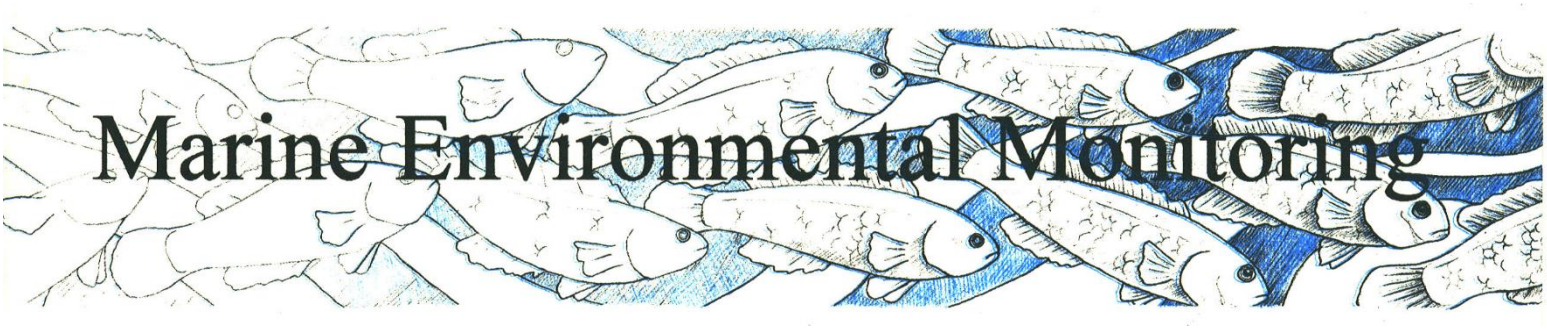
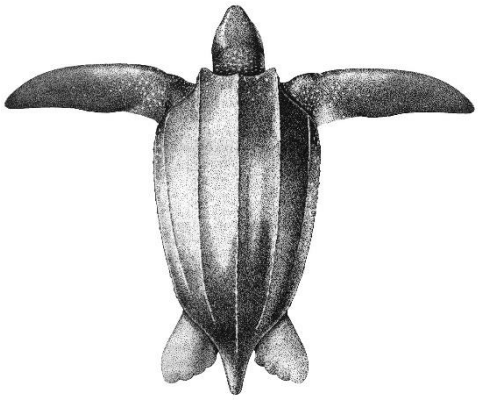


www.strandings.com

British & Irish Marine Turtle Strandings & Sightings Annual Report 2021

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1. SUMMARY

A total of 30 live and dead marine turtles were reported to TURTLE during 2021.
Seven Kemp's ridley turtles; 17 leatherback turtles; 4 loggerhead turtles; and 2 unidentified hard-shell species.

Live stranded
There were 3 live stranded turtles reported in 2021. These were 2 Kemp's ridley turtles, 1 in Wales, 1 in England and 1 loggerhead turtle in Ireland.

Live sightings
Twelve turtles were sighted alive at sea. Eleven of these were leatherback turtles, 2 in England, 4 in Scotland, 4 in Wales, 1 in the Isle of Man; 1 unidentified turtle in England.

Dead sightings
One dead leatherback was sighted in Scotland.

Dead strandings
A total of 14 turtles were reported stranded dead.
Five leatherback turtles stranded dead. Two in Scotland and 3 in Ireland.
Three loggerheads stranded dead. One in England, 1 in Scotland and 1 in Ireland.
Five Kemp's ridleys stranded dead. One in England, 3 in Scotland and 1 in Ireland.
One unidentified dead turtle stranded in England.

Post mortem examination
One Kemp's ridley and 2 loggerheads received a post-mortem examination within the CSIP and Irish network.

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

Rehabilitation
Kemp's ridley T2021/13 is currently undergoing rehabilitation at Anglesey Sea Zoo. It is hoped arrangements to fly the turtle back to America will be made in 2022.

Repatriation
Loggerhead turtle T2019/01 was released in the Canary Islands in September 2021.

TURTLE record totals
The current total of 2882 since 1748 is broken down thus:
1358 Ireland; 699 England; 415 Scotland; 292 Wales; 41 Northern Ireland; 37 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**.).

