Programme Manager) continued to co-ordinate Seasearch and data entry for Scotland with Owen Paisley co-ordinating Seasearch in Argyll and west Scotland. During 2011, Chris Rickard co-ordinated Seasearch in north and northeast Scotland and the St Abbs and Eyemouth Voluntary Marine Reserve Ranger, Georgia Connolly became qualified as a Seasearch Observer tutor. Dr Joanne Porter, a Seasearch Observer tutor and Specialist Bryozoan and Hydroids tutor, moved to Heriot-Watt University, Edinburgh with regular visits to International Centre for Island Technology in Stromness, Orkney, helping facilitate increased Seasearch activity there.

Summary of Seasearch in Scotland 2011

The Seasearch year started with a meeting in Edinburgh between Seasearch co-ordinators and SNH to plan ahead.

There followed Seasearch Observer courses run by St Abbs Voluntary Marine Reserve Ranger Georgia Conolly in St Abbs (12 participants - 24/6/11), by Chris Rickard and Chris Wood in Orkney (10 participants - 3/9/11), by Owen Paisley in Glasgow (eight participants - 15/10/11) and a Seasearch Surveyor course run by Calum Duncan in Eyemouth (five participants - 4-5/6/11) and a Bryozoan and Hydroid identification course organised by Seasearch Northeast England Co-ordinator Carrie Pillow and run by Dr Joanne Porter in Eyemouth (25/6/11).



Seasearch tutor and participants on Surveyor Course, Marine Quest, Eyemouth, 4 June.

With 286 Seasearch forms submitted between 21 January and 27 November from Luce Bay to Shetland, St Abbs to St Kilda, 156 at the Observer level, 126 at the Surveyor level (45% of all forms) and four northern seafan (*Swiftia pallida*) forms, 2011 was the fourth busiest year on record for Seasearch in Scotland (after 2010, 2009 and 2005), comprising 14% of the UK & Ireland total. Thank you to all whom submitted forms. Alison Gleadhill (six Survey and 18 Observation), Nicola Faulks (16 Survey), Chris Rickard (six Survey and 10 Observation) and Graham Jackson (11 Observation) merit particular mention for the number of forms submitted, between them almost a quarter of all records.

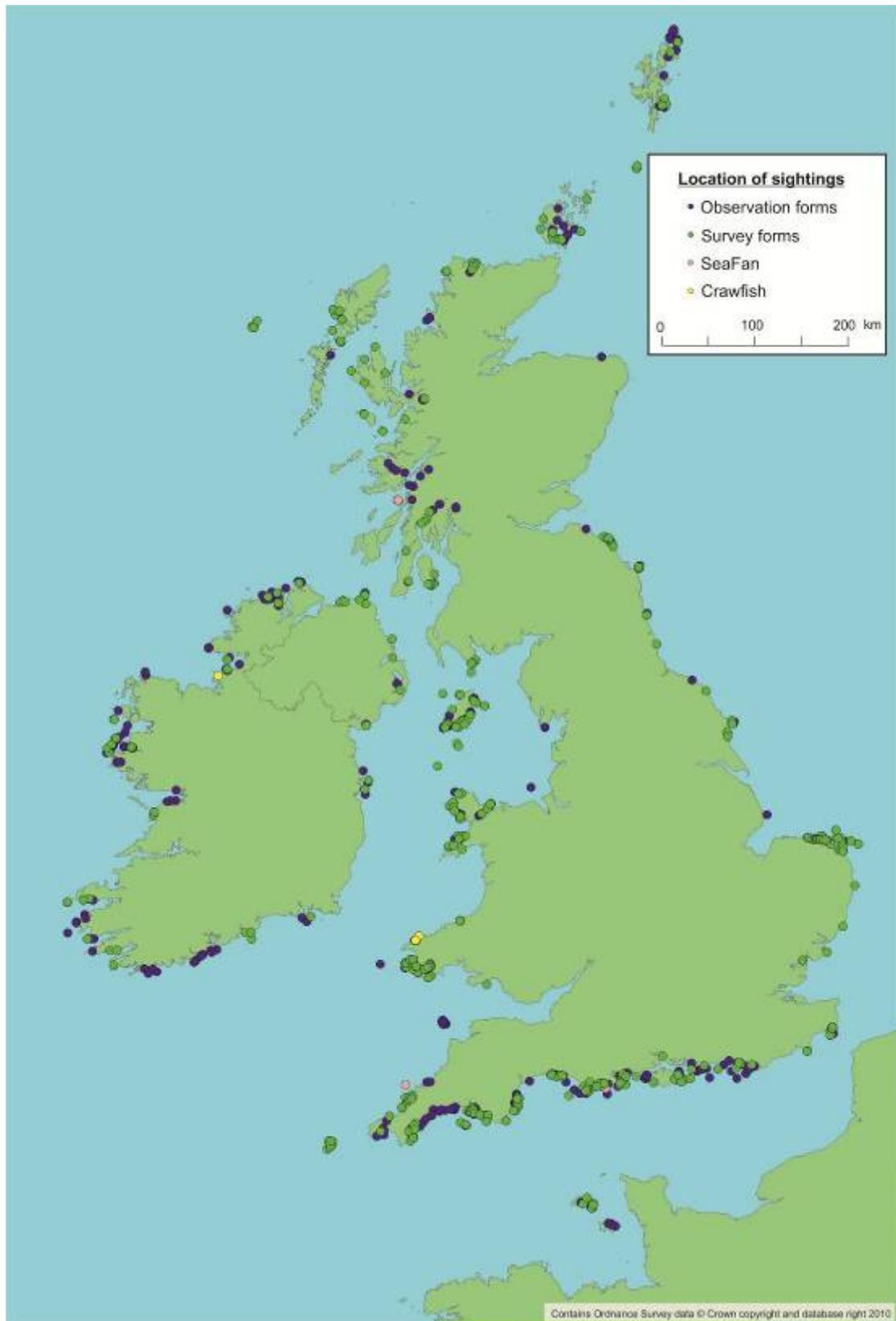
The sources of 2011 data were various, reflecting that 'any dive can be a Seasearch dive'. A total of 426 species and, where species could not be determined, genus and family were recorded as set out in Table 1 (see Appendix A for full list). Among the most recorded species were *Echinus esculentus* (recorded in 251 Survey form Habitats and Observation records), *Alcyonium digitatum* (in 172 Survey form Habitats and Observation records) and *Laminaria hyperborea* (in 119 Survey form Habitats and Observation records).

Table 1 Number of taxa in each kingdom, phylum, subphylum or class recorded during Seasearch in Scotland in 2011 with some commonly recorded examples

Kingdom, phylum, subphylum, domain or class	Number of taxa recorded (number to species level in brackets)	Some commonly recorded Taxa
Bacteria	1	
Foraminifera	1	
Plantae	1 (1)	<i>Zostera marina</i>
Algae	59 (52)	<i>Laminaria hyperborea</i> , <i>Delesseria sanguinea</i> , <i>Dictyota dichotoma</i> , indet. algal crusts
Porifera	28 (25)	
Cnidaria	61 (56)	<i>Alcyonium digitatum</i> , <i>Caryophyllia smithii</i> , <i>Metridium senile</i> , <i>Nemertesia</i> spp, <i>Obelia geniculata</i> , <i>Sagartia elegans</i> , <i>Urticina felina</i>
Ctenophora	3 (3)	
Platyhelmintha	1 (1)	
Nemertea	2 (2)	
Annelida	20 (19)	<i>Arenicola marina</i> , <i>Lanice conchilega</i> , <i>Pomatoceros</i> spp and <i>Spirorbis</i> spp
Chelicerata	1	
Crustacea	34 (24)	<i>Cancer pagurus</i> , <i>Galathea</i> spp, <i>Necora puber</i> , <i>Pagurus</i> spp
Mollusca	61 (57)	<i>Gibbula cineraria</i> , <i>Limacia clavigera</i> and <i>Polycera</i> spp
Bryozoa	26 (22)	<i>Electra pilosa</i> , <i>Membranipora membranacea</i> , indet bryozoan crusts
Phoronida	1	
Echinodermata	32 (31)	<i>Antedon bifida</i> , <i>Asterias rubens</i> , <i>Crossaster papposus</i> , <i>Echinus esculentus</i> , <i>Henricia</i> spp, <i>Marthasterias glacialis</i>
Tunicata	26 (23)	<i>Ascidia mentula</i> , <i>Botryllus schlosseri</i> and <i>Clavelina lepadiformis</i>
Fish	62 (60)	<i>Ctenolabrus rupestris</i> , <i>Gobiusculus flavescens</i> , <i>Labrus bergylta</i> , <i>Pollachius pollachius</i> , <i>Taurulus bubalis</i>
Birds	2 (2)	
Mammals	4 (3)	

See **Figure 1** for a map showing the distribution of Seasearch records in Scotland for 2011.

