

Title: A preliminary report from the Roaringwater Bay otter survey, Co. Cork, 27th - 28th of April, 2013

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Otter surveying, Ringarogy Island (Photo: Paul Chanin)

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Introduction

The Roaringwater Bay otter survey 2013 was organised by the MISE Project to run concurrently with the European Otter Workshop 2013 (EOW 2013), which was held in Kinsale, Co. Cork, on the 24th-26th of April, 2013. The EOW2013 was organised by Waterford Institute of Technology (WIT), National Parks and Wildlife Service (NPWS) and the IUCN Otter Specialist Group (OSG). This conference gathered researchers involved in studies on the European otter (*Lutra lutra*) from across Europe and further afield (see upcoming report on the MISE website).

Roaringwater Bay is situated on the south-west coast of County Cork, close to the town of Skibbereen. It is a large, shallow bay open to the Atlantic Ocean to the south, and contains about a dozen large islands and several hundred more small islands, islets and rocks. Several rivers drain into the bay, the largest being the River Ilen which flows for over 30 km, passing through Skibbereen, before entering the bay. This rich coastal and estuarine habitat is ideal otter habitat, and is recognised as being of special importance to the Irish otter population (and even of international importance) as it is designated as a Special Area of Conservation (SAC), with European otter being one of the qualifying interests.

