

Sayer, Sue¹; Crosby, Abby²; Hockley, Kate¹; Jarvis, Dan¹; McBride, Dave¹; Witt, Matthew³; Boyle, Dave⁴; Allen, Rebecca⁵; Archell, Faye⁶; Spooner, Derek⁷.
¹ Cornwall Seal Group, c/o Copperleaf Cottage, Phillack Hill, Hayle, Cornwall, TR27 5AD, UK : ² Cornwall Wildlife Trust, Five Acres, Allet, Truro, TR4 9DJ, UK
³ Environment and Sustainability Institute, University of Exeter, Cornwall, TR10 9EZ, UK : ⁵ Cornwall College, Trenance Gardens, Newquay, Cornwall, TR7 2LZ, UK
⁴ Wildlife Trust of South & West Wales, Fountain Road, Tondy, Bridgend, CF32 0EH, UK (on behalf of the Countryside Council for Wales, Bangor, LL57 2DW, UK)
⁶ British Divers Marine Life Rescue, Lime House, Regency Close, Uckfield, E Sussex, TN22 1DS, UK : ⁷ University of Hull, Cottingham Road, Hull, HU6 7RX, UK
With special thanks to all CSG volunteers, particularly Vic Hall, Dave Jenkin, Rob Jutsum, Claire Lewis, Annabelle Lowe, Lucy Tozer and Darius Warmesley.

Regional collaboration in grey seal (*Halichoerus grypus*) photo identification informs species level conservation

Introduction: For grey seal conservation measures to be effective, a better understanding of seal movements between interdependent sites is required. Long-term photo identification of seals benefits from the development of networks. The evolution of one such network in SW England is described.

Aims and objectives: Network

The network aims to share seal photo identification catalogues built up at individual sites or across regions for manual comparison. Cornwall is geographically central to seal movements across the Celtic Sea, increasing the chances of successful identifications (IDs).

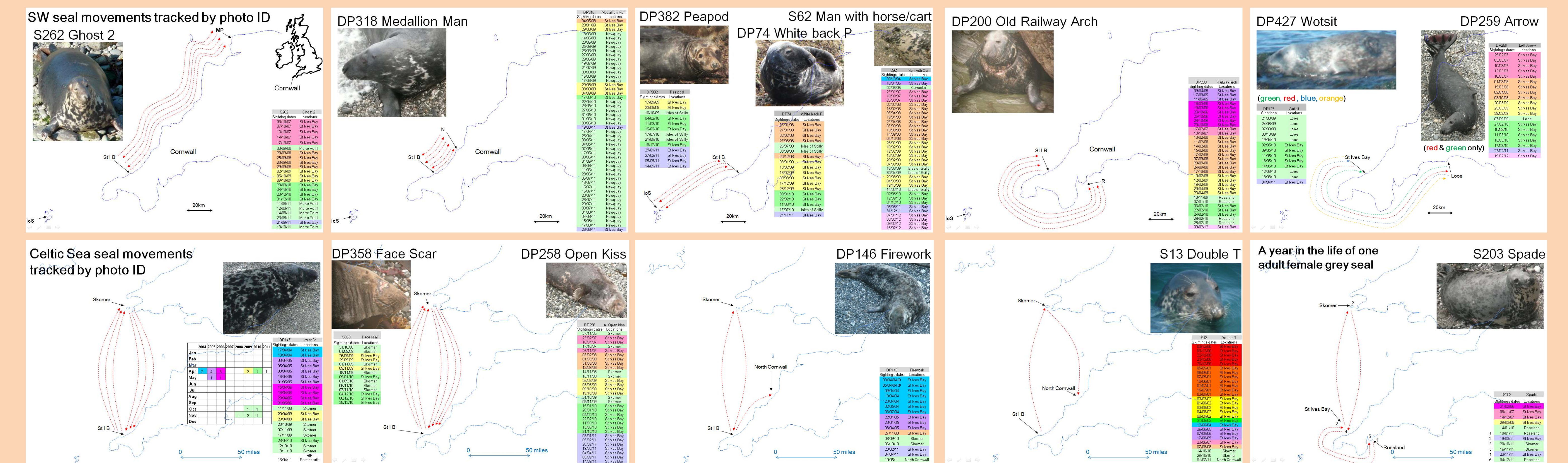
Method: Network

Since 2000, a photo identification catalogue for grey seals in St Ives Bay has been generated. In 2004, Cornwall Seal Group (CSG) was set up and members began sharing data to create a more holistic picture of seal activity and to initiate the tracking of individual seals around the coast. By 2008, this network had expanded to include Cornwall Wildlife Trust (WT), Looe Voluntary Marine Conservation Area (VMCA) volunteers and the University of Exeter. Using this successful model of collaboration, in 2011 the CSG network grew rapidly to include other established players operating in the region, including British Divers Marine Life Rescue, Polzeath and St Agnes VMCA's, Isles of Scilly (IoS) WT, Cornwall College and ecotour operators.

Result: Comparing photos across a network enables shared seal IDs

This association of public, private and voluntary individuals / organisations and growing interaction with more distant researchers (WT of South and West Wales, the Isle of Man WT and Swansea University) has increased our understanding of how seals move around the coast.

Key to maps of seal movements : Light green shaded dates represent 'other' location of identification. Rainbow shaded dates represent identifications at St Ives Bay - a different rainbow colour has been used for each year. Red dashed lines represent inferred seal movements. These seal movements are point identifications. The arrows indicate inferred overall movements, not exact routes taken and do not reflect the full extent of each individual's journey.



Discussion: The two large haul-out sites in Cornwall (St Ives Bay and North Cornwall) are linked. The movements by S13 and DP146 suggest that seals travelling between St Ives Bay and Skomer may travel via the North Cornwall haul-out in both directions. It is clear from just the 10 examples of 14 individual seal movements (shown above) that the St Ives Bay haul-out is linked to all other parts of the Cornish, North Devon and SW Wales coasts by seal movements. Photos of flipper and hat tagged seals from St Ives Bay, show this site is also linked to SW Ireland and France. This raises the level of importance that the St Ives Bay haul-out plays for seals across the Celtic Sea. The fact that breeding seals from Skomer (beachmaster males and actively breeding females) visit Cornwall repeatedly between pupping suggests threats to seals in Cornwall (including habitat loss, disturbance, net entanglement and shooting) may affect breeding success and favourable conservation status in the Skomer Marine Nature Reserve (MNR) within the Pembrokeshire Special Area of Conservation (SAC).

Conclusion: The discovery that seals of all ages repeat movements between sites, often with seasonal regularity, demonstrates the need for further research into the complexity of journeys that seals make through the Celtic Sea, which may be unique to each individual seal. Integrated management approaches across the Celtic Sea are needed, as the protection of single sites will not achieve seal species level conservation. The entire network of key habitats for hauling out, breeding and moulting need to be protected, along with the transition routes and stop off points seals use in between. This means statutory protection is needed for the key haul-outs in St Ives Bay and North Cornwall to ensure successful breeding in the Skomer MNR, Lundy and IoS SACs.

CSG intend to further expand the number of participating partner organisations and hope the use of photo ID software will add to the photo ID success rates achieved.

For more information about the work of Cornwall Seal Group, visit www.cornwallsealgroup.co.uk or email sue@cornwallsealgroup.co.uk