

Outer Mulberry, West Sussex

Re-survey October 2009

The first surveys of the Outer Mulberry Harbour unit were undertaken in 1979 by the then Underwater Conservation Society, when the site was mapped (reproduced below). A species list was included in the Sussex Sublittoral Survey (Wood, 1984) and subsequent individual Seasearch records were made in 1993, 1994, 1996 & 1997. The site was identified as a Sussex Marine Site of Nature Conservation Importance in 1996 (Irving, 1996).

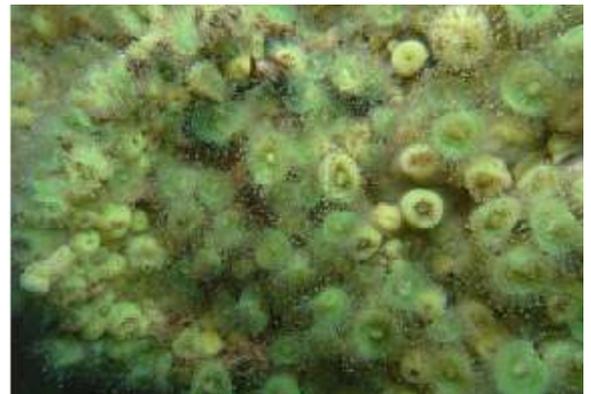
The site was visited for Seasearch training dives in June 2009 by the National Coordinator, Chris Wood, and volunteers from Lodge Scuba in London, following which a comparison was made with the site description in Irving 1996 and earlier records. It was clear that, although the physical structure appeared basically unchanged since 1979 there were significant changes in species composition, particularly on the northerly overhanging parapet wall.

Accordingly a dive was carried out on 18th October 2009 by a team of five volunteer divers with the intention of assessing the extent of species changes and quantifying the extent and numbers of jewel anemones and cup-corals on the overhang.

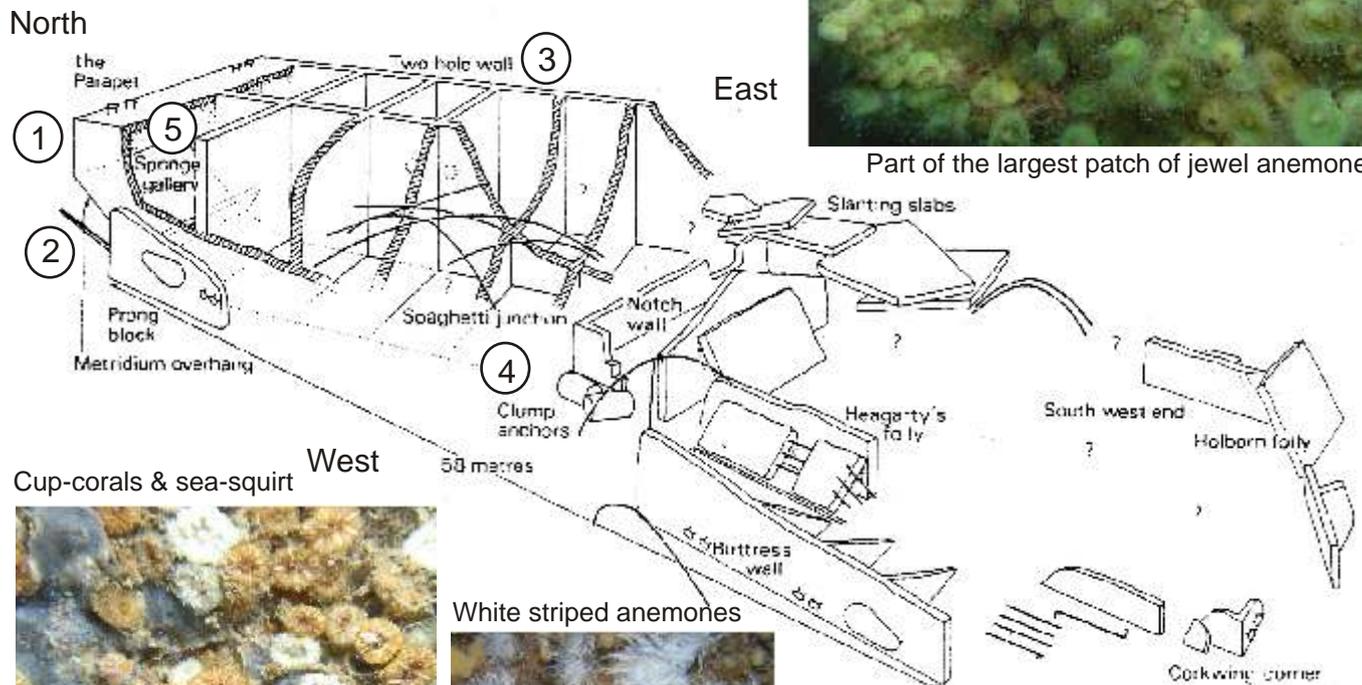
The surveyors carried out general habitat and species recording using Seasearch Survey and Observation Form techniques and also used tapes and small quadrats to quantify the jewel anemone and cup-coral populations.



