

## LUNDY MARINE NATURE RESERVE

### A POLICY FOR THE MANAGEMENT OF THE SHORE AND SEABED AROUND LUNDY

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#### 1. INTRODUCTION

The increasing affluence, mobility and leisure time available to the public have let people turn to the sea for their recreation and enjoyment. With the advent of efficient aqua-lung equipment at a relatively low cost, man's attention has rapidly become focussed upon the seabed as a new recreational area whilst the scientist has at last been able to reach previously inaccessible habitats. Tourist divers, professional divers and scientists create similar problems to their terrestrial counterparts in what was, until twenty years ago, a part of the environment virtually untouched by direct human interference. Up until the present time, the conservation of marine life has been confined to the control of activities that could be proved to be detrimental to commercial fisheries. With diving becoming more popular the intensity of collecting and the range of species being sought has increased considerably especially amongst marine life not considered of commercial importance. Large decorative or edible species are especially sought and with the growing interest in marine natural history and biological curios a further expansion can be anticipated. At popular diving sites or areas exploited as underwater recreation centres, the activities of amateur souvenir hunters and professional collectors could lead to the disruption of ecosystems and may destroy the very resources which are attractive to the diving public or of value to the marine scientist. The establishment of protected areas as marine reserves will make available undisturbed sites where the hitherto little investigated plant and animal communities of the nearshore sublittoral can be studied especially with relation to long term changes and comparison with exploited or heavily polluted areas. Interested divers would also have the opportunity of viewing such areas in their natural state.

In March 1971, a group of conservationists and marine biologists put forward the proposal that a marine nature reserve be established around Lundy (a summary is given by Machin and Machin 1971). During that summer, an expedition of biologists investigated the marine life around the island and the feasibility of establishing a marine reserve (Hiscock 1971). As a result of the discussions held during these investigations, an advisory committee was formed to work towards the final establishment of a reserve. The Advisory Committee includes representatives of the island authorities, marine biologists, the Lundy Field

Society, the Nature Conservancy, sports and commercial divers. Before the start of the 1972 diving season, an interim code of conduct was compiled and incorporated in a leaflet distributed to visiting divers.

The present policy provides for the management of the foreshore and seabed for 1km around Lundy as a marine nature reserve for the purposes of research, education and recreation. It is a statement of the policy adopted by the island authorities concerned with activities carried out in the sea and on the shore and seabed around Lundy. As such, persons carrying out activities from the island are required to abide by this policy. It is hoped that persons independent of the island will do likewise and help to maintain the natural resources of the area for the benefit of all concerned.

## 2. GENERAL INFORMATION AND DESCRIPTION OF THE RESERVE AREA

The island of Lundy lies in a position 51°11'N, 4°40'W at the mouth of the Bristol Channel 18km (11 miles) from the mainland and 36km (22 miles) from its supply port of Ilfracombe. It is 4.9km (3 miles) long and 1.5km (0.8 miles) at its widest with an area of 4.3km<sup>2</sup> (1062 acres) and a coastline of 13km (8.1 miles). There is a plateau at about 102m to 122m (340' to 400') and the highest point is 138m (459') above low water. Lundy is considered a part of Devonshire, is owned by the National Trust and is leased to the Landmark Trust. The shore and seabed around Lundy is the property of the Crown. The Landmark Trust have leased the area of the Landing Bay for purposes of moorings control.

Lundy waters encompass a wide range of habitats since the island lies across prevailing winds and tidal streams and has a very varied underwater topography. The west coast is exposed to prevailing winds and Atlantic swell whilst the east coast is comparatively very sheltered. The north and south coasts are subject to tidal streams of up to 5 knots whilst on most of the west and east coasts streams do not exceed 1 knot. The precipitous cliffs of the land often continue underwater to depths of between 15 to 35m falling steeply to a sand or gravel plain or continuing as low rock outcrops dissected by steep gullies or thrown up into underwater pinnacles. Extensive boulder strewn areas occur off parts of the east coast followed by a mud plain at 14m. Rock off the south coast is of slate while the rest of the rocky seabed around the island is of granite.

This variety of environmental conditions and habitats, together with the position of the island in the south-west of the British Isles, has led to the presence of a rich and varied marine life which includes many examples of the Mediterranean-Atlantic elements of the flora and fauna and some rare plants and animals recorded from very few sites in the British Isles. Particularly interesting aspects of the marine life around Lundy include the mud-burrow areas off the east coast where the crab *Goneplax angulata* is abundant together with the burrowing sea-urchin *Echinocardium cordatum*, the burrowing anemones *Peachia hawata* and *Cerianthus lloydii*, and two commensal anemones *Calliactis parasitica* and *Adamsia palliata* living on two species of hermit crab. On more sandy areas the scallop, *Pecten maximus*, and the tower shell, *Turritella communis*, occur. The infauna of sand and mud remains to be thoroughly investigated. The rock-living marine communities are divided into several groups in relation to the degree of water movement to which they are exposed and the topography of the seabed. Many of the animals are interesting and colourful including, amongst the mobile fauna, the sea-urchin *Echinus esculentus*, the crawfish *Palinurus elephas* and various species of starfish and crabs. The sedentary fauna is dominated by the sponges and coelenterates. Especially colourful are the many species of axinellid sponges, the jewel anemone *Corynactis viridis*, the Devonshire cup coral *Caryophyllia smithii*, the zoanthid *Parazoanthus dixonii*, clumps of the alcyonarian *Alcyonium couchii* and beds of the sea-fan *Eunicella verrucosa*. In 1969 a species of coral, *Leptopsammia pruvoti*, recorded from only one other site outside of the Mediterranean, was found in abundance on Lundy. Another