Figure 1 Map showing the distribution of all Seasearch records (Observation, Survey, Seafan and Crawfish/Crayfish) returned from throughout UK and Ireland in 2011.



Priority Marine Features (PMFs) and other interesting records

A range of Priority Marine Features (PMFs) will inform marine conservation measures across the 'three-pillared approach' to nature conservation set out in Marine Scotland's Strategy for Marine Nature Conservation in Scotland's Seas¹. Many of these Priority Marine Features are also MPA (Marine Protected Area) search features, and the data contributes to the Scottish MPA project being run by Marine Scotland, Scottish Natural Heritage and the Joint Nature Conservation Committee (JNCC). Some PMFs and other interesting species records identified by Seasearch in Scotland during 2011 are set out in **Table 2**.



Fan mussel *Atrina fragilis* recorded near the SMS Karlsruhe, Scapa Flow, Orkney (CW)

Of particular note was the discovery of a rare Fan Mussel (*Atrina fragilis*) near the wreck of the SMS Karlsruhe, Scapa Flow, amidst a horse mussel bed. After a sighting in Loch Duich, this is only the second record of a non-transplanted fan mussel photographed by divers *in situ* in Scottish waters. Overall, the most widespread PMF recorded was indeed the horse mussel *Modiolus modiolus*, recorded from Waggy's wall, Shetland in the north to St Abbs Head (off the wreck of the Glanmire) in the southeast.

Other examples included the tall sea pen (*Funiculina quadrangularis*) recorded in School Bay and Ratagan Bay, Loch Duich; the Celtic featherstar (*Leptometra celtica*) recorded in Shetland, Isle of Canna and Argyll; the fireworks anemone (*Pachycerianthus multiplacatus*) from Loch Long (Clyde), Loch Duich and Loch Beg (off Loch Duich); the northern seafan (*Swiftia pallida*) from Isle of Harris and Loch Snizort on Isle of Skye and seagrass beds (*Zostera marina*) in Bay of Firth and Widewall Bay, Orkney.

Other interesting non-PMF species recorded included pink sea fingers (*Alcyonium hibernicum*) at the Saw Cut, Dun, St Kilda; the football seasquirt (*Diazona violacea*) in Loch Duich, the Sound of Mull, Sound of Kerrera and Loch Snizort; stalked jellyfish at Hoxa Head and Copinsay Cliff, Orkney, East Sanday and Loch Bracadale, Isle of Skye; and the invasive seaweed *Sargassum muticum* at Ronachan Point slip, West Loch Tarbert.

¹ <http://www.scotland.gov.uk/Topics/marine/marine-environment/Conservationstrategy>

Table 2 Scottish Priority Marine Features (PMFs) and some other interesting species sightings and where they were recorded during Seasearch in Scotland 2011

Priority Marine Feature	Locations recorded in 2011
<i>Ascophyllum nodosum</i> ead <i>mackaii</i>	Loch Duich
<i>Atrina fragilis</i>	Near SMS Karlsruhe (Scapa Flow, Orkney)
<i>Funiculina quadrangularis</i>	School Bay and Ratagan Bay (Loch Duich)
<i>Leptometra celtica</i>	Canna harbour entrance, Ba of Hascosay (off Yell, Shetland), Haaf Gruney and South The Nev (Unst, Shetland) and Bach Island (Argyll)
Maerl indet.	Kildonnan (off South Arran), SS Jane (east of Yell, Shetland), Bay of Firth (Orkney) and third barrier (Scapa Flow, Orkney)
<i>Modiolus modiolus</i>	Bagh Leac Finn (Loch Eriboll), The Caves (Loch Long), Gortain Point (Loch Fyne), Loch Creran, School Bay and Ratagan Bay (Loch Duich), near Glanmire (St Abbs Head), near SMS Karlsruhe, Y21 barge and third barrier (Scapa Flow, Orkney), Evie Bay (Orkney) and Waggy's Wall (west Isle of Bressay, Shetland)
<i>Pachycerianthus multiplacatus</i>	Conger Alley (Loch Long), Ratagan Bay and School Bay (Loch Duich) and Loch Beg
<i>Parazoanthus anguicomus</i>	SS Breda (Tralee Bay), SS Rondo (Sound of Mull), Dun (St Kilda) and Canna harbour
<i>Swiftia pallida</i>	Holm Island (Isle of Harris), Skate Rock (Ascrib Islands, Loch Snizort)
<i>Zostera marina</i>	Bay of Firth (Orkney) and Widewall Bay (Orkney)
<i>Serpula vermicularis</i> aggregations	Loch Creran (colony-building in upper basin)
Some other interesting species records	
<i>Aequorea vitrina</i>	Stanger Head (Scapa Flow, Orkney)
<i>Alcyonium hibernicum</i>	Saw Cut (Dun, St Kilda)
<i>Bolocera tuediae</i>	The Heugh and Tye's tunnel (St Abbs)
<i>Cucumaria frondosa</i>	SS Gwladmena (Lerwick, Shetland)
<i>Diazona violacea</i>	Loch Duich, SS Rondo and SS Thesis (Sound of Mull), Ardna Coul (Sound of Kerrera) and Skate Rock (Ascrib Islands, Loch Snizort)
<i>Haliclystus</i> spp	Inga Ness (Orkney)
<i>Lebetus scorpioides</i>	Loch Duich
<i>Liparis montagui</i>	Millshore (Aberdeenshire)
<i>Lucernariopsis campanulata</i>	Hoxa Head and Copinsay cliff (Orkney)
Other Stauromedusae	East Sanday (Small Isles) and Wray Island (Loch Bracadale, Isle of Skye)
<i>Myrianida pinnigera</i>	SS Hispania (Sound of Mull)
<i>Neoturris pileata</i>	Dun (St Kilda)
<i>Pelagia noctiluca</i>	Wuddy Rocks (St Abbs)
<i>Sargassum muticum</i>	Ronachan point slip (West Loch Tarbert)
<i>Scinaia</i> spp	Hoxa Head, Orkney

1 Co-ordinated Seasearch events in Scotland 2011

The three Seasearch co-ordinators organised a number of dedicated Seasearch diving events throughout Scotland in 2011. In the report, more detail has been provided where the co-ordinator organised or attended a diving event.

1.1 Scotland Co-ordinator Calum Duncan

Isle of Harris 11-14 July

21 Survey and five Observation forms



Colourful filter-feeding life in wave surge zone, Toe Head, Isle of Harris (CD)

wrasse descending to grazed boulders with Devonshire cup corals (*Caryophyllia smithii*) and at Toe Head, the northwest end, crevice sea cucumbers (*Pawsonia saxicola*) abounded in a boulder-field rich in red seaweeds, although somewhat urchin-grazed deeper down, and a colourful wall of colonial baked bean sea-squirrels (*Dendrodoa grossularia*) and sponges (*Clathrina coriacea* and *Pachymatisma johnstonia*) thrived in the exposed, shallow surf zone.



Reef off Isle of Scarp, west Isle of Harris (CD)

and soft corals (*Alcyonium digitatum*) cloaked a vertical wall beneath the kelp zone. Sheltered loch sites in West Loch Tarbert, Loch Resort (*Peachia cylindrical* and bivalve siphons in sediment) and Loch Rodel/Roghadail (soft mud with *Amphiura filiformis* beneath SS Stassa) were also dived.