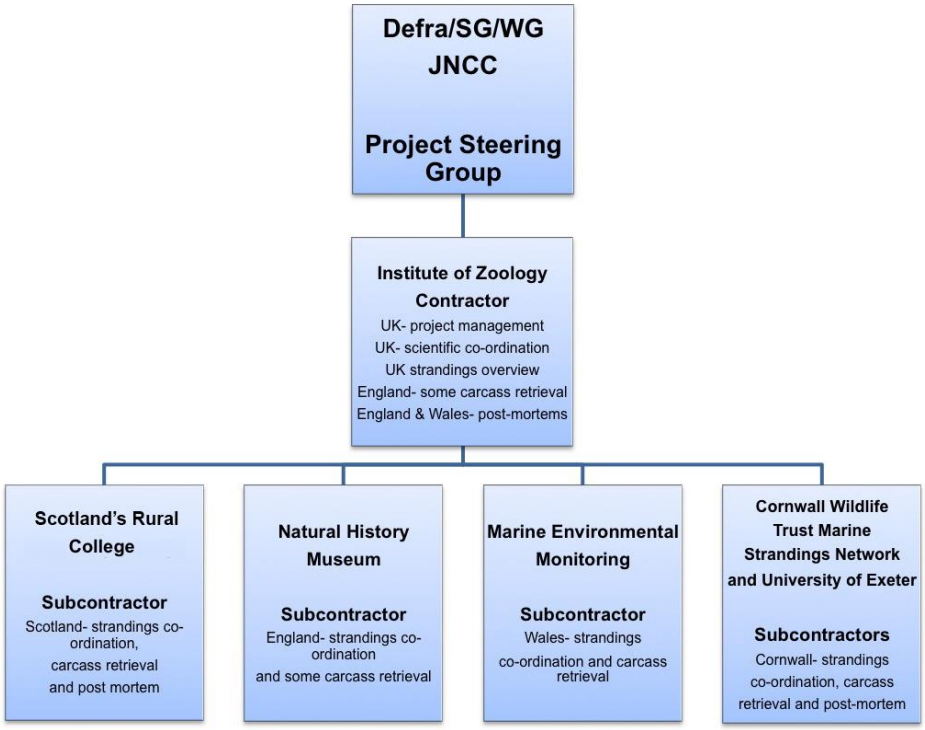


Figure 1. *Current technical co-ordination of the Cetacean Strandings Investigation Programme (CSIP).*

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 Trust[1] (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: *Dr 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@mwt.im
- 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: *Dr Liz Pothanikat, 028 905 69421*. Liz.Pothanikat@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: *Nikki Taylor, 01733 866902*
- **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 or *Mat Westfield* mat.westfield@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* B.J.Godley@exeter.ac.uk
- **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 Housing, Local Government and Heritage, 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@housing.gov.ie
- **Natural England (NE)** is the Government agency that champions the conservation of wildlife and natural features throughout England.
  Contact: *Tim Bernhard, 07775 026622* tim.bernhard@naturalengland.org.uk
- **Natural Resources Wales (NRW)** 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. 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 653000* tom.stringell@cyfoethnaturiolcymru.gov.uk
- **NatureScot** is Scotland's nature agency providing advice to Scottish Government. NatureScot promotes the care, improvement, responsible enjoyment, understanding, appreciation and sustainable use of Scotland's natural heritage.
  Contact: *Marine Monitoring Team,* MPA@nature.scot *01463 725 018*
- **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
- **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
Live strandings and entanglements should be reported to the RSPCA on **0300 1234 999** and/or British Divers Marine Life Rescue (BDMLR) **01825 765546**.

For **Scotland** all records should be reported to NatureScot 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** and/or British Divers Marine Life Rescue (BDMLR) **01825 765546.**

For **Northern Ireland** all records of live or dead turtles should be reported to DAERA Marine and Fisheries Division on **028 905 69421** or https://www.daera-ni.gov.uk/contacts/marine-wildlife-team

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

In **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 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 (Appendix 2.).

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 2021.

Table 1.

2021 Total number of reported marine turtles for the UK & Ireland. (live & dead).

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Green turtle *(Chelonia mydas)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Hawksbill turtle *(Eretmochelys imbricata)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Kemp's ridley turtle *(Lepidochelys kempii)*	0	0	0	0	0	0	0	0	0	0	3	4	**7**
Leatherback turtle *(Dermochelys coriacea)*	0	0	0	0	0	1	6	1	2	0	7	0	**17**
Loggerhead turtle *(Caretta caretta)*	1	1	0	0	0	0	0	0	0	0	0	2	**4**
Olive ridley turtle *(Lepidochelys olivacea)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unidentified	0	1	0	0	0	0	0	0	1	0	0	0	**2**
Total animals	**1**	**2**	**0**	**0**	**0**	**1**	**6**	**1**	**3**	**0**	**10**	**6**	**30**

Table 2.

