

**Pachycerianthus
Survey - Loch Shira
Sept/Oct 2005
Summary Report**





Loch Shira at Site 1



Access to shore at Site 1



Typical *Pachycerianthus* - Site 1



Pachycerianthus at site 4



Pachycerianthus in the process of retracting - Site 1

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 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 1988, a team of divers from Millport Marine Laboratory, carried out a series of survey dives in and close to Loch Shira, a side arm of Loch Fyne. Loch Shira is approximately 1.5km long and 1km wide, with a maximum charted depth of 65m. The 1988 team found unusually high numbers of *Pachycerianthus multiplicatus* within the Loch in depths ranging from 5m to 40m. 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.

In September and October a small team organised by the West of Scotland Seasearch Co-ordinator returned to Loch Shira to discover how the *Pachycerianthus* population was faring 17 years after the last survey.

A total of 7 sites were surveyed, 5 within Loch Shira and two just outside in Loch Fyne. The front cover photographs were mainly taken at Sites 1 and 5, though *Pachycerianthus* was found at all the sites surveyed.

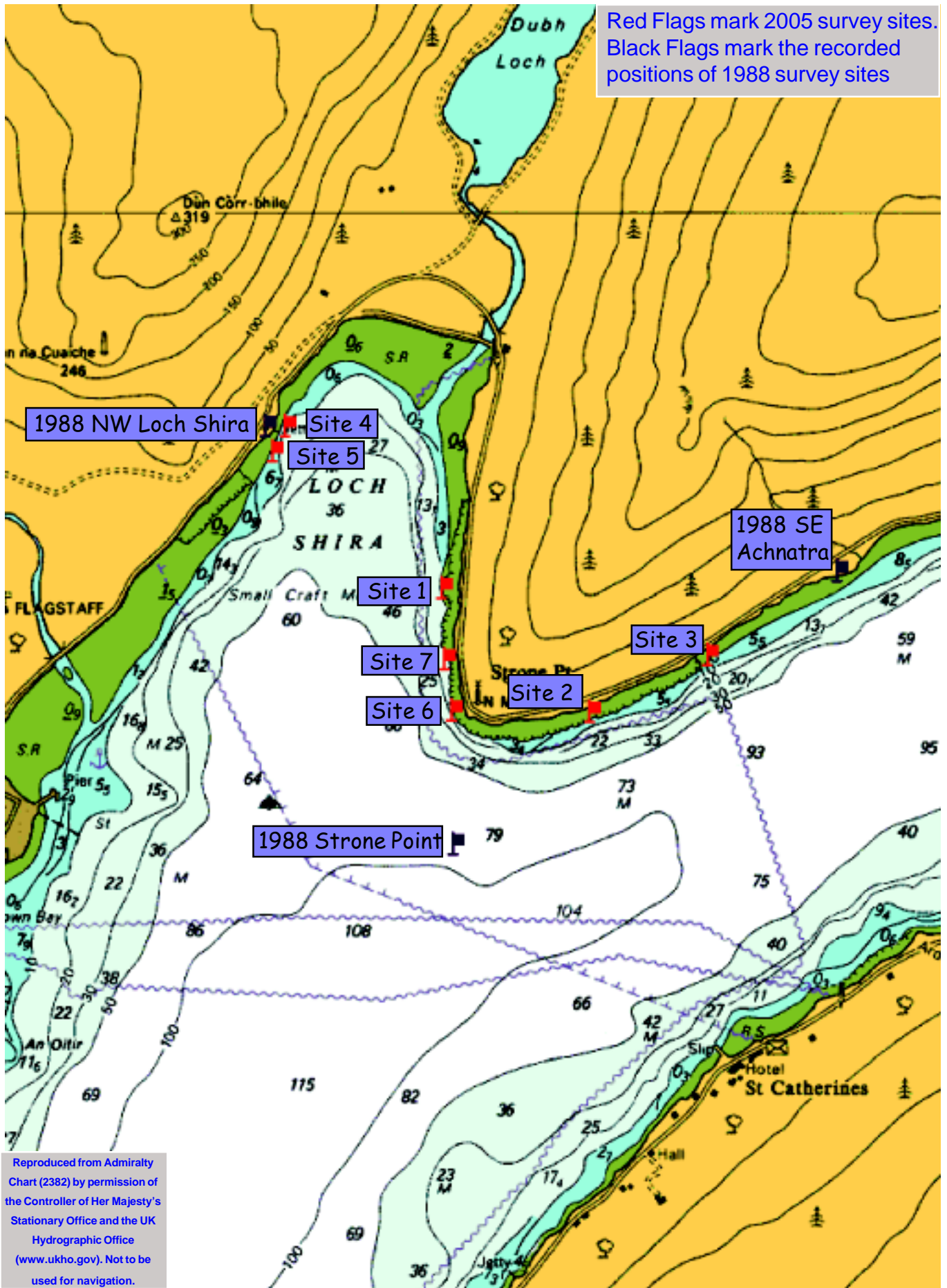
Distribution of the anemones was quite patchy, for example at Site 4 only three individual anemones were recorded whereas Site 5, 100m south, yielded the densest anemone bed found during the entire survey.

