

## OBSERVATIONS ON THE GREY SEAL (*HALICHOERUS GRYPUS*) POPULATIONS OF LUNDY

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Between 14th August and 6th September 1973 we observed the population of grey (or Atlantic) seals (*Halichoerus grypus*) at that time present on Lundy. Two previous visits had enabled us to obtain some identifications of individual seals and allowed us to make certain observations.

In late summer and early autumn grey seals move to the breeding grounds where the pups conceived by the previous years mating are born, and mating again takes place. We wish to find out the degree to which any breeding occurs and whether or not the same seals are homing onto Lundy. We also wish to make behavioural observations.

It is apparent that the number of seals on Lundy fluctuates continually at this time of year. We estimated that in 1972 and 1973 the population was generally between eighty and one hundred and twenty individuals, though on several occasions quite sudden drops in numbers occurred. In 1973 one such drop lasted eight days commencing August 20th. Unfortunately the nature of Lundy's coastline is not conducive to making an accurate count.

To investigate the possibility of there being a "clan" of seals homing onto Lundy and to find out about the stability of the population, we devised an identification system. This enabled us to list certain distinctive individuals and to give details of each sighting (date, time, state of tide, weather, location). The chief drawback to this method is that cow and immature seals are seldom as distinctively marked as bulls, thus one does not obtain a true cross-section of the population.

By using this method, and by using photographs we have found that one seal present in 1971 was present in 1972, and one present in 1972 was present in 1973. It should be remembered that we are only working with samples and therefore this may indicate that some seals are using the island regularly. If there is a regular breeding clan it would be a small one as the number of suitable sights is very limited.

There is geographical diversity in the breeding habits of grey seals. Those of Devon, Cornwall and South Wales are 'cave' and cove breeders, rather than 'colony' breeders. It has been established that during the breeding season grey seals tend to 'home' to a specific location, we wonder could this be the case with Lundy?

Pup birth has been recorded in 'Seal's Hole' and we observed copulation in Gannet's Bay in 1971 and 1973. This is interesting as mating usually follows the birth of the pup of the previous year's mating (almost a year elapses between, mating and birth since delayed implantation occurs. There is a seven month gestation).

In 1973 we observed the bull that we had seen copulating apparently taking up temporary territories in the Gannet's Bay area. We observed this bull several times over the period of a week (commencing August 30th) during which he would assume possession of an area of water for periods of a few hours. He would then either move off or haul out near-by. While exhibiting this territorial behaviour he would frequently approach cows and drive off any adult bulls. On discovering another bull in his territory he would move towards it. The two animals would face each other, blowing and grunting. In some cases this would be enough and the other bulls would retreat. On one or two occasions however the bull would attempt to attack the imposter though we never saw any prolonged fighting.

Although constantly rejected this bull was persistent in his approaches to cows. Once a cow did appear to take the prerogative in approaching him, however he ignored her and gave attention to another, disinterested cow. We also observed instances of two other bulls displaying to cows. The general procedure was for the bull to approach the cow and lie horizontally at the surface of the water with his head toward the cow (normally a seal floating tends to adopt the vertical 'bottling' position). He would blow and grunt, and then with his mouth

wide open arch his neck backwards. At any stage the cow may reject the approach either by diving away or by an agitated flapping of her fore flipper in the direction of the male, seldom actually striking him (It appears that this "flipping" is a standard gesture of annoyance, being often used when jostling for positions while hauling out). We saw a few females respond by swimming with the bull while rolling over and over each other. Our observation in 1971 suggests that the next stage, if reached, is copulation in the water, but more evidence is yet required to substantiate this.

As pup birth has been recorded in Seal's Hole we wished to investigate the cave to explore its potential as a breeding site. It seems that the chamber is flooded by the spring tides but after the late summer springs have passed it is likely that a few square yards of sand beach would remain dry. We made three entries to the cave. On the first we left markers that were swept away by the spring tides. On the second we again left markers but an aggressive bull seal and an equally aggressive juvenile did not allow us to re-enter the chamber to investigate the tide level.

From our data on sightings of identified seals it appears that there is some degree of preference by specific seals for certain haul-out rocks, though we have found that wind direction has considerable effect—the seals tending to move into the lee of the island.

Little is currently known about the feeding habits of grey seals and we made only three observations pertaining to this. We observed two instances of fish chasing. The first was a female pursuing what appeared to be grey mullet and the second was a seal pursuing mackerel have apparently lain in wait on the bottom as the fish neared and then giving chase. Both chases occurred in four to six feet of water and involved rapid turns and some swimming up-side-down. In neither case did the seal catch a fish. Only one faecal excretion has so far been observed. It occurred in the water and appeared to contain some orange-red shell of large crustacea.

When inshore but not hauled out the seals spend much time lying in small underwater crevasses or on the sea bottom. After between five and twelve minutes they return to the surface for a short time and then dive again. This activity may have some rest value as the actions gone through are repetitive and common to all. It seems to occur mostly at high tide, whereas hauling out seems to occur mostly at low tide. We made timings of the behaviour and though we were unable to gain enough readings to be conclusive it seems that there may be a correlation between length of dive and time spent at the surface. The observations were made of seven specimens: three adult cows, three adult bulls and one juvenile. We discarded all readings of less than three hundred seconds as these were taken at times when the seals were alarmed. The ratio of the time on the surface before the dive and the duration of the dive was found for thirty nine dives, the mean ratio being 6.10015 with a standard deviation of 8.59. The ratio of the time on the surface and the duration of the preceding dive was taken for thirty seven dives and had a mean ratio of 6.1667 with a standard deviation of 3.92. A major problem with taking these readings is that the seals may be disturbed and the rhythm broken.

We would like to thank Mr. M. Cleverly and Mr. C. King for making up the team in 1973 thereby doubling our man power. Their assistance was most valuable.

## **SOME PRELIMINARY OBSERVATIONS ON THE RECOLONISATION OF THE NORTH END OF LUNDY**

PAUL WILKINS and JULIAN R. DEBHAM

### **Introduction**

In the early 1930s the open moorland of the North End of Lundy was burnt to the bedrock. Two separate fires occurred in successive years. Burning was so severe that the peat underlying the vegetation also caught fire and thus even when trenches were dug in the path of the fire flames managed to spread