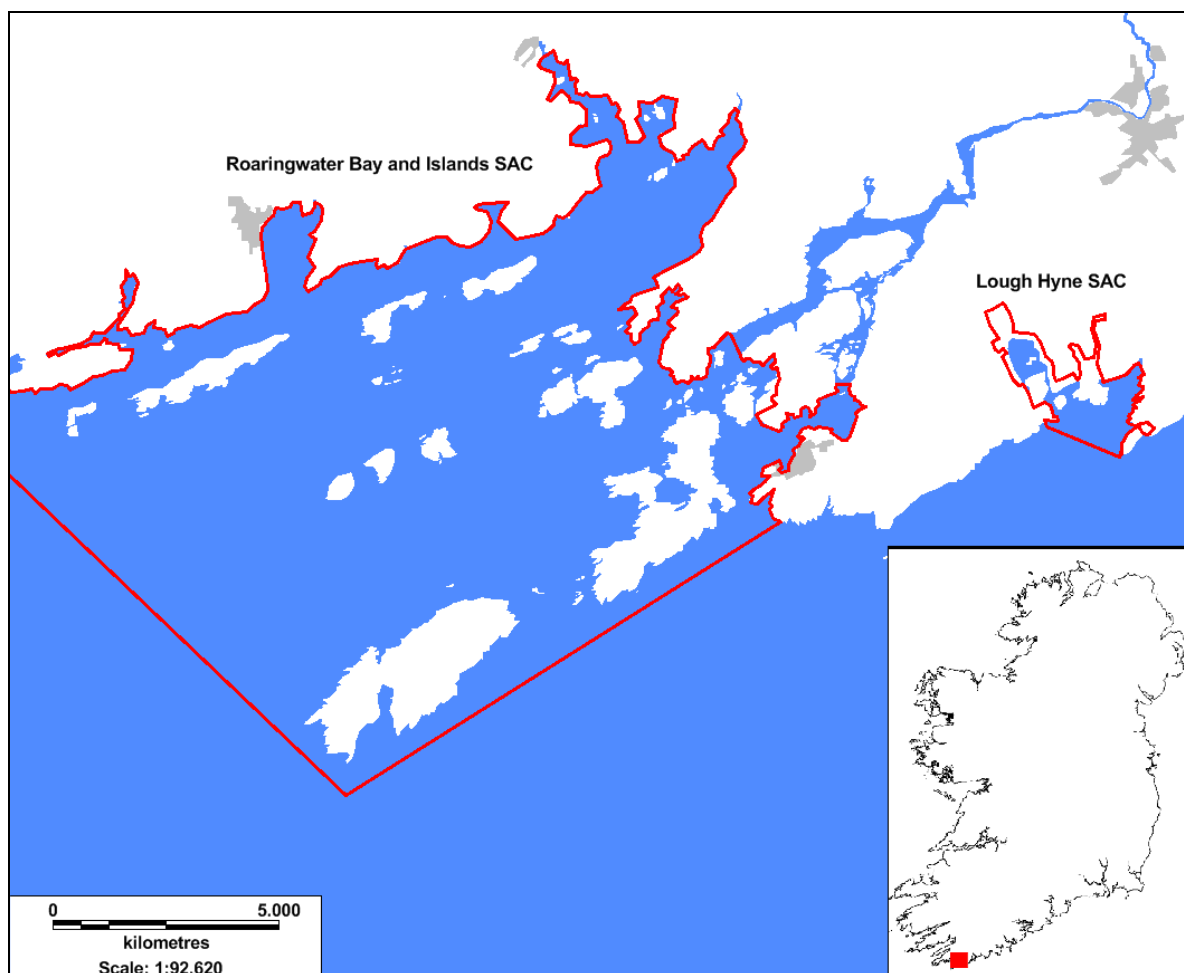


Figure 1. Map of Roaringwater Bay, showing the approximate extents of Roaringwater Bay and Islands SAC and Lough Hyne SAC. Inset map shows location of Roaringwater Bay in Ireland.

Roaringwater Bay has been the subject of studies on its otter population for some time, since it was surveyed in the first otter survey of Ireland in 1980 (Chapman and Chapman, 1982). More recently, the otters in the bay in the area of Baltimore and Sherkin Island were the subject of a radio-tracking study carried out by researchers from Ireland and the Netherlands (de Jongh et al., in prep). This study aimed to clarify the movements of otters in the complex network of inlets, islands and rocks in the rich otter habitat in the bay. In particular the aim was to assess if the increase in aquaculture (particularly the placement of mussel ropes) would impede the movement of otters between islands and thus diminish their ability to travel across their territories while foraging.

In July 2012, the MISE Project carried out a volunteer otter survey in the same area as the radio-tracking study, and this survey is a repeat visit in an attempt to gather further information on the otter population in this area by carrying out DNA analysis on otter spraints collected in the area.

Method

On the mainland, eight survey sites were selected along the River Ilan estuary (Figure 2) and the innermost part of Roaringwater Bay. One site, Lough Hyne (a coastal lagoon), was also selected even though it lies some kilometres outside of the bay, due to being good quality otter habitat and being easily accessible. Lough Hyne is also listed as an SAC, though the European otter is not listed as one of the qualifying interests. These sites were largely the same as those surveyed in 2012, with the exception of one site (Kilkilleen) which was dropped due to time constraints as it was the most distant survey site.

On Sherkin Island, eight sites were selected covering a large proportion of the island's coastline. This was a great increase on 2012 survey effort, where only three small areas on the island could be surveyed due to time constraints. See Figure 4 for a map of all survey sites.

Survey sites were largely selected for their ease of access, and the vast majority were in publicly accessible areas of coastline or riverbank. A small number of areas were located on private land, and where this was the case landowner permission was sought before the survey.

Approximately forty experienced otter surveyors from across Eurasia were grouped into teams, with the mainland sites surveyed on the 27th of April and Sherkin Island sites surveyed on the 28th of April. All otter spraints collected within each site were bagged individually to avoid cross contamination, which was important for DNA analysis (Figure 3). A GPS location was recorded for each otter spraint. All potential otter tracks, field signs and holts (dens) were also recorded.



Figure 3. Bagging individual otter spraints (*Photo: Denise O'Meara*).

