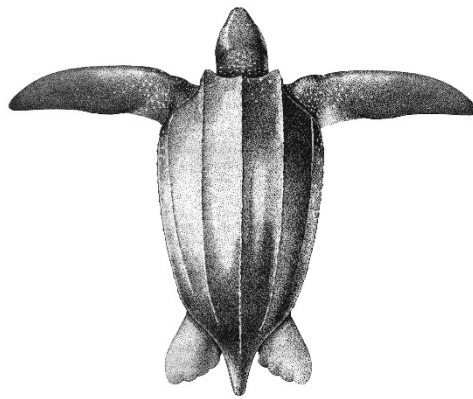


www.strandings.com

British & Irish Marine Turtle Strandings & Sightings Annual Report 2019

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1. SUMMARY

A total of 21 live and dead marine turtles were reported to TURTLE during 2019. One Kemp's ridley turtle; 15 leatherback turtles; 4 loggerhead turtles and 1 green turtle.

Live stranded

There were 3 live stranded turtles reported in 2019. All 3 were loggerheads; one in Northern Ireland, one in Republic of Ireland and one in Scotland.

Live sightings

Eleven leatherback turtles were sighted alive at sea. Five in England; 2 in Scotland; 2 in the Republic of Ireland and 2 in Wales.

Dead sightings

There were no dead sightings.

Dead strandings

A total of 7 dead turtles were reported stranded.

Four leatherback turtles stranded dead. Two in England; one in Wales; and one in Scotland.

One Kemp's ridley turtle stranded dead in Wales; one loggerhead in England; one Green turtle in Scotland.

Post mortem examination

One leatherback turtle received a post-mortem examination within the CSIP.

One Kemp's ridley turtle is currently held frozen awaiting examination.

Data sharing

The TURTLE database has been adapted and uploaded to the NBN Atlas.

Repatriation

Loggerhead turtle T2019/13 was flown to the Canaries and successfully released on 4th November 2019.

TURTLE record totals

The current total of 2835 is broken down thus:

1347 Republic of Ireland; 688 England; 410 Scotland; 282 Wales; 42 Northern Ireland; 36 Isle of Man; 17 Channel Islands; 13 Offshore.

2. INTRODUCTION

In 1990, the ‘Collaborative UK Marine Mammal Strandings Project’ was initiated and part-funded by the UK Department of the Environment (now Defra). The project involves detailed pathological and other investigations of stranded marine mammal carcasses (mostly cetacean) from UK waters. It forms part of the Department's international obligations towards conservation agreements, including the ‘Agreement on the conservation of Small Cetaceans of the Baltic and North Seas’ (ASCOBANS). Detailed pathological investigations of stranded marine turtles were included in 2001 and the systematic recording and occasional examination of stranded basking sharks began in 2007. The project is now named the ‘Cetacean Strandings Investigation Programme’ (CSIP, www.ukstrandings.org) (see **Figure 1**).

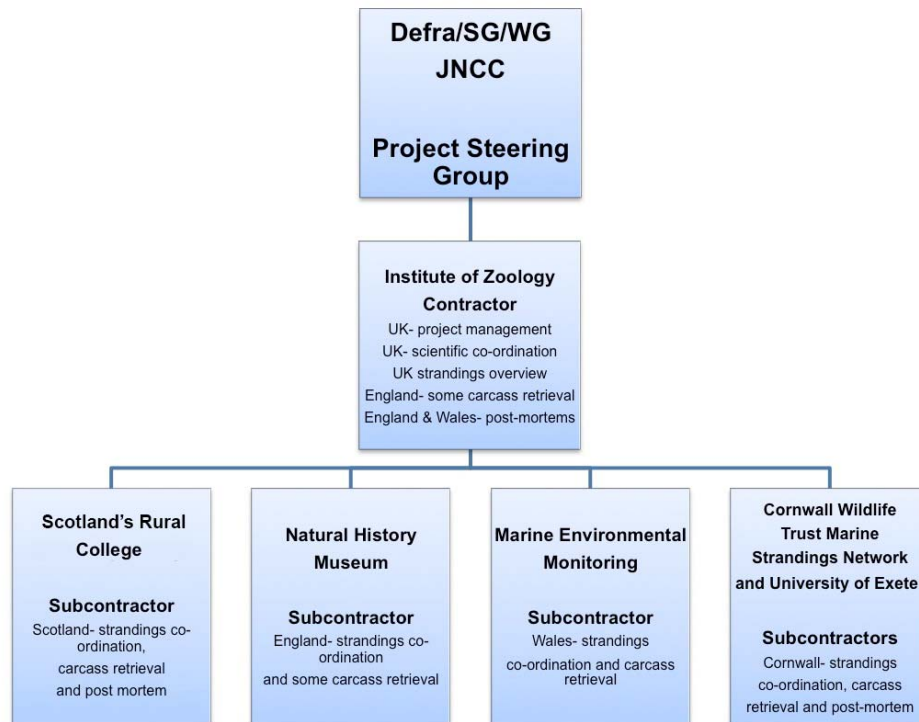


Figure 1. Current technical co-ordination of the Cetacean Strandings Investigation Programme (CSIP).

2.1 The UK Turtle Implementation Group.

Historically, in 1999, English Nature, now Natural England, published the UK Marine Turtles Grouped Species Action Plan (SAP) on behalf of the UK Biodiversity Group. The SAP was part of the UK Biodiversity Action Plan and aimed to enhance marine turtle conservation in UK waters and in the UK Overseas Territories as well as raise awareness and knowledge of their occurrence, legal protection and measures to enhance conservation amongst marine users and the general public. The SAP was implemented by a group of organisations led by joint lead partners the Marine Conservation Society (MCS) and the Amphibian & Reptile Conservation Trust¹ (ARC). The contact agency was Scottish Natural Heritage (SNH). The Turtle Implementation Group (TIG) now only communicate electronically and contribute to the project as a steering panel. TIG consists of the following organisations:-

¹ Formally Herpetological Conservation Trust (HCT).

