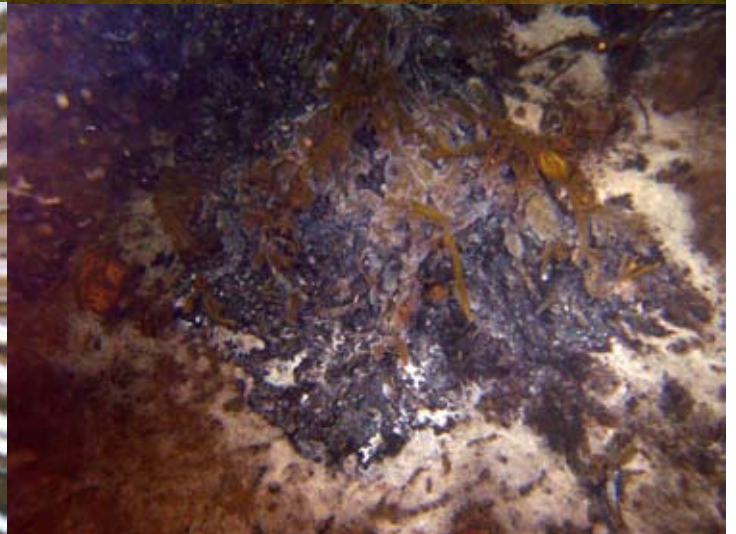


# Upper Loch Fyne Survey

## April 2008

### Summary Report





# Upper Loch Fyne

## 26/27 April 2008

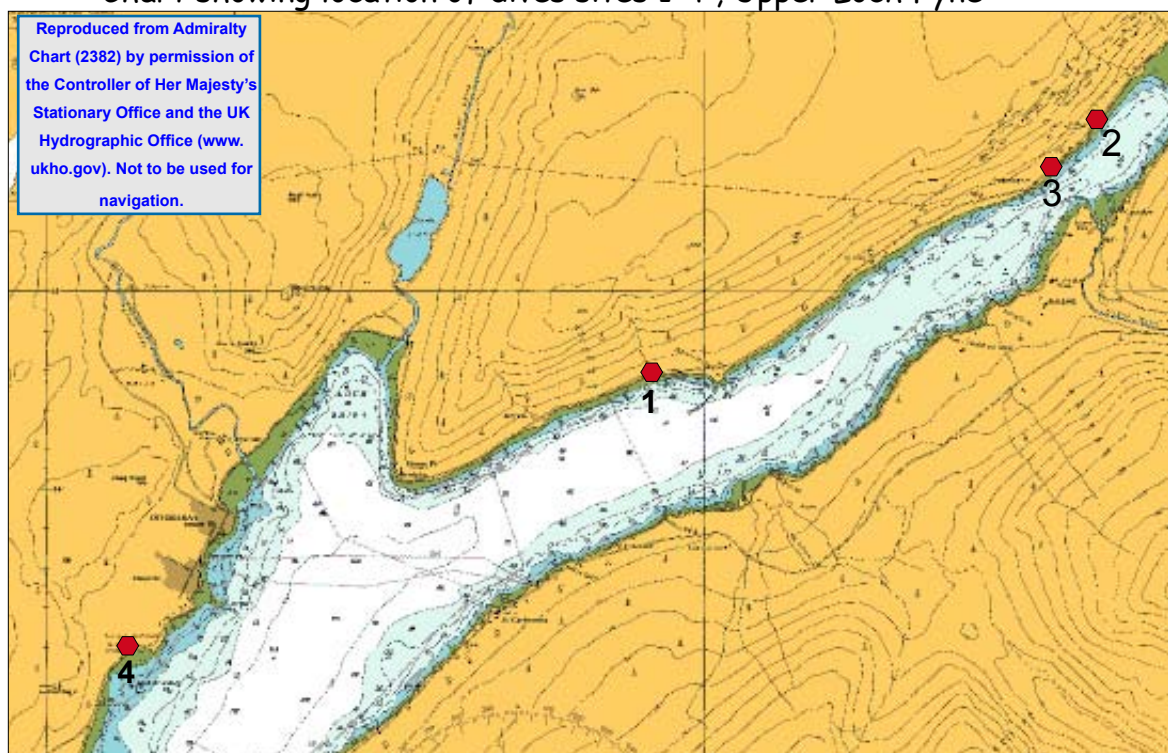
In UK waters the fireworks anemone (*Pachycerianthus multiplicatus*) is only recorded from a handful of Scottish sea lochs and some sheltered inlets off the west of Ireland. Scottish records come from Loch Fyne, Loch Goil, Loch Sunart, Loch Long, Loch Aline and Loch Duich. It is a spectacular animal, one of the largest anemones found in UK waters. Individuals can be up to 30cm long, living in a tube up to a metre in length. The 200 marginal tentacles stream gently in any current giving the animal a very graceful appearance. In the late 1980's and early 1990's a team of divers from Millport Marine Laboratory, carried out a series of survey dives throughout Loch Fyne.



