

**Pachycerianthus
Survey - Loch Shira
Oct 2006
Summary Report**



Introduction

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.

Seasearch Surveys

In Sept and Oct 2005 a small team of Seasearch divers return to Loch Shira and carried out a series of dives to investigate the abundance and distribution of the anemones some 17 years after the original surveys. A total of seven sites were surveyed, 5 within Loch Shira and two just outside. The location of these survey dives is shown on chart 1 along with the recorded 1988 survey sites. In 2005 anemones were seen at all sites but distribution seemed quite patchy with some sites only yielding three records and others over 40 individuals.

A return visit to the Loch was organised for April 2006 and following on from the earlier survey it was decided to swim a series of transects at depths of 15-20 metres. All diving was shore based. The start position of each transect was recorded by handheld GPS as the divers entered the water. Each pair of divers would then swim at right angles to the shore down to the target depth. They would then swim parallel to the shore maintaining the target depth band of 15 to 20 metres until air or bottom time ended the survey. They would then return to the shore, carrying out necessary safety stops and their position at exit recorded. This depth band was chosen partly for practical reasons and partly because the previous survey dives had recorded most anemones at this depth. Four transects were surveyed covering approximately 750 metres of seabed. The numbers of individual anemones recorded on each transects are summarised in Table 1 below:

Transect No	Length of Trasect	No. of Anemones	Anemones per linear-metre
1	175	1	0.005
2	345	30	0.09
3	100	49	0.49
4	150	56	0.37
Total	770	136	0.18

The position of these transects is indicated on the chart opposite.

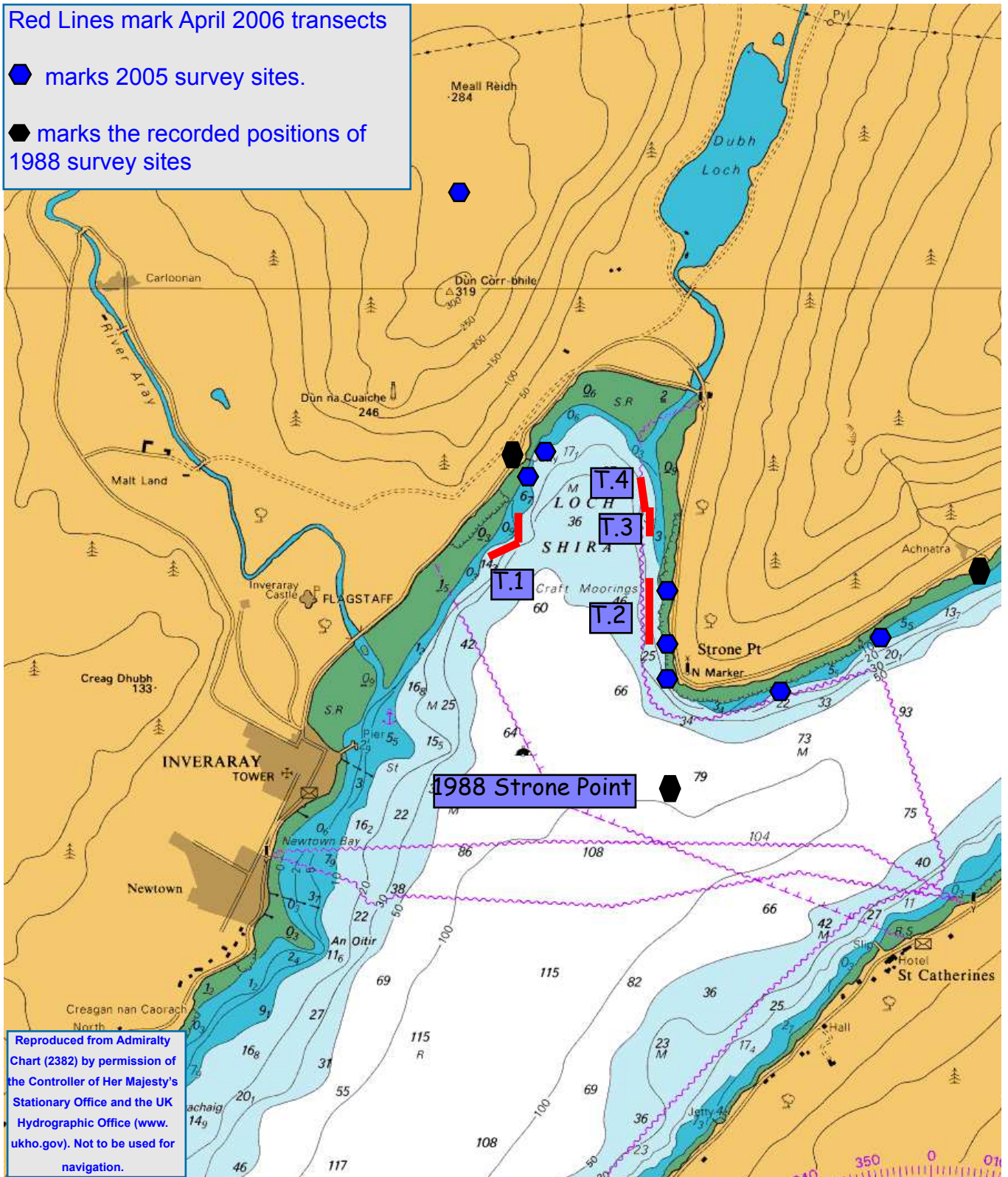
As mentioned above the decision to put a depth limit of 20metres on the April 2006 survey was based largely on pragmatic grounds. The limit of 20 metres allowed longer bottom times and therefore made it possible for the small dive team to cover a larger area of seabed. However a brief exploratory dive in September 2006 by D.Hughes and O.Paisley revealed, as suspected, that the anemones did not suddenly disappear at 20 metres