Although apparently healthy populations of the anemone were found, one difference between the 1988 and 2005 surveys was the depth range in which individuals were seen. In 1988 some records were made of individual animals in depths as shallow as 5m but in 2005 no animals were found shallower than 10m. As mentioned above, a noticeable feature of the 2005 survey was the clumped distribution of the animals with some sites having very few anemones being less than 100m from sites with abundant anemones.



Dogfish were seen at most sites, usually resting on the seabed at 15+ metres

Location of Dive Sites





Burrow field at Site 1



Fully retracted anemone



Guillemot flying by at 15m - Site 2



Deep leaf detritus and brittlestar - Site 4



Rotting vegetation and Beggiatoa - Site 4

Site 1 (NN 112 092) East side of Loch Shira

Site 1 was accessed from the second lay-by on the A83 travelling south from Stronshira towards Strone Point. The access is also used by sea anglers and several anglers were present during the survey. Some discarded tackle was recorded on the sea-bed. Two dives were undertaken at this point, one pair of divers heading north from the entry point and one pair south. Both pairs of divers found a gravel/boulder sea-bed at the start which sloped steeply downwards becoming increasingly muddy with depth. A narrow band of sugar kelp forest quickly gave way to open gravel/mud at about 4m. *Pachycerianthus* were found from 10m down to 25m depth, with most being found between 15m and 20m. Over 40 individual animals were seen by the two pairs of divers during a 40 minute dive, making this the second densest population found during the survey. Several large gobies, possibly the relatively rare Fries' Goby (*Lesuerigobius friesii*) were seen taking refuge in burrows at this site. Long Clawed Squat Lobsters (*Munida rugosa*) and sea squirts (*Asciidiella aspersa* and *Ascidia mentula*) were also common.

Site 2 (NN 117 088) North East of Strone Point

Shore access for this site was from the first lay-by travelling north from Strone Point to Achnatra. This was one of two sites dived in Loch Fyne just outside Loch Shira. At this site a gently sloping wrack (*Fucus serratus*) covered slope gave way to a steep boulder slope. The boulders petered out at around 8m being replaced with muddy gravel becoming increasingly muddy with depth. A few *Pachycerianthus* were found in small groups of 2-3 at a depth of 17m to 20m. A Guillemot (*Uriae aalge*) swam over the surveyors at 15m.

Site 3 (NN 121 090) North East of Strone Point

Access via second lay-by on A83 travelling north from Strone Point to Achnatra. This site was similar to Site 2 with boulders down to around 8m then a steep gravel mud slope down to the limit of the survey at 25m. Small groups of *Pachycerianthus* were found between 17m and 25m with 12 individuals seen during a 35 minute dive. Sea squirts (*Asciidiella aspersa* and *Ascidia mentula*) were common. The squat lobster, *Galathea strigosa* was present as well as the more common Long Clawed Squat Lobster (*Munida rugosa*). A cuttlefish (sp.indet) was also recorded at this site.