2021 Number of live marine turtles.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Green turtle *(Chelonia mydas)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Hawksbill turtle *(Eretmochelys imbricata)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Kemp's ridley turtle *(Lepidochelys kempii)*	0	0	0	0	0	0	0	0	0	0	1	1	**2**
Leatherback turtle *(Dermochelys coriacea)*	0	0	0	0	0	0	6	1	2	0	2	0	**11**
Loggerhead turtle *(Caretta caretta)*	0	0	0	0	0	0	0	0	0	0	0	1	**1**
Olive ridley turtle *(Lepidochelys olivacea)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unidentified	0	1	0	0	0	0	0	0	0	0	0	0	**1**
Total animals	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**1**	**2**	**0**	**3**	**2**	**15**

Table 3.

2021 Number of dead marine turtles.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Green turtle *(Chelonia mydas)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Hawksbill turtle *(Eretmochelys imbricata)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Kemp's ridley turtle *(Lepidochelys kempii)*	0	0	0	0	0	0	0	0	0	0	2	3	**5**
Leatherback turtle *(Dermochelys coriacea)*	0	0	0	0	0	1	0	0	0	0	5	0	**6**
Loggerhead turtle *(Caretta caretta)*	1	1	0	0	0	0	0	0	0	0	0	1	**3**
Olive ridley turtle *(Lepidochelys olivacea)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Unidentified	0	0	0	0	0	0	0	0	1	0	0	0	**1**
Total animals	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**7**	**4**	**15**

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.

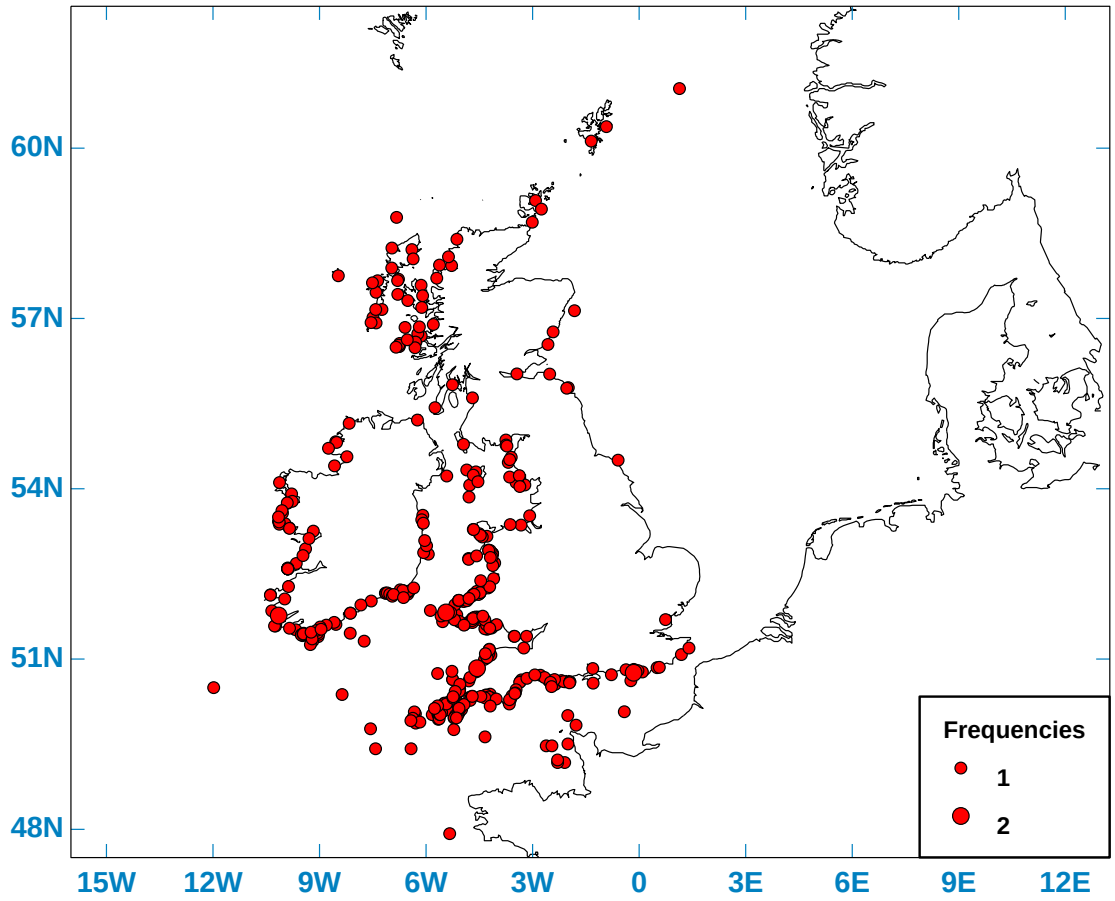


Figure 2. *All species sightings & strandings 2011-2021.*

All species, sightings & strandings over the eleven year period 2011-2021 have been plotted in **Figure 2.**

