

THE LUNDY MARINE FESTIVAL 2022

Robert Irving (Marine Festival Co-ordinator)

After narrowly avoiding a false start to the Marine Festival in 2020 (thankfully, the nationwide lockdown following the outbreak of Covid-19 happened *just before* we were about to launch the festival's website), it finally got underway a couple of years later on Thursday 14th July 2022, once pandemic restrictions on movement and mixing had been fully relaxed, and ran for eight weeks until 10th September. The pausing of the event in 2020 was fortuitous really, as 2022 marked the Marine Protected Area's 50th year (Lundy is the oldest MPA in the country), so there was an appropriate excuse to celebrate this milestone.

There were several other reasons for holding an event to mark the occasion which, largely because of its duration, was given the title of 'Festival'. To start with, we wanted to highlight the existence of the Marine Protected Area (MPA), which many of those visiting the island for the first time are unaware of; we wanted to make the most of the opportunity to undertake a number of citizen science projects to assist with the on-going management of the MPA; we also wanted to raise awareness of marine conservation in general; and lastly, we wanted to leave behind a worthwhile legacy once the festival was over, so that the interest and knowledge which the festival had generated would not be lost.

This report sets out what was achieved during the festival.

Sponsors and Supporters

We were delighted with the support given by a wide range of sponsors and supporters to the festival (their logos are illustrated). Of particular note was funding from **Natural England** which contributed towards running the marine bioblitz, producing the new MPA display panels and re-publishing the marine wildlife guides which originally came out in 2011; from **Historic England**, whose funding covered the costs of hosting four Protected Wreck Days (run by the Nautical Archaeology Society); from the **National Trust** and the **Lundy Field Society** who kindly provided funds to cover general operation costs; from the **Blue Marine Foundation** for funding studies of the No Take Zone and of recording fish life; from **North Devon Biosphere** who provided funds to cover the Splash In! photographic competition; and from **the Lundy Company** for providing equipment, purchase discounts, staff time and general assistance.

Logos of the main sponsors of the Marine Festival.



Logos of supporting organisations for the Marine Festival.



Informing people about the MPA & the festival

To tell people that a Marine Festival was taking place at Lundy and why it was happening, it was important to 'get the message out there'. There were various means by which this was done. At the start of the year, an A2 colour poster was printed as well as a 3-way folded A4 colour leaflet. The distribution of both included the Tourist Offices in Ilfracombe, Bideford and Braunton as well as to appropriate departments at the Universities of Exeter and Plymouth. One of the main purposes of both vehicles was to advertise the website, by the inclusion of an easy-to-access QR code as well as the website address. There then followed several written articles targeted at specific magazines, such as the LFS's *Discovering Lundy* bulletin; *Scuba* magazine (distributed to all British Sub-Aqua Club members); the *Marine Conservation Society's* magazine; and the *Marine Biologist* magazine of the Marine Biological Association. Nearer the launch date, two large banners were produced advertising the website which were hung on the guard rails of the upper deck of the *Oldenburg*

It was the website though that was the 'go to' place for finding out about the Marine Festival (though note that it has now been taken down). The site featured information about the festival, the latest news, how to get involved, what was happening when, booking details and downloadable recording forms. It also provided an opportunity to explain a bit about the Marine Protected Area – why it exists, what it signifies and how it is managed.



▲ Lundy Marine Festival Banner on the upper deck of the Oldenburg on 14th July (photo: Robert Irving).



▲ The pop-up marine lab in the St Helen's Centre Lundy on the 15th July (photo: Robert Irving).

