



▲ Grey Seal North Light May (photo: Paul Dean)

▼ Grey Seal pup Christie's Quay September (photo: Paul Dean).



ATLANTIC GREY SEAL *HALICHOERUS GRYPUS* POPULATION AND PRODUCTIVITY STUDIES IN 2023

Nicola Dunkin and the Lundy Conservation Team

Introduction

The Atlantic Grey Seal population has been monitored consistently on Lundy since 2001, with evidence of *ad hoc* counts and monitoring before that date. This monitoring has historically been carried out by the Conservation Team, archiving the data within the Island's records. The surveys were carried out during the breeding season to understand distribution, population dynamics and productivity. In 2016 the survey method was reviewed to enable the data collected on Lundy to contribute to wider seal population assessments, such as the Sea Mammal Research Unit (SMRU) national seal surveys. (Jones, *et al.*, 2020).

In 2023 we were able to conduct two at-sea surveys: one on the *Obsession II*; the other using the Oldenburg's safety boat, with Rosie Ellis (Warden) as the skipper. These were the only boat surveys conducted in 2023 due to the island rib being out of action. They were not however the only full-island surveys carried out, there was also a land-based, island-wide census on 4th October 2023. In addition, regular counts were carried out at least once a week along the East Side of Lundy.

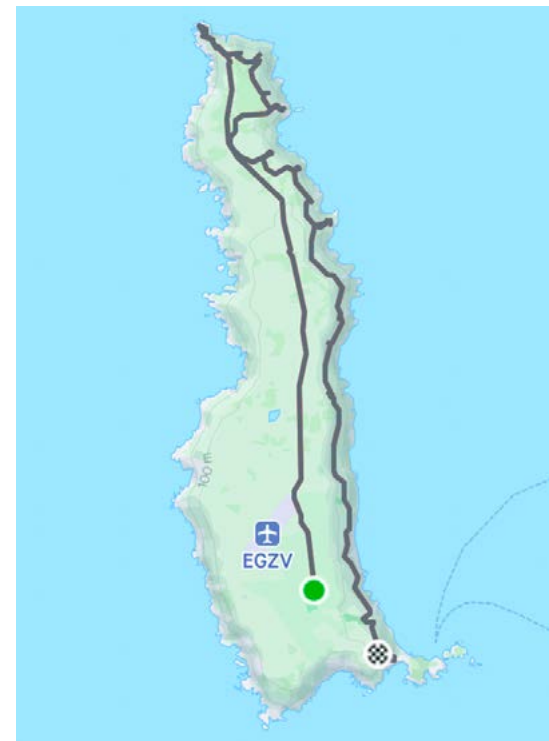
Results

The island was separated into 54 sub-sections, of which 39 were on the East Side. The timing of the surveys depended on the tides and wind conditions. The results are affected by the relative effort put into the survey, the person or persons carrying it out, weather conditions and the amount of public recreation taking place. When conditions of heavy rain or wind gusts over 20mph occurred, risk assessment deemed it too unsafe to proceed, due to the dangerous cliffside locations of some of the survey points. Figure 1 shows the route taken from the North End to the south, using the Lower East Side Path Path. The route includes the walk at the start of the survey from my accommodation in the Lodge (located in the village) to the North End. This example survey was carried out between 07:00 am and 12 noon, on the 11th of September 2023.

► Figure 1. Route of the count of Grey Seals carried out on 11th September by Nicola Dunkin.

