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**South Wales Seasearch
and Fan Shell survey 2003
Summary Report**



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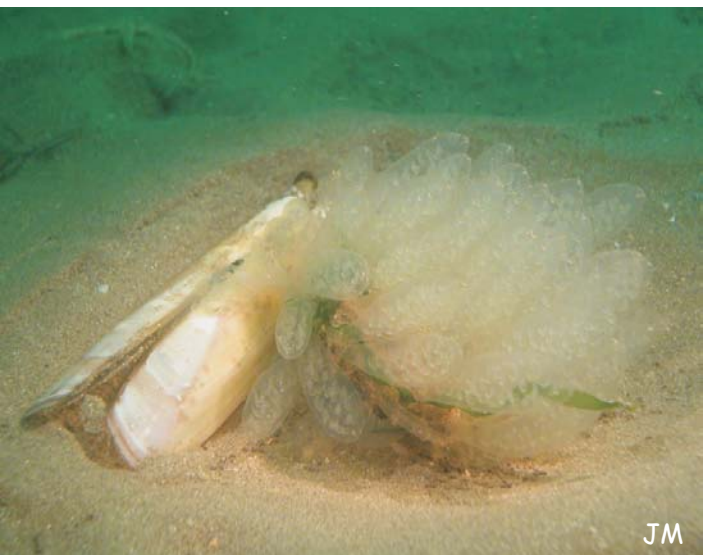
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The Fan shell, *Atrina fragilis*

The primary purpose of these surveys was to look for populations of the rare Biodiversity Action Plan species *Atrina fragilis* (the Fan shell).

This rare bivalve mollusc has only been reported from 2 coastal sites in Welsh waters, and a further 30 coastal sites in the UK and Eire. Offshore populations numbers and population 'hotspots' are presently unknown, although there are some historical records from scallop-trawl boat records of large populations off the west coast of Ireland and in the English Channel. There are no currently known 'hotspots' of populations of these animals and if they were located around the UK, they would immediately need consideration for protected area status because of their rarity.

The Marine Conservation Society is the Lead Partner for the Fan shell Species Action Plan and organised this survey to look at the two sites of previous records in Wales and one where a scuba diver had reported seeing a fan shell.

None of the records were recent and nothing was known of the present status of the populations in these three areas.



The picture above is one of the very few living fan shells currently known, having been brought up in a trawl and transplanted to a Scottish sea loch.

The survey looked at sites in Carmarthen Bay (last record 1899), Milford Haven (last record 1960) and South Haven Skomer (diver record from "about 20 years ago"). We found a number of different sediment habitats which might have contained fan shells, though the exact preference is not known. At one of the Carmarthen Bay sites there were many bivalves present whilst at the other sites numbers were smaller.

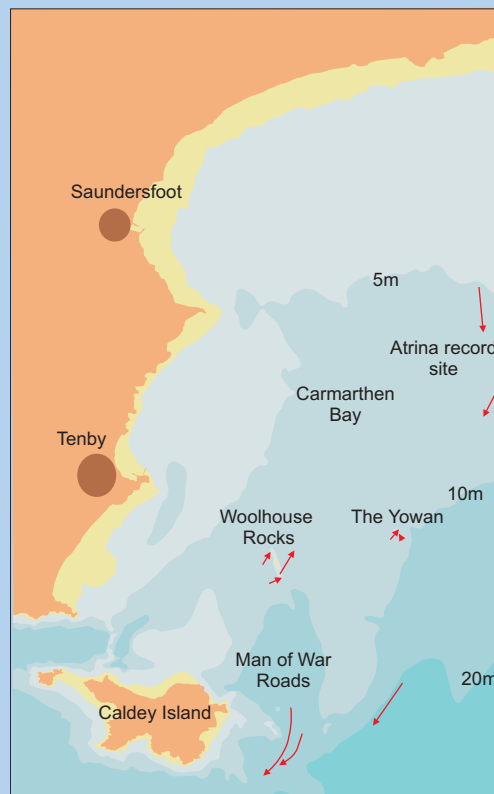
The only clear evidence of the presence of fan shells comes from a single valve found amongst shell debris in Milford Haven (below). This is a small shell, only 9cm long and appears to be relatively recent.



Carmarthen Bay

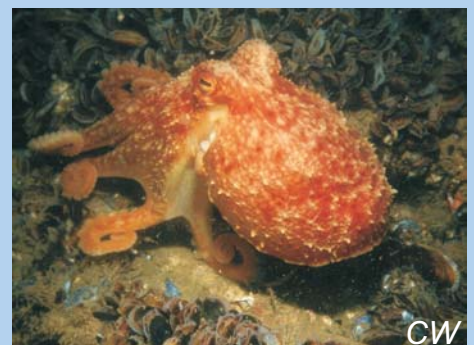
The survey looked at sites on the eastern side of Carmarthen Bay. Because the main focus was on habitats where fan shells might be found we looked at soft sediments both in open areas and around rocky outcrops, where they might have survived trawling activities.