On the island itself, the St Helen's Centre proved an excellent educational and information hub. The Church now has a dual role of being a place of worship and contemplation as well as a space where environmental group activities can take place under cover. The Centre was pleasingly busy during the first week of the festival, being utilised as a 'pop-up' marine laboratory with microscopes and sorting trays aplenty. It also was home to two displays for the duration of the festival, one focussed on the 50 year history of the Marine Protected Area and the other featuring photographs of over 90 marine creatures found in British waters, on loan from Dr Paul Naylor. Down at the jetty there were also two aquarium tanks housing local shore life, kindly lent by the Ilfracombe Aquarium. Another way of 'getting the message across' was by means of a board game (housed in the Tavern) which the festival Co-ordinator had invented covering the MPA's 50-year history, utilising facts which had been recorded during over 70 meetings of the MPA's Advisory Group.

A final means of communicating the marine conservation message was by direct contact. Early on during the planning process, it was realised by the island authorities that extra assistance would be required to help run the festival on the island. A job description for a volunteer helper with marine biological expertise was advertised over the winter which resulted in not just one person being appointed as a Marine Festival Warden but two! Daisy Eagleton-Laing and Tara McEvoy-Wilding, both in their second year as undergraduates at the University of Exeter, fitted the bill excellently and proved invaluable in making direct contact with visitors and in ensuring that the programme of events ran smoothly.

Getting visitors involved: (1) land-based activities

Under the heading of 'projects', the hosting of a marine bioblitz was a priority, involving the recording of as many species as possible from intertidal and subtidal areas within a given period of time. Normally this would be over a day or two at a weekend, but this becomes considerably more difficult when an offshore island is the focal point. Instead, we invited various marine biological enthusiasts over to stay on the island for the first week of the festival. Their stay coincided with

excellent weather, good spring tides (thus revealing an area of the lower shore normally under water) and calm seas. Most participants (21 of the 31 who submitted records) were members of the Porcupine Marine Natural History Society, who had chosen Lundy as the destination for their annual field trip. They were joined by members of North Devon Coastwise and the Lundy Field Society. Those with less knowledge of what they were seeing on the shore were able to make use of a specially commissioned version of the iNaturalist app, which allowed photographs of species to be identified by experts on-line.

There was also a small team from the Darwin Tree of Life project on the island during this first week. Their marine team is split between the Natural History Museum in London and the Marine Biological Association in Plymouth. The Tree of Life project is aiming to collect DNA samples from every living organism in Britain and Ireland and they had decided to come to Lundy to bolster their collection of some less common marine species.

The first two weeks of the festival also saw a project involving cetacean spotting from the cliff tops, led by Chris and Sharron Blackmore of the Sea Watch Foundation. They welcomed volunteer spotters joining them at the Castle Parade, where the arc of view takes in the southern half of the east coast, the tidal race beyond Rat Island and the south coast too.

Later on in the festival, four Protected Wreck Days were organised by the Nautical Archaeology Society. These were to feature a dive on the wreck of the paddle steamer *Iona II* and also one on the wreck of HMS *Montagu*, although adverse weather conditions meant visiting this second site had to be abandoned at the last minute. Participants were given a talk about each wreck, together with interpretive material explaining the history and importance of each and a laminated guide-map to take with them under water on their dive.

The established programme of guided coastal walks (frequently led by one of the very able Lundy Ambassadors team) which take place on *Oldenburg* sailing days, were incorporated into the Marine Festival's own programme. Apparently, Ambassadors had been asked to 'swot up' on information about the MPA so as to be able to answer questions asked during the walks concerning the island's nearshore waters. In addition, on non-*Oldenburg* sailing days, rockpool rambles and snorkel safaris took place, typically in the vicinity of Devil's Kitchen and around the jetty.

We were keen to ensure that participation in the marine bioblitz was not solely restricted to knowledgeable enthusiasts but also to those who may not know much about the seaweeds and intertidal animals found on the shore. Besides having experts on hand to be able to answer questions and to point out certain species, our way of opening this up was using a dedicated identification mobile phone app called iNaturalist. The Marine Biological Association, who would be making use of all of the records which were made during the bioblitz by adding them to their DASSH portal (an archive of marine species and habitats data), kindly designed a festival-specific front-end to this app. The app allows for any photograph taken of an unnamed species to be uploaded and identified by on-line experts, thus allowing not only for the species to be identified but also for its GPS position to be recorded – "Simplest!", as a famous meerkat might say. Fortunately, there is now much better mobile phone coverage on the island and the St Helen's Centre also provides internet access.