This Seasearch expedition was organised by Seasearch Surveyor Michael Bramham, for which Calum Duncan (Seasearch Scotland Coordinator) provided Seasearch support. Diving was from the MV Peregrine of Lochaline Boat Charters setting off from Uig, Isle of Skye. A number of previously unsurveyed areas were Seasearched although no priority marine features were confirmed. Weather conditions allowed diving at both ends of the Sound of Harris. The southeast end at Holm Island was characterised by bedrock reef with jewel anemones (*Corynactis viridis*) and

Good weather also enabled diving at rarely surveyed exposed sites on west Isle of Harris, including Soay Beag, where dense growths of common featherstar (*Antedon bifida*) were recorded beneath the kelp zone as compass jellyfish (*Chrysaora hysoscella*) floated above, and Scarp Island, where crowds of *Onchidoris bilamellata* predated barnacles on urchin-grazed bedrock, *Urticina felina* filled sandy gullies and a dense turf of white *Sagartia elegans* anemones, jewel anemones (*Corynactis viridis*), tiny plumose anemones (*Metridium senile*)

Despite the wealth of colourful marine life recorded, the paucity of crustacea, notably European lobsters (*Homarus gammarus*) was noteworthy. Three further Survey forms were also submitted for the Isle of Harris in August and September by Seasearch Surveyors Nicola Faulks, recording 44 species on the wreck of the Stassa in Loch Rodel/Roghadail, and Allison Gleadhill, also recording many species on the Stassa and recording life from an unknown fishing boat wreck off Hishnish point, Scarp headland, on separate trips.



Dense cnidarian turf on Scarp wall (CD)

1.2 Argyll and West Scotland Co-ordinator Owen Paisley

Northern Sea Fans in Firth of Lorn 24 April 2011

A survey of our northerly sea fan species, *Swiftia pallida* (another Priority Marine Feature) recorded 129 colonies at Conger Reef in the Firth of Lorn, all in a narrow band between 22 and 24 metres. No sea fan anemones were recorded. Of the 129 colonies measured, 67% were less than 10 cm in length and had 4 or fewer branches. Only 8% were longer than 15cm and only 12% had 8 or more branches. It appeared that there had been a successful recruitment at some point in the previous years, hence the large number of small colonies. It is speculated that this successful recruitment may be related to the ban on scallop dredging in place since 2006. An alternative theory is that many of the colonies were stunted due to poor feeding or other environmental factors. It would be interesting to repeat the survey.

1.3 North and Northeast Scotland Co-ordinator Chris Rickard

Loch Eriboll 17-20 June 2011

Seven Survey and 13 Observation forms

A long weekend survey of rocky sites on the margins of and entrance to Loch Eriboll. Chris Rickard and his team met the Solstice which had travelled from Scourie to Loch Eriboll. The northeast tip of An Dubh Sgeir, a small island to the East of the mouth of Loch Eriboll was surveyed, an unusual seabed of highly pitted limestone, providing home for varieties of brittle stars and the less often recorded northern starfish (*Leptasterias muelleri*). Huge smooth boulders covered in encrusting bryozoan and pink encrusting algae provided a contrast at Eilean Cluinihrig. Six more dives took place varying from vertical rock walls and spectacular sea caves to sandy mud. Amongst many other species, interesting records included Stagshorn bryozoan (*Porella compressa*) at Eilean Cluinihrig, south of White Head and Grave Point, a possible grey gurnard (*Eutrigla gurnardus*) and spawning spiny starfish (*Marthasterias glacialis*) at Torr na



Tadpole fish (*Raniceps raninus*) at An Dubh-Sgeir, Loch Eriboll (CR)

Bithe, curled octopus (*Eledone cirrhosa*) at Freisgill Head, Eckstrom's topknot (*Zeugopterus regius*) at Eilean Cluinihrig, Norway lobster (*Nephrops norvegicus*) at Bagh Leac Finn and large numbers of crystal sea slugs (*Janolus cristatus*) and a free-swimming tadpole fish (*Raniceps raninus*) at An Dubh-Sgeir. Unusually, a small patch of jewel anemones (*Corynactis viridis*), usually associated with exposed sites, and a sea loch anemone (*Protanthea simplex*), typical of sheltered sea lochs, were recorded on the same dive at South of White Head. At Rubh Ard an T-Siuil there were at least eight dead catsharks (*Scyliorhinus canicula*) which appeared to have been sliced open.

Loch Duich Fireworks anemones March – May 2011

Six Observation forms and seven Fireworks anemone recording forms



Fireworks anemones in Loch Duich (AN)

These forms were submitted from shore dives in upper Loch Duich and Loch Beg by Seasearch north and northeast Scotland coordinator Chris Rickard, Seasearch Argyll and west Scotland coordinator Owen Paisley and Seasearch Observers Rachel Hope and Wendy Northway over a weekend in March (12-13), another day in March (20) and 15th May 2011. Approximately 12 *P. multiplicatus* were recorded on the north shore of Loch Duich near the town of Inverinate, all >30cm fully extended and feeding. Species recorded associated with the anemones were small spider crabs *Inachus (phalangium or dorsettensis)* and the eyelash worm *Myxicola infundibulum*. On the south shore, beyond an historic fish trap, the population were more varied in size, with some small (5-15cm) and medium (15-30cm) specimens, one of which was associated with five individual *M. infundibulum*. A particularly dense bed of *P. multiplicatus* (>100 individuals) was recorded at only 15m depth in Loch Beg, a site at which *Philine aperta* nudibranchs were also common.



Rarely seen diminutive goby (*Lebetus scorpioides*) in Loch Duich (TS)

Another south Loch Duich site from 20m down had dense stands of tall sea pens (*Funiculina quadrangularis*), slender sea pens (*Virgularia mirabilis*) and phosphorescent sea pens (*Pennatula phosphorea*). Juvenile Thornback Ray (*Raja clavata*), juvenile catshark (*Scyliorhinus canicula*), a pea-sized little cuttlefish (*Sepiola Atlantica*) and the rarely seen diminutive goby (*Lebetus scorpioides*) were also recorded. The results of the Loch Duich fireworks anemone surveys can be found at:

www.seasearch.org.uk/downloads/Fireworks%20update%202013%20small.pdf.

2 Independently organised Seasearch activity

Luce and Wigtown Bays, Galloway 28 May to 20 September by Chris Harrison
Five Survey and three Observation forms

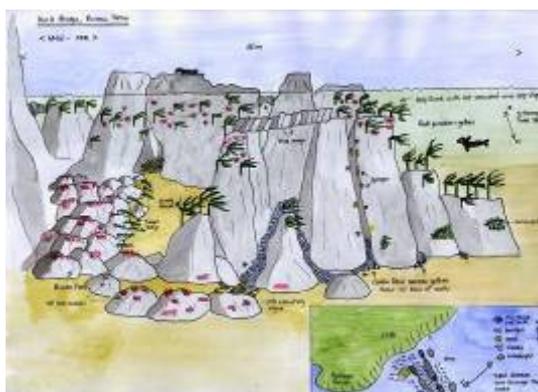
Newton-Stewart sub-aqua club explored new sites in Wigtownshire, including Carrickaboys rocks, Cairn Head, sites round Burrow Head and Chapel Port East. Possibly the most dramatic of these was Devil's Bridge at Burrow Head, the second most southerly point in Scotland. A group of rocks, known locally as the Islands of Burrow, project out from the coast, revealed underwater to be two rows of rock pinnacles projecting up from the seabed at 10m with three rock bridges connecting some of them below the surface. Tideswept algal communities of kelp forest with red seaweeds dominate the upper surfaces, and between the two rows is a boulder strewn canyon with a number of rock mills at the foot of the pinnacles. Above the scoured seabed the rock walls were covered in large patches of baked bean sea squirt (*Dendrodoa grossularia*), encrusting sponges and encrusting bryozoans, while in the narrow gullies between the pinnacles, which are more protected from the tidal streams, yellow hedgehog (*Polymastia boletiformis*), elephant hide (*Pachymatisma johnstonia*), black tar (*Dercitus bucklandi*) and golf ball (*Tethya aurantium*) sponges are found with hornwrack (*Flustra foliacea*) nearer to the scoured seabed.