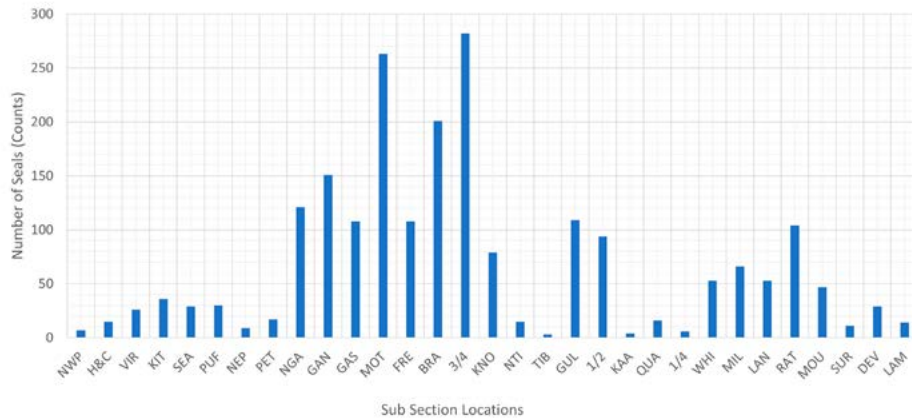
Seal Counts

The highest count over the breeding season was 235 seals (142 females, 54 males, 0 juveniles, 0 weaners, 1 white-coat pups and 37 unknown adults) on the 15th of August 2023.



This is 28 more than in 2022 and 11 more than 2018. As in the surveys of 2018 & 2017; most animals around the island were females, with some showing obvious signs of pregnancy, especially in some of the popular haul-out areas, White Beach and Miller's Cake. This year there were also significant haul-outs on the Landing Beach and the Jetty. The first pup was seen on the 15 of August 2023 on the Lower East Side path by Nicola Dunkin at Miller's Cake. The pup was a stage 2 with its umbilical cord detached. This year the pups have stayed around the Landing Bay and the space between Rat Island and the Jetty. The increase in the number of pups on the Landing Bay Beach and near Rat Island meant that for most of September and October they were closed to the public. A considerable number of adult males also hauled out on the Jetty.

Unsurprisingly, the distribution of seals around Lundy is heavily influenced by both weather and sea state. During easterly harsh weather, numbers were lower in the surveys, as fewer hauled out on the east side of the island and more had probably moved to more sheltered caves on the western side.

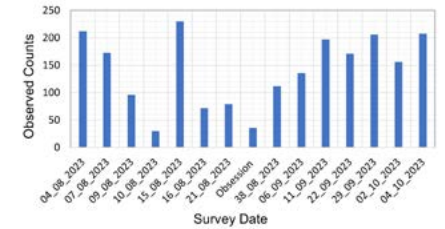


▲ Figure 2. Totals of seals counted for each subsection along the east side of the island in 2023.

Key to abbreviations used for subsections used in surveys along the east side of Lundy: Hen & Chickens (H&C), Virgin's Spring (VIR), Kittiwake Gully (KIT), Seal's Rock (SEA), Puffin Gully (PUF), North East Point (NEP), Pet (PET), North Gannet's Rock (NGA), Gannet's Bay (GAN), Gas (GAS), Mousehole & Trap (MOT), Frenchman's Landing (FRE), Brazen Ward, Battery (BRA), Threequarter Wall Bay (3/4), Knoll Pins (KNO), NTI (NTI), Tibbetts Point (TIB), Gull Rock (GUL), Halfway Wall Bay (1/2), Kaa (KAA), Quarry beach (QUA), Quarter Wall Bay (1/4), White Beach (WHI), Miller's Cake (MIL), Landing beach (LAN), Rat Island (RAT), Mouse Island (MOU), Surf Point (SUR).

Figure 2 shows the total number of seals counted over the whole of the 2023 season for each of the survey sub-sections (abbreviations for the sub-sections are explained below the figure). The counts include females, males, juveniles, weaners and white coat pups. Over the season the areas where most seals were recorded were Brazen Ward, Threequarter Wall Bay and Mousehole and Trap. These areas are less subjected to harsh conditions and have multiple haul-out areas at both spring and neap tides and cave areas to shelter. There was also an increase in the number of seals hauling-out and having pups on the Landing Beach.

