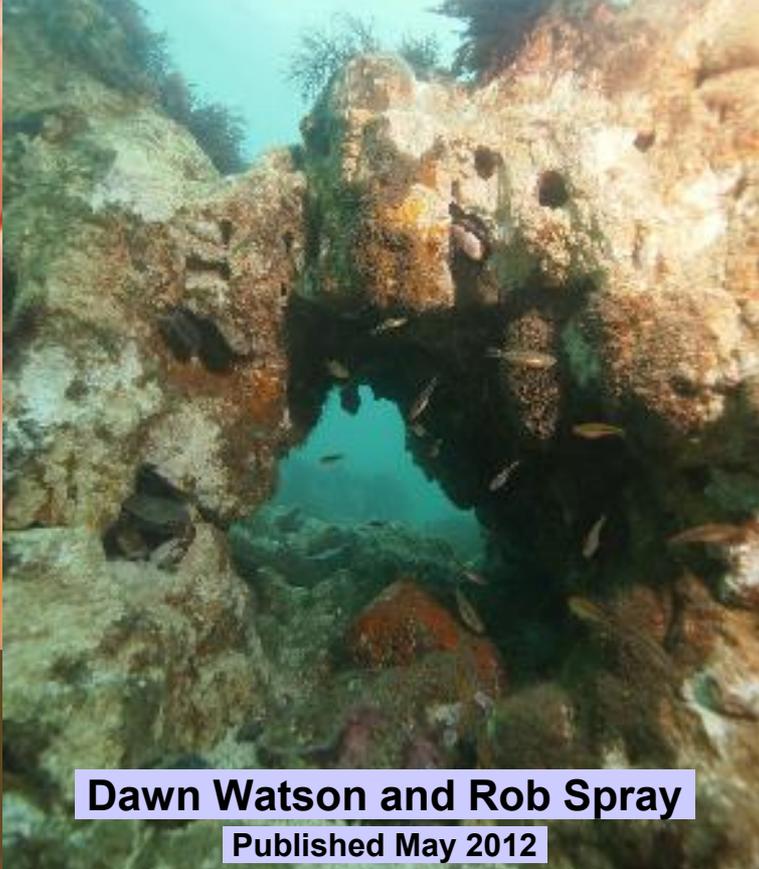




Seasearch East – 2011

Marine surveys conducted by Seasearch East



Dawn Watson and Rob Spray

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East Anglian Seasearch – 2011 Report

1 Seasearch East in 2011

Seasearch East enjoyed its longest diving season so far in 2011, from April 9th to November 23rd. Normally we would only expect records from 5-6 months so receiving information over 8 months is exceptional. Many opportunities were still lost due onshore winds, including most of August which would be normally be very busy. We tried many new dive sites and identified several more potential survey locations for 2012.

It was an unusually good year generally, the visibility was consistently good and so algal growth was lush and found deeper than usual, with the shallow sites almost completely covered. Surveyors attending first Dorset Seasearch's algae course and the Seaweed East road trip survey event meant that many more algal species were identified in 2011. Pressings are still being studied at the National History Museum but this has resulted in at least 98 recorded species for East Anglia, compared to just 19 for 2010! Sponges also received a boost thanks to Dr Clare Goodwin's lab work on summer samples, numbers up from 15 to 28 species. We also had a very good year for fish, with the species spotted rising from 24 to 37. The grand total for all species rose from 173 to 285.

Numbers of forms received were also up significantly, from 116 in 2010 to 178 in 2011. Of those 97 (54%) were Surveyor forms (up from 41 in 2010) which is partly a reflection of the two new Surveyors who did their courses during the year. Observer forms were up from 74 in 2010 to 81.



Plumose anemones were again recorded on almost every dive, with shore crabs taking the lead over edible crabs and lobsters, probably as a result of more sandy seabed being surveyed. Exciting new species seen this year included *Thyone spp.* sea cucumber, *Hermaea bifida* vegetarian sea slug, a habitat dominated by *Spisula solida* clams and our first foraminiferan, *Haliphysema tumanowiczii*. The highlight was a purple species of *Hymedesmia* sponge which Dr Goodwin confirmed was previously unrecorded – new to science!

We managed to fill in all the linear 'gaps' on the Norfolk chalk reef surveys with drift dives and also started to extend the dives further out to sea. New sites were surveyed in all four East Anglian counties and a very promising deep site identified off Lincolnshire for exploration in 2012.



A BBC documentary was made and screened about the Norfolk chalk reef and the Seaweed East road trip, also attracting news coverage on local TV and radio as well as in print. The acclaimed multi media show with underwater stills and footage from Norfolk was once again shown to crowds at the Forum in Norwich during Marine week. Displays of photos were shown by Norfolk Wildlife Trust, The Mo museum in Sheringham, Norfolk Coast Partnership and as part of the COAST arts festival. Rob did lots of illustrated talks for interested groups which always culminated in a display of barnacle genitals!

Our diveboat Mr Squashy once again did sterling work from Essex to Yorkshire, despite three annoying trailer collapsing incidents. Unfortunately all the planned hardboat dives out of Suffolk were blown out, but Manta Divers hosted Seasearchers out of Sea Palling in their RIB and individuals filled in forms for club RIB trips and dives from their own boats.



2 Survey Sites – Essex

The main obstacle to surveying in Essex is generally a lack of visibility, due to outflow from large estuaries and a very light, silty seabed which is easily disturbed by weather. The sites used for survey were within the Blackwater estuary and around Walton on the Naze. Help with logistics was gratefully received from Sarah at EWT and the Walton pier Lifeboat crew.