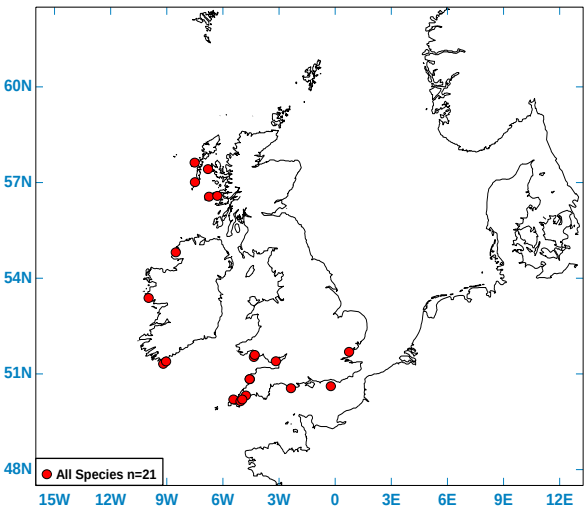


Figure 3. *All species sightings & strandings 2019.*

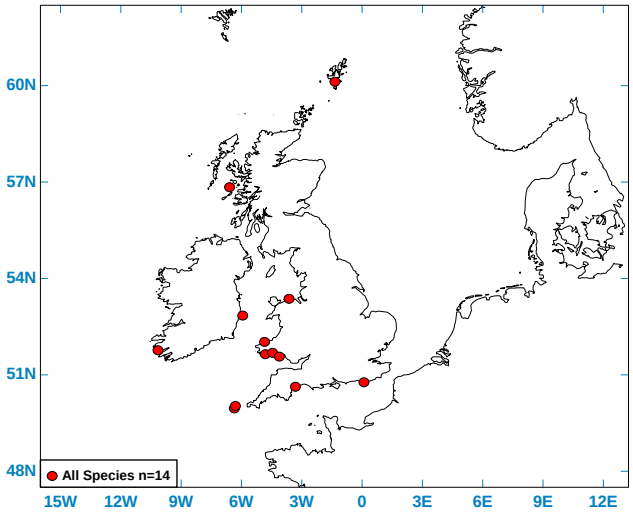


Figure 4. *All species sightings & strandings 2020.*

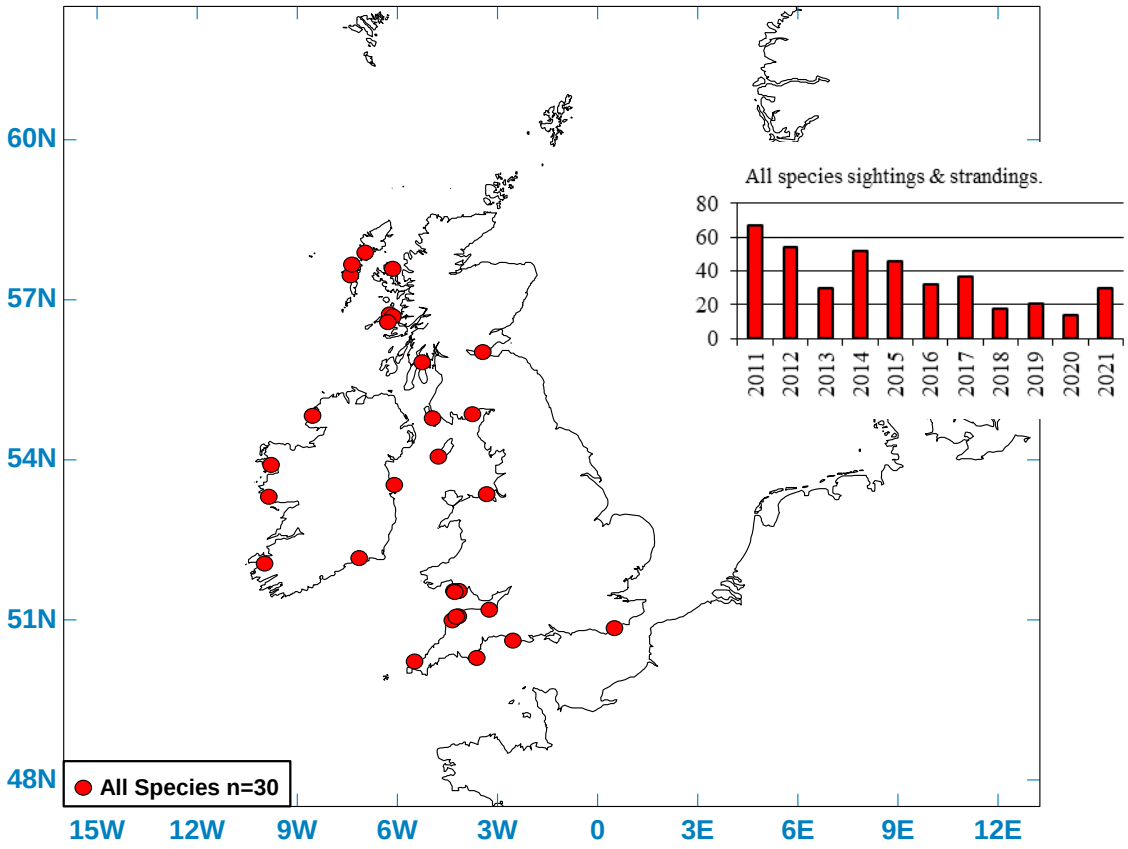


Figure 5. *All species sightings & strandings 2021.*

4.1 Sightings.

No live or dead Kemp's ridley sightings were reported during 2021. However, sightings of a live Kemp's ridley turtle has been recorded in recent years as shown in Figure 6.