species of coral, *Hoplania durotrix*, which has only been recorded from three other localities in Britain, was also found on Lundy. Several white specimens of *Eunicella verrucosa* have also been observed and it would appear that this variety has not been recorded previously in the British Isles. The alcyonarian *Parerythropodium hibernicum* (= *Alcyonium pusillum*) which is recorded from only four sites in the world occurs at one locality on Lundy. The marine algal flora is also luxuriant and includes the most northerly British record of *Laminaria ochroleuca* and *Grateloupia dichotoma* as well as many other predominantly southern species.

Reports on aspects of the island's marine life are included in the 'Report on the proposal to establish a marine reserve around Lundy' (Hiscock 1971), reports on the shore ecology in Anon (1948) and Harvey (1950 and 1951), reports on the sublittoral fauna in Hiscock (1970) and on the marine algae in Irvine *et al* (1972).

### 3. REASONS FOR THE ESTABLISHMENT OF A MARINE NATURE RESERVE

(1) The richness of the marine life and the variety of habitats and environmental conditions within a limited area isolated from local sources of pollution are outstanding.

(2) The clear waters around the island and the spectacular underwater scenery are attractive to the diving public, the more discerning members of which require unspoilt scenery and interesting marine life.

(3) Diving conditions are good and it is possible to dive somewhere around the island in most weather conditions.

(4) The island's size, isolation, and limited development has resulted in there having been little exploitation or collecting in the past.

(5) Lundy is therefore an ideal locality for the study of marine ecology and for monitoring changes in the structure of marine communities.

(6) Unless protected, the valuable asset of Lundy's marine life is threatened by the collecting activities of divers for souvenirs, for the curio market, and in the course of research.

(7) Policing to protect the area is feasible as a result of the island's isolation and small size. Visitors either have to stay on the island or have substantial boat facilities to remain independent of shore based facilities. Visitors are easily seen, approached, and informed of the status of the island's shore and seabed.

(8) Laboratory and reference facilities are or can be made available for the scientist. Interpretative and educational literature is available for the amateur diver on Lundy: e.g. a diving field guide.

(9) Lundy is owned and managed by organisations wishing to conserve the best parts of man's environment. A marine reserve policy, to control activities on the shore and seabed, complements and is compatible with the terrestrial management programme.

### 4. OBJECTS OF MANAGEMENT

(1) **General.** To manage the area of foreshore and seabed around Lundy for the purposes of conservation, recreation, scientific study, and education, while maintaining traditional uses such as fishing, navigation and legitimate salvage consistent with the preservation of the scenic and scientific values of the island.

(2) **Conservation.** To maintain the area as a rich habitat of marine life.

(3) **Recreation.** To encourage experienced and interested divers to view the area as a location where the full richness of marine life can be observed in its natural state.

(4) **Study.** To encourage and facilitate research into the biology of marine life around the island, excluding any form of research which involves large-scale destructive sampling or other methods deleterious to the marine life and habitats. Projects which monitor long-term variation in plant and animal communities would be particularly welcome.

(5) **Education.** To encourage the education of the public in the ecology of seashore and seabed life by means of displays and information facilities.

(6) **Harbour facilities.** To restrict fixed moorings and other harbour facilities to a limited and well defined area of the seabed so as to minimise disturbance.

(7) **Construction and the removal of sand and gravel.** To restrict construction on the foreshore and seabed and to limit the removal of sand and gravel to a well defined area and for island use only.

## 5. MANAGEMENT POLICY

(1) **Limits.** The reserve area includes all of the foreshore and the seabed for 1km from chart datum.

(2) **Marine life.** The removal or destruction of marine life shall be limited or forbidden according to the vulnerability of each species or community. Zoning of the seabed may be instituted so that in some areas no collecting whatsoever is allowed. Records of all plants and animals collected will be recorded in the diving log or wardens log. The code of conduct displayed on the island and distributed to visitors is based on the principles below.

### (a) RECREATION

- (i) Algae (seaweeds) may only be collected in minimal quantities and with as little destruction to their habitats as possible.
- (ii) Mobile animals (for example, sea-urchins, starfish, crustaceans, scallops) may only be collected as single specimens.
- (iii) Sedentary animals (including sponges, hydroids, sea-anemones, corals, sea-fans) may not be collected.