West Mersea: oyster raft

51 46.478N 00 53.539E

This was our first new site in Essex, suggested by Sarah at EWT. Visibility on the initial dive was 3m, but less than 0.5m when we returned for Seaweed East. 40 species were recorded in total, of which 14 were algae. *Corella eumota* (an invasive squirt), *Undaria pinnatifida*, *Sargassum muticum* and *Colpomenia peregrina* (invasive algae) were all recorded. The seabed beneath raft consists of anoxic mud with a thin covering of silty sand, with abundant *Crepidula fornicata*.



West Mersea: oyster bed

51 46.484N 00 53.556E

6 species in total, of which 3 were commonly encountered algae. This site was a small distance from the raft and is managed by oyster fishermen to provide good conditions for oysters. Again, the seabed was anoxic mud with top layer of silty sand, but all live *Crepidula fornicata* were removed by the fishermen.

Cudmore Grove: 51 47.451N 00 59.719E

This site was examined by foot during low tide for algae only. 15 species were found, no invasives or out of range. Seabed very soft anoxic mud with wooden groynes and fences.

Walton: pier 51 50.617N 01 16.783E

Diving next to lifeboat arranged by Jon Chamberlain in direct liaison with RNLI lifeboatmen. Visibility very poor – less than 0.5m and very dark. 26 Species recorded, with only very tiny amounts of algae almost at the surface. Species of note included *Guantha lacunosa* (sponge), not previously recorded in the area. Seabed composed of London clay cobbles with many piddocks.



Walton: foreshore

51 51.878N 01 17.413E

This site surveyed on foot at low tide for algae only. Seabed soft anoxic mud with wooden groynes, areas of boulders and war defences. 15 commonly seen species.



3 Survey Sites – Suffolk



Suffolk has a slightly better history of visibility than Essex, with a fairly reliable 2-3 week window of offshore, clear water which moves northwards from late May. There is a mix of shingle and sand beaches, but the seabed tends to be either mud or sand, with very little hard structure unless provided artificially.

We had generous help with accommodation, transport and lab space from the National Trust on Orford Ness, which was arranged by Gen Broad at Suffolk Biodiversity Partnership.

Orfordness:

landing pontoon 52° 05.403N 01° 32.567E

Floating pontoon investigated from above and using snorkel equipment. The pontoon provided a good hard site that was always well lit enough for algae to grow. The shaded area underneath sheltered species such as orange anemones (*Diadumene cincta*) and Christmas tree sea slugs (*Dendronotus frondosus*) usually only seen on deep

wrecks on this coast. We recorded 49 species, including 23 algae. *Saccharina latissima* (sugar kelp) was present, a species rarely recorded for East Anglia. *Catanella caespitosa* and *Pelvetia caniculata* both present on muddy foreshore adjacent – both rare in the SE of England.

Orfordness: saline lagoon 52° 05.719N 01° 34.994E

Very shallow lagoon examined from above. *Blidingia marginata* and *Rhizoclonium riparium* algae present, both widespread. The Starlet sea anemone (*Nematostella vectensis*) common and one example of *Sagartia troglodytes*.

Aldeburgh: scallop beach 52° 09.626N 01° 36.411E



Visibility non-existent! A sandy seabed with flint pebbles was felt. We will try this area again in 2012 as it has the potential for a simple shore dive – although conditions are unlikely to be good very often.



Lowestoft: Eastern

Point 52° 28.871N 01° 45.817E

Survey carried out on foot during extreme, spring low tide. This is the most Easterly point of the British Isles. Artificial hard seabed composed of very large imported granite boulders placed to form a sea defence. The survey found 40 species, including 18 commonly occurring algae. Species of note; *Liparis montagui* (fish) *Pisidia longicornis* (crab) and *Hermaea bifida* (slug) were recorded.

4 Dive Sites – North Norfolk

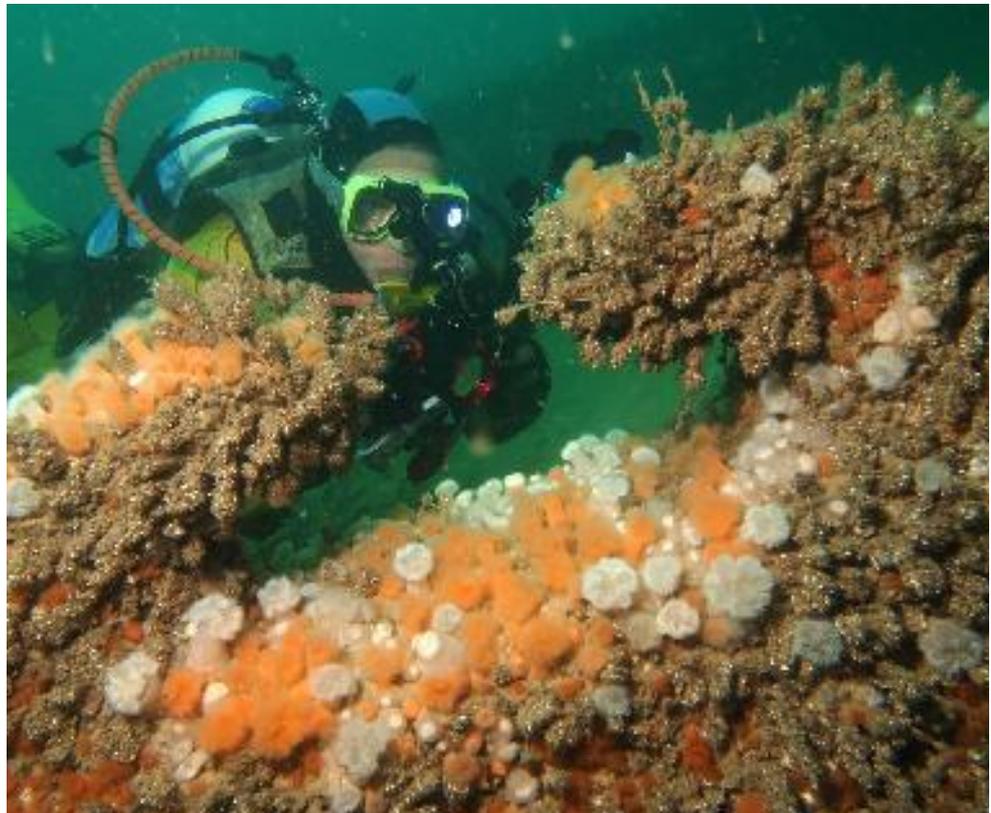
As with previous years, most surveying was carried out off Norfolk, with wreck dives off Sea Palling early in the season followed by gap filling, revisits and new sites on the chalk reef later on. Return visits were also made to the mussel bed off Sea Palling and a focus on new shore dive sites has extended accessible survey sites considerably. Thus we focus here mainly on the new dives.