Sponge and bryozoan life at Devil's Bridge Canyon, Burrow Head, Wigtownshire (CR)

The pinnacles extend into deeper depths which were difficult to survey, for risk of being swept away by the tidal currents. At high water, when a period of slack water might be expected, the water rushing through the site is like a river with over falls in places.

A fuller description of the site with pictures can be seen on the Newton-Stewart Sub-Aqua Club website:
www.nsdivers.co.uk.



Seasearch sketch of the Devil's Bridge (CR)

Slockenglass was characterised by a rocky ridges and slabs of rock extending out from the cliffs to a boulder field and mixed ground. The vertical sides of the ridges and slabs are abundant in a diverse assemblage of sponges, particularly *Pachymatisma johnstonia*, but also *Polymastia boletiformes*, *Tethys citrina*, *Amphilectus fucorum*, *Dercitus bucklandi*, *Polymastia penicillus*, *Haliclona viscosa* and various branching sponges. Shallow reef and deeper boulder tops were also rich in mixed seaweeds. Stank, a promontory west of Burrowhead, is an area of boulders and huge slabs of rock rich in sponges, seaweeds and bryozoans; Chapel Port East, despite being silty, was another site supporting a rich variety of sponges (such as *P.*

ohnstonia, *P.boletiformes*, *T.citrina*, *D.bucklandi* and *Axinella infundibuliformes*) as well as crustaceans, fish, echinoderms and bryozoa. Other interesting records included many dead scallops between Cairn Head and Carrickaboys Rocks and vertical rock walls dominated by bryozoans (*Alcyonidium diaphanum*, *Flustra foliacea*, *Bugula* spp and encrusting species) at Carrickaboys Rocks.

Soft corals (*A.digitatum*), crustaceans, echinoderms and fish were also recorded on the wreck of the SS Inkasi by Caroline Perry and Seasearch North and Northeast Scotland Co-ordinator Chris Rickard recorded a site rich in sponges, hydroids, echinoderms and red and brown seaweeds at Rock of Providence, Luce Bay.

South Arran 18 June to 6 August
Six Survey forms



Life abounds at tideswept Rioroma reef (CD)

In an area proposed as part of a third party Marine Protected Area (MPA) proposal that Community of Arran Seabed trust (COAST) are submitting to Marine Scotland as part of the Scottish MPA project, sites off the southern end of the Isle of Arran were surveyed by Howard Wood (Seasearch Surveyor and Chairman of COAST), Calum Duncan and Seasearch Surveyor Claire Youdale. Interesting records included: beds of 10% live maerl with abundant *Cerianthus lloydii* to 20m depth southeast of Kildonan increasing to 75% live in the furrows of maerl waves in the

shallower waters (14m); a boulder cobble seabed with tideswept algal community abundant in red algae with mixed kelp park (*Alaria esculenta*, *Saccharina latissima* and *Laminaria hyperborea*) and juvenile cod (*Gadus morhua*) at Black Cave, south of Brennan Head; tideswept algae communities south of Kildonan (with *Saccharina latissima* and mixed red and brown algae) and a tideswept reef (dubbed 'Rioroma' reef) west of Pladda rising vertically up from 34m to 14m, rich in anemones such as *Corynactis viridis* (possibly one of few places in the Clyde suitably exposed for this species), *Urticina felina* and *Sagartia elegans* and hydroids (*Tubularia indivisa*). The flat top of the reef is rich in echinoderms, with beds of the brittlestar *Ophiocomina nigra* and numerous common starfish *Asterias rubens* and spiny starfish *Marthasterias glacialis*.

Fair Isle 31 August to 1 September
Seven Survey and two Observation forms

A survey of inshore sites on the east (less exposed) side of Fair Isle was carried out by a team of Seasearch divers using both Survey and Observation form techniques. Numerous *Tritonia hombergi* and an *Aegires punctilucens* nudibranch were recorded at north Whaleback, large numbers of the squat lobster *Galathea strigosa* at Swart Geo, a typical *Clathrina coriacea* / *Dendrodia grossularia* community, superabundant sheets of encrusting pink algae in North Haven Cave and at Black Cut a well-developed *Alaria* forest in the surge zone and a variety of sponges (but still low diversity) (*Haliclona viscosa*, *Leucosolenia*, *Clathrina coriacea* and an encrusting orange species). Overall, the survey noted dramatic rocky scenery but a limited range of invertebrate species, with sponges and anemones being surprisingly limited in numbers and diversity.

Orkney 28 August to 6 November (various)
15 Survey forms and 31 Observation forms

Paul Holmes organised a liveaboard trip with MV Halton that travelled to Orkney and Fair Isle including UK and Ireland Seasearch Coordinator Chris Wood and Seasearch Tutor and Bryozoan and Hydroid expert Dr Joanne Porter of Heriot-Watt University. Records were made from wrecks in Scapa flow (e.g. F2, YC21 and Karlsruhe), Coppinsay, Hoxa Head and El's Ness. On 29 August, the Seasearch team diving close to one of the Second World War wrecks in Scapa Flow looking for horse mussels (*Modiolus modiolus*),



Aegires punctilucens at North Whaleback, Fair Isle (DK)

discovered not only a large horse mussel bed but also a single fan mussel (*Atrina fragilis*) amongst them. The mussel bed has almost certainly been protected from trawling by the presence of the large wreck nearby, as is the case for the single fan mussel record from Northern Ireland. The fan mussel is one of few legally protected species and should not be touched if seen - however more records, accompanied by photographs, would be valuable. The fan mussel is Britain and Ireland's biggest shell reaching almost 50cm in length, though most of it is buried in soft sediment. Numbers have plummeted since the advent of industrial scale trawling of seabeds and recent records are very few indeed. Until the Scapa find, Seasearch had only received sightings of 14 individuals in the last 20 years: 12 from two sites in Devon and one each from the west coast of Scotland and Northern Ireland.

Other interesting records included a stalked jellyfish (indet.) and the uncommon Scinà's Weeds (*Scinaia* spp) at Hoxa Head; furbelows (*Sacchoriza polyschides*) forest, abundant and varied bryozoa (*Flustra foliacea*, *Parasmittina trispinosa*, *Electra pilosa* and *Bugula flabellata*) and several stalked jellyfish (*Lucernariopsis campanulata*) at Copinsay cliff; the hydroid medusa *Aequorea vitrina* in open water at Stanger Head and a scenic, rich site with 57 taxa (mainly to species level) recorded at Inga Ness.

On 4 September, a number of Seasearch course participants from an Observation course (run by Chris Rickard and Chris Wood on 3 September) carried out Seasearch dives on extensive seagrass (*Zostera marina*) beds with common peacock worms (*Sabella pavonina*) and lugworm (*Arenicola marina*) casts in Widewell Bay, South Ronaldsay to widen understanding of the biodiversity of Orkney seagrass beds in general. This information will contribute to a small study on seagrass beds in Orkney underway by Marine Services, Orkney Islands Council which is funded by Scapa Flow Landscape Partnership Scheme.



Zostera marina bed, peacock worm and *Arenicola* cast at Widewall bay, Orkney (JK)

Seasearch diver Penny Martin submitted a further seven Observation forms from 15 September to 6 November from various bays around Orkney including Firth, Scapa, Houton and Echna. Extensive *Zostera* beds rich in flora (*Halidrys siliquosa*, *Fucus serratus*, *Chorda filum*, occasional maerl and encrusting pink algae) and fauna (sponges, worms, crustaceans, ascidians and fish) were recorded at Bay of Firth; a *Zostera marina* bed and thousands of *Akera Bullata* sea slugs at St Peter's Pool and a rich and colourful assemblage of ascidians on shallow kelp at Evie Bay and a siphonophore recorded at Echna Bay. A further nine Observation forms were received via Chris Rickard from dives that took place on 3-4 September.