Site 4 (NN 1067 0980) East of Salmon Draught Cottage

A flat, sandy sea-bed with mooring blocks at 4-5m, became a steep slope which continued down to the limit of the survey at 20m. Between 10m and 20m the sea-bed was covered in a thick (several cm) layer of decomposing leaves, branches, grass and assorted rubbish. In places the rotting vegetation had deoxygenated the sea-bed allowing patches of sewage fungus (*Beggiatoa* sp) to form. Only 3 *Pachycerianthus* were seen in this area. Shore Crabs (*Carcinus maenus*) and hermit crabs (*Pagurus* sp) were common. Two Pacific Oysters (*Crassostrea gigas*) were found at 5m.



Pachycerianthus lying on its side - Site 5



Starfish feeding - Site 5



Two Spot Goby - Site 6



Long Clawed Squat Lobster - Site 7



Swimming Crab and Shore Crab - Site 4

Site 5 (NN1062 0971) South of Salmon Draught Cottage moorings

A gently sloping pebbly/sandy sea-bed gave way to a steeply sloping sandy/muddy sea-bed. Unlike nearby Site 4, the sea-bed was clean with no masses of rotting vegetation. *Pachycerianthus* were abundant from 17m to 25m, with most in from 17m to 22m. This site had the densest population of *Pachycerianthus* found in Loch Shira. One *Pachycerianthus* was seen lying on its side with several cm of its tube exposed. There was no obvious cause for this. In common with other sites in Loch Shira, sea squirts, shore crabs and hermit crabs were all common. The shallow sea-bed at both Sites 4 and 5 was also covered in extensive diatom mats.

Site 6 (NN 1123 0879) Strone Point

Similar to Sites 2 and 3, the sea-bed at Site 6 was bedrock and boulders down to 8m, then silty pebbles and gravel down to 25m. At this site, only one *Pachycerianthus* was seen, at a depth of 15m. The life in this area was more diverse than at the other sites, possibly because of increased water movement off Strone Point. The calcareous tube worm *Protula tubularia* was common as were the usual Long Clawed Squat Lobsters, sea squirts, and hermit crabs. Species found at Site 6 which were rare or not seen at other sites include the sea squirt *Corella parallelogramma*, the Cushion Star *Porania pulvillus* and the Velvet Swimming Crab *Necora puber*.

Site 7 (NN 1121 0895) North West of Strone Point

This site was about 100m north of Site 6 where only one *Pachycerianthus* was recorded. In contrast, 12 anemones were seen at this site at a depth of approx. 17m, making this the third richest site. The front cover photograph of two adjacent *Pachycerianthus* was taken at this site. In addition to a high density of *Pachycerianthus*, this site also contained the usual abundant sea squirts, Long Clawed Squat Lobsters, hermit crabs, at least 2 species of sponge, edible crabs, Two Spot Gobies and Spiny Starfish.

Species Summary for Loch Shira

Phylum	Common Name	No. of Species
Porifera	Sponges	4
Cnidaria	Anemones, Hydroids	6
Annelida	Segmented Worms	8
Crustacea	Lobsters, Crabs, Barnacles	11
Mollusca	Shells, Sea Slugs, Octopus	6
Echinodermata	Starfish, Urchins	8
Tunicata	Sea Squirts	4
Pisces	Fishes	9
Algae	Seaweed	5
Other		2
Birds and Marine Mammals		1
Total Species		56

List of Species Recorded

Brown Algae

Laminaria saccharina
Halidrys siliquosa
Chorda sp.

Red Algae

Encrusting red
Unidentified red algae

Sponges

Suberites carnosus
Shredded carrot sponge ?
Orange sponge on Queen scallop

Hydroids

Hydroid sp
Hydractinia echinata

Anemones

Metridium senile
Pachycerianthus multiplicatus
Adamsia carciniopados
Cerianthus lloydii
Protanthea simplex

Worms

Placostegus tridentatus
Spirorbis sp
Pomatoceros sp
Arenicola marina
Myxicola sp
Terebellidae sp
Sabella pavonina
Protula tubularia?