4.1 Wrecks

Many new wreck sites were explored by RIB from Sea Palling. These included: the Actuosity, British Triumph, the Otter, the Fulgens, the Willowpool, Walkure/Conway, the Ems, the Londoner, Artemesia, Camilla Weston and one which remains unknown. All can be seen on the map (above). All were either in the sides of vertical sandbanks or sitting on relatively flat sandy seabed.

We included one new wreck in our chalk reef dives too. The wreck of the Empress (52° 58.773N 01° 16.348E) was a fairly broken up wreck just 3 miles North of West Runton that was resting on a bed of clams and associated life. The other species were very similar to those found on an edible mussel bed, but the site seemed cleaner with very little silt. The squirt *Dendrodoa grossularia* was seen for the first time and there were many *Eubranchus tricolor* nudibranchs on the wreck and across the chalk plain nearby.



4.2 New drifts and shore dives (east to west)

Overstrand: drift 52° 56.243N 01° 21.564E and shore 52° 55.238N 01° 20.640E

Overstrand has a sandy seabed for at least 150m from shore, where the underlying chalk starts to push through. This rapidly turns into the usual chalk reef, which in turn gives way to horizontally striped exposed clay, thought to be an ancient lake bed. Little cuttlefish were regularly seen on these dives, which were amongst the latest of the year. The seabed 1.5km out is composed of a rolling chalk plain with lush red and green algae and mysterious 'bomb craters' 10m across. Small-spotted catsharks and large shoals of corkwing wrasse were seen here.



Cromer: pier 52° 56.002N 01° 18.071E

This site is very popular with anglers and amateur crabbers and is also the site of a seafood restaurant, so the seabed was littered with associated lines, nets, litter and crab waste. More surprisingly, there were large numbers of scaffolding fittings (some still in canvas bags), coins and several brass taps. The seabed was fine sand with chalk and granite boulders and the pier itself was populated by many species – the sponge *Guancha lacunosa* was seen on the legs.

West Runton:

arches 52° 56.804N 01° 14.845E

The area around West Runton had been explored by drift dive in 2010, but this area of massively undercut chalk, thought to be the result of an ancient, underground river flow, was a lucky find. The squat lobster *Galathea strigosa* was seen and the caves and tunnels were full of shoaling fish and very large crustaceans.



Beeston:

drift 52° 56.959N 01° 13.600E

This drift from the Burlington arches to Beeston was done with the team from the BBC, so detailed recording was difficult as we had to chaperone the presenter – who had a great time. It was an area of slightly mobile chalk and flint cobbles and boulders with mostly tough encrusting species. Purple *Hymedesmia* sp. sponge was common.

Sheringham:

- Vincent Road 52° 56.748N 01° 13.261E
- Lifeboat slip 52° 56.815N 01° 12.228E
- Storm drain 52° 56.794N 01° 11.789E

Three new sites were explored off Sheringham to make a change from the usual Esplanade location.

Vincent road is a site at the extreme East of Sheringham with a very slippery entry point via concrete stairs. The site was mainly chalk plain entirely covered in chalk cobbles, there were occasional paramoudra flints.

The **Lifeboat slip** marks the far West end of Sheringham and is an area of very rugged chalk reef. The chalk is again overlaid with chalk cobbles and boulders which provide hiding places for small crustaceans, such as porcelain crabs, hairy crabs and harlequin shrimps. Caution should be exercised diving here as although the Lifeboat crew have been very friendly some fishermen have chosen to spread rumours of problems.

The **storm drain** is a point over a mile West of Sheringham where the cliffs drop low enough to enable shore entry. It's best not to dwell on the presence of large numbers of tomato plants at his point! This dive was done as a fast drift back into Sheringham, passing an unexpected wreck on the way. This was again mostly rugged chalk plain with areas covered in cobbles.



Weybourne:

- **Cliffs 52°56.974N 01° 08.526E**
- **Coastguard cottages 52° 56.932N 01° 08.948E**

These two sites are fairly similar, with a fine sandy seabed with areas of exposed chalk plain and more rugged outcrops. The cliffs site also has abandoned concrete war defences. *Taonia atomaria* and *Scinaia* were the dominant algae, but this could be due to the dive being at the end of the season. A five bearded rockling was seen at the cliffs site and little cuttlefish were encountered late in the season.