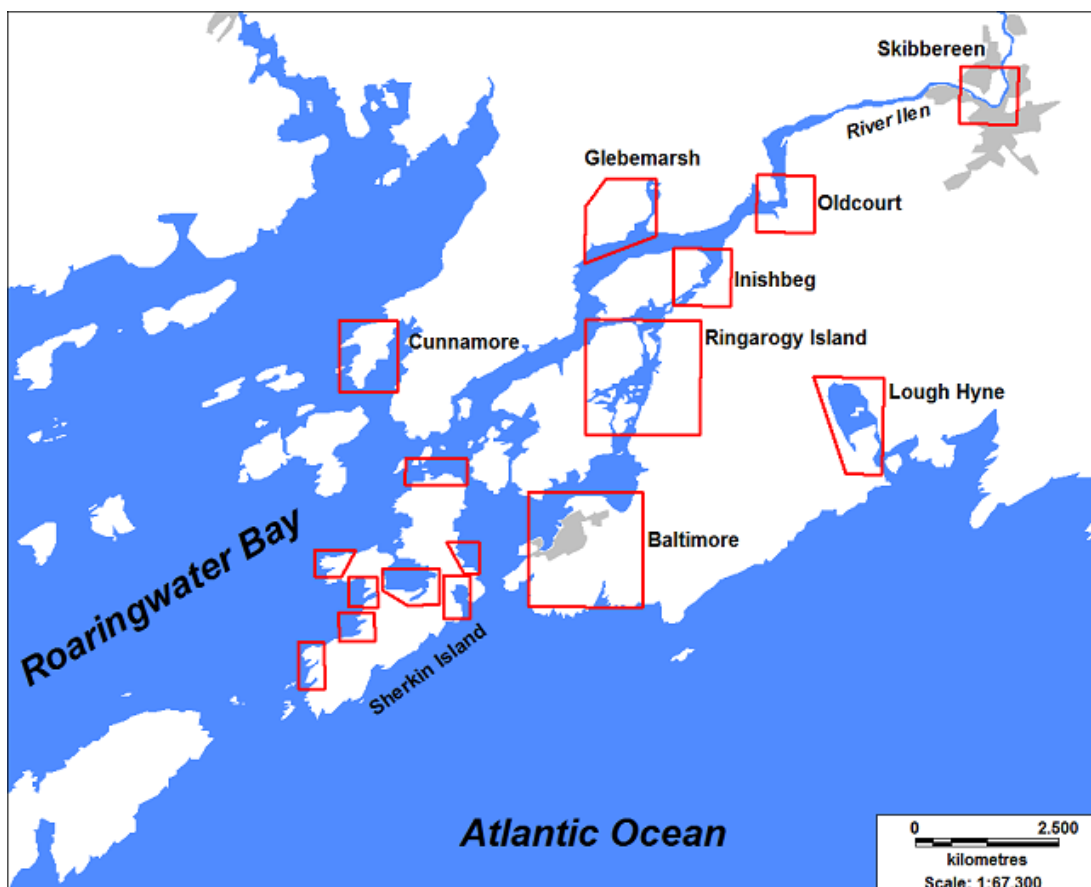


Figure 4. Map of otter survey sites on the mainland and Sherkin Island.

Results

In total, 206 spraints were collected during the survey. The highest number of spraints from a single area was collected on Sherkin Island, in contrast to the 2012 survey when Ringarogy Island produced the most samples. More spraints were collected from most sites in 2013 than in 2012 (see table 1). In general, it appeared that the more coastal sites produced more samples than the sites further inland on the Ilen estuary. See figure 5 for a map of locations of otter spraints collected during the survey.

Site	No. spraints collected 2013 (2012)
Lough Hyne	17 (8)
Skibbereen	0 (0)
Glebemarsh	12 (1)
Cunnamore	3 (0)
Oldcourt	10 (4)
Inishbeg	1 (4)
Ringarogy	35 (17)
Baltimore	29 (9)
Sherkin Island	99 (8)
Total	206 (51)

Table 1. Number of otter spraint samples collected from each site.

Genetic analysis

At the time of writing (November 2013), all samples had been species tested for otter. All samples which tested positive for otter had also been sex typed, to identify spraints which had come from male and female animals (in total 134 spraints have been successfully sex typed). Figure 6 shows a summary of sex-typed spraints by site. It should be noted that the number of male or female spraints present in a site does not necessarily reflect the number of individual animals of either sex present. Genotyping of individual animals has not yet been carried out and may take some time to complete.