### (b) FISHING

- (i) Sport and commercial fishing with hook and line, in accordance with current legislation, is permitted.
- (ii) The taking of lobster, crawfish and crabs by traps for commercial purposes, in accordance with current legislation, is permitted.
- (iii) Spearfishing and the possession of spearfishing equipment is prohibited.

### (c) SCIENTIFIC COLLECTING AND EXPERIMENTS

All proposals which involve collecting or experimental work must be outlined together with the techniques to be employed and submitted to the Advisory Committee. Collection of natural objects and marine life for research by *bona fide* scientists will be permitted on a limited scale. The use of large-scale destructive samplings which will cause long-lasting or permanent damage will not be permitted. Experimental work must be within the regulations of the reserve and must not disturb or mar natural features.

(3) **Marine Archaeology.** The excavation of wrecks or sites of archaeological interest must conform to the highest standards and be carried out with the knowledge of the island authorities. In all cases a pre-disturbance survey must be carried out and, where appropriate, advice sought.

(4) **Diving.** Diving is permitted and encouraged providing no nuisance is caused by the use of boats and compressors and the regulations regarding collecting are adhered to. Divers operating from the island must carry out their activities in accordance with the safety rules laid down by the island and under the supervision of the island's agents.

(5) **Operation of watercraft.** Maritime law and custom must of course be obeyed. All watercraft from which diving operations are being conducted shall fly in a conspicuous manner the International Code Flag A. No boat under power shall approach closer than 100m to such a boat displaying the diving flag except at idling speed and with great caution. Boats should maintain a distance away from the shore such that seals are not disturbed at hauling out places.

(6) **Alteration of the seabed.** Construction work including moorings and harbour facilities may be carried out to ensure the satisfactory maintenance of access to the island. The removal of sand and gravel is permitted on a small scale for island use only and is restricted to the area of the Landing Bay leased by the island authorities.

(7) **Refuse and polluting substances.** No person shall dump or deposit any chemicals, glass, plastic, paper or other rubbish or polluting substances in the waters of the reserve. (The very small amount of domestic sewage entering the sea is not at present considered harmful. The disposal of incinerated island rubbish at a cliff site is unavoidable).

(8) **Explosives.** Any proposal to use explosives shall be submitted to the Advisory Committee for consideration and so that the effects can be monitored.

(9) **Zoning.** The Advisory Committee reserves the right to zone the area of the reserve and to forbid any form of collection or disturbance in these areas. At present, the Landing Bay is considered a disturbance zone and the Knoll Pins is declared a totally protected site with no collecting of rock epibiota allowed except single specimens by expert scientists for purposes of identification.

## 6. DIVISION OF RESPONSIBILITY

A considerable amount of control is possible as a result of the island's isolation. The acquisition of statutory rights which will enable the effective enforcement of regulations is clearly advisable. It is hoped that persons visiting the island will co-operate with the reserve project by restricting their collecting activities in the manner laid down in the code of conduct.

(1) **Advisory Committee on the Lundy Marine Nature Reserve.** The Advisory Committee shall represent the interests of the island authorities, the Lundy Field Society, marine biologists, divers and conservationists. The Advisory Committee may co-opt members and observers or ask advice as it thinks best from individuals, the Nature Conservancy, the Sea Fisheries Committee, etc. The Chairman shall be representative of the island authorities. The Committee will formulate policy to be determined by the island authorities and will also be responsible for reviewing individual requests to collect samples or to carry out any form of activity on the shore and seabed around Lundy not covered by the regulations.

(2) **Regulations.** Responsibility for ensuring that the regulations are adhered to will lie with the Landmark Trust's Agent through the warden(s) and the company or persons operating diving from the island.

(3) **Diving.** The island agent is in overall charge of divers and diving activities being carried out from the island.

(4) **Marine warden.** If finances are available, the services of a marine warden will be acquired. The warden will be responsible, on behalf of the Agent, for the activities carried out by divers from the island and will carry out research appropriate to the terms of his employment.

## 7. ANCILLARY FACILITIES

Laboratory and reference facilities of direct use to the marine scientists working around Lundy will be supplied on the island in co-operation with the island authorities and the Lundy Field Society. Information and display facilities to encourage the fuller understanding and appreciation of marine life and ecology will be produced in conjunction with the island museum.

## 8. REVISION

The island authorities and Advisory Committee reserve the right to alter policy in the light of improving knowledge or changing situation.

## 9. AUTHORSHIP

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- I. G. Grainger (Island Agent, Lundy)
- J. F. Lamerton (Nature Conservancy, Taunton)
- H. C. Dawkins (Lundy Field Society)
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Fig. 1. The Lundy Marine Nature Reserve. Position, area (shaded) and topography