Getting visitors involved: (2) underwater activities

In order to encourage sports divers to get involved with diving at Lundy, a range of citizen science projects were included in the programme of events. Divers were able to self-allocate a level of marine biological competence on the website and then chose which project(s) to take part in. Disappointingly, the take-up of many of the volunteer diving projects was low. It is thought this might have been because most of the dive boat days available were mid-week rather than at

weekends when more divers might have been available. However, we did get some data back from a few of the projects.

There was also the *Splash In!* photo competition for budding photographers to enter and, for those either unable, or simply not keen, to get themselves wet, there were Virtual Reality headsets available in the St Helen's Centre to see what it would be like to be in the water at Lundy. The favourite film viewed was diving with seals off the east coast. The headsets allow one to look up and down and from side to side, all the time being totally surrounded by water and experiencing having seals come right up to you! The headsets certainly proved a big attraction for the landlubber visitors.

Informing people about marine life and marine conservation issues

A series of talks given by invited experts in their respective fields was considered to be an appropriate way of stimulating discussion. Thus, on each of nine Friday evenings during the festival, an illustrated talk was presented in the St Helen's Centre followed by a question and answer session. Each speaker arrived on a Thursday sailing and departed on a Saturday sailing, giving them a chance to explore the island a little and to stay overnight in one of the festival tents. The talks regularly welcomed between 30-50 people, though sadly the intention to share the talks with a much wider audience by means of a live broadcast via the internet did not materialise for various unsurmountable technical reasons.

A number of merchandise items relating to the festival were on sale in the Island Shop. These included marine life guides; jigsaw postcards of five charismatic species; a booklet about the wreck of the *Iona II*; and a Q & A card game entitled *What am I?* All income from the sale of these items has gone towards meeting the costs of their production.

Summary results of scientific projects

Marine Bioblitz (intertidal): The search for species was undertaken at nine intertidal sites. These were: Devil's Kitchen, Rat Island (N & S), Three Caves Bay (between the west side of Devil's Kitchen and Mermaid's Pool), Lametry, North Landing Bay, Quarry Beach, Brazen Ward and Gannets' Bay. Access difficulties and time restrictions prevented sites along the south, west and north coasts from being inspected. 638 records were obtained from these sites, amounting to 307 species (including algae, marine lichens, a cyanobacterium, invertebrates and fishes), with 218 marine taxa being recorded from Devil's Kitchen alone.

(Subtidal): Four dive sites (Knoll Pins, Brazen Ward, Battery Point and Jenny's Cove) were visited on 18th & 19th July 2023 by 10 diving pairs, undertaking 20 dives in total. 214 taxa were recorded from these dives, 60 of which were also recorded from the intertidal searches.

A total of 478 marine taxa were recorded from both intertidal and subtidal sites. This number included 160 taxa of marine algae (seaweeds), 293 marine invertebrate taxa and 12 species of fishes. In all, 1239 records were collated (638 from shores and 601 from dives). All records have been published in the Porcupine MNHS Bulletin (Moore and others, 2023) and entered onto the Marine Recorder database. They will become available on the national on-line NBN Atlas in due course.

Darwin Tree of Life project: By the end of their week's stay, the DTOL team were delighted to have collected 67 species on their 'hit list' which, following processing of tissue samples, led to 24 species being submitted to the Sanger Institute for DNA cataloguing.



▲ A rockpool ramble in Devil's Kitchen in August, part of the Marine Festival (photographer unknown).