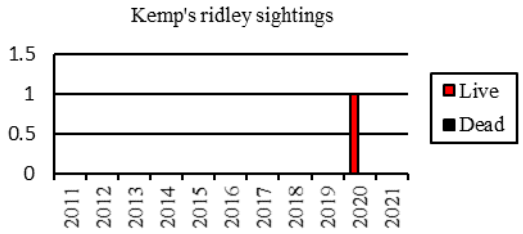


Figure 6. *Kemp's ridley sightings 2021.*

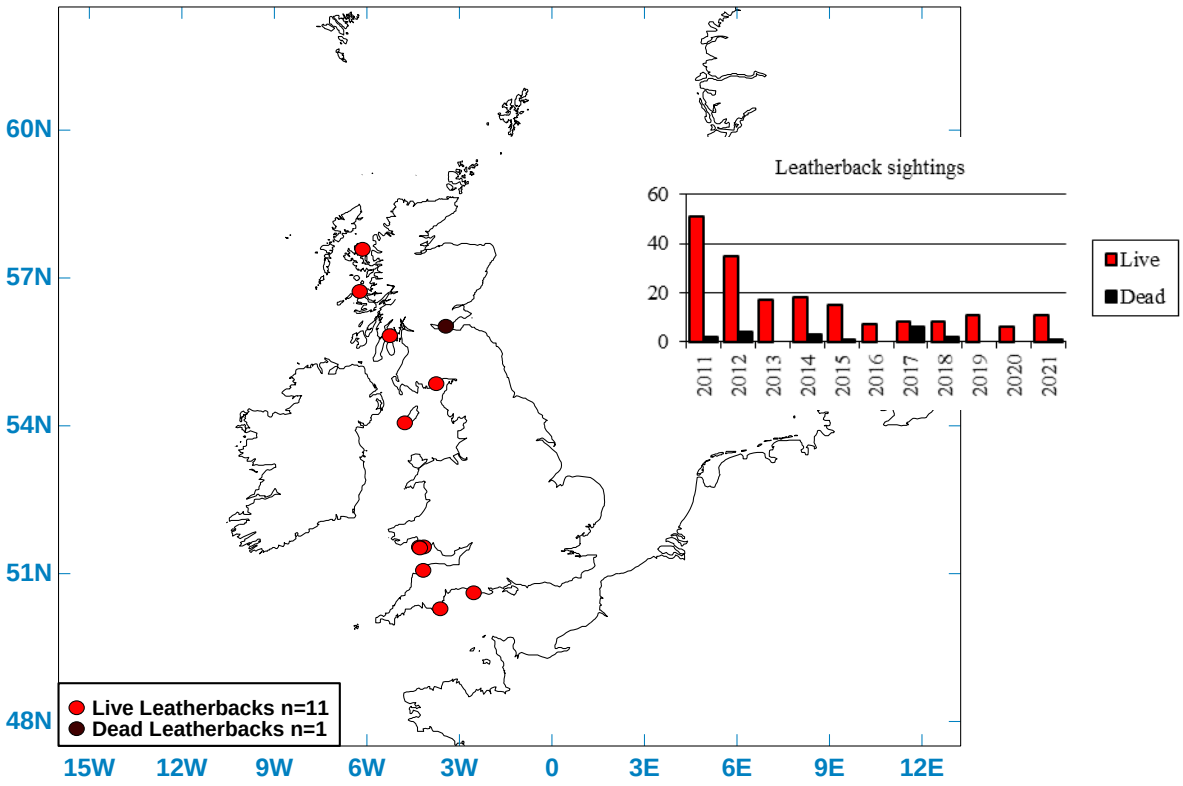


Figure 7. *Leatherback sightings 2021.*

No live or dead loggerhead sightings were reported during 2021. However, sightings of both live and dead loggerhead turtles have been recorded in recent years as shown in **Figure 8**.