- **Amphibian & Reptile Conservation Trust** is an authority on reptile and amphibian conservation issues and is an active participant in Governmental and third sector nature conservation programmes across the UK www.arc-trust.org
Contact: *Karen Haysom*, 01202 391319 karen.haysom@arc-trust.org
- The **Department of Environment, Food and Agriculture (DEFA)** is the Isle of Man Government's department responsible for species protection and site designation under the Manx Wildlife Act 1990. The Department is also the key Isle of Man contact for strandings and sightings of sea turtles.
Contact: *Dr Peter Duncan*, 01624 685884 peter.duncan@gov.im
The Manx Wildlife Trust also record strandings on behalf of DEFA.
Contact: *Dr Lara Howe* on 01624 844432. lara@manxwt.org.uk
- The **Department of Agriculture, Environment, and Rural Affairs (DAERA) Marine & Fisheries Division** is responsible for protecting the marine environment while maximising the sustainable use of its resources, now and for future generations.
Contact: *Gary Burrows*, 028 7082 3600. gary.burrows@daera-ni.gov.uk
- **Joint Nature Conservation Committee (JNCC)** is the public body that advises the UK Government and devolved administrations on UK-wide and international nature conservation.
Contact: *Kelly Macleod*, 01224 266584
- **Marine Conservation Society (MCS)** is the UK charity dedicated to the protection of the marine environment and its wildlife. MCS was the joint Lead Partner of the Marine Turtles Grouped Species Action Plan and coordinates the TIG. www.mcsuk.org
Contact: *Dr Peter Richardson*, 01989 566017
- **Marine Environmental Monitoring (MEM)** is a member of the Defra "UK Cetacean Strandings Investigation Programme", www.strandings.com www.ukstrandings.org MEM also manages 'TURTLE' the British Isles & Irish database holding both records of sightings and strandings of marine turtles dating back to 1748.
Contact: *Rod Penrose*, (Reporting telephone No. 01239 683033) rodpenrose@strandings.com
- **Marine Turtle Research Group** is based at the University of Exeter, Cornwall Campus and carries out fundamental and applied research on marine turtles in British waters, the Mediterranean, West Africa and throughout the UK Overseas Territories.
Contacts: *Prof Brendan Godley & Prof Annette Broderick* 01326 371 861.
- **MEDASSET**, founded in 1988, is an international environmental NGO registered as a Non Profit Organisation working for the conservation of sea turtles and their habitats throughout the Mediterranean, through scientific research, environmental education, political lobbying and awareness-raising.
Contact: *Lily Venizelos*, + 30 210 3613572 medasset@medasset.org
- **National Parks and Wildlife Service (NPWS)**, part of the Department of Culture, Heritage and the Gaeltacht, provides the legislative and policy framework for the conservation of nature and biodiversity in the Republic of Ireland. It also oversees its implementation, based on good science, with particular emphasis on the protection of habitats and species, through the designation and conservation of sites under EU Directives and national legislation.
Contact: *Dr Ferdia Marnell*, +3531 8883290 ferdia.marnell@chg.gov.ie
- **Natural England (NE)** is the Government agency that champions the conservation of wildlife and natural features throughout England.
Contact: *Paul Edgar*, 02080 267708 paul.edgar@naturalengland.org.uk
- **Natural Resources Wales (NRW)** Natural Resources Wales is the largest Welsh Government Sponsored Body. Formed in April 2013, it took over the functions of the Countryside Council for Wales, Forestry Commission Wales and the Environment Agency in Wales, as well as certain Welsh Government functions. Its purpose is to pursue sustainable management of natural resources in all of its work. This means looking after air, land, water, wildlife, plants and soil to improve Wales' well-being, and provide a better future for everyone.
Contact: *Dr Tom Stringell*, 03000 654912 tom.stringell@cyfoethnaturiolcymru.gov.uk or *Ceri Morris*, 03000 654913 ceri.morris@cyfoethnaturiolcymru.gov.uk
- **Queen's University Belfast:** Dr Jonathan Houghton works on the foraging ecology and migratory behaviour of marine turtles with a particular focus on the predator prey interactions of leatherback turtles and gelatinous zooplankton (jellyfish).
Contact: *Dr Jonathan Houghton*, 028 90972297 [#j.houghton@qub.ac.uk](mailto:j.houghton@qub.ac.uk)
- **Scottish Natural Heritage (SNH)** is a government body responsible to the Scottish Government and Scottish Parliament. SNH promotes the care, improvement, responsible enjoyment, understanding, appreciation and sustainable use of Scotland's natural heritage. SNH is the contact government point for the Marine Turtles Grouped Species Action Plan.
Contact: *Marine Monitoring Team*, MPA@nature.scot 01463 725 018
- **The Wildlife Trusts** is a partnership of 47 Wildlife Trusts, across the UK, caring for more than 2,400 nature reserves. It campaigns for the protection of wildlife and invests in the future by helping people of all ages to gain a greater appreciation and understanding of nature. The Wildlife Trusts Basking Shark Project contributes at sea survey data, from the west coast of Britain on an annual basis.
Contact: *Dr Nick Tregenza*, 01736 711783.
- **University College Cork** *Dr Tom Doyle*, School of Biological, Earth & Environmental Sciences. Sightings & strandings can also be reported online in the Republic of Ireland via the National Biodiversity Data Centre's turtle sightings page: <https://records.biodiversityireland.ie/record/sea-turtles>
Contact: *Dr Tom Doyle*, 353-(0) 87 1354938 (mobile).

3. MATERIALS AND METHODS

Contact details vary for different parts of the British Isles & Republic of Ireland and the Turtle Code (Appendix 2.) should be consulted for the relevant contacts.

In **England & Wales** a 24 hour answer phone **01239 683033**, is interrogated at regular intervals. A message requests callers to leave details of the stranding or sighting and location, along with their name and contact phone number, so they may be reached if confirmation of details are required. A dedicated email address to receive digital photographs has been created info@strandings.com

For **Scotland** all records should be reported to Scottish Natural Heritage on **01463 725018** with dead strandings being reported to the Scotland's Rural College (SRUC) **01463 243030**. Live strandings and entanglements should be reported to the SSPCA on **03000 999 999**.

For **Northern Ireland** all records of live or dead turtles should be reported to **DAERA** Marine and Fisheries Division at the Portrush Coastal Zone centre on **028 7082 3600**.

UK turtle sightings and strandings can also be reported using the UK Turtle Code online at <http://www.euroturtle.org/turtlecode/default.htm>

In the **Republic of Ireland** all records should be reported to Dr Tom Doyle, School of Biological, Earth & Environmental Sciences, **353-(0) 87 1354938** (mobile). Sightings & strandings can also be reported online in the Republic of Ireland via the National Biodiversity Data Centre's turtle sightings page: <https://records.biodiversityireland.ie/record/sea-turtles>

On the **Isle of Man** all marine animal strandings should be reported to **DEFA** on **01624 685835/685884** or directly to Dr Peter Duncan **07624 300525**, or Dr Lara Howe **07624 450879**

The following criteria are applied: -

3.1 Live Animals

(Condition code 1)²

In 1994 the Marine Animal Rescue Coalition (MARC) was formed. This consists of all the major animal welfare and conservation bodies involved with marine mammals/turtles in the UK. It has been agreed that in the case of a live-stranding the first point of call would be the RSPCA (England & Wales), SSPCA (Scotland) as they support a manned 24-hour emergency phone. The RSPCA/SSPCA would then contact the relevant organisations, Marine Environmental Monitoring etc.