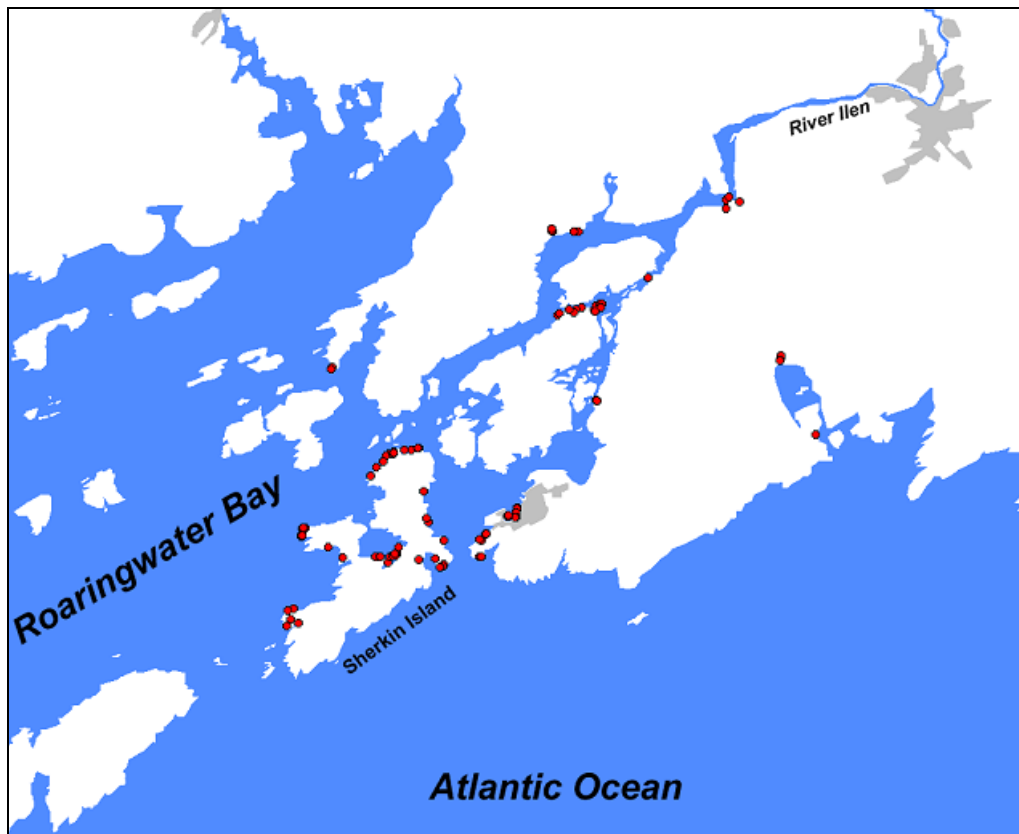


Figure 5. Map showing locations of otter spraints found during the survey (red points).



Figure 6. Number of male and female otter spraints successfully sex typed per site. Note that this is not an indication of the number of individual otters per site.

Discussion

This survey was very successful, with a large increase in the number of samples collected this year compared with the 2012 survey. There may be several factors involved in the rise in samples. Firstly, there was an increase in survey effort, with a larger number of experienced surveyors in 2013 in comparison to teams of less experienced surveyors in 2012. Also, although the mainland sites were surveyed for approximately the same length of time as in 2012, Sherkin Island was searched far more intensively this year, resulting in a large proportion of the increase in the number of samples. Secondly, it is possible that conditions were more suitable for finding spraints during the 2013 survey, as vegetation was likely less overgrown in April (as opposed to July 2012). Weather conditions were generally very poor in July 2012 (much wetter than average), compared with a rather dry period in April 2013, which may have allowed spraints to accumulate before the survey.

These samples have been sent to Waterford Institute of Technology for DNA analysis, which will involve species testing initially to confirm samples as otter spraints, followed by sex typing. Those samples which are deemed to contain enough good quality and quantity DNA (which has not been degraded by the elements through exposure) will finally be genotyped, to provide genetic “fingerprints” for individual otters which have deposited spraints using the procedure described by O’Neill et al. (2013). It is difficult to estimate how many spraints will be suitable for this stage, as genotyping success as a percentage of all otter samples collected during a survey varies considerably from survey to survey.

However, as we have collected a substantial number of spraints during this survey, it is possible that we will eventually be able to identify a number of individual otters from this area. From this it may be possible to provide a minimum population estimate of otters within the survey area and thus possibly give an idea of the size of the otter population within Roaringwater Bay as a whole, which could be a valuable contribution towards conserving this nationally important area for the Irish otter population.

Acknowledgements

We would like to thank all the delegates of EOW2013, volunteers and landowners who participated in this survey, and we would also especially like to thank the landowners who gave permission to survey on their property. Many thanks to Addy de Jongh and Ferdia Marnell for assistance in the planning of this survey. Thanks also to Paul and Sarah Chanin for the use of their beautiful photographs of this event.

References

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Appendix 1. Photos of the Roaringwater Bay otter survey.



Large mound of decomposed and relatively fresh otter spraints, Ringarogy Island. The spraints appear to consist mostly of crustacean shells (Photo: *Denise O'Meara*).



Collecting otter spraints next to a well-used otter run leading from the strand. Ringarogy Island, Roaringwater Bay. (Photo: *Denise O'Meara*)



Collecting otter spraints at the mouth of Horseshoe Harbour, Sherkin Island. The grass is noticeably greener where it has been fertilised by otters depositing spraints there. (*Photo: Sarah Chanin*)