Figure 3 shows the total counts of Grey Seals on Lundy Island during the main pupping season, from the 15th of August to the 24th of October 2023. The figures are all from sites on the east side with one from the south, Lamentry Bay and none from the west. Pup checks were carried out when possible (almost every day). 66 pups were seen, with an 8% mortality rate. This is a very successful rate of survival. Fewer pups were born at Quarries than in previous years. Most pups were found at White Beach, Miller's Cake and Landing Beach.



▲ Figure 3 Total counts of seals by date, 2023 survey.

Disturbance

Disturbances were seldom seen during the weekly island surveys. However, during pup surveys, general work tasks and public engagement walk-arounds, multiple disturbances were witnessed and recorded. Some female seals were disturbed by males wanting to mate; this was more frequent and apparent during the later stages of the peak breeding season. Most of the disturbances were caused by recreational activities. For example, on 6th September a recreational tourist boat disturbed two adults, one male and one female, who both flushed off the rocks into the water from a shallow haul-out on the south side of Gannet's Bay. It was thankfully a small drop in height. When seals are flushed from height it can cause significant harm, especially if the individual is female and pregnant. Another incident was witnessed during a survey, where a dive-boat was seen to disturb a female hauled out on a medium-height rock at Rat Island during low tide. Due to concern for the female, it was monitored. It was unable to haul out again due to the low tide, leaving her unable to get the rest she needed.

Other disturbances by recreational activities included snorkelling, where two examples were witnessed. On 10th August at 14:17 one 'bottling' male was disturbed by snorkelers and snorkelling at Rat Island disturbed seals on 18th September at 14:51.

Most of the disturbances observed were within the Marine Conservation Zone (MCZ) recreational area. This is where the Oldenburg is also moored to bring passengers to and from the island. The jetty is between Landing Beach and Rat Island. This area was used more for pupping this year. This could have been due to the previous year's pupping season being quieter because of less tourism due to COVID-19. The beaches were also very popular with the weaners. Seventeen were hauled on the beach between the jetty and Rat Island one day. The increase in pup numbers and the perceived 'cuteness' of white-coated pups also posed an increased threat of disturbance. Signs were put up and visitors were monitored. However, during a very busy island change-over day some visitors ignored the signage and the conservation team's efforts. They went close to the seals and a mass herd flush occurred back into the sea.

Entanglements

This year, sadly, there were five sightings of entangled seals. The first entanglement sighting was on 3rd August at 14:47 (see photo). The transparent fishing line had broken the skin producing an open wound leaving the seal more vulnerable to infection. The second sighting was of a female entangled in a plastic ring which was cutting into her neck. She was seen on multiple occasions, firstly at Mouse Hole & Trap by Nicola Dunkin during a survey on 15th August 2023 at 11:30 (see photo). The female was later seen by recreational boats who reported her swimming near caved areas. One report came from the west side of the island on a windy day and the other from the dive-boats on the East Side near Threequarter Wall Bay. Later, after a period of absence (this did



▲ Female Grey Seal with transparent fishing line constricting its neck, August 3rd (photo: Nicola Dunkin).

coincide with strong easterly winds) the female was once again witnessed during a seal survey, swimming off the North end far out at sea.

The next entangled seal to be sighted was on 4th August 2023, at 13:21, of an adult entangled in fishing line around its neck (see photo). It was hauled out alone by the Knoll Pins in calm but cloudy conditions. Nao, one of the marine volunteers, sighted a juvenile entrapped in fishing gear, during a pup check on 27th August 2023. The fifth and final sighting was on 28th August 2023 of a male entangled just above its right front flipper with a fishing line.