Late sightings of little cuttlefish were a highlight

Salthouse: 52° 57.387N 01° 05.884E

This site appeared at first to be just fine rippled sand covered in a brown algal mat. Razor shells, shore crabs and brown shrimps were all very common. More than 200m out, there was a 40cm high step onto exposed clay. This was very undercut and provided shelter for many crustaceans. Heading back, an area of tall, rugged chalk outcrops was seen, which was very densely covered in encrusting life less than 50m from the shoreline.

Cley: flints 52° 57.972N 01° 03.282E

This site has been surveyed by several drift dives, roughly level with the wreck of the Vera. It is a sandy seabed, with areas of flint cobbles and boulders and wooden and concrete wreckage.

Other Norfolk sites

Sites which had been surveyed in previous years, including Trimmingham, the wrecks of the Vera and Rosalie and Cliff Lane and the Esplanade in Sheringham were dived throughout the season by many Seasearchers. The main changes were a large amount of scouring around the wrecks, so that divers could get underneath the Rosalie (not recommended!) and a much lusher growth of algae than in previous years, pushing some sites into different biotopes.

Low lights! Sea Palling 52° 49.851N 01° 33.861E

A return to the mussel bed was very upsetting – the whole area had been dredged and all the mussels were gone. The seabed had been left in a series of ridges and furrows. Another surprise was that the bed had been anchored into a low *Sabelaria spinulosa* reef which had also been mostly destroyed. There were still areas of live worms on top of the ridges, but the furrows were full of dead tubes. One bright spot on a dispiriting survey was a sighting of *Thyone sp.* sea cucumber, another first for our records.

5 Survey sites - Lincolnshire

Lincolnshire is even more turbid than Essex, with seabed composed of silt and very fine sand which is constantly moved around to form beaches and worked intensively to harvest shellfish.



The Seaweed East team scouring Lincolnshire

Gibraltar point:

- Creek $53^{\circ} 05.700N$ $00^{\circ} 19.176E$
- Shore $53^{\circ} 05.816N$ $00^{\circ} 20.342E$

We had generous help from Lincolnshire Wildlife Trust – very nice accommodation and excellent lab space. Site mostly very fine sand and anoxic mud. Very few species of seaweed present; nothing even washed up on the beach! *Ulva flexuosa* and a filamentous green algae (which was binding sediment) were found on site, a further 6 commonly seen species were found as drift at the tideline.

An unfortunate trailer failure meant boat diving was cancelled just a few metres from the sea, however it was a chance for local stainless steel fabricators to shine!

Skegness: $53^{\circ} 12.242N$ $00^{\circ} 24.833E$

A dive by divers from Hull University commissioned by the North Sea Wildlife Trusts. Retrospective examination of photographs from the 10m deep dive within 200m of the windfarm found 37 species, none of which were algae, sponges or squirts, hinting at the turbid nature of the sea locally. Noteworthy species included *Sabellaria spinulosa*, *Liparis montagui*, *Thyone sp* and *Onchidoris muricata*.

A subsequent trip out on the Eastern IFCA (Inshore Fishery and Conservation Authority) research vessel in the Wash has identified a potential site to survey as a project in 2012. Information from the skipper of the vessel located an ancient river valley with steep sides from 10 to 60m deep. Conditions will need to be exceptional, for this area, to make diving practical.



6 Other Activity in 2011

6.1 Training

After good returns in 2010 we again concentrated rather than diluted our training and ran one, large Observer course in 2011. We had 21 students for course and they were joined by current Seasearchers and the curious so that 38 divers filled the beach at Sheringham. One club came across from Leicester with several divers who'd never seen the sea, so they did all their own marshalling and treated the day as club dives. We hope that by boosting awareness of our accessible diving on the east coast we'll foster future Seasearchers - it's still a surprise to most divers.

We also ran a fish ID course with Dr Frances Dipper in Yarmouth, making use of the native displays at the Sealife centre and supported by the Time and Tide Museum who provided accommodation for the classroom sessions. This is always a very popular course which we alternate annually with Frances' Marine ID course.

Rob ran several dry and pool sessions for the keen and beginner photographers amongst our Seasearchers, setting them up nicely to up their species count from each dive!



Two of our best Observers, Barry Lister and Kate Risely, were helped by a grant from NBIS to cover the cost of the Surveyor course and associated expenses. Both passed easily and have already added their new expertise to our record returns for 2011!



6.2 Seaweed East

There will be separate reports for each of the counties involved in Seaweed East, so just a brief overview will be given here. During participation in a seaweed survey of the Scillies, organised by Angie Gall, we realised that a similar event would be tremendously useful to the east coast. Rob grabbed his opportunity when Angie's experts were tired and emotional on the last night and persuaded them that a similar trip to the North Sea would be a good idea.

The whole thing snowballed over the Winter and the final result in August was 10 days of continuous surveying from Essex to Northumberland, a plan that in hindsight may have been a little over ambitious. It was however well worth doing, highlights include: 3 invasive alien algae and one squirt in Essex, several algae species that were well out of range (e.g. *Gastroclonium reflexum*) and some previously unrecorded that were the dominant species on a habitat (e.g. *Taonia atomaria*). A sponge that was ubiquitous on the Norfolk chalk reef turned out to be a species of *Hymedesmia* that was entirely new to science and Dr Goodwin was able to identify several new species for the area (e.g. *Raspailia ramosa*) by examining their spicules. The number of algal species identified for East Anglia leapt from 19 in 2010 to 98, a five fold increase!