The richest sediment site was in the position given for the 1899 record of fan shells (*Atrina* record site). Here we found fine rippled sand with a variety of surface life such as whelks, brittle stars and other starfish including *Astropecten irregularis* below.



There were also partly submerged animals such as *Sagartiogeton* anemones and sea potatoes, and bivalve molluscs, especially razor shells, buried deep in the sandy sediment. The other sandy sites were much poorer in animal life.

The rocky areas at Woolhouse Rocks, The Yowan and Spaniel Shoal were low lying limestone reefs covered in edible mussels (cover top left). The lowest rocks, where winter storms will scour them, had many long hydroids such as *Sertularia argentea* (back page). Amongst the mussels were other hydroids, especially the sea beard *Nemertesia* (cover bottom left).



There was a variety of mobile animal life living on the mussels. This included common octopus (above) and large numbers of common starfish and spider crabs (back page). Edible crabs and lobster were also present. Gullies at The Yowan had the best fish life including a conger eel, topknot and a number of bib and poor cod.

Milford Haven

The location of the 1960 record of *Atrina fragilis* from Milford Haven was Stack Rock. This is towards the western (entrance) end of the haven on the northern side just west of the last oil jetty. Our surveys were concentrated around Stack Rock for this reason.

There were algal dominated rocky surfaces immediately around the rock itself but these rapidly gave way to soft sediments. Below 5.5m bcd there were no boulders and the seabed consisted of a variety of sediments ranging from mixed cobbles and gravel to muddy fine sand. The softer sediments had numerous burrows and tubes, notably the sand mason worm *Lanice conchilega* and the fan worms *Branchiomma bombyx* & *Megalomma* (right). Also within the sediment were bivalves such as *Ensis* sp., *Arctica islandica*, the king scallop *Pecten maximus* and brittlestars *Amphiura* sp. Burrows of the angular crab *Goneplax rhomboides* were also commonly seen (cover mid left).



The map shows the locations of the dives carried out in Milford Haven and the position of the one *Atrina* shell found.



North of Stack Rock all the dives took place on flat sediment at a depth of 6-8m bcd. The composition of the sediment varied but was patchy without any clear zoning. Different habitats recorded were:

- Flat fine firm sand densely covered in Sand mason worms,
- Waves of maerl debris with Daisy and burrowing anemones, tube worms and hermit crabs, swimming crabs, prawns and gobies,
- Mixed cobbles, shell debris, pebbles and mud,
- Mixed pebbles and fine sand with Sand mason worms and bryozoans,
- Small boulders on sand and gravel. Horsehoe worms *Phoronis hippocrepia* (cover top right), sulphur sponge *Suberites carnosus* and bryozoans were all common.

Chapel Bay, on the south side of the Haven, had a fine sand sediment with some shell and occasional cobbles. The variety of animals was much less than around Stack Rock.

Parsonquarry Bay South of Sheep Island

This is a site on the south-west facing coastline outside and just south of Milford Haven. It is an area with few previous records.

The seabed consisted of high rocky ridges, running parallel with the shoreline, and large boulders with patches of mud and silt between them. Shallower surfaces had kelp park and red algal turfs, whilst deeper down the dominant cover was bryozoans with barnacles and cup corals.

There was a wide range of sponge fauna here, including the nationally scarce *Thymosia guernei*. The yellow cluster anemone *Parazoanthus axinellae*, another scarce species was also present. 5 small crawfish, *Palinurus elephas*, were also seen.

Sheep Island and South Haven, Skomer

South Haven is a sheltered bay on the south side of Skomer and in the Marine Nature Reserve. There was a diver report of a fan shell here some 20 years ago and the soft sediment in the haven appeared to be a suitable habitat for it. Two pairs of divers swam across the shallower part of the pair and two other pairs explored opposite sides a little further out.



The rocky walls of South Haven had a kelp forest to 5m depth and an animal turf on steep surfaces and algal turf on sloping surfaces below. Devonshire cup corals *Caryophyllia smithii*, and sponges were prominent in the animal turf and edible sea urchins *Echinus esculentus* were common.

The soft sediments in the middle of the bay ranged from sand to mud and contained few bivalves and no fan shells. The soft mud contained a number of interesting anemones, the daisy anemone *Cereus* (back page), burrowing anemone *Cerianthus lloydii* and dahlia anemone *Urticina felina* are all fairly widespread but *Peachia cylindrica* and *Mesacmaea mitchellii* are much less common - the latter classified as nationally scarce (cover mid right).

The table to the right shows how many species were recorded in each group and some of the most widely distributed species.

Sponges

Relatively few sponges were recorded and the majority were from the rocky sites south of Sheep Island and at South Haven.