Contacts and advice can be found in the UK Turtle Code at <http://www.strandings.com/Graphics%20active/turtlecode.pdf>

3.2 Dead Animals

(Condition code 2a extremely fresh as if just died)²

(Condition code 2b slight decomposition)²

(Condition code 3 moderate decomposition)²

Health and safety precautions are followed with the animal being handled only with gloved hands. Preferably it is then taken immediately for *post-mortem* examination, but due to funding cuts in 2006 freezing is now an option until transport becomes available.

(Condition code 4 advanced decomposition)²

(Condition code 5 mummified carcass)²

Species identified, basic measurements taken together with skin for DNA. Health and safety precautions being observed. Local Authorities then contacted for safe disposal of remains.

All live and dead marine turtles are allocated a “T0000/001” number. “T” designates the animal as a marine turtle, 0000 is the year and /001 is an individual number for each record of the same year. Records of all strandings & sightings in the British Isles & Republic of Ireland are kept by the Strandings Co-ordinator. Copies of *post-mortem* examination reports are sent from the Strandings Co-ordinator to the finder and others associated with the relevant stranding.

² Body conditions based on Kuiken, T. and Garcia Hartmann, M (1991) Proceedings of the European Cetacean Society workshop on cetacean pathology: dissection techniques and tissue sampling. ECS newsletter 17, Special issue: 39pp

4. RESULTS

The following three tables include marine turtle 'sightings' and 'strandings' reported through 2019.

Table 1.

2019 Total number of reported marine turtles for the British Isles & RoI. (live & dead).													
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Green turtle (<i>Chelonia mydas</i>)	0	0	0	0	0	0	0	0	0	0	0	1	1
Hawksbill turtle (<i>Eretmochelys imbricata</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Kemp's ridley turtle (<i>Lepidochelys kempii</i>)	0	0	0	0	0	0	0	0	0	0	0	1	1
Leatherback turtle (<i>Dermochelys coriacea</i>)	0	0	1	0	0	1	1	8	1	1	0	2	15
Loggerhead turtle (<i>Caretta caretta</i>)	2	0	1	0	0	0	0	0	1	0	0	0	4
Olive ridley turtle (<i>Lepidochelys olivacea</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0
Total animals	2	0	2	0	0	1	1	8	2	1	0	4	21

Table 2.

2019 Number of live marine turtles.													
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Green turtle (<i>Chelonia mydas</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Hawksbill turtle (<i>Eretmochelys imbricata</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Kemp's ridley turtle (<i>Lepidochelys kempii</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Leatherback turtle (<i>Dermochelys coriacea</i>)	0	0	0	0	0	1	1	8	0	1	0	0	11
Loggerhead turtle (<i>Caretta caretta</i>)	1	0	1	0	0	0	0	0	1	0	0	0	3
Olive ridley turtle (<i>Lepidochelys olivacea</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0
Total animals	1	0	1	0	0	1	1	8	1	1	0	0	14

Table 3.

2019 Number of dead marine turtles.													
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Green turtle (<i>Chelonia mydas</i>)	0	0	0	0	0	0	0	0	0	0	0	1	1
Hawksbill turtle (<i>Eretmochelys imbricata</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Kemp's ridley turtle (<i>Lepidochelys kempii</i>)	0	0	0	0	0	0	0	0	0	0	0	1	1
Leatherback turtle (<i>Dermochelys coriacea</i>)	0	0	1	0	0	0	0	0	1	0	0	2	4
Loggerhead turtle (<i>Caretta caretta</i>)	1	0	0	0	0	0	0	0	0	0	0	0	1
Olive ridley turtle (<i>Lepidochelys olivacea</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0
Total animals	1	0	1	0	0	0	0	0	1	0	0	4	7

The general geographical distribution of each species, strandings and sightings, are plotted on the following maps. Although the maps are generated directly from the data stored, they should be regarded as showing distribution of animals rather than giving absolute counts. While the co-ordinate system and the mapping software can theoretically differentiate between points as close as 1 metre apart, even with separations of 100 metres at the scale at which these maps are presented, some symbols may appear to overlap completely.