New species of purple *Hymedesmia* sponge



Diver with new sponge - calmly stuck on a flint

6.3 Traditional annual media frenzy

In 2010 our multi-screen marine show at the Forum in Norwich attracted the attention of a BBC producer who thought it might get a 10 minute slot on the documentary thread 'Inside Out'. As she deepened her research, she decided they could easily fill the whole 30 minute programme with the issues surrounding the chalk reef and the MCZ process. This kicked off months of preparation and the main filming started in July. A team came up from Plymouth with a mammoth RIB and filming took place off Sheringham. That was an interesting experience and as they were south western wreck divers they were amazed by the reef life. We provided much of the scenic and wildlife footage as they weren't set up for animals smaller than TV presenters. The episode was shown in October on BBC1 East and is due to be repeated nationally on BBC2 – date to be confirmed. The production team received a local documentary award for the programme and we have stayed in touch with a view to more coverage of a reef which is now appreciated as a local asset.

We managed to choreograph some news coverage generated by Seaweed East to coincide with the documentary and the reef was news in Russia, China and Norfolk Virginia. For other conservation groups with news we'd repeat our recommendation of Jo Riley at BAV Media to help with reaching a wider audience.

6.4 Seasearch East Online

The Seasearch East website – www.seasearcheast.org.uk – provides a virtual welcome and reference for local divers who are interested in Seasearch.



It shares news and photos with our website: www.1townhouses.co.uk which hosts our image archive.

Although the pictures are definitely the main draw the Seasearch East site itself received a healthy 7,500 hits in 2011, whilst the galleries attracted 600,000.

The website is primarily a static resource as a new Facebook Group page 'Seasearch East' lets us reach our volunteers and interested parties whilst allowing them to share images for ID and discuss survey plans and courses too. We simply copied the popular groups set up in Wales, and other areas, and encouragingly there seem to be plenty of overlapping volunteers who can now see what is happening across all the regions they'd like to support.

We also used a Facebook group as a way of hosting a multi-person 'blog' during the Seaweed East survey road trip which kept sponsors and friends in touch with the progress of the group. They are a free, easy to access and maintain way to produce an attractive online presence for projects and events.

6.5 Marine Conservation Zone planning

We have been representing the MCS and the Seasearch dataset at the regional meetings of the North Sea MCZ project – known as Net Gain. This has been a slow painful process starting with high expectations and running to a disappointing conclusion with the project team pandering to commercial interests in an effort to make their lives easier as the process drew to a close.

Several brave volunteers attended meetings during the process and many thanks are due to Kate Risely, Fiona Tibbett and Barry Lister who stepped into the firing line during the summer.

It appears the output of the stakeholder process was not acceptable to the government and its environmental departments. So there will be another stage, delaying the designation of any reserves by another year – if they survive the various parliamentary and public consultations that are still to follow that. We can only hope that the results will be enhanced by the addition of this further site research and ground truthing stage which was introduced very late in the day.

Delays obviously allow activities to continue and even worse give the opportunity for a final spate of opportunistic damage to some places which would not otherwise have been exploited. We have suffered this in the East where one of our proposals for protection – the Sea Palling mussel bed – was destroyed by trawling before the final output of Net Gain was even issued.



We still have high hopes that the North Norfolk chalk will be designated as an MCZ, but the Sea Palling mussel bed was been removed from the running. There is the potential for small areas of greater protection too but this process was discussed only at the last minute. We hope to see candidate areas of clay, chalk and mussels but these 'Reference Areas' are some of the most vulnerable to the extended consultation.

6.6 Chalk Reef Surveys

With the support of Norfolk's council biodiversity departments - Norfolk Biodiversity Information Service (NBIS) and Norfolk Biodiversity Partnership (NBP) - we have continued our survey of the North Norfolk chalk reef. In the second year of this concerted effort we have more than filled the gaps in our initial linear inshore survey. We now have now a continuous record of the habitat over the 30km extent of the reef from Cley to Trimingham. There will be a separate report on the 2011 chalk surveying available from NBP and Seasearch East.

Our hopes to conduct similar projects on Seagrass, *Sabellaria* worm reefs and Mussel beds did not come to fruition. In the current climate many conservation bodies do not seem to be able to support external projects at the moment.

6.7 Wildlife Trust Marine Campaigns

We did lots of work with Norfolk Wildlife Trust and as usual they have been very supportive. Rob spoke for a very enthusiastic audience at the Lincolnshire Wildlife Trust's AGM. We worked closely with the Wildlife Trusts in the MCZ process and they kindly supported Seaweed East.



Sea Bass - *Dicentrarchus labrax*

7 Appendix - Species lists

The following tables list all 286 distinct species recorded during 2011. Each species has been given an approximate rating of their abundance, clearly their distribution varies across the survey area but hopefully this presentation gives a summary indication of their representation.

Their extent is summarised on the usual 'SACFOR' scale;

S = Super Abundant, A = Abundant, C = Common, F = Frequent, O = Occasional, R = Rare