Two nationally scarce sponges were found, the white *Thymosia guernei* (Sheep Island and South Haven) and *Axinella damicornis* (South Haven). Both of these species

Anemones, Corals, Hydroids & Jellyfish

Hydroids were very common (10 species) especially at the low rocky sites in Carmarthen Bay. Tall bushy hydroids commonly found here were *Sertularia argentea* (below left), *Obelia longissima* and the sea beard



Many of the anemones are typical sediment related species such as the Daisy anemone *Cereus pedunculatus* (above right), *Sagartia troglodytes* and *Sagartiogeton undatus*. They include two rarer species, *Mesacmaea mitchelli* (cover mid right), *Peachia cylindrica* (Skomer) and the burrowing anemone *Cerianthus lloydii*. Amongst rock dwelling anemones was the scarce Yellow cluster anemone, *Parazoanthus axinellae*.

Worms

The most widely distributed worm was the Sand mason worm, *Lanice conchilega* which was especially common at Stack Rock where, in one of the habitats, there was a densely packed 'forest' of these little worms

Bryozoans

There were relatively few bryozoans recorded during the survey. The most common species was the soft finger bryozoan *Alcyonium diaphanum*, which is typical of sediment and mixed ground sea beds. Two smaller bryozoans *Bugula plumosa* and *B.*

This Seasearch survey was organised as a part of the Marine

Surveyors taking part were: Angela Read, Chris Pirie, Chris Wood, Christine Harling, Christine Webb, Dale Rostron, Darren Murray, Dominic Smith, James Perrins, Jon Moore, Kirsten Ramsay, Lou Luddington, Rohan Holt, Sam Cook, Tim Theobalds and Vicki Bilings. Thanks to James Perrins for the use of his boat.

This report has been prepared by Chris Wood.

Phylum	Common Name	Number of Species	Common Species
Porifera	Sponges	23	Boring sponge <i>Cliona celata</i>
Cnidaria	Anemones, corals, hydroids, jellyfish	29	hydroid <i>Sertularia argentea</i>
			Sea beard <i>Nemertesia antennina</i>
			hydroid <i>Obelia longissima</i>
			Dead men's fingers <i>Alcyonium digitatum</i>
			Daisy anemone <i>Cereus pedunculatus</i>
Platyhelminthes	Flatworms	1	
Annelida	Segmented worms	15	Sand mason worm <i>Lanice conchilega</i>
Crustacea	Crabs, lobsters, barnacles	26	Barnacle <i>Balanus crenatus</i>
			Hermit crab <i>Pagurus bernhardus</i>
			Spiny spider crab <i>Maja squinado</i>
			Edible crab <i>Cancer pagurus</i>
			Velvet swimming crab <i>Necora puber</i>

Crabs and Lobsters

Crabs and lobsters were common at many of the sites. The rocky sites in Carmarthen Bay had large numbers of large spiny spider crabs *Maja squinado* (below), as well as smaller hermit crabs, *Pagurus spp.* Edible crabs, *Cancer pagurus*, Lobster, *Homarus gammarus* and Crawfish,



Starfish, Sea urchins and Sea cucumbers

The common starfish, *Asterias rubens*, was abundant at the Carmarthen Bay rocky sites where they were feeding on mussels. Sediment areas had large numbers of brittle stars both *Ophiura spp.* on the surface and *Amphiura* with their arms protruding from the sand. Sea potatoes

Shells and Sea slugs

This was the most diverse group with 40 different species recorded. Mussels were abundant at the rocky sites in Carmarthen Bay (cover top left) whereas scallops were more common in Milford Haven. There were a range of other bivalves within the soft sediments, especially in Carmarthen Bay. There was a range of sea slugs present, many feeding on the hydroids (cover bottom left), including one nationally scarce species, the attractive *Thecacera pennigera*. Octopus (inside) were seen at three sites.

Fishes

Fishes were relatively uncommon at most sites and no unusual species were seen. Sediment dwelling species such a dragonets and sand gobies were common. Also present were Thornback ray, Plaice, Flounder and Solenette.

Nationally Rare and Scarce species		
Species	Designation	Where found
Sponge (frequent)	scarce	South of Sheep Island
<i>Thymosia guernei</i>		South Haven (rare)
Sponge	scarce	South Haven (occasional)
<i>Axinella damicornis</i>		
Yellow cluster anemone	scarce	South of Sheep Is.
(occasional)		
<i>Parazoanthus axinellae</i>		
Anemone	scarce	South Haven (rare)
<i>Mesacmaea mitchelli</i>		
Crawfish (occasional)	BAP	South of Sheep Is.
<i>Palinurus elephas</i>		

The survey was partly funded by the Countryside Council for Wales as a part of its Species Challenge Fund programme.

Seasearch is a volunteer underwater survey project for recreational divers to contribute to the conservation of the marine environment. Financial support for the project during