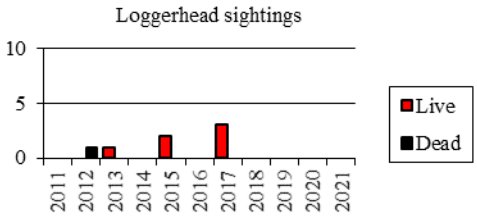


Figure 8. *Loggerhead sightings 2021.*

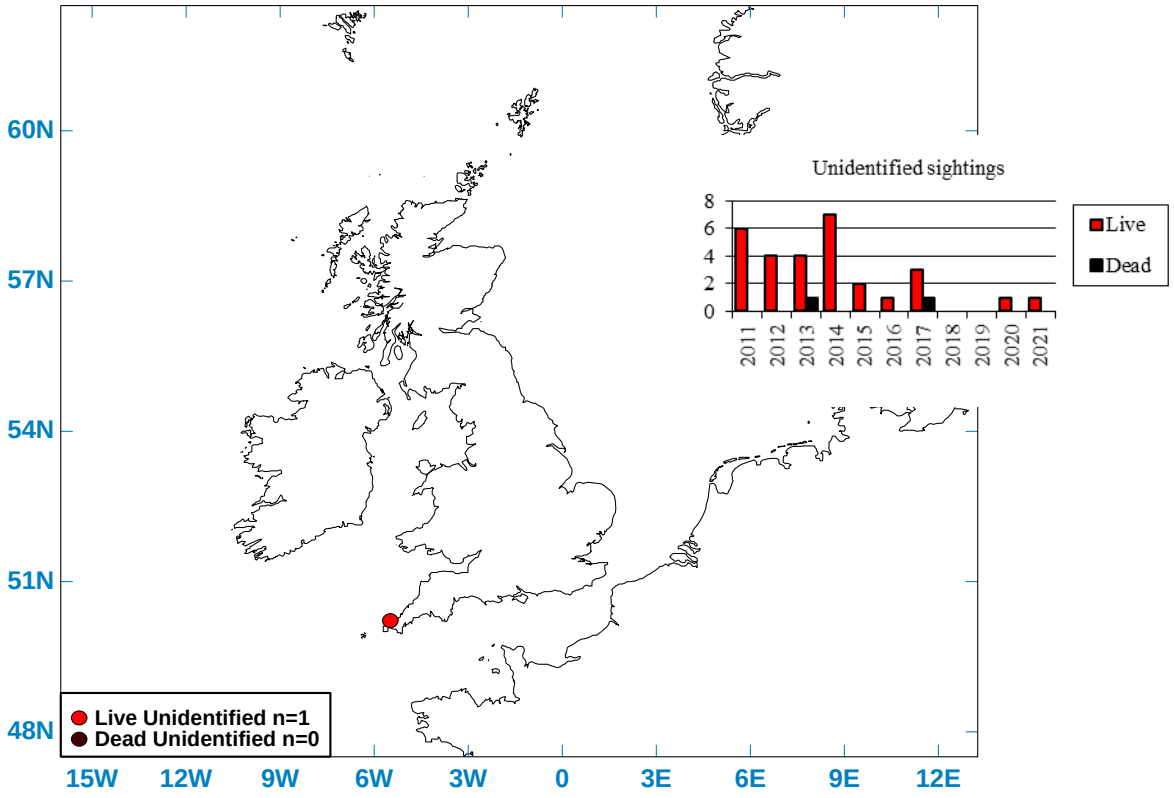


Figure 9. *Unidentified sightings 2021.*

4.2 Strandings.

No live or dead Green turtle strandings were reported during 2021. However, strandings of dead Green turtles have been recorded in recent years as shown in Figure 10.

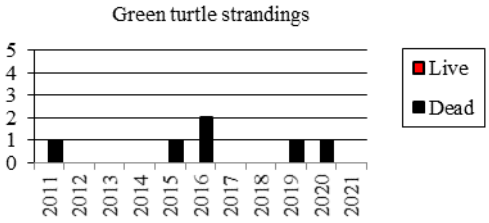


Figure 10. *Green turtle strandings 2021.*

No live or dead hawksbill turtle strandings were reported during 2021. 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.