Sponges	Extent	Cnidarians	Extent
<i>Amphilectus fucorum</i>	F	<i>Abietinaria abietina</i>	O
<i>Aplysilla sulphuria</i>	O	<i>Actinia equina</i>	O
<i>Clathrina coriacea</i>	R	<i>Actinia fragacea</i>	R
<i>Cliona celata</i>	O	<i>Aalophenia spp</i>	O
<i>Cream crusts</i>	F	<i>Alcyonium digitatum</i>	F
<i>Dysidea fragilis</i>	O	<i>Auralia aurita</i>	R
<i>Dysidea pallescens</i>	R	<i>Beroe cucumis</i>	R
<i>Grantia compressa</i>	O	<i>Chrysaora hysoscella</i>	R
<i>Guantha lacunosa</i>	R	<i>Diadumene cincta</i>	F
<i>Halichondria panicea</i>	F	<i>Eudendrium spp</i>	C
<i>Haliclona cineraria</i>	R	<i>Garveia nutans</i>	O
<i>Haliclona oculata</i>	O	<i>Halecium halecinum</i>	O
<i>Halisarca spp</i>	O	<i>Hvdractinia echinata</i>	O
<i>Hymedesmia sp (purple)</i>	F	<i>Hvdralmania falcata</i>	R
<i>Leucosolenia spp</i>	O	<i>Kirchenpauria spp</i>	O
<i>Mycale macilenta</i>	O	<i>Metridium senile</i>	C
<i>Mvxilla incrustans</i>	O	<i>Nemertesia antenina</i>	O
<i>Mvxilla rosacea</i>	O	<i>Nemertesia ramosa</i>	R
<i>Orange/yellow crusts</i>	F	<i>Obelia spp</i>	O
<i>Oscarella lobularis</i>	O	<i>Pleurobrachia pileus</i>	O
<i>Oscarella sp (purple)</i>	O	<i>Plumularia setacea</i>	O
<i>Polymastia penicillus</i>	R	<i>Saqartia elegans</i>	F
<i>Prosuberites denhartogi</i>	O	<i>Saqartia troglodytes</i>	O
<i>Raspailia ramosa</i>	R	<i>Saqartioaeton undatus</i>	R
<i>Red crust</i>	O	<i>Sarsia eximia</i>	F
<i>Scvpha ciliata</i>	F	<i>Sertularia cupressina</i>	O
<i>Steliaera riqida</i>	R	<i>Tinv feathery hydroid</i>	F
<i>Suberites ficus</i>	O	<i>Tubularia indivisa</i>	C
		<i>Tubularia larvnx</i>	F
		<i>Urticina felina</i>	O



Beadlet anemone -
Actinia equina



Plumose anemone
- *Metridium senile*



Dahlia anemone
- *Urticina felina*



Purple sponge - *Hymedesmia sp.*

Worms	Extent	Molluscs	Extent
<i>Cirratulus cirratus</i>	R	<i>Acanthodoris pilosa</i>	O
<i>Filograna implexa</i>	F	<i>Aeolidia papillosa</i>	O
<i>Lanice conchilega</i>	O	<i>Aplysia punctata</i>	R
<i>Marina arecola</i>	F	<i>Archidoris pseudoargus</i>	O
<i>Polydora ciliata</i>	C	<i>Buccinum undatum</i>	O
<i>Pomatoceros sp</i>	C	<i>Calliostoma zizyphynum</i>	O
<i>Sabella pavonina</i>	F	<i>Catriona gymnota</i>	R
<i>Sabellaria spinulosa</i>	R	<i>Chiton spp</i>	O
<i>Salmacina dysteri</i>	F	<i>Coryphella brownii</i>	R
Unknown bristleworm	R	<i>Coryphella lineata</i>	R
Unknown scale worm	R	<i>Crepidula fornicata</i>	F
		<i>Crossastrea gigas</i>	R
		<i>Dendronotus frondosus</i>	O
Crustaceans		<i>Doto coronata</i>	R
<i>Athanas nitescens</i>	R	<i>Doto millbayana</i>	R
<i>Cancer pagurus</i>	F	<i>Doto sarsiae</i>	R
<i>Caprella sp</i>	F	<i>Ensis arctuatus</i>	F
<i>Carcinus maenas</i>	C	<i>Eubbranchus pallidus</i>	R
<i>Cirripecta spp</i>	C	<i>Eubbranchus tricolor</i>	O
<i>Crangon crangon</i>	F	<i>Facelina auriculata</i>	R
<i>Ebalia tumefacta</i>	R	<i>Facelina bostoniensis</i>	R
<i>Galathea squamifera</i>	F	<i>Flabellina pedata</i>	F
<i>Galathea strigosa</i>	R	<i>Gibbula cineraria</i>	F
<i>Hippolyte varians</i>	O	<i>Goniodoris nodosa</i>	F
<i>Homarus gammarus</i>	O	<i>Hermaea bifida</i>	R
<i>Hyas araneus</i>	F	<i>Hydrobia sp</i>	C
<i>Idotea spp</i>	O	<i>Janolus cristatus</i>	F
<i>Inachus spp</i>	O	<i>Modiolus modiolus</i>	R
<i>Jassa falcata</i>	C	<i>Mytillus edulis</i>	F
<i>Liocarcinus depurator</i>	R	<i>Nucella lapillus</i>	O
<i>Macropodia spp</i>	F	<i>Onchidoris bilamellata</i>	F
<i>Mysis spp</i>	F	<i>Onchidoris muricata</i>	R
<i>Necora puber</i>	R	<i>Patella vulgaris</i>	O
<i>Pagurus bernhadus</i>	O	<i>Pholas dactylus</i>	F
<i>Pagurus spp</i>	C	<i>Sepiolo atlantica</i>	O
<i>Palaemon elegans</i>	O	<i>Spisula solida</i>	O
<i>Palaemon serratus</i>	O	<i>Tritonia hombergi</i>	R
<i>Pandalus montagui</i>	O		
<i>Pilumnus hirtellus</i>	R		
<i>Pisidea longicornis</i>	R		
Unknown amphipod	O		