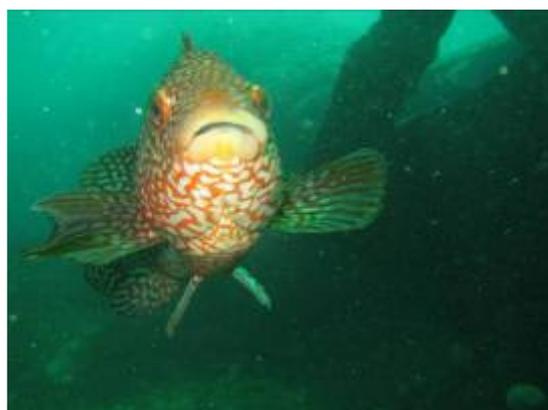
Shetland 25 to 29 August (various) by Graham Jackson
26 Observation forms and seven Survey forms



Curled octopus, Ba of Hascosay, Shetland (GJ)

Eleven Observation forms were submitted by Graham Jackson on a trip between 25 and 29 July. The Bard Cave, with several habitats and constant refreshing of nutrients with each tide, supported rich marine biodiversity. The walls abounded with sponges and tunicates, and the floor with crustaceans, including a very large common lobster (*Homarus gammarus*), reputedly of great age. Sightings amongst the boulders below the Ba of Hascosay's rocky ledge included a curled octopus (*Eledone cirrhosa*) while Grutwick Wall had a similar biodiversity. In the gloom of Balta Sound Harbour,

the most northerly dive on the trip at 60°45.504'N, a sea stickleback (*Spinachia spinachia*) was one of several species recorded.



An inquisitive Ballan wrasse on a Shetland wreck (GJ)

Seasearch was carried out on MV Pionersk and MV Lunokhods-1, the latter with abundant *Polycera quadrilineata* nudibranchs. Around 20m deep, the SS Jane was also rich in biodiversity, including Devonshire cup corals (*Caryophyllia smithii*) also present on several other dives. Species on the 32m deep MFV Fraoch Ban included three flatfish and loliginid squid egg cases. The WW1 war grave – HMS E-49 – rested in 28m visibility on white sand, where conger eel (*Conger conger*) and myriads of young Pollack (*Pollachius pollachius*) were two of many species noted. In the absence of

seaweed, the biodiversity diminished on 40m dives but included a ling (*Molva molva*) and scyphistomae (probably of the moon jellyfish, *Aurelia aurita*) on the SS Gwladmena. A short-spined sea scorpion (*Myoxocephalus scorpius*) was seen on the SS Glenisla in contrast to the long-spined sea scorpion (*Taurulus bubalis*) common on the other shallower dives. More dive details are on <http://mv-valkyrie.co.uk/>.

A further 15 Observation forms were submitted from a variety of deeper water, scenic and rich locations around the Isle of Unst by Mary Brown, Naomi Davies, Ben Jaffey, David Pickford, Phil Reid and Bethan Young of Clidive Sub-Aqua Club between 7 and 19 August. Among the records were spectacular scenic walls rich in plumose (*Metridium senile*), dahlia (*Urticina felina*) and jewel (*Corynactis viridis*) anemones and soft corals (*Alcyonium digitata*) at Humla Stack; walls 'packed' with *C. viridis*, *U. felina* and *A. digitatum* at Outstack; further sites rich in *C. viridis* at Hevda Skerry and Valaberg; dense black brittlestar (*Ophiocomina nigra*) beds and common Celtic featherstars (*Leptometra celtica*) at Haaf Gruney, a small island to the south of Unst. Seven Survey forms were submitted by Vicki Billings and Fiona Ravenscroft from some of the same wrecks (SS Gwladmena, SS Jane, MFV Fraoch Ban and Glenisla) and 'Waggy's wall' and Score End on Bressay between 22 and 29 August. An extensive maerl bed, approximately 50% live, was recorded on the seabed to the stern of the SS Jane and the northern sea cucumber *Cucumaria frondosa* recorded by Vicki Billings on the SS Gwladmena.

North of St Abbs 24 to 25 September
Ten Survey and three Observation forms

These forms were submitted from divers on a weekend organised by the Seasearch Northeast England co-ordinator to dive less surveyed areas to the northeast of St Abbs, namely Brander Point, Soutar Point and Fast Castle Head. Seasearch divers included St Abbs Voluntary Marine Nature Reserve Ranger Georgia Conolly and participants in a Seasearch Surveyor course held in Eyemouth in 2010. A wolf fish (*Anarhicas lupus*) and a high diversity of nudibranchs in large numbers, including *Tritonia hombergii*, *Acanthadoris* spp, *Flabellina lineata*, *Flabellina pedata*, *Limacia clavigera*, *Goniodoris nodosa*, *Diaphorodoris luteocincta* and *Polycera quadrilineata* were recorded underwater at Brander Point whilst Risso's dolphins (*Grampus griseus*) were seen above the surface. Grey seals (*Halichoerus grypus*) were seen under the water at Fast Castle.

3 Other sources of Seasearch data

Seasearch Observation and Survey forms were submitted by divers from throughout the UK from many sites around Scotland, from St Abbs to St Kilda.

Loch Fyne 21 January to 20 November
Four Survey and 14 Observation forms

Loch Fyne is a popular location for year-round diving. These forms were submitted by Seasearch Observers/Seasearch Surveyor trainees Edith Rolland, Raymond Buchanan and Peter Bardsley, Seasearch Observers Steven Melvin and Brigid Armstead, Seasearch Surveyor Nicola Faulks, Seasearch West Scotland coordinator Owen Paisley, from well-known sites such as St Catherine's reef and by the Furnace tearooms (Crarae Point), and less known sites such as, Creag Gobhain, Creagan Dubh (or Lephinmore) and Gortain Point.



Goby and eggs in Loch Fyne (PB)

Interesting records included: Steven Melvin recording a little cuttlefish *Sepiola atlantica* and eggs at Creagan Dubh, horsemussels (*M.modiolus*) at Gortain Point and many sea toads (*Hyas araneus*) on a submerged branch at St Catherine's; Peter Bardsley recorded an absence of fish and *H.araneus* crabs, many velvet swimming crabs (*Necora puber*) feeding on squat lobster carapaces, many apparently empty *Nephrops norvegicus* burrows, a *S.atlantica* cuttlefish and sea pens (non-specified) across four separate dives at St Catherine's; Owen Paisley recorded an artificial boulder breakwater at the Furnace quarry tea rooms rich in marine life (39 species) with numerous squat lobsters (*Munida rugosa* and *Galathea squamifera*) and gobies, a black brittlestar (*Ophiocomina nigra*) bed but no flame shells (*Limaria hians*) at Creag Gobhain on the west side of Otter narrows (where *L.hians* have previously been recorded); and Nicola Faulks recorded a wall with many fissures and crevices rich in life (59 species), though nothing unusual, at Anchor Point and noted that the mixed ground of pebbles, cobbles, boulders, sand, gravel and mud at Creaghan Dubh appeared to have been trawled in the past.

A lot of litter and debris was recorded by those who dived by the Furnace quarry site. The type recorded suggests it may be popular for angling (broken line, drinks cans and bottles) and fly-tipping (old tyres and traffic cones).

Loch Long 12 March and 27 September
Three Observation forms

Peter Bardsley submitted two Observation forms for The Caves, southeast of Arrochar, a scenic rock and boulder reef slope, with typical sea loch fauna of sea loch anemones (*Protanthea simplex*, *Sabella pavonina* and ascidians), descending to sand and gravel at 30m. Interesting records included the Priority Marine Features horsemussel (*Modiolus modiolus*) and Fireworks anemone (*Pachycerianthus multiplacatus*) as well as the sea mouse (*Aphrodita aculeata*). Unfortunately lots of fishing debris (line, weights and hooks) as well road signs, metal objects, road cone, battery and barrels were recorded. Although the rich, the site would merit an Underwater Cleanup. A Fireworks anemone (*P.multiplacatus*) was also recorded at Conger Alley by Steven Melvin on 27 November as well as a curled octopus (*Eledone cirrhosa*) rarely seen 'walking' in the open.