Fireworks anemone at Site 2 with *Beggiatoa* in background

They recorded unusually high numbers of *Pachycerianthus multiplicatus* in the upper part of Loch Fyne, particularly in Loch Shira, a small side arm of the loch by Inveraray. The presence of these rare and spectacular anemones was one of the main reasons for upper Loch Fyne being designated as a Marine Consultation Area by the Nature Conservancy Council, the organisation which eventually became Scottish Natural Heritage. Surveys carried out by volunteer Seasearch divers in 2006 and 2007 confirmed the presence of numerous fireworks anemones in Loch Shira in depths of 5m to 30m. However the 1990 surveys also recorded fireworks anemones in the upper part of Loch Fyne, so in 2008, a small Seasearch survey team returned to Loch Fyne and investigated 3 sites to the north of Loch Shira and one to the south. The results are summarised below.

Chart showing location of dives sites 1-4 , Upper Loch Fyne





Note: As all these dives were carried out from the shore the site locations are given as the OS grid reference of the shore access point.

## **Site 1 - West of Dunderave Point (NN 1371 0967) Depth surveyed 1m to 20m**

Access to this site involved a steep climb from the road down to the water. Underwater the surveyors found a steep mud slope interspersed with parallel strips of gravel and pebbles running down the slope. No fireworks anemones were seen at this site. Juvenile long clawed squat lobsters were abundant as were *Ascidiella aspersa* sea squirts. There were some *Cerianthus lloydii* burrowing anemones noted but it was felt that the slope may have been too mobile for the large burrows needed by *Pachycerianthus*.



Juvenile squat lobster at Site 1

## **Site 2 - Layby opposite Oyster Bar moorings (NN1834 1223) Depth surveyed 2m to 15m**

Access at this site was considerably easier with a short walk from the layby to the water. Two dives were carried out here. The first pair swam out the northern-most mooring then back to the shore. The second pair started further south, swam out to the second mooring, back to the first mooring then to the shore.