Sightings of tagged seals

The first tagged seal sighted was 80518, a seal seen by Luke Marriner (volunteer Assistant Warden – birds) at Brazen Ward on the 6th of July at 13:42. Luke provided photographic evidence of the sighting (see photo). Once I arrived on the island this information was passed onto the RSPCA who have been able to tell us more about the individual and where it was tagged. The tagged seal (80518) is known as Adobo and was rescued from Porth Joke in Cornwall by BDMLR and treated for respiratory problems and minor wounds. He weighed 15kg on admission to the RSPCA, which is a low weight compared to what the pup should have been (40kg). Adobo was treated

◀ Female Seal with a plastic ring constricting its neck at Mouse Hole & Trap, 15th August (photo: Nicola Dunkin).



▲ Male seal with tag (number 80518) at Brazen Ward, 6th July (photo: Luke Marriner).

and then released at a healthy weight of 43.4kg. The release happened in Combe Martins in North Devon on 20th April 2021.

The season continued with another tagged seal sighting at 15:01 on the 3rd of August by Nicola Dunkin (Volunteer assistant warden – Seals). Nicola provided photographic evidence of the sighting, showing the individual hauled out on Rat Island with the tag number readable (80664, see photo). The RSPCA has been able to tell us more about the individual and where it was tagged. Bobbinet was rescued in Cornwall by BDMLR and treated for an infected wound on her muzzle. She was also underweight, at 17.3kg on admission to the RSPCA, lower than the 40kg considered a healthy weight for a pup of her age. Bobbinet was cared for and then released weighing 37.9kg in Combe Martin, North Devon on 11th January 2022.

Photo identification

Photo identification is carried out by the Cornwall seal group. This identification process is done to make sure that we can keep an up-to-date record of the seals and any new seals on Lundy. This helps to monitor the population and distribution on Lundy Island.

The process includes the use of photographic images capturing three sides (if possible, of each seal). On Lundy, this is a challenge due to the amount of rough terrain to get to the viewing points, the distance that needs to be covered and the limited time to achieve the photographic evidence (due to tide limitations).

Engagement with the public

This year there have been additional presentation talks once a week, specifically on the Atlantic Grey seals on Lundy. These talks have been very popular and a very good way to engage with the public, encouraging visitors to be involved in 'watching seals' on the island.

Engagement was also positive and well received when conducting seal surveys, through conversations with ramblers, birders, and post box seekers. Interest increased after implementing the weekly seal talks. Most engagement was with adults, ranging from 20 to 80 years old!

As the season progressed the Conservation Team conducted a logbook meeting every night in the Tavern. I went along as well and engaged with birders about seals and how they can watch them and record any disturbance/sightings. Making myself known and available for open conversations in the tavern on my lunches and afternoons also increased engagement and awareness. Lastly, engagement this year also came via blogs, social media, Facebook, Instagram.

Conclusions

It is important to say that seal counts do not represent the total population. Some seals may have been concealed by the topography of the island shores. The surveys have been consistent and accompanied by regular checks for pups this year. It has been a very successful year, with record numbers of seals recorded. This could, in part, be due to more surveys being carried out compared to previous years. Another factor is that the easterly storms hit the island later in 2023, allowing the pups to become stronger, better swimmers and more able to survive the bad weather.

Overall, the workload and effort have been sizable. I would say that it is a large task for one member of staff bearing in mind the general responsibilities in addition to the seal surveys. Much more could potentially be achieved if the effort was shared. However overall, a very productive season, with an abundance of seals, seal pups and low witnessed mortality.

Acknowledgements

A huge thank you to all who submitted seal counts and disturbance records in 2023. Special thanks to Rosie (Lundy Warden) for her guidance and support during the start of my volunteering journey on Lundy and Joe Parker for his ongoing support throughout the season. Thank you also to the following volunteers for assistance with fieldwork: Luke Marriner, Nao Szulc, Angus Croudace and Meghan. I would like to extend a huge thanks to the SMRU for their direction and guidance in identifying tagged seals. I would like to thank the RSPCA team for all their help with identifying tagged seals as well as providing the history of each seal. I would also like to thank Nikki and Paul for all their care and detail in sighting observations and reporting. Their skilled photographic evidence of individuals has been amazing, thank you. I would like to thank the Conservation Team for helping with the national seal census conducted on the 4th of October 2023. I would also like to thank Carol for all her seal work and her help and insight into Lundy Seals, I leave knowing they are in good care.