Slipper limpet shells surround the wreck



Part of the largest patch of jewel anemones



Cup-corals & sea-squirt



West

White striped anemones



Shredded carrot sponge

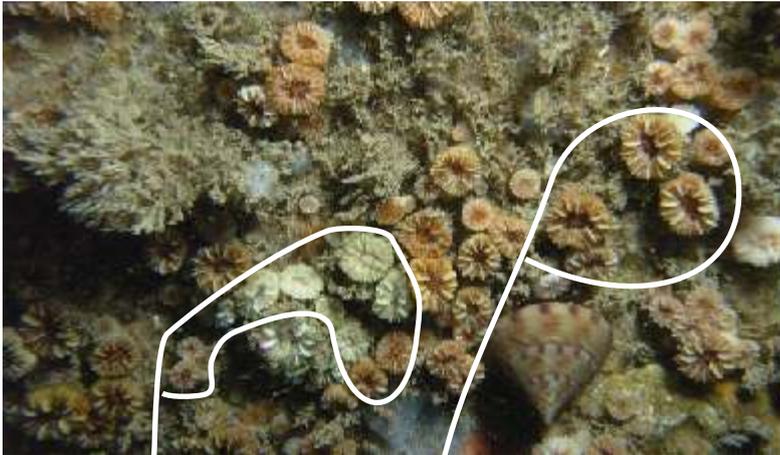


① Vertical face of parapet wall

The vertical concrete face was not looked at in detail. It was seaweed dominated but these were dying back at the time of the survey. There was one small patch of jewel anemones. Other fauna were sponges, dead men's fingers and *Crisia* bryozoans.