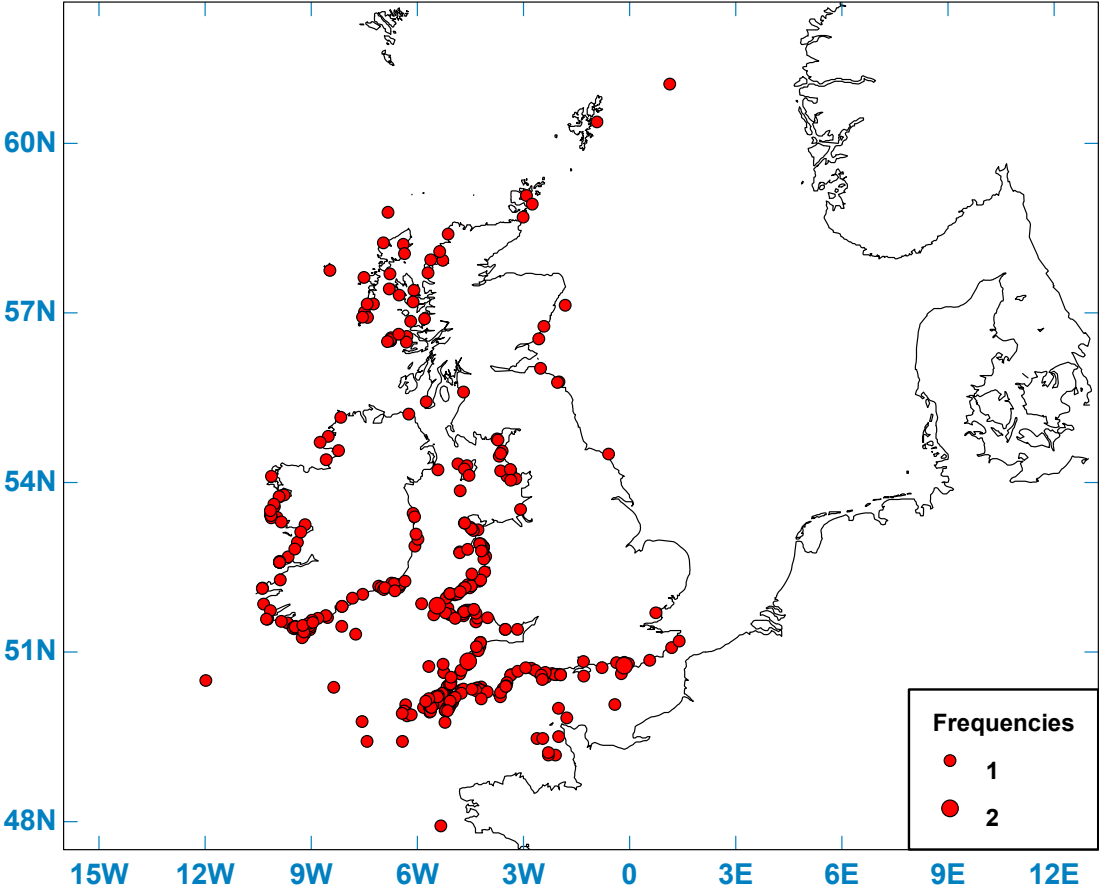


Figure 2. *All species sightings & strandings 2009-2019.*

All species, sightings & strandings over the eleven year period 2009-2019 have been plotted in **Figure 2.**

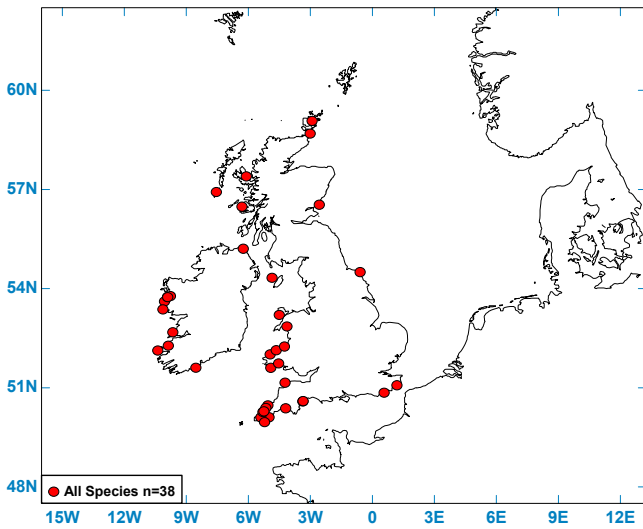


Figure 3. All species sightings & strandings 2017.

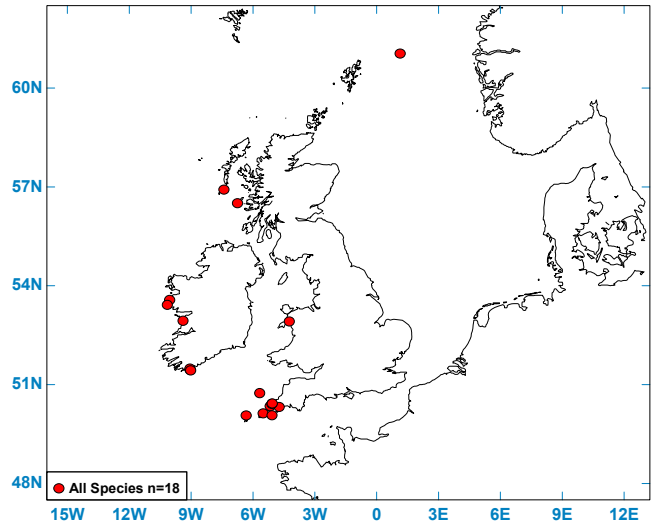


Figure 4. All species sightings & strandings 2018.

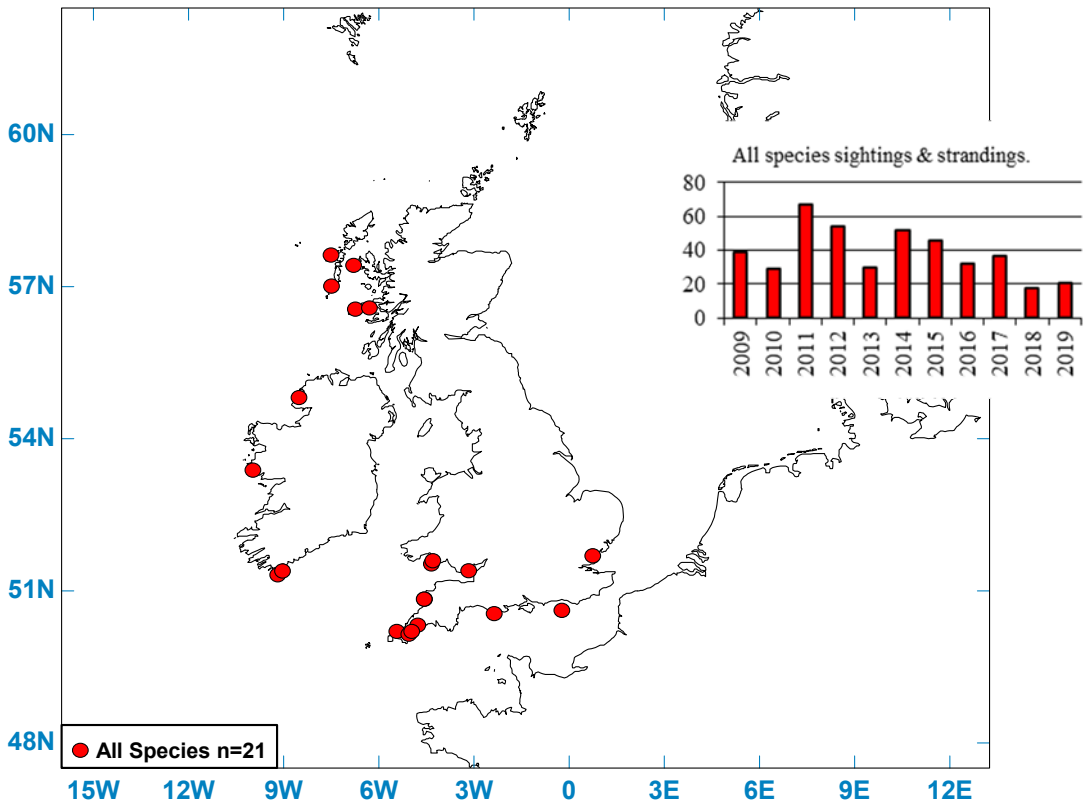


Figure 5. All species sightings & strandings 2019.