Finally, a thank you to Sue Sayer, Kate Williams, Marion Beaulieu, Sarah and all the volunteers from the Cornwall Seal Group and Research Trust for all their work with regards to training volunteers, taking and processing masses of photographs for the island's identification catalogue and for their general and endless kindness and passion for these wonderful marine mammals.

References

- CSGRT. (2019).** *Seal identification.* Cornwall Seal Group and Research Trust.
<https://www.cornwallsealgroup.co.uk/>.
- Jones, D.W. (2018).** *Atlantic Grey Seal (Halichoerus grypus) population and productivity studies, Lundy.* Published by the Lundy Field Society, 2018 Annual Report.
- Jones, D.W. (2017)** *Atlantic Grey Seal (Halichoerus grypus) population and productivity studies, Lundy 2017.* Published by the Landmark Trust and Natural England.

FRESHWATER FISHES

Jennifer George

SPECIES PRESENT

The three main fish species found in the Lundy ponds are the **Mirror Carp** (*Cyprinus carpio*) in the Rocket Pole Pond, the **Golden Orfe** (*Leuciscus idus*) in Quarry Pond, and the **Crucian Carp** (*Carassius carassius*) in Pondsburry and the Quarry Pond. Other fish have been recorded e.g. **Rudd** (*Scardinius erythrophthalmus*). In September 2006, The Quarterwall Pond was drying up in the drought of that year, and Roger Fursdon (Lundy Water Engineer) removed about 100 of the stranded fish and transferred them to the Rocket Pole Pond. The fate of these fish is unknown as there has been no detailed survey of the fish in Lundy ponds.

The **Mirror Carp** is a strain of the Common Carp but has characteristic reduced mirror-like scales along the body (see photo). Its length varies from 25-75cm with a weight of 10 -12kg. It can live for up to 30 years. It feeds on invertebrates and plant material and the larger ones often eat small fish. Spawning occurs in June and July amongst weeds in shallow water. It can hybridise with Crucian Carp. Spawning was observed and photographed by Dean Jones (Warden) in June 2021 in the Rocket Pole Pond. (See LFS Annual Report 2021).

The **Crucian Carp** has over 30 equally spaced scales along the body and a convex dorsal fin. It is olive green on the dorsal surface and dull brown ventrally (see photo). Its length varies from 25-45cm and has a maximum weight of 5kg. It can live for up to 15 years. As with the Mirror Carp, it feeds on bottom-living invertebrates and plant material. Spawning occurs in May and June. It is an exceptionally hardy species and can withstand very low temperatures and anoxic conditions. The **Golden Orfe**, the golden variety of the Orfe (see photo) has more than 50 scales along the side of its body. Its length varies from 25-50cm and it can live for 10 years. It is very popular with aquarists and garden pond owners. It feeds mainly on invertebrates, especially molluscs, crustaceans, insect larvae, and, when young, some plant material. It breeds in April and May and adults mature in 5-7 years.

2023 OBSERVATIONS

In 2023, Mirror Carp were observed in the Rocket Pole Pond in January, February (11 fish), April, May, and June. In February a very large carp approaching 45cm (18") in length was recorded with up to ten smaller fish. Maybe this large carp had been feeding on the smaller fish that had been transferred in earlier years or had consumed a surfeit of the bread often thrown into the pond by Lundy visitors.

Golden Orfe are very obvious in Quarry Pond (see photo) and were seen in many months of the year. In May, observers recorded 27-32 fish on four different days, with two observers listing 19 adults and 12 juvenile fish.

Crucian Carp were observed in large numbers in Quarry Pond particularly in May when numbers ranged from 20-100 fish.

► **Crucian Carp** *Carassius carassius*
(photo: Alan Rowland).

