Rep. Lundy Field Soc. 51

SUMMARY REPORT OF THE MARINE CONSERVATION SOCIETY'S DIVING WORKING PARTIES TO LUNDY MNR, 4-7 SEPTEMBER 2000 & 30 JULY – 3 AUGUST 2001

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ABSTRACT

Various conservation SCUBA diving projects are described which were undertaken within the Marine Nature Reserve by volunteers from the Marine Conservation Society during their visits to the island during 2000 and 2001.

Keywords:
Marine Nature Reserve, Diving, Conservation

INTRODUCTION

This report is a summary of two separate visits to the Lundy Marine Nature Reserve by groups of volunteer divers (all members of the Marine Conservation Society) in the summers of 2000 and 2001. Various sublittoral conservation-orientated tasks were planned for each of the groups to undertake. On both occasions, the liveaboard DSV *Datchet* was used as a diving support vessel and also as our accommodation, skippered by Anthony Glover. The first trip was due to have taken place from 10-14 July 2000 but had to be postponed until September after bad weather prevented us from leaving the quayside at Bideford for two days. The group re-assembled on the evening of 3 September at Appledore and we then had four days of diving in fair to good sea conditions at Lundy. The timing of the second trip went according to plan and we had five days of reasonably calm seas from 30 July – 3 August 2001.

The tasks undertaken during each of the weeks were decided upon in consultation with English Nature HQ (Peterborough), the country agency responsible for the management of the Marine Nature Reserve (MNR), and the MNR Warden, Liza Cole. Several of the projects were a continuation of work undertaken in previous years (see Appendix 1). The proportion of available time spent on any one project, and the degree to which that project was completed, were determined by a number of constraints such as the weather, the state of the tide (determining periods of

slack water), the expertise of personnel and the time available. Most projects are undertaken off the east side of the island, as rougher sea conditions on the west side usually prevent diving from being undertaken with any certainty. During the visit in 2001, however, we did manage one set of dives in the vicinity of Battery Point (see Project 4 below).

A full report of the results of the projects undertaken by MCS diving working parties from 1995 to 2001 is currently being prepared.

PROJECTS

The main projects undertaken by the group in 2000 and 2001 are summarised below.

a ASSESSING THE CONDITION OF SEA FANS *EUNICELLA VERRUCOSA* OFF THE EAST & WEST COASTS (2000/1)

This project has been undertaken by each MCS Diving Working Party since 1995, and a useful series of data is beginning to emerge. *Eunicella verrucosa* is only found in the south-west of Britain and is a Biodiversity Action Plan (BAP) species, protected under the Wildlife and Countryside Act (1981). It is a long-lived and slow-growing species which is prone to physical damage and, since it is a filter feeder, changes in water quality. In 2001, this project contributed to an MCS Seasearch 'Stage 3' Project, which gathered information on sea fans from all over the south-west. Surprisingly, the results from Lundy showed that the sea fans here were in the worst condition of all of the seven sites inspected (Wood 2001). Most of those found off the east side of the island appeared to be in a poorer condition than those inspected off the west coast. The poor state of health of many of the sea fans off the east coast seemed to be due to their propensity for becoming snagged with drift seaweed, which eventually leads to the death of the tissues along the affected branches. We also observed a small number of spindle shells *Simnia patula* feeding on sea fan polyps as well as *Tritonia nilsodhneri* nudibranchs (see below). Dead sea fan branches then become over-grown by other organisms such as bryozoans and hydroids. These observations have been reported to English Nature, and the situation is being looked into further.

b COUNTS OF THE NUDIBRANCH *TRITONIA NILSODHNERI* ON SEA FANS, AND CHECKING FOR THE PRESENCE OF THE ANEMONE *AMPHIANTHUS DORHNII* (2000/1)

The numbers of any particular species of nudibranch (or sea slug) can vary considerable from year to year. *Tritonia nilsodhneri* is a small nudibranch which feeds on sea fan polyps and is very well camouflaged. Its numbers each year may well tie-in with other annual variables, including variations in sea water temperatures. We also checked sea fans for the presence of the rare sea fan anemone