② Overhanging face of parapet wall

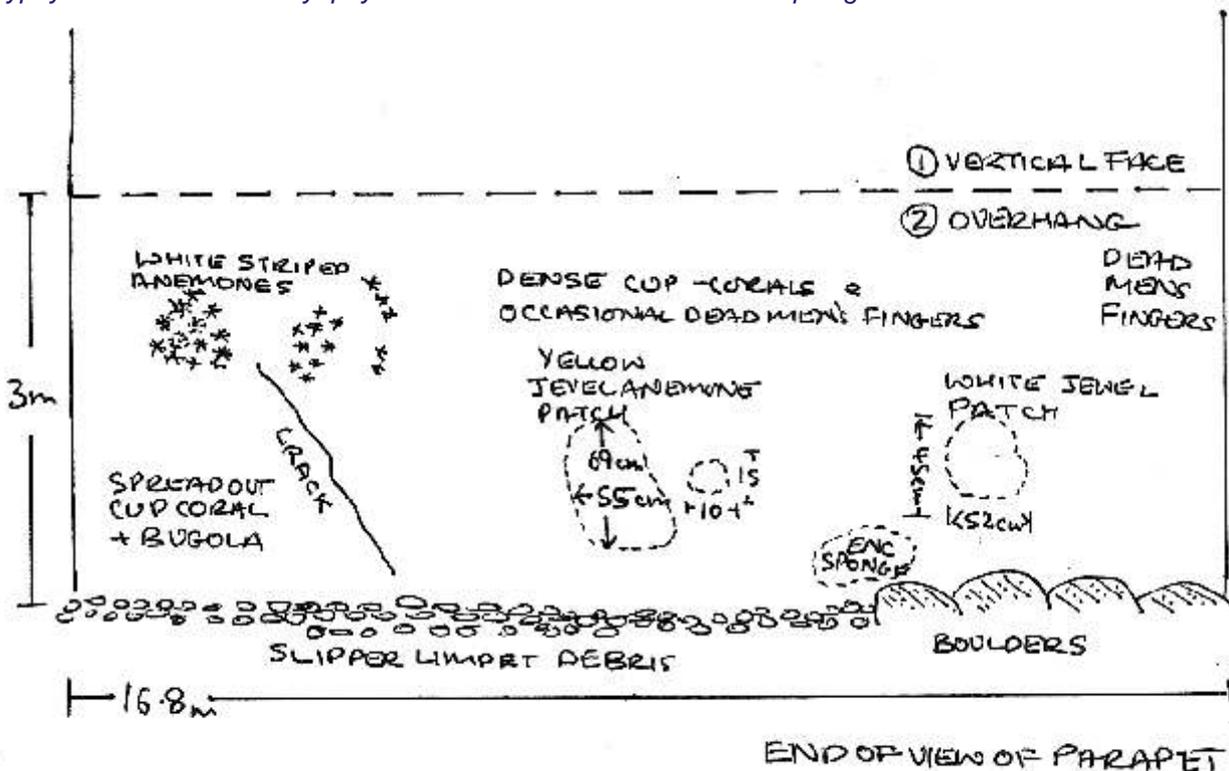
This face overhangs at an angle of about 30 degrees and has a surface area of 50 square metres. It receives no sunlight and there are no seaweeds present. The main covering is of cup-corals with three species present. These are Devonshire cup-coral, *Caryophyllia smithii*, a widely recorded species, Southern cup-coral, *Caryophyllia inornata* and Weymouth carpet coral, *Hoplangia durotrix*, both nationally rare species. Seven random quadrat counts were made of individuals, with numbers either counted *in situ* or from photographs and these produced an average density of 6,500 individual cup-corals per square metre. All three species were mixed together and, because of the small size of many, were difficult to distinguish in many cases. Images of all three species are shown below.



Caryophyllia inornata and *Caryophyllia smithii*



Hoplangia durotrix



Other anthozoans present on the overhanging face were white striped anemones, *Actinothoe sphyrodeta*, a widely observed species in the English Channel, jewel anemones, *Corynactis viridis* which are towards the easterly extent of their range in Sussex, and the ubiquitous dead men's fingers, *Alycyonium digitatum*. The white striped anemones were in patches towards the eastern end of the overhang whilst dead men's fingers were mostly at the western end. No plumose anemones, *Metridium senile*, were observed, despite the name given to this face in 1979.

Jewel anemones are widespread on southern and western coasts of Britain and Ireland but become increasingly rare in the eastern Channel and are absent from the southern North Sea. There are previous Seasearch records from 10 other sites in Sussex and Kent, all but one of which are wrecks. In most cases abundance is given as rare with only two records assessed as common, one of which is the Outer Mulberry.

There were three patches of jewel anemones on the overhanging parapet wall. The largest, central patch, was of green/yellow individuals and measured 55cm x 69cm. The density of anemones in this patch, measured from photo quadrats, was just under 14,000 per square metre. This would mean there were about 4,900 individual anemones in this patch (photo below left and front page).

Immediately to the right there was a smaller patch of red anemones comprising about 100 individuals, much more spread out than its larger neighbour.

The third patch was of white individuals and was towards the western end of the overhang (photo below right). This was about 0.2 sq.m. in extent but it was not possible to count individuals, even from photographs. However they were as densely packed as the larger patch and thus it can be assumed that the density is similar. This would give approximately 2,800 individuals in this patch and a total of 7,800 in all three combined. This is likely to be the largest known population of jewel anemones in the eastern Channel. It is also the shallowest with all of the other records coming from depths of between 15 and 29 metres.



Other species on the overhang included sponges, goosebump sponge, *Dysidea fragilis*, shredded carrot sponge, *Amphilectus fucorum* and breadcrumb sponge, *Halichondria panicea*. Towards the western end there was a large patch of red encrusting sponge. Interspersed amongst the anthozoans and sponges were bryozoans and the anastomosing colonial sea-squirt *Diplosoma listerianum*.