South Argyll 12 February to 9 September
Two Survey and Two Observation forms

A number of individual forms were submitted from throughout south Argyll through the year. At Creag Aoil, Loch Melfort, Seasearch Observer Trevor Davies recorded marine life in 'an improved condition' relative to previous dive at this location the year before, although still a significant deterioration relative to before expansion of the mussel farming in the area. A total of 33 species were recorded from boulder slopes with kelp park, deeper boulder slopes and mud in between. Seasearch west Scotland Co-ordinator Owen Paisley recorded 14 species of green, brown and red mixed algae (including *Corallina officinalis*, *Delesseria sanguinea*, *Saccharina latissima* and *Odonthalia dentata*) with one specimen of the invasive seaweed *Sargassum muticum* and also *Codium* sp at Ronachan point slip, south of entrance to West Loch Tarbert. Owen recorded abundant lion's mane jellyfish (*Cyanea capillata*) above boulders and mixed ground with hydroids, echinoderms and molluscs on the east side of Davaar Island, Campbeltown loch, and a rocky reef rich in cnidarians, crustaceans, bryozoans, echinoderms, fish and algae at Otterard Rock, approximately 1.75 nautical miles northeast of the entrance to Campbeltown loch. One small John Dory (*Zeus faber*) was recorded among the fish at Otterard rock.

North Argyll 16 October to 11 November
Six Observation Forms

Duplicate forms were submitted by Anne Morrison and Zoe Franks for Ardna Coul, Sound of Kerrera and SS Breda, Ardmucknish Bay. The former site was a wall rich in cup corals (*C.smithii*), ascidians (including *D.violacea*) and featherstars (indet.) and vertical surfaces of the SS Breda wreck rich in various ascidians, sea loch anemones (*Protanthea simplex*) and hydroids. On 24 July Trevor Davies recorded kelp forest (*L.hyperborea*) descending to a rock face rich in life at north wall, Bach Island, by Kerrera, including Celtic featherstars (*Leptometra celtica*) and red sea fingers (*Alcyonium glomeratum*) and on 16 October a very rich site, including serpulid worms (*Serpula vermicularis*) building a colony, occasional horsemussels (*Modiolus modiolus*) and 50 other species by the fourth lay-by after the bridge in Loch Creran upper basin.

Sound of Mull 3 August to 13 November
Five Observation forms



The rarely sighted mobile polychaete *Myrianida pinnigera* on SS Hispania (RH)

Seasearch forms were submitted from the wrecks of SS Hispania, SS Rondo and SS Thesis and from near Fishnish by Rod Hogg, Allison Gleadhill and Anne Morrison on different trips. The SS Hispania was rich in sea slug species with eight recorded (*Aplyisia punctata*, *Diaphorodoris luteocincta*, *Facelina auriculeata*, *Polycera faeroensis*, *Janolus cristatus*, *Flabellina lineata*, *Cadlina laevis* and *Limacia clavigera*), and also an interesting record of the rarely sighted mobile polychaete *Myrianida pinnigera*. The SS Rondo was rich in hydroids, ascidians (including

Diazona violacea), sponges and anemones, including the Priority Marine Feature *Parazoanthus anguicomus*. Similarly, the SS Thesis was rich in hydroids, soft corals (*A.digitatum*), ascidians (including *Diazona violacea*) and sponges. An animal dominated site with echinoderms (featherstars and starfish), crustaceans, hydroids, burrowing anemones (*Cerianthus lloydii*) and fish was recorded at Fishnish.

Small Isles 14 August to 8 September
Four Survey forms

Seasearch Surveyors Nicola Faulks and Allison Gleadhill submitted two Survey forms each on separate trips. Nicola recorded a very clean site of wall, boulders and sandy gullies on the east side of Eigg with kelp park descending to walls rich in hydroid turf and jewel anemones (*C.viridis*) and boulders with anemones, hydroids, bryozoans and seaweeds and an area of large boulders and small walls with *P.anguicomus*, hydroid turf and rich seaweeds descending to scallop ground at the entrance to Canna harbour. Allison recorded a spectacular wall rich in Devonshire cup corals (*Caryophyllia smithii*), hydroids and soft corals (*A.digitatum*), descending from mixed kelp park (*Laminaria hyperborea* and *Sacchoriza polyschides*) at the Wall of Eigg and walls with *C.smithii*, boulders with hydroid turf (*Nemertesia antennina* and *N.ramosa*) and sediment with life apparent east of Sanday, near Canna.

Isle of Skye 17 June to 15 August
Four Survey and Four Observation forms

These forms were submitted from individual divers on various trips, including Seasearch Surveyors Nicola Faulks (in early August on a trip that also visited Canna and Harris) and Allison Gleadhill (in early September on a trip which visited the Isles of Eigg, Canna and Harris). Nicola recorded a boulder site very rich in seaweeds (13 species), cnidarians (nine), molluscs (nine), crustaceans (five), echinoderms (seven) and fish (seven) at Wiay Island, Loch Bracadale, including most notably large numbers of stalked jellyfish (Stauromedusae). A reef with flat sand-covered steps and vertical overhangs and crevices was recorded by Allison at Prince Charles Cave, north Sound of Raasay, including the orange branching bryozoa *Porella compressa*. At Rubha Hunish, Allison also recorded a boulder reef interspersed with areas of cobble and sand and a range of faunal and floral species, including the rarely recorded sandy creeplet anemone *Epizoanthus couchii*; and a dense turf of various ascidians (*Ascidiella aspersa*, *Ascidia mentula* and *Ciona intestinalis*) in an Observation form of the minelayer wreck HMS Port Napier.



Porella compressa, *Protanthea simplex* and *Diazona violacea* in Loch Snizort (CD)

Three Observation forms from July were submitted by Calum Duncan, Carrie Pillow (Seasearch Northeast England Co-ordinator) and Ruth Sharratt from Skate Rock, (Ascrib Islands, Loch Snizort) *en route* to the Isle of Harris from Uig, Skye (organised by Seasearch Surveyor Mike Bramham and Seasearch Scotland Coordinator Calum Duncan). This was a rich, semi-exposed reef with common northern seafans (*Swiftia pallida*), some as shallow as 19m, *Diazona violacea*, numerous *C.smithii* and a rare sighting of *Pentapora fascialis*.

A single Survey form by Seasearch Surveyor James Lucey from off Meanish Pier beach, west shore of Loch Pooltiel, recorded a very rich reef site (59 species) with dense *L.hyperborea* forest and rich red seaweed understory descending to vertical wall with encrusting pink algae, *M.senile* anemones, ascidians and large colonies of boring sponge *Cliona celata* and finally soft sediments with burrowing anemones *Cerianthus lloydii*.

St. Kilda 16 to 18 August
Six Survey forms

Seasearch Surveyor Nicola Faulks completed six Survey forms on a trip diving the faunal rich walls of St Kilda. A spectacular wall rich in anemones and corals (*Actinothoe sphyrodeta*, *Sagartia elegans*, *Metridium senile*, *Urticina felina*, *Corynactis viridis* and *Parazoanthus anguicimus*) but also molluscs, bryozoans, echinoderms, fish and seaweed were recorded on the northeast side of Dun; kelp forest and steep walls with similarly abundant anemone and coral growth (although no *P.anguicomus*) at the basalt pinnacle of Rubha Mhuirich, Hirta; a very rich wall site with 59 species at the south end of Dun; sheltering from the raging tide on the southeast corner of Stac Lee recording 43 species; a fantastic cave dive at the famous saw cut, with walls covered with sponges, anemones (including *P.anguicomus*), corals and bryozoans, though few fish and crustaceans and; a more sheltered site of rock walls, open cave and boulders rich in seaweeds and faunal

turfs, adjacent to a seal haul out (and followed by seals throughout) at Sgeir an Sgarbh, east Hirta.