Recording non-native species: Keith Hiscock led on this project. He specifically recorded a total of eight non-native species from both intertidal and subtidal sites, although some more were added from the records of other participants in the Bioblitz (see also his account of notable marine species records, in the Marine Records section of this Annual Report). His records were of: **Harpoon Weed** *Asparagopsis armata* [native to southern Australia and New Zealand]; **Oyster Thief** *Colpomenia peregrina* [native to the NE Pacific]; **Wireweed** *Sargassum muticum* [native to the NW Pacific]; **Pom-pom Weed** *Caulocanthus okumarae* [native to the NW Pacific]; **Harvey's Siphon Weed** *Melanothamnus harveyi* [native to the NW Atlantic]; **Siphoned Japan Weed** *Dasysiphonia japonica* [native to the western Pacific]; **Red Ripple Bryozoan** *Watersipora subatra*; and the **Australasian Barnacle** *Australominius modestus* [native to Australia and New Zealand]. He also noted that **Pacific Oysters** *Magallana gigas* [native to Japan and much of SE Asia] were no longer present around Hell's Gates, having been removed soon after being first detected there in the summer of 2020.

Cetacean surveillance: In comparison to previous years, relatively few cetaceans were spotted during the second half of July (9th-23rd) in 2022, when targeted watches for them were undertaken. Most records came from Chris and Sharron Blackmore, together with Jordan Williams who was undertaking a study of cetacean sightings at Lundy for her Plymouth University MSc dissertation. The seven effort-related watches (five from Castle Parade and two from SW Point) amounted to 13 hours 40 minutes and recorded 18 **Harbour Porpoise** *Phocoena phocoena* sightings (of 43 animals in total) and one sighting of **Common Dolphin** *Delphinus delphis* (of six animals).

One additional point of interest was the attachment of an underwater remote acoustic recording device (known as an F-POD) to the wreck of the MV *Robert* off the island's east coast. This device, made by Chelonia and brought to the island by Joe Dennet of Research Development UK, will form part of a network of underwater listening stations all around the SW peninsula being used for long-term monitoring of all cetacean species. Fortunately, the data acquired will be available to the island's Conservation Team as well as for the more extensive regional study.



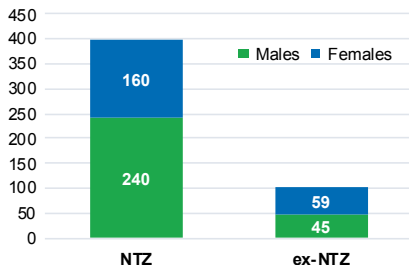
▲ Extracting a lobster from a pot during the survey of shellfish in the No Take Zone (photo: Robert Irving).

Monitoring of shellfish populations within No Take Zone (NTZ): The No Take Zone off the island's east coast (just 3.3 km² in area) was the first such statutory zone in the country to exclude all types of fishing when it was set up in 2003. A study investigating the effectiveness of the NTZ with regard to shellfish populations (specifically **Common Lobster** *Homarus gammarus*, **Edible Crab** *Cancer pagurus*, **Velvet Swimming Crab** *Necora puber* and **Spiny Spider Crab** *Maja brachydactyla*) was undertaken between the end of June and the end of August, with financial backing from the Blue Marine Foundation. The study involved 50 pots (as five strings of ten pots each) being set and lifted within 24 hours at sites both inside and outside of the NTZ. All crustacea caught in the pots were measured and a proportion weighed, before being returned to the sea. An identical study was also undertaken by a team from the University of Plymouth from mid-May to mid-June (commissioned by the North Devon Biosphere) using the same boat and gear, allowing for the results of each study to be combined.

The results of the festival study showed that there are as many as four times as many lobsters within the NTZ than there are elsewhere in the MPA, a figure which rises to 6.6 times if only larger lobsters of a legally landable size (≥ 90 mm carapace length) are considered (Figure 1). The average size of the lobsters within the NTZ was also found to be larger (by 4%) than those outside the NTZ.