3 Eastern Wall

The vertical, east facing, wall was dominated by red algal growth, mixed with a short animal turf of sponges and hydroids. Eleven species of seaweeds were recorded, but many more would be apparent during the summer months. The short animal turf contained a variety of hydroids, bryozoans and sponges with no single species predominating.

4 Western side

The western side of the wreck is much more broken than the eastern wall, providing a greater variety of habitats, including crevices, fissures and enclosed spaces. There were more fish to be seen here with bib and pollack both common and a number of tompot blennies. Upper surfaces had a cover of red algae whilst shaded surfaces had a similar short animal turf to the eastern wall with the addition of dead men's fingers. European oyster (a Biodiversity Action Plan species - photo right) was present here and was also found on the eastern wall and overhang.



5 Sponge Gallery

This enclosed section of the inside of the wreck provides a sheltered, current free, environment with vertical, overhanging, and horizontal surfaces and an enclosed ceiling over part of it. There is a limited amount of light as it is open to the side and part of the roof and there are patches of silty sediment on the floor. It was recognised as far back as 1979 for its erect and branching sponges and six species were recorded here, five of which were not seen elsewhere on the wreck. These were yellow hegdehog sponge, *Polymastia boletiformis*, chocolate finger sponge, *Raspailia ramosa*, mermaid's glove, *Haliclona oculata* (below left), and tapered chimney sponge, *Ciocalypta penicillus* and *Stelligera rigida* (both below right). There were also a small number of cup-corals on the shaded walls. Bib are frequently found in shoals inside this part of the wreck.



Comparison with earlier records

The Appendix contains species lists from the site (excluding the surrounding sediment) from 1983, 1993-7 and 2009. The main changes which have taken place over the years since recording started here, and it became identified as a local site of marine nature conservation importance, have been in the composition of the anemone and cup-coral fauna on the overhanging parapet wall at the northern end. Originally named for the plumose anemones, this overhang is now dominated by cup-corals and jewel anemones. There are no plumose anemones remaining. Both jewel anemones and cup corals have appeared relatively recently, having been absent or rare in 1993-1997, and there are now very large numbers of them. This is of local importance because these appear to be the biggest concentrations in the eastern Channel of both species, which are at the easterly extent of their range here. Two species of cup-corals have been recorded here for the first time and both are classed by the JNCC as nationally rare. There are no more easterly records of either species.

This survey demonstrates the value of re-surveying sites which have not been looked at for some time. In this case the site has gained considerably in conservation value in the intervening period.

References:

Wood, C. 1984. *Sussex Sublittoral Survey, Selsey Bill to Beachy Head*. Marine Conservation Society, 118pp
Irving, R. 1996. *Sussex Marine Sites of Nature Conservation Importance*. Sussex Marine SNCI Steering Group



This Seasearch survey was organised by Chris Wood with the assistance of volunteer divers Christian Williams, Georgia Conolly, Kaisa Muhonen and Ray Drabble. Steve Frampton of Mulberry Divers took us to the site. Text and images by Chris Wood.