Summer Isles 10 to 14 July

Nine Seasearch Observation forms

Bolton Sub-Aqua club organised a trip to the Summer Isles which comprised a series of relatively shallow but scenic and rich dives. Tanera Mor anchorage was characterised by dense growths of mermaids tresses (*Chorda filum*) and sediment rich in life (anemones, crabs, scallops, starfish and fish); Sgeir Neo-ghluasadach by a scenic reef cut by a fissure running along the middle (providing a niche for crabs and fish) descending to boulders where catshark (*Scyliorhinus canicula*), a guillemot (*Uria aalge*) underwater and several species of crabs, fish, squat lobster and echinoderm were recorded; sediment rich in life (razor shells, sea orange sponge (*Suberites*), fish and crabs) at Sron na Moil Baine.

Eilean an Ròin Mòr, by Kinlochbervie 1 October

Two Survey forms

Both the south and north side of this island, northwest of the mouth of Loch Inchard near Kinlochbervie, were surveyed by Seasearch Surveyor Richard Guest of Inverness Sub-Aqua Club. The north side was characterised by a boulder slope with some small walls leading to flat white sand. Life was recorded as 'disappointingly sparse' on both the rock and sand although Pollock (*Pollachius pollachius*) were abundant. The south side of the island was a complex area of large boulders forming small caves, gullies and 'swim-throughs' with prolific growth of dead men's fingers (*A. digitatum*), although of small size.

St Abbs 29 January to 25 September

20 Survey and 12 Observation forms



Horsemussel (*Modiolus modiolus*) bed off Glanmire wreck (GC)

These forms were submitted from a range of sources in 2011 including the St Abbs and Eyemouth Voluntary Marine Reserve Ranger Georgia Conolly, Northeast England Seasearch co-ordinator Carrie Pillow and Seasearch Surveyor Nicola Faulks and participants on a Seasearch Surveyor course run in Eyemouth on 4-5 June. Many of the records were from divers from Seasearch Northeast England. Notably, on trips organised by Georgia Connolly, five Survey forms and an

Observation form recording life on and around the wreck of the Glanmire, off St Abbs Head, in September included records of horsemussel (*Modiolus modiolus*).

On 11 June, following a Seasearch Bryozoan and Hydroid identification course run by Dr Joanne Porter at Eyemouth, a group Survey form compiled for Wuddy Rocks included 12 bryozoan species, many identified under the binocular microscope from pebbles collected under water. A lot of small fish fry were also recorded at Wuddy rocks on one of two Observation form records from the site. The second dive for the Bryozoan/Hydroid course on The Heugh recorded nine species of bryozoans, mainly

encrusting species, and numerous *Corymorpha nutans* in the gravel ridges on a group Survey form.

Two Survey and four Observation forms from Skelly Hole/Anemone Gullies (which extend from Skelly Hole) from various dives from March to July, included six nudibranch species (possibly including a sighting of *Tritonia plebeia* by Georgia Conolly), the large solitary hydroid *Corymorpha nutans* and a lumpsucker (*Cyclopterus lumpus*).

Four Seasearch Survey qualifying forms were submitted from West Hurker to Skelly Hole following a Survey course in Eyemouth on 4 June, along with three other Survey forms from the same site, on 5 and 6 June. Dense schools of lesser sandeels (*Ammodytes tobianus*), a huge shoal of saithe or pollock (*Pollachius* spp), mating *Tritonia hoimbergii* nudibranchs and diving razorbill (*Alca torda*) and guillemot (*Uria aalge*) were all recorded.



Dense shoals of sandeels at West Hurker, St Abbs Head (RB)

Other interesting sightings included bottlebrush hydroids (*Thuiara thuja*), a curled octopus (*Eledone cirrhosa*) and gully walls covered in soft corals (*Alcyonium digitatum*) on a Survey and two Observation forms for Black Carr/Black Carr gullies, and beautiful examples of *Bolocera tuediae* on an Observation form for Tye's Tunnel and reef.

Eyemouth 15 January to 24 September Two Survey and Four Observation forms

These forms were submitted from a range of sources in 2011 including trainee Seasearch Observers Edith Rolland and Raymond Buchanan, Seasearch North and Northeast Scotland coordinator Chris Rickard (following attendance at a Seasearch Surveyor course in Eyemouth 5-6 June) and Seasearch Surveyor Allison Gleadhill. Large amounts of moon jellyfish (*Aurelia aurita*) and ctenophores and many lost creels were recorded by Chris Rickard at Ness End Gully, very few fish by Edith and Raymond at Ness End Gully, many young nudibranchs by Rob Dowrick at Green Ends Gully and a lumpsucker (*Cyclopterus lumpus*) by Paul Grosvenor at Weasel Loch.

4 Miscellaneous individual Seasearch records 27 April to 24 September

Lochmaddy 8 September One Observation

Slender sea pens (*Virgularia mirabilis*) were recorded as common by Mark Carter in a muddy seabed at 18m beneath Loch Maddy (Loch nam Madadh), North Uist.

Millshore, Moray 27 April One Observation

Seasearch North and Northeast Scotland co-ordinator Chris Rickard recorded a complex seabed profile of bedrock and boulders with swim-throughs and a rarely recorded Montagu's sea snail (*Liparis montagu*), a close relative of the lumpsucker, though smaller in size.

Dunbar 22 May One Observation

Ian Millar recorded a mixed seabed at 10m of boulders, cobbles, pebbles, sand gravel with kelp forest, mixed seaweeds and an interesting record of a little cuttlefish (*Sepiolo atlantica*)>

Burnmouth 24 September One Observation

Steve Mustow recorded *Laminaria hyperborea* forest descending to soft corals (*A. digitatum*) at this site off Burnmouth.

Lamlash Bay 11 June One Survey

Seasearch Surveyor Claire Youdale submitted a Survey record from off the Holy Isle jetty within the Lamlash Bay No-Take Zone (Community Marine Conservation Area), including sandy gravelly seabed with common dead shells and frequent large (>16cm diameter) King scallop (*Pecten maximus*) in the deeper sand and shell gravel.

Loch Nevis 8 September One Survey

At the mouth of Loch Nevis, Allison Gleadhill recorded a rocky pinnacle with steep walls abundant in plumose anemones (*Metridium senile*), some other anemone species, hydroids and featherstars (*Antedon bifida*) descending to a sandy seabed at 17m with lots of broken shell, burrowing anemones (*Cerianthus lloydii*), common dragonets (*Callionymus lyra*), sand goby (*Pomatoschistus minutus*) and some cobbles with long-clawed squat lobster (*Munida rugosa*) beneath.

APPENDIX A

Full list of species, genera and families recorded during Seasearch in Scotland 2011