4.2 Strandings.

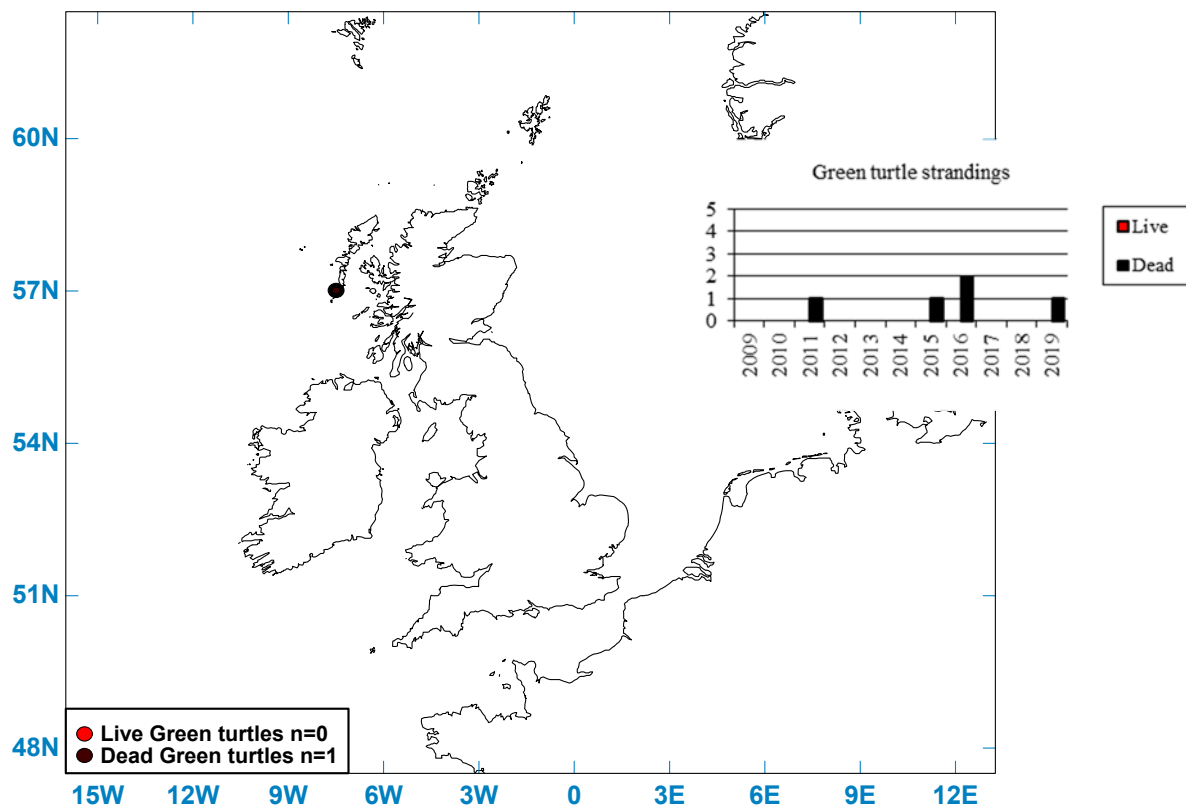


Figure 9. Green turtle strandings 2019.

No live or dead hawksbill turtle strandings were reported during 2019. There have been no records of hawksbill turtle strandings in the database. One sighting record exists off Cork Harbour in February 1983 when one was caught in a herring net and brought ashore alive.

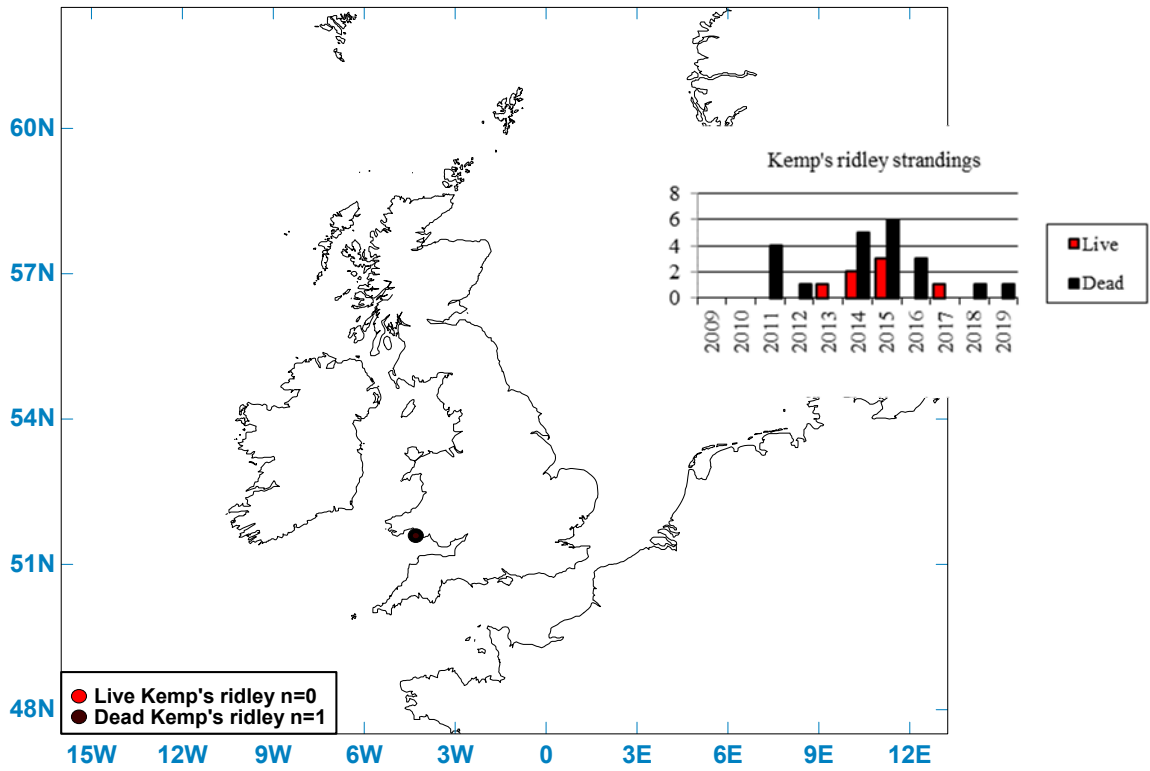


Figure 10. Kemp's ridley strandings 2019.

