

# Overland passage of Northern Gannets in South Argyll 2016

*Eddie Maguire, Iomhar MacMillan, Rab Morton and Charlie Robertson.*

## Introduction

During early August 2016 Machrihanish Seabird Observatory (MSBO) wardens Eddie Maguire and Iomhar McMillan suspected that many adult Northern Gannets *Morus bassanus* arriving over Machrihanish Bay from the east had almost certainly crossed over the Kintyre peninsula from Campbeltown Loch. Passage of small numbers crossing over from the Clyde to the Atlantic had already been established (Maguire, 2015), however, additional observations at Campbeltown Harbour would clarify how often this occurred, and how many birds were involved.

The MSBO warden Eddie Maguire arranged coordinated surveillance at Campbeltown. Rab Morton (RM) volunteered and Charlie Robertson (CR) was also recruited to the project. Surveillance at Campbeltown involved watching the behaviour of Gannets that were over the loch and logging the times of all overland crossings.

Almost immediately, both observers became aware that high-flying Gannets were the ones to watch and were far more likely to cross over the peninsula. Many of these high-fliers would initially set off for the east as if leaving the loch for the Kilbrannan Sound: however, they were watched returning over the harbour, although at considerably greater height, and continued flying west over the town for Machrihanish Bay. Utilising this previously unrecorded behaviour, both observers were soon able to predict, with some certainty, when a Gannet was about to cross overland. In addition, observers determined that absence of shoaling fish in Campbeltown Loch was perhaps a trigger that persuaded birds to set off 8 km overland for the west, although other visual factors, including the topography or the sight of plunge-diving Gannets off Machrihanish (Atlantic) may also be a stimulus.

Satellite tracking results from various Gannet colonies around Britain suggest these birds are almost certainly breeding adults on foraging expeditions from the Ailsa Craig colony 31km ESE of Campbeltown Loch.

Surveillance at Machrihanish was dependant on mobile phone contact with observers at Campbeltown Harbour. CR and RM promptly informed MSBO wardens when a Gannet set off high for the west. Primed with a known departure time, the wardens on the Atlantic coast of Kintyre successfully timed many birds arriving over Machrihanish Bay:

*e.g. on 15<sup>th</sup> October CR contacted MSBO from Campbeltown Harbour at 11:24hrs and announced that an adult Gannet had just set off for the west high over the town. MSBO wardens located this individual arriving over the sand dunes at Machrihanish Bay at 11:33hrs. This bird had taken around 9 minutes to fly 8km west over the Kintyre peninsula. Gannets certainly lose height during the crossing although many can still be >150m ASL when they arrive over the bay.*

## Results

During August to October 2016 a total of **286** adult Gannets crossed overland from the head of Campbeltown Loch (Clyde) to Machrihanish Bay (Atlantic) on **53** days of observation (Table 1). Birds were seen crossing Kintyre on all days when observations were carried out in August (17 days) and September (25 days). The reduction in overland passage of adults at Campbeltown in October is consistent with the main fledging period on Ailsa Craig which occurs during mid-late September (Forrester *et al.* 2007); with the fledging of juveniles adults are no longer required to provision the young, and birds commence dispersing to wintering grounds south of the breeding colony.

Table 1. Number of Northern Gannets flying 8km overland from Campbeltown Loch to Machrihanish Bay during August to October 2016. (N/O – No observations made on these dates; 0 – no birds seen crossing during observation period).

<b>Date</b>	<b>August</b>	<b>September</b>	<b>October</b>
1	1	15	3
2	N/O	5	0
3	N/O	10	0
4	N/O	1	1
5	N/O	3	1
6	N/O	5	0
7	N/O	5	4
8	13	7	0
9	N/O	N/O	1
10	N/O	2	1
11	N/O	8	0*
12	N/O	N/O	0*
13	3	16	0*
14	N/O	9	0*
15	19	8	6
16	6	10	0
17	5	11	2
18	2	8	1
19	2	4	2
20	2	3	0
21	N/O	N/O	0
22	N/O	2	0
23	N/O	N/O	0
24	1	N/O	1
25	6	2	0
26	3	4	0
27	3	3	0
28	7	5	0
29	11	6	0
30	7	9	0
31	11	-	0
<b>Total</b>	<b>102</b>	<b>161</b>	<b>23</b>

\* On these October dates (11<sup>th</sup> - 14<sup>th</sup> / see **Table** above) many Gannets were foraging in Campbeltown Loch. CR commented: ‘*large numbers of Mackerel were present in the loch so the Gannets were fully occupied. I would have been very surprised if any had crossed over the peninsula.*’

\* On 14<sup>th</sup> October RM also remarked on the abundance of fish in the loch: ‘*Apart from Gannets plunge-diving, Herring Gulls were noted catching small Mackerels, around 20 cm in length, in shallow water by the inner pontoon near the Tourist Information Centre.*’

On 23 September an adult was noted gaining such great height over the head of the loch that it was almost a dot in the sky before setting off for the west, and on 7 October four singles were flying so high to west that they were described as being ‘*virtually in the gods*’ by the observer (CR).