Chart 1: Location of Dive Sites

Red Lines mark April 2006 transects

◆ marks 2005 survey sites.

● marks the recorded positions of 1988 survey sites



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depth but continued down to at least 30 metres and if anything the numbers of anemones per square metre increased. Accordingly it was decided to revisit the site with another dive team and explore the depth band between 20 and 30 metres.

October 2006 Survey

The diving took place over the weekend of 28/29 October with seven volunteer divers present on the Saturday and 10 present on the Sunday. Two RHIBS, (Rigid Hulled Inflatable Boats) were utilised which allowed one dive team to concentrate on the eastern side of the Loch while the second team surveyed a transect across the Loch then continued down the western side. Each diver was supplied with an A4 recording slate to which a recording sheet, laser printed on waterproof paper, was attached with elastic bands. Copies of the diver recording sheets used are included in Appendix 1. As each pair of divers entered the water the location was noted using the boats GPS. They would then swim to their target depth and as in the April survey swim parallel to the shore until air, bottom time or a 40 minute dive time limit necessitated surfacing. The position on surfacing was noted on the GPS and this was taken as the end of the transect. The recording sheets were collected straight after the dive and the divers asked to make fair copies made of the data using the forms shown in Appendix 2. The few forms which weren't copied straight after the dive proved much more difficult to decipher without the original divers on hand to make sense of the sometimes illegible writing.

Conditions were challenging both above and below the surface. On Saturday there was heavy rain for much of the day which made the surface work of boat cover and form filling far more arduous than usual. The heavy rain also caused complications underwater. Throughout the weekend there was a surface layer of fresh water covering the Loch. This was typical west coast peaty water the colour of cold tea which drastically reduced the amount of light reaching the sea bed. All though the water beneath the peaty layer was clear the lack of light made torches essential. All the divers experienced difficulties in holding a torch and writing on the recording slate at the same time. Difficulties were further increased by the muddy nature of the seabed which resulted in a cloud of silt enveloping the divers whenever they touched bottom. The volunteer divers carrying out this work were an exceptionally experienced group who carried out the tasks allocated to them with good humour and considerable skill.

The results of the survey are summarised in Table 2 and Chart 2 opposite:

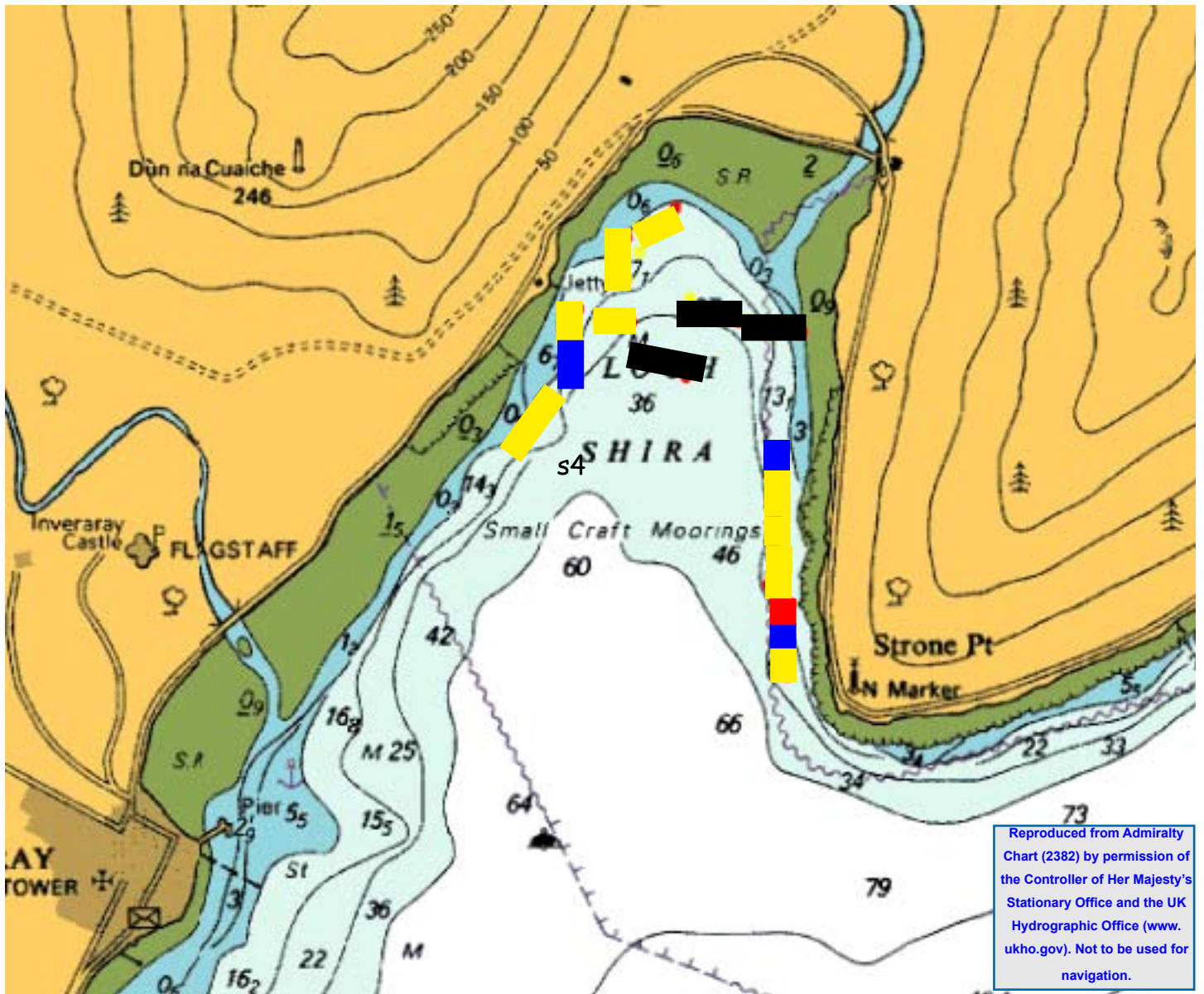
Dive No	<20 metres	20-30 metres	> 30 metres		Length of Transect
1	0	26			60
2	0	29			45
3	0	2			135
4	0	10			130
5	1	61			50
6	2	12			60
7	8	7			100
8	9	6			90
9	1	16			90
10	0	22			60
11	0	33			80
12	0	16			75
13	0	0	3		120
14	2	22			105
15		26			50
16	4	27			50
17	10	45			105
18	1	28	3		195
Totals	38	388	3		1600

Summary

Total No. of Anemones Recorded 429

Linear metres surveyed 1600

Chart 2: Density of Anemones from Oct 2006 survey



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- Low Density
<0.1 anemones seen per metre of transect
- Medium Density
0.1 to 0.5 anemones seen per metre of transect
- High Density
0.5 to 1 anemones seen per metre of transect
- Very High Density
More than 1 anemone seen per metre of transect

In all 1.6 km of seabed was surveyed and 429 individual anemones recorded. The highest density of anemones was found in the SE corner of the Loch with another dense aggregation just off salmon draft cottage. The lowest densities recorded were in the deeper water in the centre of the loch and at the head of the Loch. In general the anemones seem to thrive in the sheltered areas along the side of the Loch but are absent or rare towards the centre of the Loch.

This seasearch survey was organised by Jane Dodd and Owen Paisley.

Seasearch Surveyors were:
Sarah Benfield, Trevor Davies,
Yvonne Davies, Jane Dodd, Trish
Grey, David Hughes, Duncan
Mercer Owen Paisley, John
Rees,.

Special thanks to Jane and Trevor for
providing the RHIBS

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



Seasearch is a volunteer underwater survey project coordinated by MCS which encourages recreational divers to contribute towards the conservation of the marine environment. Financial support for the project during 2006 has been given by:

The
Sealgair
Trust



Appendix 2: Shoreside “Fair copy” recording form

Pachycerianthus Recording Form

Name(s)..... Date..... Time In..... Time Out.....

Start of Dive (Lat) (Long) End of Dive (Lat) (Long)

56° **005°** **56°** **005°**

Depth Range

Underwater Visibility..... Temperature.....

Anemone no.	Depth (Metres)	Size of Anemone	Condition (Fully extended, half extended, retracted)	Speed of retraction (Fast, Slow, No retraction)	Other species living in, on or around it	In group (Y/N) How many in group	Is there any damage (Y/N)
Example	25	* 5-15cm (1/2 slate) 15-29cm (1/2 to full slate)	full	No	Myxicola, Cerianthus,	Y, 3	N
1							
2							
3							
4							
5							
6							
7							
8							
9							

Anemone no.	Depth	Size of Anemone		Condition (Fully extended, half extended, retracted)	Speed of retraction (Fast, Slow, No retraction)	Other species living in, on or around it	In group (Y/N) How many in group	Is there any damage (Y/N)
		5-15cm (1/2 slate)	15-29cm (1/2 to full slate)					
1								
2								
3								
4								
5								
6								
7								
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Any other observations, species seen, rubbish, trawl marks, creels etc