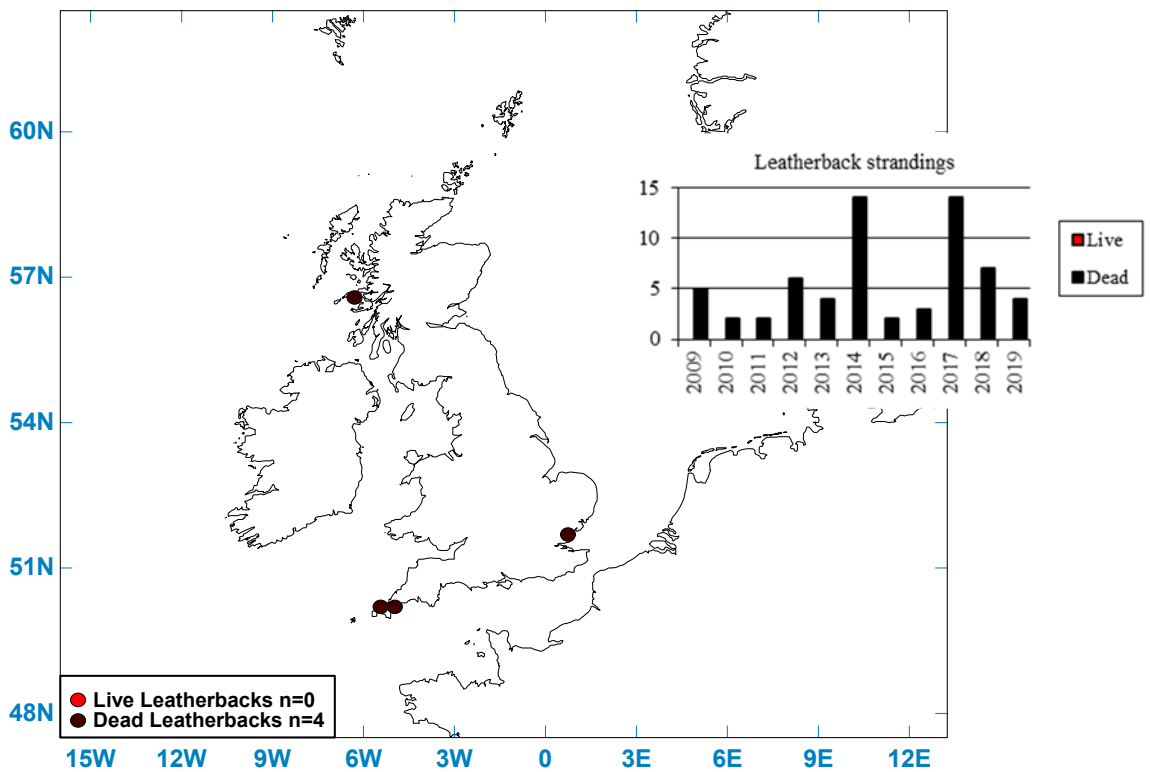


Figure 11. Leatherback strandings 2019.

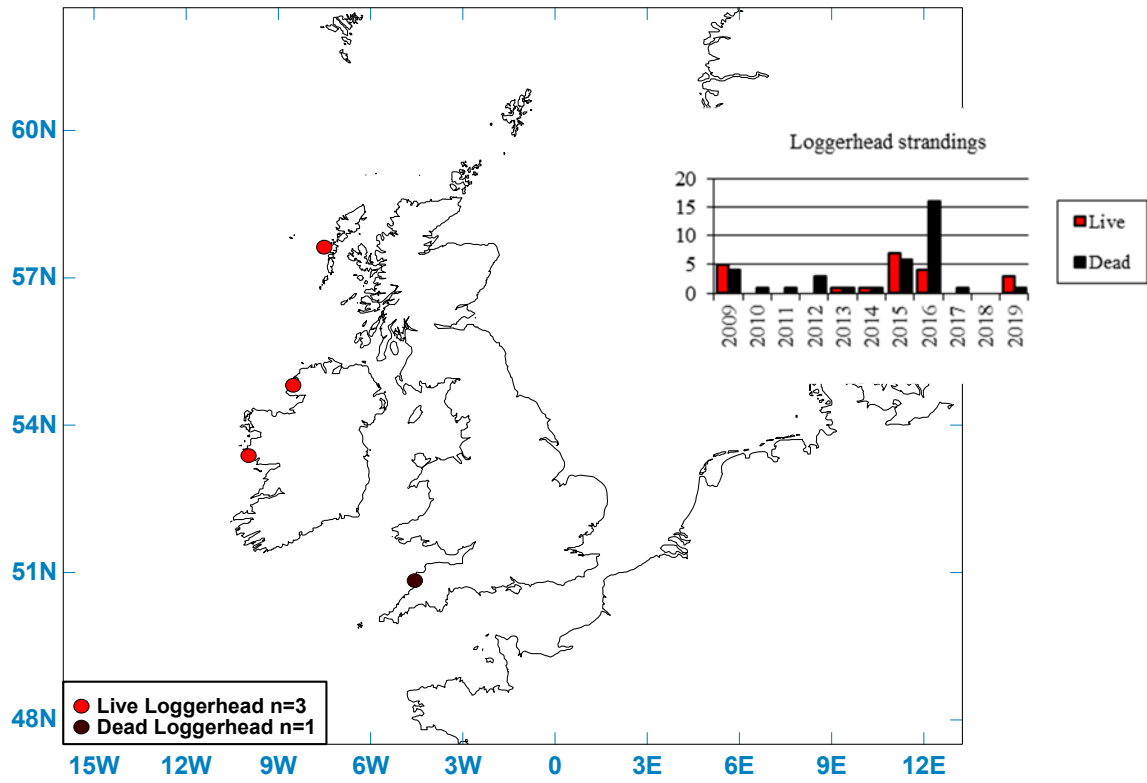


Figure 12. *Loggerhead strandings 2019.*

No live or dead olive ridley turtle strandings were reported during 2019. However, a live stranding of an olive ridley turtle was recorded in recent years as shown in **Figure 13**.