Little cuttlefish
- *Sepiolo atlantica*



Violet Sea Slug
- *Flabellina pedata*

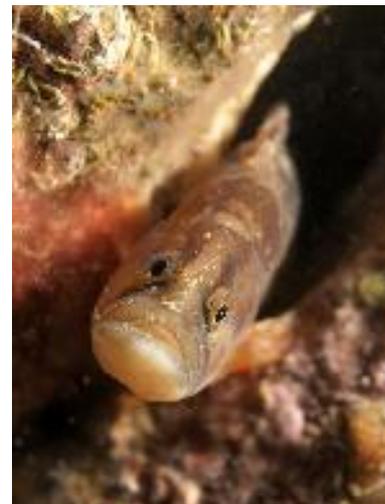


Sea Lemon
- *Archidoris pseudoargus*



Squat lobster - *Galathea squamifera*

Bryozoans	Extent	Fishes	Extent
<i>Alcyonidium diaphanum</i>	O	<i>Agonus cataphractus</i>	R
<i>Bicellariella ciliata</i>	O	<i>Ammodytes tobianus</i>	O
<i>Bugula flabellata</i>	O	<i>Anguilla anguilla</i>	R
<i>Bugula plumosa</i>	O	<i>Callionymus lyra</i>	O
<i>Bugula turbinata</i>	O	<i>Callionymus reticulatus</i>	O
<i>Cellopora pumicosa</i>	R	<i>Chelon labrosus</i>	R
<i>Crisia spp</i>	F	<i>Ciliata mustela</i>	R
crusts	C	<i>Crenilabus melops</i>	F
<i>Electra pilosa</i>	C	<i>Ctenolabrus rupestris</i>	O
<i>Flustra foliacea</i>	O	<i>Dicentrarchus labrax</i>	F
<i>Securiflustra securifrons</i>	R	<i>Echiichthys vipera</i>	O
Unknown branching	O	<i>Eutrigla gurnardus</i>	R
		<i>Gadus morhua</i>	R
		<i>Gobius niger</i>	R
Echinoderms	Extent	<i>Gobiusculus flavescens</i>	F
<i>Asterias rubens</i>	C	<i>Labrus bergylla</i>	F
<i>Crossaster papossus</i>	O	<i>Limanda limanda</i>	O
<i>Echinus esculentus</i>	O	<i>Liparis montagui</i>	R
<i>Henricia spp.</i>	O	<i>Liparis sp</i>	O
<i>Ophiothrix fragilis</i>	R	<i>Lipophrys pholis</i>	O
<i>Ophiura albida</i>	O	<i>Microstomus kitt</i>	R
<i>Psammechinus miliaris</i>	R	<i>Mullus surmeletus</i>	R
<i>Thyone sp</i>	R	<i>Myxocephalus scorpius</i>	O
		<i>Pholis gunnellus</i>	O
Sea squirts	Extent	<i>Platycthes flesus</i>	O
<i>Archidistoma aggregatum</i>	R	<i>Pleuronectes platessa</i>	O
<i>Asciella aspersa</i>	O	<i>Pollachius pollachius</i>	R
<i>Asciella scabra</i>	O	<i>Pomatoschistus pictus</i>	F
<i>Boltensis echinata</i>	R	<i>Pomatoschistus sp</i>	C
<i>Botrylloides leachii</i>	F	<i>Scyliorhinus canicula</i>	R
<i>Botryllus schlosseri</i>	F	<i>Solea solea</i>	R
<i>Clavellina lepadiformis</i>	F	<i>Syngnathus acus</i>	O
<i>Corella eumota</i>	O	<i>Syngnathus rostratus</i>	R
<i>Didemnum maculosum</i>	C	<i>Taurulus bubalis</i>	F
<i>Didemnum vexillum</i>	R	<i>Thorogobius ephippiatus</i>	R
<i>Diplosoma listerianum</i>	O	<i>Trisopterus luscus</i>	C
<i>Diplosoma spongiforme</i>	C	<i>Trisopterus minutus</i>	F
<i>Distaplea rosea</i>	F		
<i>Molgula spp</i>	O		
<i>Morchellium argus</i>	O		
<i>Perophora sp</i>	F		
<i>Polycarpa pomaria</i>	O		
<i>Pycnoclavella stolonialis</i>	O		
<i>Sidnyum turbinatum</i>	O		
<i>Styella clava</i>	R		
<i>Synoicum pulmonaria</i>	R		
<i>Tridemnum cereum</i>	R		
Unknown solitary clear	O		