Bacteria	Foraminifera	Plantae	Algae	Porifera	Cnidaria	Ctenophora	Platyhelminthes	Nemertea	Annelida	Chelicerata	Crustacea	Mollusca	Bryozoa	Phoronida	Echinodermata	Tunicata	Fish	Birds	Mammals
Beggiatoa	Foraminifera	Zostera marina	Alaria esculenta	Amphilectus furcatus	Abietaria abietina	Beroe cucumis	Prosthecleraeus vitatus	Lineus longissimus	Aphrodita aculeata	Pycnogonida	Amphipoda	Acanthodoris pilosa	Alcyonidium daphanum	Phoronida	Amphipholis squamata	Apidium punctum	Ammodytes tobianus	Alca torda	Balaenoptera acutorostrata
			Ascophyllum nodosum	Axinella dissimilis	Actinia equina	Bolinopsis infundibulum		Tubulanus annulatus	Arenicola marina		Atelecyclus rotundus	Aegires punctilucens	Alcyonidium hissum		Amphura filiformis	Ascidia conchilega	Ammodytidae	Uria aalge	Delphinidae
			Ascophyllum nodosum mackail	Axinella infundibuliformis	Actinia fragacea				Bispira volutacornis		Balanus balanus	Aeolidia papillosa	Bryozoa indet crusts		Asia lefevrei	Ascidia mentula	Anarhichas lupus		Halichoerus grypus
			Bonnemaisionia asparagoides	Ciocalypta pernicillita	Actinothoe sphyrodeta				Bonellia viridis		Balanus perforatus	Aeolidiella glauca	Bugula labellata		Asterias rubens	Ascidia virginea	Apletodon dentatus		Phoca vitulina
			Calliopharys ciliata	Actinaria coriacea	Actinaria carciopados				Chateopterus varopedatus		Cancer pagurus	Aequipecten opercularis	Bugula plumosa		Asterina gibbosa	Ascidella aspersa	Callionymus lyra		
			Calliophyllis laciniata	Ciona celata	Aequorea forskalea				Elysia viridis		Caprellidae	Akera bullata	Cellaria		Astropecten irregularis	Ascidella scabra	Callionymus reticulatus		
			Ceramium bucklandi	Dercitus bucklandi	Aequorea vitrina				Eupolythymia nebulosa		Carcinus maenas	Aplysia punctata	Cellepora pumicosa		Crossaster papposus	Botrylloides leachi	Centrolabrus exoleus		
			Chondrus crispus	Dysidea fragilis	Agalma elegans				Filograna		Apornhis pespelecani	Archidoris	Amphiblestrum aurium		Cucumaria frondosa	Botryllus schlosseri	Chirolophis ascanii		
			Chorda filum	Grantia compressa	Aglaophenia				Filograna implexa		Crangon crangon	Archidoris pseudocargus	Bicellariella ciliata		Echinocardium cordatum	Ciona intestinalis	Chondrichthyes		
			Cladophora rupestris	Halichondria	Alcyonium digitatum				Hydroides norvegica		Gaithrea intermedia	Arctia islandica	Calliophora rylandi		Echinus esculentus	Clavulina leuciformis	Conger conger		
			Codium fragile	Halichondria panicea	Alcyonium gibratum				Krohnia lepidota		Galathea nexa	Atrina fragilis	Cauloramphus spiniferum		Henricia	Corella paratetragramma	Ctenolabrus melops		
			Coralina officinalis	Haliciona urceolus	Alcyonium hibernicum				Lancea conchilega		Galathea squamifera	Buccinum undatum	Crisia deniculata		Henricia oculata	Dendrobrabus grossularia	Ctenolabrus rupestris		
			Cryptosiphura ramosa	Haliciona viscosa	Alcyonium operculata				Myrasis pinnigera		Galathea strigosa	Cadlina laevis	Cryptocoelum		Henricia sanguinolenta	Diazona violacea	Diazona lumpsea		
			Cutleria multirida	Hemimyscale columella	Anemonia viridis				Pomatoceros lamarki		Goneplax rhomboides	Calliostoma zephyrinum	Electra pilosa		Holothuriodea	Didemnum	Dicentrarchus labrax		
			Delesseria sanguinea	Hymedesmia	Aurelia aurita				Pomatoceros triquetus		Homarus gammarus	Coryphella hispida	Disporella hispida		Leptasterias muelleri	Diplosoma listerianum	Diplocogaster diplosomata		
			Desmarestia aculeata	Leucosolenia botryoides	Botocera tuedae				Sabella pavonina		Coryphella lineata	Idotea	Variolosa		Leptometra celtica	Diplosoma spongiforme	Echiactis vipera		
			Desmarestia ligulata	Microcionia	Caryophyllia smithii				Salmacina dysteri		Inachus	Cuthona	Frustra foliacea		Luidia ciliaris	Lesoclinium perforatum	Entelurus aequoreus		
			Desmarestia viridis	Microcionia fatax	Cereus pedunculatus				Serpula vermicularis		Dendronotus	Membranipora membranacea	Membranipora membranacea		Luidia sarsi	Molgula	Eutrigia gurnardus		
			Dictyosphon foeniculaceus	Myxilia incrustans	Cerianthus lloydii				Sporobis spirorbis		Liccardinus	Diaphorodoris ramulosa	Omaloscoeca ramulosa		Marthasterias glacialis	Morchellium argus	Gadus morhua		
			Dicyota dichotoma	Pachymaisma johnstonia	Chysaora hyssocella				Myxicola infundibulum		Macropodia	Doto coronata	Parasmittina irispinosa		Neopentadactyla mixta	Polycarpa scuba	Gaidropsarus vulgaris		
			Dilsea carnosus	Polymastia botleiformis	Clytia hemisphaerica						Majidae	Eledone cirrhosa	Parapanopora foliacea		Ophiactis balli	Pycnoclavella stolnialis	Gobius niger		
			Drachiella spectabilis	Polymastia penicillus	Corymorpha nutans						Munida rugosa	Ensis	Porella compressa		Ophiocoma nigra	Salpidae	Gobius paganellus		
			encrusting algae indet.	Porifera indet crusts	Corynactis viridis						Mya	Eubranchius laurani	Securiflustra securifrons		Ophiopholis aculeata	Sidnum elegans	Gobiusclausus laevigatus		
			Ethyrolosum laciniatum	Raspailia laciniatum	Cyanea capillata						Mysida	Eubranchius pallidus	Scrupocellaria		Ophiotrix fragilis	Sidnum turbinatum	Hyperoplus lanceolatus		
			Fucus ceranoides	Scypha ciliata	Cyanea lamarkii						Necora puber	Facelina auriculata	Schizomavella linearis		Ophiura albida	Stolonica socialis	Labrus bergylla		
			Fucus serratus	Suberites carnosus	Epizoanthus couchii						Nephrops norvegicus	Favorinus bilianus	Tubulipora		Ophiura ophiura	Styela clava	Labrus mixtus		
			Fucus spiralis	Suberites ficus	Funculina quadrangularis						Pagurus bernhardus	Favorinus branchialis			Pawsonia saxicola	Labetus scorpoides			
			Fucus vesiculosus	Tethya citrina	Halecium halecinum						Pagurus prideaux	Fiabellina pedata			Porania pulvillus	Lesueurigobius friesii			
			Halidrys silicosa		Haloclystus						Patemon serratus	Gibbula cineraria			Psammochinus miliaris	Limanda			
			Halurus equisetifolius		Halopteris catharina						Pandanus montagui	Gibbula magus			Solaster endeca	Liparis liparis			
			Haraldophyllum bonnemaisoni		Homothia coronata						Piscidia longicornis	Gonodoris			Antedon bilida	Liparis montagu			
			Heterosiphonia plumosa		Hyas araneus						Polydora rotundus	Polydora pelliculum			Antedon petasus	Lipophrys pholis			
			Himantalia elongata		Hydractinia echinata						Praunus flexuosus	Hinia reticulata				Lophius piscatorius			
			Kallymenia pinnatifida		Kirchenpaueria pinnatifida						Semibalanus balanoides	Ischnochitonidae				Microstomus kitt			
			Laminaria digitata		Lucernariopsis campanulata						Janolus cristatus					Molva molva			
			Laminaria hyperborea		Lucernariopsis cruxmellensis						Lacuna vineta					Myoxocephalus scorpius			
			Laminaria saccharina		Metridium senile						Limacia clavigera					Parabramius gattorguine			
			Lomentaria orcadensis		Nemertea antennina						Littorina littorea					Pholis gunnellus			
			Maeri indet		Nemertea ramosa						Littorina obtusata					Phrynorhombus norvegicus			

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Seasearch is a volunteer underwater survey project for recreational divers who wish to contribute to conserving the marine environment.

Seasearch is co-ordinated by the Marine Conservation Society on behalf of the Seasearch Steering Group which comprises the Marine Conservation Society, The Wildlife Trusts, Joint Nature Conservation Committee, Natural England, Countryside Council for Wales, Scottish Natural Heritage, Environment and Heritage Service Northern Ireland, Environment Agency, Marine Biological Association, Nautical Archaeological Society, British Sub Aqua Club, Sub Aqua Association, Professional Association of Diving Instructors, Scottish Sub Aqua Club, Irish Underwater Council and independent marine life experts.



Seasearch divers enjoy the sunshine in Loch Eriboll (CR)

dive into conservation