Amphianthus dorhnii (another BAP species) but found none. One specimen had been found on a fan near Gannets' Rock in 1995, but this area was not re-surveyed in either 2000 or 2001.

c ANNUAL RECOVERY (& RETURN) OF THE DATA LOGGER ON THE WRECK OF THE MV *ROBERT* (2000)

This small unit records seawater temperatures every 6 hours throughout the year. It is set at a depth of about 18†m below chart datum on the superstructure of the wreck. The unit was recovered in 2000 and its data downloaded. There was then insufficient time to re-position the logger on the wreck by our group, but the Warden managed to arrange for another visiting dive group to do this. However, during our visit in 2001, the unit could not be found. There are several possible reasons for this: (1) the unit was not replaced in the same position, so it may still be there, simply hidden; (2) the attachment ties have worked loose (possibly with the assistance of an inquisitive seal, fish or crab) and it has fallen off; or (3) an inquisitive sports diver has removed it as a 'trophy'.

d SEARCHES FOR THE YELLOW CUP CORAL *LEPTOPSAMMIA PRUVOTI* OFF THE WEST COAST (2001)

The yellow (or sunset) cup coral *Leptopsammia pruvoti* is extremely rare, being confined to just a handful of sites in the south-west. It is a Mediterranean-Atlantic species, and was first recorded in British waters at Lundy in 1969, its most northerly site to date. Monitoring studies of individual yellow cup corals at the Knoll Pins over a 7-year period during 1980s/90s showed a 22% decline in numbers. MCS volunteer divers have been counting individual cup corals at a number of sites off the island's east coast in order to provide an approximate total number present within the MNR. It was thought that this species was only found off Lundy's east coast, but one individual had been reported from a gully off the west coast in 1998 (between Battery Point and Dead Cow Point) at a depth of 22-24†m. A previous MCS Working Party had attempted to re-locate the site in 1998, so this was our second go – sadly both attempts were unsuccessful.

Maximum depths of kelp and red algae at various sites (2000/1)

Possible long-term changes in the turbidity and overall quality of the water affecting the island may be reflected in the maximum depth to which certain species of algae are found (at known locations). Records have been obtained from a number of sites off the east coast including the Knoll Pins, Gannets' Rock Pinnacle and Brazen Ward, and these sites were visited again in 2000 and 2001.

e SEARCHES FOR RED BAND FISH *CEPOLA RUBESCENS* &/OR THEIR BURROWS (2000/1)

During the late 1970s, the burrows of red band fish *Cepola rubescens* were found to be extremely numerous in the sheltered muddy gravel which occupies much of

the seabed off the east side of the island. It was estimated in 1977 that the Lundy population was in the region of 16,000 fish (Pullin & Atkinson 1978). By 1983 however, not a single fish could be found. The reasons for this are unclear and are explained in more detail by Irving (1989). In 1987, a small cluster of red band fish burrows was found off the Quarries, and each year since then, discrete clusters have been reported from a number of locations between the Knoll Pins and the Quarries. The searches carried out in 2000 and 2001 concentrated on an area east of Gull Rock and to the south-east of the Knoll Pins. Although no burrows or fish were found on these occasions, positive sightings had been made by members of the 2001 group during night dives off the Knoll Pins in August of that year.

f CHECKING THE DISTRIBUTION OF JAPWEED *SARGASSUM MUTICUM* ON THE NORTH SIDE OF THE LANDING BAY (2001)

The non-native, invasive brown alga *Sargassum muticum* (commonly referred to as 'japweed') was first found at Lundy in the summer of 1999 (Liza Cole, pers. comm.). It has been suggested that the plants (or fertile spores) were brought to the island by the jack-up rigs used to construct the new jetty. Once established, this seaweed can grow rapidly in shallow, sheltered waters where it can tangle boat propellers and out-compete other seaweeds. Its presence at Lundy has not been welcomed – indeed, the warden and her assistant have removed plants wherever they have been found. However, it looks as though the weed is here to stay. Our group was asked to see if there was evidence the plants had spread to the northern part of the Landing Bay. A 6†m wide strip, 110†m long, was surveyed at 6†m depth (below sea level), between the north end of Victoria Beach and the Millers Cake, following the sand/gravel and boulder/bedrock interface. Fifteen plants in all were found, with an average frond length of 40†cm and a maximum of approximately 150†cm. These were attached to small boulders.