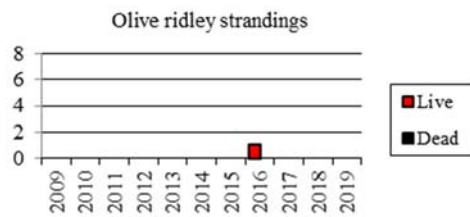


Figure 13. *Olive ridley strandings 2019.*

No live or dead unidentified turtle strandings were reported during 2019. However, strandings of both live and dead unidentified turtles have been recorded in recent years as shown in **Figure 14**.

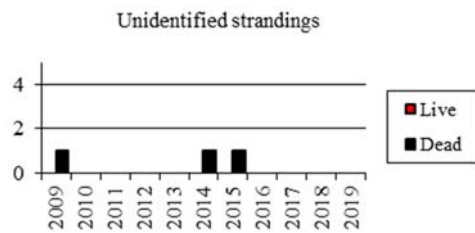


Figure 14. *Unidentified strandings 2019.*

All leatherback strandings and sightings, both dead and alive have been plotted by month for the period 2009 - 2019 (n=296) shown in **Figure 15**. The average figure was taken over 2009-2019 and plotted in **Figure 16**. The graph clearly shows the increase in numbers through the summer months and gives a good indication on when to expect leatherbacks around the British Isles & Irish coast. The records for the hard-shell species are more sporadic. Of the hard-shell species the most numerous recorded turtle over the 2009 - 2019 period is the loggerhead (n=60). The data for this species are plotted in **Figure 17** and **Figure 18**.

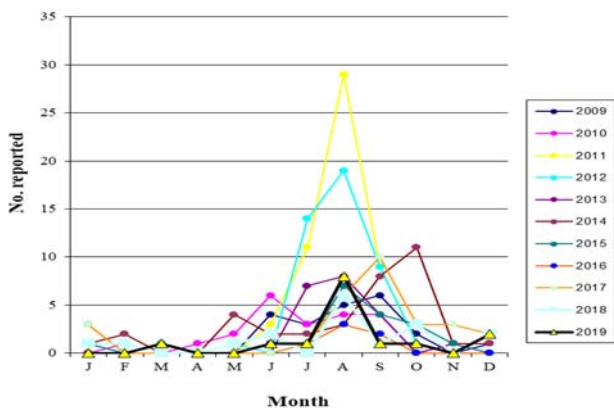


Figure 15. All leatherbacks by month.

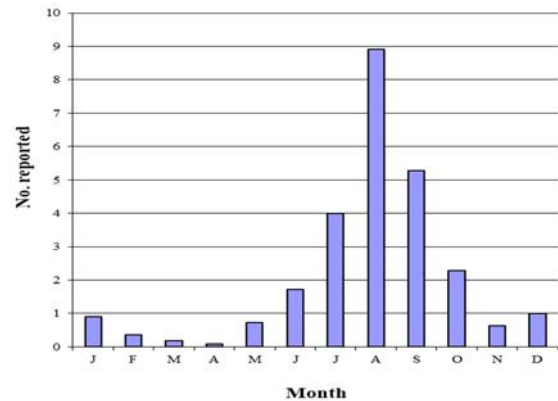


Figure 16. All leatherbacks average over 2009-2019

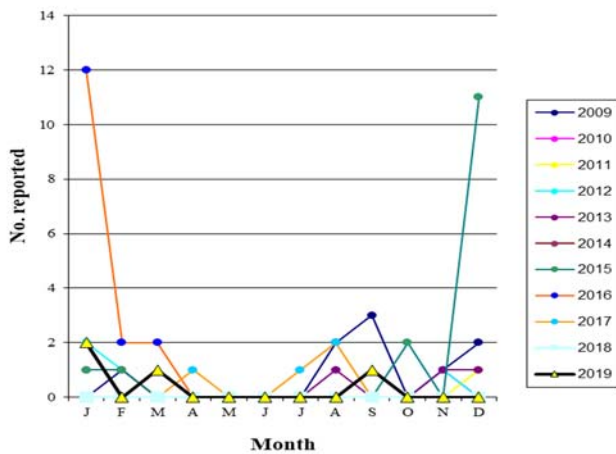


Figure 17. All loggerheads by month.

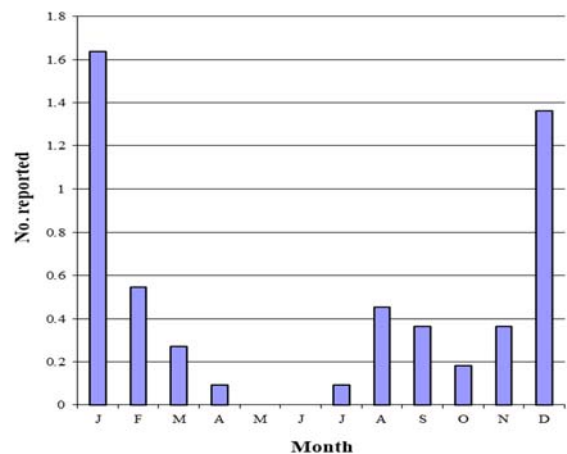


Figure 18. All loggerheads average over 2009-2019.

Table 4.

Cumulative number of records.		
Country	All Species	
	2019	1748 - 2019
Rep. of Ireland	3	1347
England	9	688
Scotland	5	410
Wales	3	282
N. Ireland	1	42
Isle of Man	0	36
Channel Islands	0	17
Offshore	0	13
Total	21	2835

The ‘Offshore’ row in **Table 4.** includes records of turtles where it is difficult to attribute a county ie, animal far from shore or nearer to Europe than UK.

Countries are listed in **Table 4.** by descending order of total number of records shown in the year **1748 – 2019** column.

Table 5.