Butterfish - *Pholis gunnellus*



Common urchin
- *Echinus esculentus*



Long spined sea scorpion
- *Taurulus bubalis*

Others	Extent	Seaweeds (continued)	Extent
<i>Haliphysema tumanowiczii</i>	R	<i>Gracilaria gracilis?</i>	O
<i>Phoronis hippocrepia</i>	R	<i>Gracilaria sp</i>	O
Sea spiders	F	<i>Gracilariopsis longissima</i>	O
		<i>Grateloupia filicina</i>	R
Seaweeds	Extent	<i>Griffithisia corallinoides</i>	R
<i>Aglaothamnion byssoides (A. Tenuissimum)?</i>	R	<i>Halarachnion ligulatum</i>	O
<i>Aglaozonia phase of Cutleria?</i>	R	<i>Halidrys siliquosa</i>	R
<i>Ahnfeltia plicata</i>	F	<i>Halurus equisetifolius</i>	F
<i>Ascophyllum nodosum</i>	F	<i>Halurus flosculosus</i>	F
<i>Blidingia marginata</i>	O	<i>Heterosiphonia plumosa</i>	F
<i>Blidingia minima</i>	O	<i>Hypoglossum hypoglossoides</i>	O
<i>Brongniartella byssoides</i>	O	<i>Laminaria digitata</i>	R
<i>Bryopsis hypnoides</i>	O	<i>Lomentaria clavellosa</i>	O
<i>Bryopsis plumosa</i>	F	<i>Mastocarpus stellatus</i>	F
<i>Calliblepharis ciliata</i>	C	Non-calcarous red crusts	C
<i>Calliblepharis jubata</i>	R	<i>Osmundea oederi?</i>	O
<i>Catenella caespitosa</i>	O	<i>Palmaria palmata</i>	F
<i>Ceramium echionotum</i>	O	<i>Pelvetia canaliculata</i>	F
<i>Ceramium pallidum</i>	O	<i>Phylophora pseudoceranooides</i>	O
<i>Ceramium sp</i>	F	<i>Plocamium cartilagineum</i>	C
<i>Chaetomorpha linum</i>	O	<i>Polyides rotundus</i>	F
<i>Chondracanthus acicularis/Gelidium pusillum?</i>	R	<i>Polysiphonia devoniensis?</i>	R
<i>Chondria capillaris?</i>	R	<i>Polysiphonia harveyii?</i>	R
<i>Chondria dasyphylla</i>	C	<i>Polysiphonia elongata</i>	F
<i>Chondrus crispus</i>	F	<i>Polysiphonia fucooides</i>	O
<i>Chorda filum</i>	O	<i>Polysiphonia lanosa</i>	O
<i>Chordaria flagelliformis</i>	O	<i>Polysiphonia nigra</i>	F
<i>Cladophora hutchinsiae/lehmanniana</i>	O	<i>Polysiphonia stricta</i>	O
<i>Cladophora pellucida</i>	O	<i>Porphyra sp</i>	F
<i>Cladophora rupestris</i>	C	<i>Pterothamnion plumula</i>	O
<i>Cladophora sp pale green short branches</i>	O	<i>Ralfsia verrucosa?</i>	O
<i>Cladophora sp silky</i>	O	<i>Rhizoclonium riparium agg</i>	O
<i>Cladostephus spongiosus</i>	O	<i>Rhodomela confervoides</i>	O
<i>Colpomenia peregrina</i>	O	<i>Rhodothamnionella floridula</i>	O
<i>Corallina officinalis</i>	C	<i>Rhodymenia ardissoni</i>	O
<i>Cryptopleura ramosa</i>	O	<i>Rhodymenia holmesii</i>	O
<i>Cystoclonium purpureum</i>	O	<i>Saccharina latissima (Laminaria saccharina)</i>	R
<i>Delessaria sanguinea</i>	F	<i>Sargassum muticum</i>	R
<i>Derbesia tenuissima</i>	O	<i>Schottera nicaeensis?</i>	O
<i>Dictyota dichotoma</i>	F	<i>Scinaia furcellata?</i>	F
<i>Dilsea carnosa</i>	O	Single celled brown	C
Encrusting coralline algae	C	<i>Spermothamnion repens?</i>	O
<i>ErythroglOSSum laciniatum</i>	O	<i>Spermothamnion strictum?</i>	O
Filamentous browns indet	F	<i>Taonia atomaria</i>	C
Filamentous green (binding sediment)	F	<i>Ulva clathrata (spiny)</i>	O
Filamentous green indet (cf <i>Vaucheria</i>)	F	<i>Ulva flexuosa</i>	O
<i>Fucus serratus</i>	F	<i>Ulva intestinalis</i>	C
<i>Fucus sp (long thin fronds, no bladders)</i>	F	<i>Ulva lactuca</i>	C
<i>Fucus spiralis</i>	F	<i>Ulva linza</i>	C
<i>Fucus vesiculosus</i>	C	<i>Ulva spp.</i>	F
<i>Gastroclonium reflexum</i>	O	<i>Undaria pinnatifida</i>	R
<i>Gelidium cf pusillum (flat tips)</i>	O		

Totals for recorded species were up in all phyla except worms – where we missed one! We're trying to improve ascidians in 2012, we hope the worms can wait until 2013.

Phylum species totals	2011	2010
Sponges	28	15
Cnidarians	30	19
Worms	11	12
Crustaceans	27	23
Molluscs	37	30
Bryozoans (Sea mats)	12	9
Echinoderms	8	6
Ascidians (Sea squirts)	23	16
Fishes	37	24
Others	3	-
Algae	98	19
Total	286	173



Gray gurnard: one of many freshly recorded fish species this year



Many, many thanks to all
Seasearch East's volunteers

The opinions expressed in the report are those of the regional coordinators – Rob Spray and Dawn Watson - not the Marine Conservation Society, Seasearch as a whole or any supporting organisations.

With special thanks to:

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- Christal Seas in Norwich for promoting Seasearch East
- Norfolk Wildlife Trust for their continuing support
- Olympus for supporting our photography

To find out more about Seasearch East please visit www.seasearcheast.org.uk

If your dive club or group would like a visit to explain how they can get started with Seasearch or to see more of the amazing wildlife off the East Anglian coast please get in touch. There are lots more pictures from the East, the UK and even worldwide in our galleries at: www.1townhouses.co.uk

If you're a non-diver there's still plenty you can do. Please get in touch with the Marine Conservation Society (MCS) and/or your local Wildlife Trust. The Trusts also have a website to highlight the wildlife of the North Sea and the events promoting it.

www.mcsuk.org

www.norfolkwildlifetrust.org.uk

www.suffolkwildlife.org

www.essexwt.org.uk

www.northseawildlife.org.uk

www.seasearch.org.uk

The MCS have run a project to highlight important and interesting marine sites. Everyone can see what sites have been nominated for protection at www.yourseasyourvoice.com and what support they have received.



www.seasearch.org.uk

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