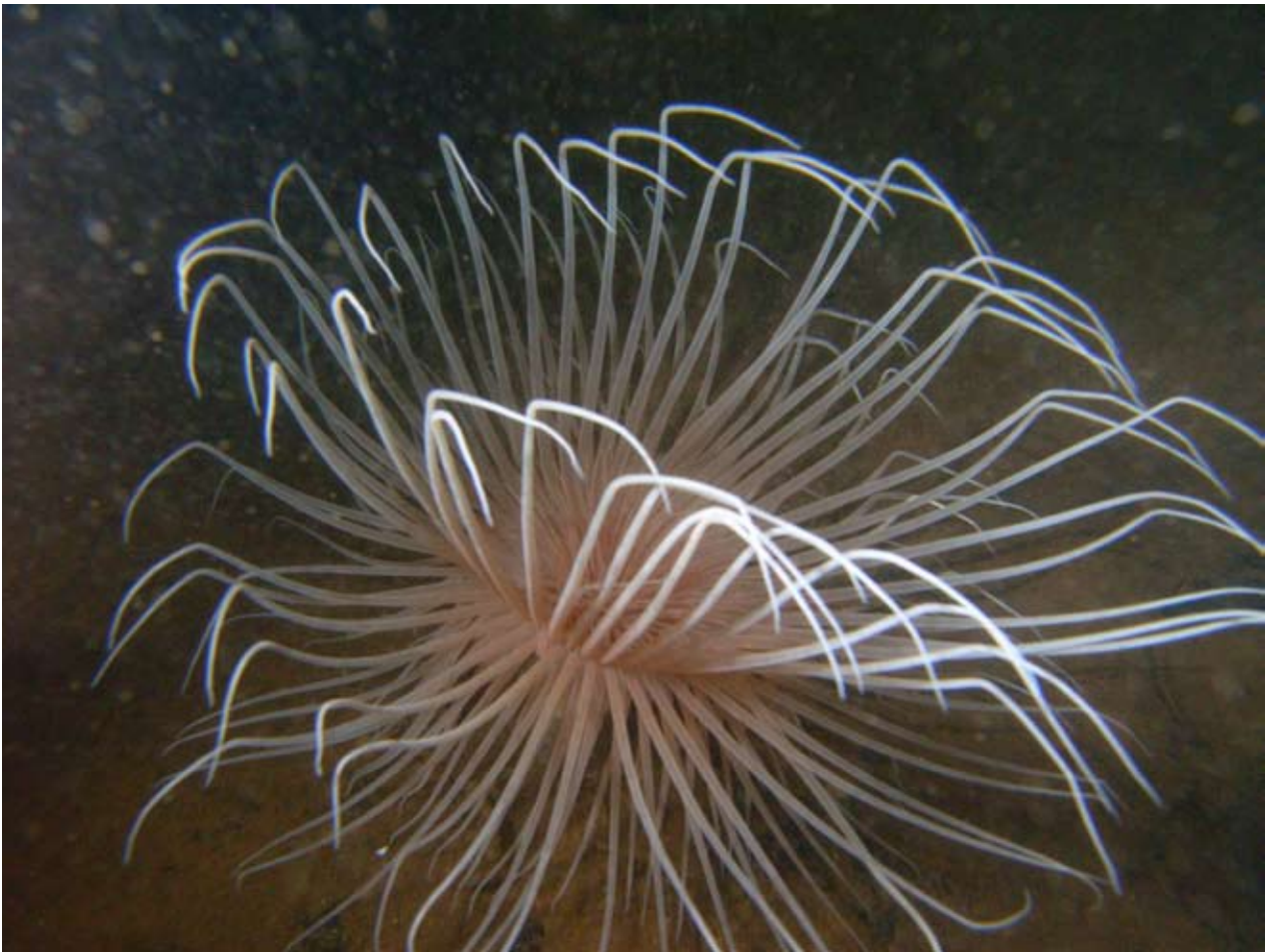
Both teams found a fairly steep mud slope with extensive *Beggiatoa* bacterial mats and abundant *Pachycerianthus*. Between the two teams over 70 anemones were counted in depths of 5m to 15m. Occasional *Sagartiogeton laceratus* anemones were also recorded. There was quite a large amount of debris on the seabed at this point, much of it natural, mainly branches and leaves but plastic bags, cans, bottles and golf balls were also noted. The density of anemones at this site was similar to the high density recorded by previous surveys in Loch Shira.



Swimming crab and *Beggiatoa* at Site 2



*Sagartiogeton* anemones at Site 2



Fireworks anemone at Site 3

**Site 3 - Layby near Ardgenavan Cottage (NN1746 1131) Depth surveyed 5m to 20m**

Once again access to the shore was quite easy from this site with the main danger being traffic passing the lay by at high speed. Three pairs of divers surveyed this site, all starting in the same place with one pair heading roughly NE (100°M), one pair straight out from the shore (150°M) and the third heading roughly SE (210°M).