Species Comparison.														
Country	<i>1999 - 2009</i>													
	2009 - 2019													
	GT	HB		KR		LBT		LOG		OR		UNI		
England	<i>1</i>	0	<i>0</i>	0	<i>6</i>	11	<i>168</i>	105	<i>31</i>	22	<i>0</i>	0	<i>54</i>	28
Scotland	<i>2</i>	2	<i>0</i>	0	<i>3</i>	3	<i>93</i>	39	<i>33</i>	3	<i>0</i>	0	<i>13</i>	4
Rep. of Ireland	<i>1</i>	0	<i>0</i>	0	<i>0</i>	3	<i>190</i>	80	<i>32</i>	19	<i>0</i>	0	<i>20</i>	5
Wales	<i>0</i>	3	<i>0</i>	0	<i>3</i>	11	<i>69</i>	61	<i>16</i>	9	<i>0</i>	1	<i>14</i>	4
Channel Islands	<i>1</i>	0	<i>0</i>	0	<i>0</i>	1	<i>0</i>	2	<i>1</i>	2	<i>0</i>	0	<i>2</i>	0
N. Ireland	<i>0</i>	0	<i>0</i>	0	<i>0</i>	0	<i>13</i>	1	<i>0</i>	1	<i>0</i>	0	<i>2</i>	1
Isle of Man	<i>0</i>	0	<i>0</i>	0	<i>0</i>	0	<i>13</i>	4	<i>0</i>	3	<i>0</i>	0	<i>3</i>	1
Offshore	<i>0</i>	0	<i>0</i>	0	<i>0</i>	0	<i>5</i>	4	<i>0</i>	1	<i>0</i>	0	<i>0</i>	1
Total	<i>5</i>	5	<i>0</i>	0	<i>12</i>	29	<i>551</i>	296	<i>113</i>	60	<i>0</i>	1	<i>108</i>	44

GT = Green turtle, HB = Hawksbill turtle, KR = Kemp’s ridley turtle, LBT = Leatherback turtle, LOG = Loggerhead turtle, OR = Olive ridley turtle, UNI = Unidentified turtle.

Table 6.

TURTLE Database Species Totals (1748 - 2019).	
Species	TOTAL
Green turtle (<i>Chelonia mydas</i>)	14
Hawksbill turtle (<i>Eretmochelys imbricata</i>)	1
Kemp's ridley turtle (<i>Lepidochelys kempii</i>)	68
Leatherback turtle (<i>Dermochelys coriacea</i>)	2098
Loggerhead turtle (<i>Caretta caretta</i>)	263
Olive ridley turtle (<i>Lepidochelys olivacea</i>)	1
Unidentified	390
Total animals	2835

The total records held in TURTLE are 2835 (end of 2019). However, some historical records with inadequate year data have been excluded in this report and from being uploaded to the NBN Atlas.

A breakdown of records for each country is shown in **Table 4**. However, the eleven-year comparison, 1999-2009 / 2009-2019 shown in **Table 5**, shows a marked decline in leatherback turtles recorded for most countries, this decline in sightings of LBTs is likely to be a reflection of reduced effort.

5. MATTERS ARISING.

5.1 Retrospective Reports.

No retrospective reports were received during 2019.

6. LIVE STRANDING EVENTS 2019.

Three loggerheads were reported as live-stranding in 2019, these are listed below;

T2019/01 was reported live-stranded at Rosbeg, County Donegal, Northern Ireland on the 13th January 2019. The turtle was collected from finders by Exploris Aquarium.

T2019/02 was reported live-stranded at Hosta beach North Uist, Western Isles, Scotland on the 18th March 2019. The turtle was placed back in the sea by the finder. A loggerhead turtle was later found dead on the 26th March 2019 and was presumed to be the same animal.

T2019/13 was reported live-stranded at Dolans beach, Galway, Republic of Ireland on the 13th September 2019. The turtle was taken to Dingle Oceanworld Aquarium.

6.1 Rehabilitation

Loggerhead turtle T2019/01 was collected from finders by Exploris Aquarium where it is currently doing well.

Loggerhead turtle T2019/13 was taken to Dingle Oceanworld where it underwent rehabilitation and was soon found to be in a stable and suitable position to be repatriated.

6.2 Repatriation.

Loggerhead turtle T2019/01 is hoping to be repatriated soon with Exploris Aquarium looking into routes for release in the Canary Islands.



Plate 1. *Loggerhead turtle T2019/13 receiving VIP treatment at Cork Airport.*

Loggerhead turtle T2019/13 was flown to the Canaries and successfully released on 4th Nov 2019.

The small loggerhead was PIT tagged at Dingle Oceanworld with a UK series tag but was not flipper tagged on advice from veterinarian Pascual Calabuig who raised concerns about increased risk of entanglement from these tags. Our thanks go to Dingle Oceanworld, especially aquarist Louise Overy and her team for their involvement with the rehabilitation and the organising of the repatriation, Ryanair for flying the turtle for free and as ever, the veterinarian team at Las Palma.

7. BYCATCH.

No turtles were reported to Marine Environmental Monitoring during 2019 as by-caught.

8. SAMPLES & POST-MORTEM EXAMINATIONS.

The normal procedure for the taking of samples is from fresh animals that have been taken for *post-mortem* examination within the CSIP or the Irish Strandings project.

Two turtles were recovered to the project in 2019 in a suitable condition to undergo a full post-mortem examination. These were a leatherback turtle **T2019/16** and a Kemp's ridley turtle **T2019/18**. These are covered in more detail below.

T2019/16 was a leatherback turtle found stranded at Maylandsea, Essex on the 11th December 2019. The carcass was recovered by staff from the Natural History Museum, London for examination within the CSIP. Cause of death was given as: 'possible meningoencephalitis (pending histopathology)'

T2019/18 was a Kemp's ridley turtle found stranded at Llangennith on the Gower Peninsular on the 18th December 2019. The carcass is stored frozen awaiting examination at a later date.

9. DATA SHARING.

The National Biodiversity Network (NBN) Gateway permanently closed on 31st March 2017 superseded by the NBN Atlas which went live on 1st April 2017. The TURTLE database has now been transferred to this platform having been updated to the new validation process required for the NBN Atlas.

10. UNUSUAL OCCURRENCES.

There were no unusual occurrences in 2019.

11. PUBLICITY.

The Strandings Web-site has been maintained to provide details of the CSIP. Although this is intended primarily for Wales, key contact details are given for England, Scotland and Ireland. The pages can be viewed at www.strandings.com/

Annual reports and other turtle related publications are available at www.strandings.com/Wales.html
Posters and leaflets produced to increase awareness of the project have continued to be distributed.

The NBN Atlas is now be the preferred outlet for the TURTLE database.

12. ACKNOWLEDGEMENTS.

Marine Environmental Monitoring wishes to acknowledge the following;

Cornwall Wildlife Trust, Marine Conservation Society, Dr Tom Doyle, Irish Whale and Dolphin Group (IWDG), University of Exeter's Cornwall campus , Gabriel King, Exploris Aquarium, Dingle Oceanworld, Ryanair and Pascual Calabuig and his team in Las Palmas.

Natural England, National Parks & Wildlife Service and the Welsh Government for financial support towards the British Isles & Republic of Ireland TURTLE database.

13. APPENDICES.

- Appendix 1. 2019 TURTLE data.
- Appendix 2. UK Turtle Code.
- Appendix 3. Morphometrics.