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APPENDIX - SPECIES LISTS

Scientific Name	Common name	1983 records	1993-1997 records	2009 survey
SPONGES				
<i>Scypha ciliata</i>	purse sponge		O	
<i>Pachymatisma johnstonia</i>	elephant hide sponge	O		
<i>Polymastia boletiformis</i>	yellow hedgehog sponge		O	O
<i>Polymastia penicillus</i>	chimney sponge		O	
<i>Ciocalypta penicillus</i>	tapered chimney sponge			R
<i>Raspailia ramosa</i>	chocolate finger sponge			O
<i>Haliclona oculata</i>	mermaid's glove			R
<i>Halichondria panicea</i>	breadcrumb sponge		O	O
<i>Halichondria bowerbanki</i>			P	O
<i>Amphilectus fucorum</i>	shredded carrot sponge		R	O
<i>Dysidea fragilis</i>	goosebump sponge		O	C
<i>Porifera indet.</i>	encrusting red sponge			O
CNIDARIANS				
<i>Tubularia indivisa</i>	oaten pipes hydroid	O	R	
<i>Obelia geniculata</i>	kelp fur			R
<i>Dynamena pumila</i>				R
<i>Sertularia argentea</i>	squirrel's tail hydroid			
<i>Sertularia sp.</i>				O
<i>Alcyonium digitatum</i>	dead men's fingers	C	F	O
<i>Anemonia viridis</i>	snakelocks anemone	C		O
<i>Actinothoe sphyrodeta</i>	white striped anemone	O	O	O
<i>Urticina felina</i>	dahlia anemone	O		
<i>Metridium senile</i>	plumose anemone	C	O	
<i>Corynactis viridis</i>	jewel anemone			O
<i>Caryophyllia smithii</i>	Devonshire cup-coral		R	C
<i>Caryophyllia inornata</i>	Southern cup-coral			F
<i>Hoplangia durotrix</i>	Weymouth carpet coral			O
SEGMENTED WORMS				
<i>Bispira volutacornis</i>	double spiral worm		R	R
CRUSTACEANS				
<i>Balanis balanus</i>	greater acorn barnacle			O
<i>Palaemon serratus</i>	common prawn			O
<i>Homarus gammarus</i>	common lobster	P		R
<i>Galathea strigosa</i>	spiny squat lobster			R
<i>Necora puber</i>	velvet swimming crab	P	R	O
<i>Cancer pagurus</i>	edible crab	P	R	
MOLLUSCS				
<i>Gibbula cinerea</i>	grey topshell		O	
<i>Calliostoma zizyphinum</i>	painted topshell		R	O
<i>Flabellina pedata</i>	violet sea slug		O	R
<i>Ostrea edulis</i>	european oyster			O
BRYOZOANS				
<i>Crisia sp.</i>	white claw sea moss		C	O
<i>Electra pilosa</i>	frosty sea mat			R
<i>Bugula plumosa</i>	spiral bryozoan		F	O
<i>Bugula turbinata</i>	spiral bryozoan		F	
<i>Flustra foliacea</i>	hornwrack	C	F	O
<i>Pentapora folicacea</i>	potato crisp bryozoan			R
<i>Cellepora pumicosa</i>	pumice bryozoan			R
Encrusting bryozoa				O
ECHINODERMS				
<i>Henricia oculata</i>	bloody henry starfish	P		
SEA SQUIRTS				
<i>Clavelina lepadiformis</i>	light bulb sea squirt		R	
<i>Aplidium punctum</i>	club sea squirt			R
<i>Botryllus schlosseri</i>	star sea squirt		P	R
<i>Diplosoma listerianum</i>	grey sheet sea squirt		R	O
<i>Styela clava</i>	leathery sea squirt			R
FISHES				
<i>Pollachius pollachius</i>	pollack		O	F
<i>Trisopterus luscus</i>	bib	C	C	C
<i>Gadus morhua</i>	cod			R
<i>Labrus bergylta</i>	ballan wrasse	O	R	O
<i>Crenilabrus melops</i>	corkwing wrasse		O	
<i>Ctenolabrus rupestris</i>	goldsinny		O	R
<i>Labrus mixtus</i>	cuckoo wrasse	O		
<i>Parablennius gattorugine</i>	tompot blenny		O	F
<i>Gobiusculus flavescens</i>	two spot goby		O	
SEAWEEEDS				
<i>Laminaria hyperborea</i>	forest kelp	C	P	
<i>Laminaria saccharina</i>	sugar kelp	C		
<i>Dictyota dichotoma</i>	brown fan weed			R
<i>Delessaria sanguinea</i>	sea beech		O	R
<i>Calliblepharis ciliata</i>	fringe weed		P	F
<i>Drachiella spectabilis</i>	rainbow weed		P	
<i>Nitophyllum punctatum</i>			P	
<i>Sphaerococcus coronopifolius</i>				R
<i>Aglaothamnion sp</i>				O
<i>Hypoglossum hypoglossoides</i>				R
<i>Corallina officinalis</i>	coral weed			O
<i>Cladophora rupestris</i>				R
<i>Halurus equisetifolius</i>				O
<i>Plocamium cartilagenium</i>				F
	pink encrusting algae			O