g RECORDING OF SEABED HABITATS AND COMMUNITIES FROM VARIOUS SITES (2000/1)

The recording of seabed habitats and communities using Seasearch recording forms (a national seabed habitat survey for divers) was completed from a number of sites around the island during each year including north of Gannets' Rock, to the east of Gull Rock and at Lee Rocks off the south coast.

h COLONISATION OF THE NEW JETTY PILES (2001)

The 'new' jetty was completed in early 2000, the piles having been in place since the autumn of 1999. The plants and animals found attached to the vertical piles were recorded at the beginning of August 2001, together with other mobile biota. Underwater photographs were taken of a number of the piles.

i SEARCHES FOR VARIOUS 'WARM WATER' SPECIES AND OTHER RARITIES (2000/1)

During our dives we were asked to look out for a number of species which may only reach the island (usually from further south or west) if conditions are favourable - typically after a period of higher than average water temperatures. The following species were on our 'wanted' list:

Pennyweed *Zanardinia prototypus* - a small brown alga which has only been found on a handful of sites in the south-west. It was first found on Lundy in 1982, but has not been seen in the last 10-15 years.

Harpoon weed *Asparagopsis armata* - a non-native species of red alga first recorded in Britain in 1949 at Lundy. However, it has not been recorded from the island for many years.

Blue spot sea slug *Greilada elegans* - a distinctive orange nudibranch with bright blue spots which grows up to 40†mm long. Recorded from the island in the early 1980s but not since.

Crawfish *Palinurus elephas* – also known as the spiny lobster, these are still present at Lundy but their numbers have been severely reduced over the last 20 years as a result of tangle nets and divers taking 'one for the pot'

Seahorse *Hippocampus* spp. - two species of seahorse may be found in sheltered shallow areas of south-west England during the summer months. Of the two, the spiny seahorse *Hippocampus guttulus* is the more common, though still extremely rare. Neither species has been recorded from Lundy as yet.

John Dory *Zeus faber* – an unusual laterally compressed fish resembling an oval plate. Although it has been recorded from all around Britain, the John Dory is most often seen off the south and south west coasts of England.

Triggerfish *Balinistes carolinensis* – since the mid 1980s this warm water species has become a regular visitor to southern and western coasts of the British Isles. Individuals have been seen at Lundy, though only rarely.

Several of these species are well camouflaged or tend to hide themselves away during daylight hours. The only positive sighting of any of them during the 9 days of our visits was of a John Dory on the wreck of the MV *Robert* in July 2001. In 2001 we also looked for burrows of the mantis shrimp *Rissoides*

desmaresti but without success. This rare mantis shrimp is known from Southampton Water and has recently been discovered in North Wales. As Lundy has similar sheltered muddy gravel habitats, it is possible it could be present here too, perhaps in the same areas where red band fish burrows are found.

Searches for certain species on the wreck of the MV *Robert* (2001)

The MV *Robert* was a small coaster which sank in 1975 in 24†m depth approximately 1†km due east of Tibbett's Point. Many species of marine life have colonised her over the years, including rapid colonisers such as hydroids, bryozoans and sea squirts, but it has taken a while for the slow-growing ones to take a hold and become established. We searched for sea fans *Eunicella verrucosa*, the soft coral *Alcyonium glomeratum* and branching sponges in particular. Of these, we found a solitary 8†cm high axinellid sponge in the hold and another small branching species (*?Haliclona oculata*) on the bow. Other conspicuous species included many Devonshire cup corals *Caryophyllia smithii* and some small (4.5 x 3†cm high) colonies of Ross *Pentapora fascialis*.