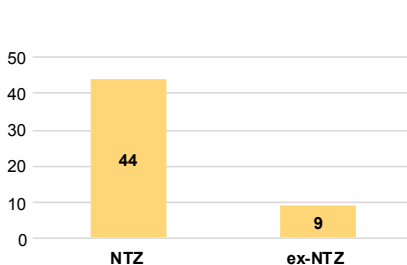
Of all lobsters caught (504 individuals), 53 (or 10%) showed signs of limb loss or damage (Figure 2). Of those exhibiting such damage, 44 (83%) were caught within the NTZ and 9 (17%) were caught outside the NTZ. Within the NTZ, 31 (70%) of the damaged individuals were male and 30% were female. Lobsters are known to fight for both territories and for mates, so this result might have been expected. As with other crustaceans, lobsters can regrow limbs, although this may take several moults to achieve.

Lobster: number caught.



▲ Figure 1. Proportion of all lobsters caught from inside and outside the NTZ, by sex.

Lobster: number with missing limbs.

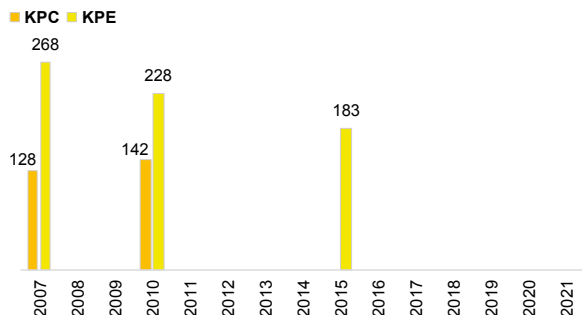


▲ Figure 2. Proportion of lobsters with missing limbs caught inside (NTZ) and outside the no take zone (ex NTZ).

The results of the catches of Edible Crabs, Spiny Spider Crabs and of Velvet Swimming Crabs showed that far more individuals of all these species were caught outside the NTZ than within it. It is tempting to think this may be because of the higher number lobsters present within the NTZ having the effect of keeping other crustacean species away from the NTZ, though it may also be in part due to different habitat preferences. A full report of this study has been submitted to the Blue Marine Foundation (Irving, 2022).

Sunset Cup Coral re-assessment study: The **Sunset Cup Coral** *Leptopsammia pruvoti* is a bright yellow-and-orange, nationally rare, solitary coral which is found in small numbers on vertical rock faces off the island's east coast. It is regarded as one of the must-see species for underwater naturalists visiting the Marine Protected Area. However, since assessments of the Lundy populations of these cup corals began in the mid-1970s, their numbers have been steadily declining, so much so that only about 25% of the population first monitored in the mid-1970s now remains. The cause of this gradual decline is not obvious. *L. pruvoti* is a Mediterranean species which is at the northern edge of its range at Lundy, so its numbers are expected to be more susceptible to environmental pressures than to populations which occur further south within its range.

Number of corals by year: 2007 – 2022.



▲ The number of *L. pruvoti* corals counted from defined photographic areas at the two monitoring sites of Knoll Pins Cave (KPC) and Knoll Pins East (KPE) over 15 years.



▲ Sunset Cup Corals with diver at the Knoll Pins (photo: Paul Naylor).

The results from re-photographing two sites at the Knoll Pins in June 2022 have shown that the number of adult *L. pruvoti* corals continues to decline. The one positive outcome of the study was that the proportion of recently settled corals (new recruits) was found to have increased. A full report of this study has been submitted to Natural England (who commissioned the project), which is available to download (Irving, 2023a).