Barnacles

Balanus crenatus

Crabs & lobsters

Munida rugosa
Galathea strigosa
Pagurus sp
Pagurus bernhardus
Liocarcinus depurator
Hyas araneus
Necora puber
Cancer pagurus
Carcinus maenus
Nephrops norvegicus

Gastropods & bivalves

Pecten maximus
Aequipecten opercularis
Buccinum undatum
Crassostrea gigas
chiton sp

Cephalopods

Sepiola sp

Starfish & brittlestars

Porania pulvillus
Asterias rubens
Marthasterias glacialis
Crossaster papposus
Henricia sp.
Ophiura albida

Urchins

Echinus esculentus
Psammechinus miliaris

Sea squirts

Ascidia mentula
Ascidiella aspersa
Botryllus schlosseri
Corella parallelogramma

Fish

Gobiusculus flavescens
Pomatoschistus sp
Scylorhinus canicula
Leseurigobius friesii
Pleuronectes platessa
Gobius niger ?
Centrolabrus exoletus
Ctenolabrus rupestris
Unidentified juvenile fish

Birds & mammals

Uria aalge

Other

Beggiatoa sp
Diatom film

This seasearch survey was organised by Owen Paisley, Seasearch coordinator for West Scotland.

Seasearch Surveyors were:
Eric Marshall, John Rees, Joyce Wilson and Tricia Grey

Special thanks to Eric Marshall for providing and helming a RHIB for the second day's diving.

Text by Owen Paisley.
Photographs by John Rees and Owen Paisley



Seasearch is a volunteer underwater survey project run by the MCS which encourages recreational divers to contribute towards the conservation of the marine environment. Financial support for the project during 2005 has been given by:



Supported by the
Heritage Lottery Fund



Appendix 1: Location of Survey Sites in 1988 and 2005

1988 Survey Site (Black Flags on chart)

OS Grid Ref. Sheet 56
(OSGB Datum)

NW Loch Shira	NN 106 098
Strone Point	NN 112 083
SE of Achnatra	NN 126 092

2005 Survey (Red Flags on Chart)

	OS Grid Ref. Sheet 56 (OSGB Datum)	Lat /Long (WGS84 Datum)
Site 1	NN 112 092	56° 14'.267 N 5° 02'.282 W
Site 2	NN 117 088	56° 14'.06 N 5° 02'.38 W
Site 3	NN 121 090	56° 14'.18 N 5° 02'.00 W
Site 4	NN 1067 0980	56° 14'.577 N 5° 03'.42 W
Site 5	NN 1062 0971	56° 14'.528 N 5° 03.464 W
Site 6	NN 1123 0879	56° 14'.047 N 5° 02.635 W
Site 7	NN 1121 0895	56° 14'.133 N 5° 02.862 W

The 1988 sites were surveyed as part of the MNCR. Site locations were recorded as OS grid references. The location of the Strone Point site is almost certainly inaccurate as the survey recorded *Pachycerianthus* present from -31 -12m, whereas the plotted location of this site is at 70m +. This site was probably close to Site 6, off Strone Point.

Sites 1-3 were accessed from the shore and the locations recorded as OS grid references which were later converted to WGS 84 Lat/ long co-ordinates.

Sites 4-7 were boat dives and locations recorded using a Garmin GPS12 set to OSGB chart datum and OS co-ordinates. These were later converted to Lat/long co-ordinates and the WGS84 datum.

Appendix 2: Extract from MNCR Database

Site Name	Date recorded	Depth (m)	Pachycerianthus Abundance
NW Loch Shira	14/08/1988	-5.5 to -0.5	Rare
NW Loch Shira	14/08/1988	-20.5 to -5.5	Common
Strone Point	14/08/1988	-31.3 to 12.3	Common
SE of Achnatra	16/09/1988	-37.2 to -7.8	Rare