## **Discussion**

So far, this research has revealed that only adult Gannets fly west over the narrowest part of the Kintyre peninsula, a distance of 8km, usually at great height, far more frequently and in far greater numbers than was previously documented (Maguire, 2015). Two additional aspects of the initial observations have been confirmed by these more detailed studies. Only adult birds made the overland crossing and no juveniles (1CY) or sub-adult birds were noted suggesting that this regular overland passage may be something which is ‘learnt’ rather than an innate characteristic of Gannets (although see below regarding migrating birds). It is also notable that no passage from west to east has been noted, suggesting that the birds crossing to the west at Campbeltown have recently dispersed on foraging expeditions from the breeding colony on Ailsa Craig.

Adult Gannets starting out on a foraging expedition from Ailsa are likely to be at minimal weight, look streamlined, and as we now know, have the ability to cross Kintyre from east to west. Conversely, birds that have been foraging successfully over the Atlantic may be too heavy to cross land. Personal observations by Eddie Maguire over many years has revealed that flocks travelling south off MSBO on the return trip to Ailsa are not streamlined; they have distended rear ends and look bloated. In view of the additional weight (in fish prey) these heavily-laden birds are carrying they do not appear to have the ability to commit to an 8km overland crossing and therefore rely on dynamic soaring (wave power) to return to the colony.

Other observations of overland passage in the UK have tended to relate to birds moving between the west and east coasts of Britain and probably relate to migrating birds rather than the overland foraging strategy that has been observed passing over Kintyre. Bob Furness recovered geolocators from 50 adult Gannets breeding on Bass Rock over several seasons and one of those shows a bird migration overland (*in litt.*). The tracks were determined by a combination of sea surface temperature and light intensity data, which for seabirds in European waters gives much more accurate location estimates than just using light intensity alone, because SST patterns are very strong in European waters. The one bird that clearly flew overland was an individual that wintered off West Africa and was unusually late returning north in spring. It flew past Cornwall, through the Irish Sea, then overland to the Bass, apparently from the Clyde to the Forth although the exact point of crossing is impossible to identify from the tracking data. But it certainly crossed from the northern Irish Sea to the Forth rather than going all the way round the coast.

David Jardine noted an adult Gannet appearing out of dense fog in September over Kielder village, Northumberland, mid-way between the North Sea and the Solway Firth, suggesting that this overland passage was a result of weather conditions rather than a regular migration route (*pers. comm.*). However, Taylor (1977) describes five instances of birds, mainly juveniles, but also of an adult, heading inland south west from the upper reaches of the Firth of Forth towards the Clyde in late August and September. One was also seen flying west over Glasgow (Bernie Zonfrillo *pers. comm.*)

So far, observations of migration across Scotland is insignificant compared to our current understanding of the remarkable number of birds (286 birds on 52 dates of observation) that crossed 8km overland at Campbeltown during August to October to gain access to foraging grounds in the Atlantic: more Gannets were verified crossing South Kintyre in a single day in August 2016 (19) than has ever been established crossing Scotland. The adult that recently crossed from the North Irish Sea to the Bass Rock (geolocator) is the only *verified* crossing and around 15 others are *presumed* to have crossed over many years. However, it is important to note that the finding in South Kintyre relates to Gannets regularly commuting across land as part of a foraging strategy, rather than migration. Gannets leaving the Clyde for the Atlantic attain great height before committing to the overland crossing. This was a significant discovery.

The frequency of the crossings at Campbeltown lends credence to the likelihood that other short overland passage routes may await discovery in Argyll. Therefore as Gannets are often seen high up other sea lochs (Ap Rheinallt *et al.* 2007), similar observations in locations such as at upper Loch Fyne, West Loch Tarbert and Loch Gilp may prove instructive. It is important to note that foraging birds at the head of Campbeltown Loch cross overland only when they fail to find accessible shoaling fish. Surely this is the prime time to watch for high-flyers that may cross overland at other sea lochs in Argyll?

At present, verified overland passage by adult Gannets to access foraging grounds is confined exclusively to South Kintyre; the birds usually depart overland at great height, far more frequently, and in far greater numbers than was previously documented (Maguire, 2015). It would also be interesting to confirm if this overland passage has been noted in other parts of the British Isles with similar coastlines adjacent to Gannet colonies (e.g. Shetland). This project was a marathon enterprise and an important local study that delivered a unique contribution to Scottish ornithology. During 2017 the project will be extended with regular coordinated surveillance from March to October at both Campbeltown and MSBO.

## References...

- Ap Rheinallt, T., Craik, J.C.A., Daw, P., Furness, R.W., Petty, S.J. & Wood, D. (eds.) 2007. *Birds of Argyll*. Argyll Bird Club, Lochgilphead.
- Forrester, R.W., Andrews, I.J., McInerny, C.J., Murray, R.D., McGowan, R.Y., Zonfrillo, B., Betts, M.W., Jardine, D.C. & Grundy, D.S. (eds). 2007. *The Birds of Scotland*. The Scottish Ornithologists' Club, Aberlady.

Maguire, E. 2015. Westerly overland passage of Northern Gannets in south Argyll 2007-2015. *The Eider* 114: 12-14.

Taylor, I.R. 1977. Overland passage of Gannets from the Forth. *Scottish Birds* 9: 298.

**Eddie Maguire** [msbowarden@gmail.com](mailto:msbowarden@gmail.com)