Volunteer diver projects

1. **Maximum depths of seaweeds:** The maximum depths at which particular species of seaweed can grow is determined by the clarity of the water and hence the amount of light reaching the plant. Different species are adapted to different tolerances of light levels, so the depths at which these species are found can provide an indication of water clarity/turbidity over the long term. The data points of particular interest are the deepest occurrence of kelp (particularly *Laminaria hyperborea*) and of foliose reds (typically *Haraldiophyllum bonnemaisionii*). It was found that the maximum depth recorded for *L. hyperborea* off Battery Point was 6.8 m. (below chart datum) and the maximum depth of *H. bonnemaisionii* at the Knoll Pins was 20.6 m. (bcd). The latter record can be compared to measurements taken in 2010 (24.5 m) and in 1985 (22.0 m).
2. **Condition of Sea Fans:** The Pink Sea-fan *Eunicella verrucosa* is a nationally protected species. The Lundy population suffered from an outbreak of a bacterial disease at the turn of the last century which led to many specimens dying. Reports on their condition from dives undertaken during the festival indicate that the recovery of the population is proving to be very gradual, with overall numbers still fewer than they were before the outbreak occurred. More are now being used by Bull Huss (a small shark species) to attach their eggs, when compared to before the disease outbreak.
3. **Viewpoint photography on the *Iona II*:** Divers visiting the protected wreck of the paddle steamer *Iona II* were asked to take photographs from certain vantage points on the wreck to provide a record of its gradual decay. The resulting photos have been submitted to Historic England. A report on diving activities associated with the island's two protected wrecks has been submitted to Historic England (Irving *et al.*, 2023b).

Using BRUVS to record fish life: BRUVS stands for Baited Remote Underwater Video System.

The 'system' involves two small video cameras (Go-Pro was the make we used) fixed to a metal frame which has bait attached at the end of a pole. The cameras are directed at the bait (in our case Mackerel) and are set to record while the frame sits on the seabed. The festival was lent three such BRUVS frames for two days of recording fish life within the MPA. Those frames set within shallow seaweed-dominated areas recorded mostly wrasse species, **Goldsinny** *Ctenolabrus rupestris*, **Ballan** *Labrus bergylta* and **Cuckoo** *Labrus mixtus* (though note that these species were not interested in the bait), while those in deeper water or on sediment areas recorded **Conger Eel** *Conger conger* and three species of small sharks (**Small-spotted Catshark** *Scyliorhinus canicula*, **Bull Huss** *Scyliorhinus stellaris* and **Smoothhound** *Mustelus* sp.) which were attracted by the bait. A total of 13 fishes were recorded, though longer recording time in other habitats is required for a more comprehensive list of species to be produced (see Irving, 2022).

Legacy values

A full report about the whole Marine Festival has been written which includes its planning, execution and the assimilation of results (Irving, 2023b). Digital copies are available free of charge from the author upon request (robert@sea-scope.co.uk). The report provides a detailed record of the whole Marine Festival from concept to completion and may help guide anyone who may be tempted to run such a venture again at some point in the future.

A short (approx. 40 minute) film about the No Take Zone is being completed as this article is being written. It has been funded by the Blue Marine Foundation. With Highly Protected Marine Areas now being introduced by the Government, it is hoped it can be used to encourage other coastal communities to set them up elsewhere around the UK coast.

The usefulness of the volunteer Marine Festival Wardens over the summer has persuaded the island authorities to advertise for a volunteer Marine Warden post for the summer of 2023.

Acknowledgements

I should like to thank all those who participated in the Marine Festival, but especially those who freely gave of their time and their expertise to make the experience for others more rewarding. In particular, my thanks go to: Patrick Adkins, Gareth Alvarez, Andrew and Ben Bengey, Greg Brown, Tim Clements, Sammy Davison, Daisy Eagleton-Laing, Rosie Ellis, Chris Fletcher, Bob Foster-Smith, Shaun Galliver, Derek Green, Lyndsey Green, Summer Grundy, Keith Hiscock, Geoff Huelin, Finn and Issy Irving, Inez Januszczak, Cat Joniver, Peta Knott, Tara McEvoy-Wildling, Claire Moody, Jon Moore, Paul Naylor, Michael Pitts, Lawrence Raybone, Jon Slayer, Jean-Luc Solandt, Zach Wait, Claire Wallerstein, Rob and Sue Waterfield, Rob Wells and Rob Whitney.

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