At this site the loch narrows slightly before broadening out again into a final basin. The narrows were, until fairly recently, occupied by a large number of circular fish farm cages from the large aquaculture facility at Cairndow. At the time of the survey there were no cages but the divers did encounter some, presumably fish farm related, debris on the seabed.

There seemed to be something of a sill at this site, with the divers heading straight out from the shore encountering a boulder/mud seabed down to 20m, while the divers heading NE and SE found a steep mud slope descending to a gently sloping plain at around 20m. Fireworks anemones were very abundant to the SE and NE, with around 60 individuals counted at these two sites. Once again density was comparable to that found in Loch Shira. Only 9 individual anemones were counted by the central pair of divers but interestingly they recorded numerous sea pens on the mud between the boulders, something which was not seen anywhere else in upper Loch Fyne.

**Site 4 - Layby south of Coastguard Hut (NN 0859 0722) Depth surveyed 1m to 6m**

Another site easily accessible from the shore but completely different to the other sites surveyed. The site was at the centre of a broad shallow bay with a maximum depth of 6 metres. The seabed was sandy with scattered clumps of sponges and horse mussels growing on isolated rocks.



The table below shows the number of species recorded in each taxonomic group and some of the most common species. The table overleaf records all the species found along with an indication of their abundance at each site.

A=Abundant  
F= Frequent  
O= Occasional  
R = Rare

Phylum	Common Name	No. of Species	Common Species
Porifera	Sponges	2	<i>Suberites carnosus</i>
Cnidaria	Anemones, corals, hydroids, jellyfish	11	<i>Pachycerianthus multiplicatus</i>
			<i>Protanthea simplex</i>
Ctenophora	Comb jellies	1	<i>Bolinopsis infundibulum</i>
Annelida	Worms	9	<i>Pomatoceros sp</i>
Crustacea	Crabs, lobsters	12	<i>Munida rugosa</i>
			<i>Necora puber</i>
Mollusca	Shells, seaslugs	18	<i>Buccinum undatum</i>
Bryozoa	Sea Mats	2	
Echinodermata	Starfish	7	<i>Asterias rubens</i>
			<i>Ophiura albida</i>
Tunicata	Sea squirts	5	<i>Asciidiella aspersa</i>
Pisces	Fishes	6	<i>Gobiusculus flavescens</i>
Algae	Seaweeds	8	<i>L. saccharina</i>
Other		2	<i>Beggiatoa</i>
	<b>Total Species</b>	<b>83</b>	

## Conclusion:

Two healthy populations of Fireworks anemones were discovered during the survey - the first near the head of the loch around a line of moorings laid for visitors to the nearby Oyster Bar and the second opposite the major fish farm depot at Cairndow. The density of anemones found was comparable to the Loch Shira sites, confirming the importance of upper Loch Fyne for this species. There are similarities between both these sites and the Loch Shira sites. All three sites have a significant freshwater input nearby in the form of the River Shira, Kinglass Water and the River Fyne. At the depths the anemones are found, generally below 10m, it would take exceptionally heavy run off to lower the salinity but the organic matter carried by the rivers may be an important food source for the anemones. A further similarity between the three sites is that they are all protected from trawling by either man-made features or bottom topography.

Divers taking part in the survey were: Marco Faasse, Trish Grey, Marianne Lighthart, Owen Paisley, John Rees, Hazel White and Jan Ziolo.

Report: O. Paisley,  
Photography: O. Paisley

Seasearch is a volunteer underwater survey project run by MCS which encourages recreational divers to contribute towards the conservation of the marine environment. Financial support for the project during 2008 has been given by:



Species	Site No.	1	2	3	4	Species	Site No.	1	2	3	4
<b>Sponges</b>						<i>Coryphella lineata</i>				R	
<i>Halichondria</i> sp		R			F	<i>Gibbula cineraria</i>					R
<i>Suberites carnosus</i>				O		<i>Mytilus edulis</i>					O
<b>Cnidarians</b>						<i>Archidoris pseudoargus</i>					R
<i>Pachycerianthus multiplicatus</i>			C	C		<i>Hinia reticulata</i>					R
<i>Sagartiogeton laceratus</i>			F		R	<i>Littorina littorea</i>				R	F
<i>Protanthea simplex</i>		C		F		<i>Littorina obtusata</i>					O
<i>Metridium senile</i>		R		R		Chiton sp				O	
<i>Alcyonium digitatum</i>				R		<i>Aequipecten opercularis</i>				R	
<i>Cerianthus lloydii</i>				R		<i>Tonicella rubra?</i>				R	
<i>Sarsia tubulosa medusae</i>				R		<b>Bryozoans</b>					
<i>Aurelia aurita</i> polyps						<i>Flustrellidra hispida</i>				C	
<i>Hydractinia echinata</i>				O		<b>Echinoderms</b>					
<i>Virgularia mirabilis</i>				C		<i>Asterias rubens</i>	C	O	O		R
<i>Actinia equina</i>					O	<i>Marthasterias glacialis</i>	O				
<b>Worms</b>						<i>Ophiura</i> sp				O	
<i>Arenicola marina</i> (casts)			C	C		<i>Ophiura albida</i>				C	R
<i>Pomatoceros</i> sp			O	O	O	<i>Ophiothrix fragilis</i>				R	
<i>Serpula vermicularis</i>		O		O		<i>Psammechinus miliaris</i>				O	R
<i>Eupolymnia nebulosa ?</i>		C			O	<i>Labidoplax</i> sp					R
<i>Lanice conchilega</i>					R						
<i>Nereis virens</i>					R	<b>Sea Squirts</b>					
<i>Sabella pavonina</i>				R	R	<i>Asciidiella aspersa</i>	C	O	C		
<i>Phyllodoce maculata</i>					R	<i>Ascidia mentula</i>	O			R	R
<i>Myxicola</i> sp				R		<i>Corella parallelogramma</i>	O			R	
<b>Crustaceans</b>						<i>Botryllus schlosserii</i>					R
<i>Liocarcinus depurator</i>			R	O	R	<i>Ciona intestinalis</i>				O	
<i>Pagurus bernhardus</i>		C	R	O	R						
<i>Carcinus maenas</i>			R	O	R	<b>Fishes</b>					
<i>Munida rugosa</i>		C		O		<i>Gobiusculus flavescens</i>	O	R	R		
<i>Necora puber</i>		R		R		<i>Eutrigla gurnardus</i>	O	R			
<i>Hyas araneus</i>				O		<i>Spinachia spinachia</i>					R
<i>Homarus gammarus</i>				R		<i>Taurulus bubalis</i>				R	R
<i>Cancer pagurus</i>						<i>Pholis gunnellus</i>				R	R
<i>Palaemon serratus</i>				R		<i>Lesuerigobius friesii</i>				R	
<i>Leptomysis</i> sp				R		<b>Seaweeds</b>					
<i>Aphrodita aculeata</i>				R		<i>Ascophyllum nodosum</i>		O	C		
<i>Inachus</i> sp					R	<i>Fucus serratus</i>					O
<b>Molluscs</b>						<i>Laminaria saccharina</i>	O			F	R
<i>Modiolus modiolus</i>			O	R	F	Encrusting red	O			R	
<i>Ensis</i> sp		R				<i>Pelvetia canaliculata</i>					A
<i>Pecten maximus</i>				R		<i>Corallina officinalis</i>					R
<i>Buccinum undatum</i>		R		O	R	<i>Polysiphonia lanosa</i>				C	
<i>Eubranchus</i> sp ?		R				<i>Fucus vesiculosus</i>					C
<i>Capulus ungaricus</i>					R	<b>Other</b>					
<i>Mytilus edulis</i>				C	O	<i>Beggiatoa</i> sp		A	O		
<i>Facelina bostoniensis</i>					R	<i>Zostera marina</i>					R
<i>Nucella lapillus</i>					R	<i>Bolinopsis infundibulum</i>				A	C