CONCLUSION

A total of 26 projects have been undertaken by volunteer divers within these Working Parties since 1995 (as listed in Appendix 1), several of which are regarded as 'on going'. A great deal of useful work has been achieved over that period, which would have been very costly had professional marine biologists been asked to do it. Managing a Marine Nature Reserve is a tricky task, as managers are unable to interfere with nature in a way that might be proposed to assist with conservation projects on land. These groups provide a cost effective means of keeping an eye on the reserve, much of which remains hidden from view for most. It is hoped that some of these projects will be continued by members of local dive clubs which frequently visit the island each summer.

ACKNOWLEDGEMENTS

I am grateful to all the divers who joined the trip as part working-party and part-holiday: Paul Fry, Nick Reed, Richard Harvey David Harvey, Chris McTernan, Chris Wood and Kate Northen (2000); and Mike Cook, Peter Thring, Jane Lilley, Pete Lilley, Bryony Chapman, Yvonne Townsend and Sue Daly (2001). Thanks also to Dr Keith Hiscock of the Marine Biological Association for suggesting a number of projects for us to tackle; to Jo Crix of English Nature's Devon Team for arranging financial assistance from English Nature; to Anthony Glover, skipper of *Datchet*; and to Liza Cole for all her advice, helpfulness and the use of the MNR RIB.

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APPENDIX 1 MCS WORKING PARTIES TO LUNDY, 1995 - 2001

	PROJECT	1995	1996	1997	1998	1999	2000	2001
1	Marine biological survey of the 'Gull Rock' protected wreck site.	✓						
2	Marine biological survey of the 'Iona II' protected wreck site.	✓						
3	Mapping the distribution of sea fans *Eunicella verrucosa* off the east (& west) coasts.	✓	✓	✓	✓			
4	Assessing the condition of sea fans *Eunicella verrucosa*.	✓	✓	✓	✓	✓	✓	✓
5	Counts of the nudibranch *Tritonia nilsodnheri* on sea fans, and checking for the presence of the anemone *Amphianthus dohrnii*.	✓	✓	✓	✓	✓	✓	✓
6	Assessing the impact of lobster/crab pots on the west coast benthos.		✓					
7	Assessing the density of 'delicate' species (*Pentapora*, *Eunicella* and various erect sponge species) in near-shore areas off the east coast.			✓				
8	Assessing the boring by phoronid worms at the bases of cup corals.			✓	✓			
9	Counting populations of yellow cup corals *Leptopsammia pruvoti* and checking for presence of epizooitic barnacles and phoronid worms.					✓	✓	

10	Searches for *Leptopsammia pruvoti* off the west coast, between the Battery and Dead Cow Point.							✓
11	Deployment and annual recovery of data loggers on the wreck of the 'MV Robert' and in the Landing Bay.		✓	✓	✓	✓	✓	✓
12	Re-photographing circalittoral communities at the Knoll Pins 'cave'.		✓	✓				
13	Benthic litter survey of the Landing Bay.		✓					
14	Checking the maximum depth of kelp & red algae at various sites.		✓	✓	✓		✓	✓
15	Searches for red band fish *Cepola rubescens* &/or their burrows.	✓	✓				✓	✓
16	Photographic monitoring of the wreck of the ' MV Robert'.	✓						
17	Searches for certain species on the wreck of the 'MV Robert'							✓
18	Determining the cover of the alga *Bifurcaria bifurcata* in a rockpool.	✓						
19	Describing the sea bed topography and benthic communities to the north of Gannets' Rock.	✓		✓	✓	✓	✓	
20	Checking the density of scallops on muddy gravel off the east coast.				✓	✓		
21	*SEASEARCH* recording of seabed habitats from various sites.	✓			✓			✓
22	Looking out for warm water species (e.g. seahorses), whose distributions may change as a result of rising sea temperatures.				✓	✓	✓	✓
23	Density of daisy anemones *Cereus pedunculatus* off Brazen Ward.					✓		
24	Assessing the colonisation of the new jetty piles.							✓
25	Searches for burrows of the mantis shrimp *Rissoides desmaresti*							✓
26	Checking the distribution of japweed *Sargassum muticum* in the Landing Bay							✓