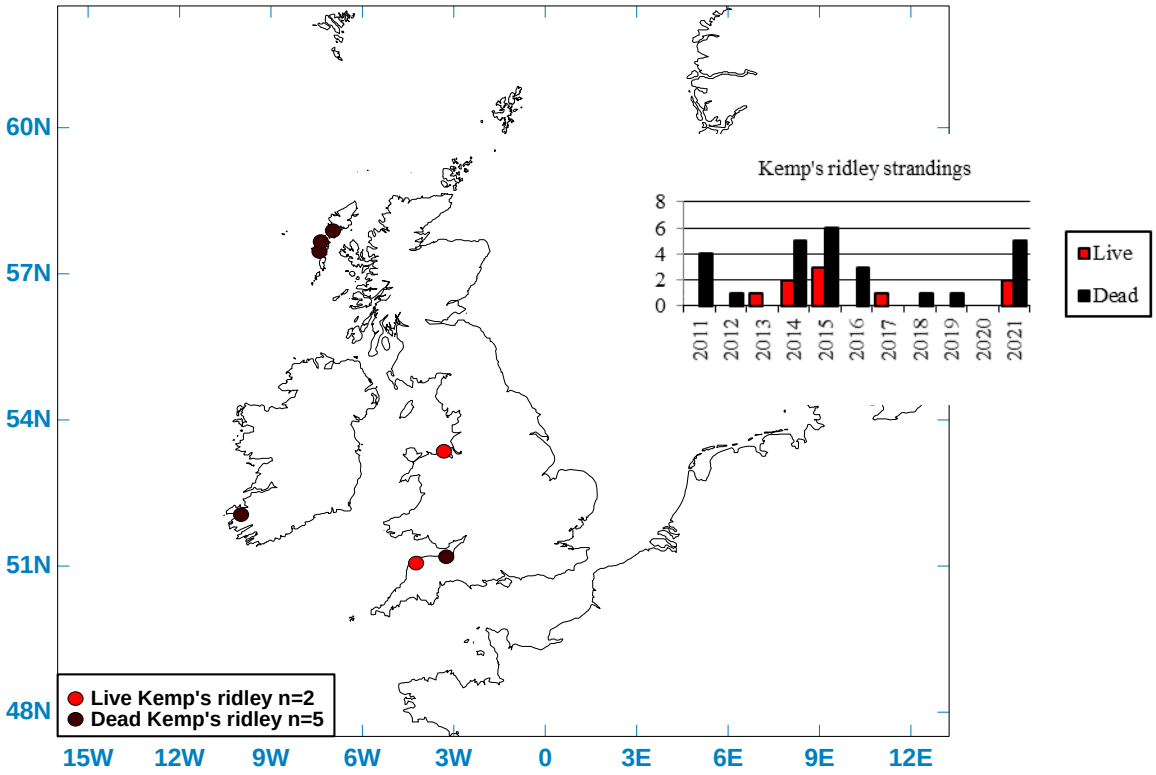


Figure 11. *Kemp's ridley strandings 2021.*

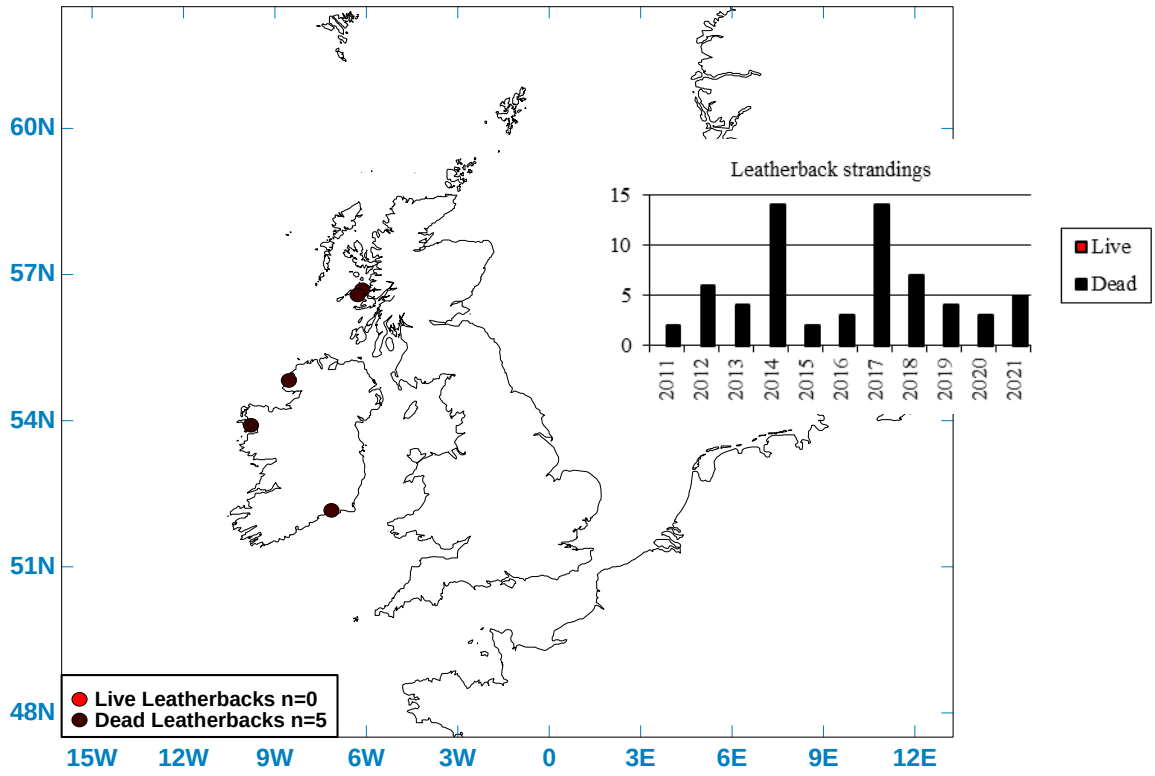


Figure 12. *Leatherback strandings 2021.*

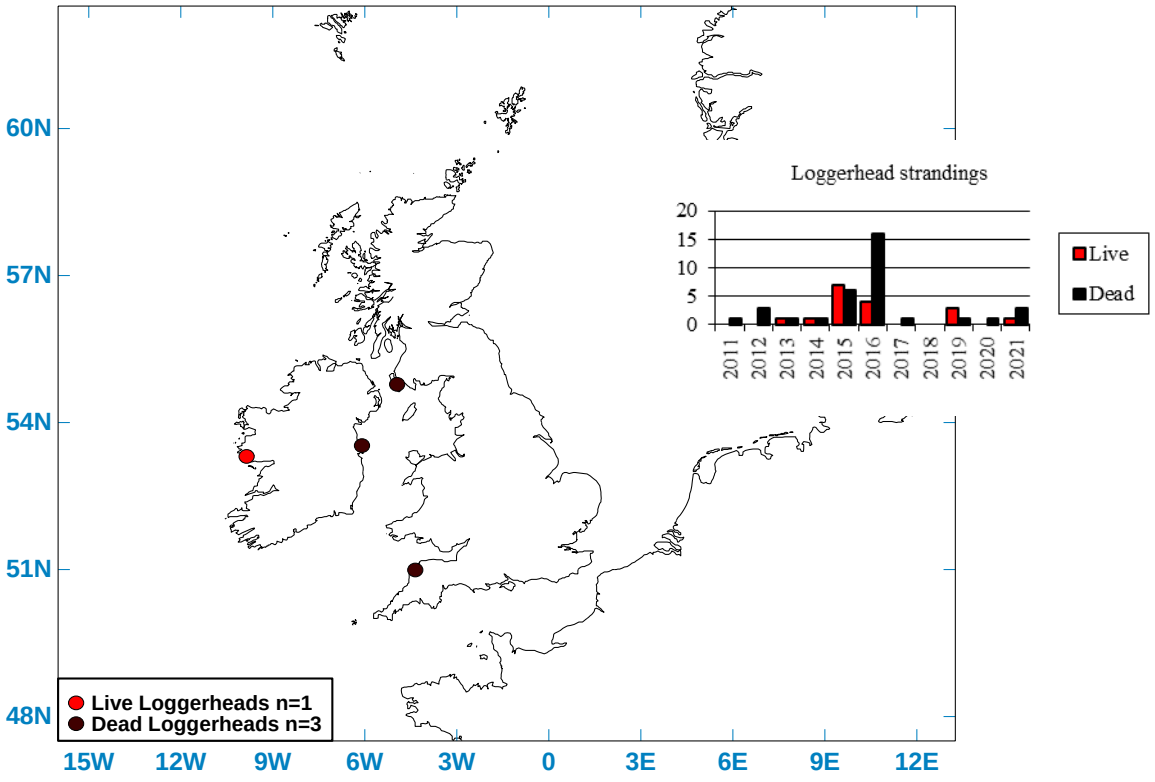


Figure 13. *Loggerhead strandings 2021.*

No live or dead olive ridley turtle strandings were reported during 2021. However, a live stranding of an olive ridley turtle was recorded in recent years as shown in **Figure 14.**

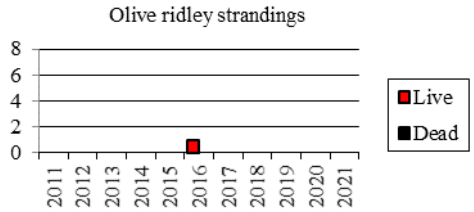


Figure 14. *Olive ridley strandings 2021.*

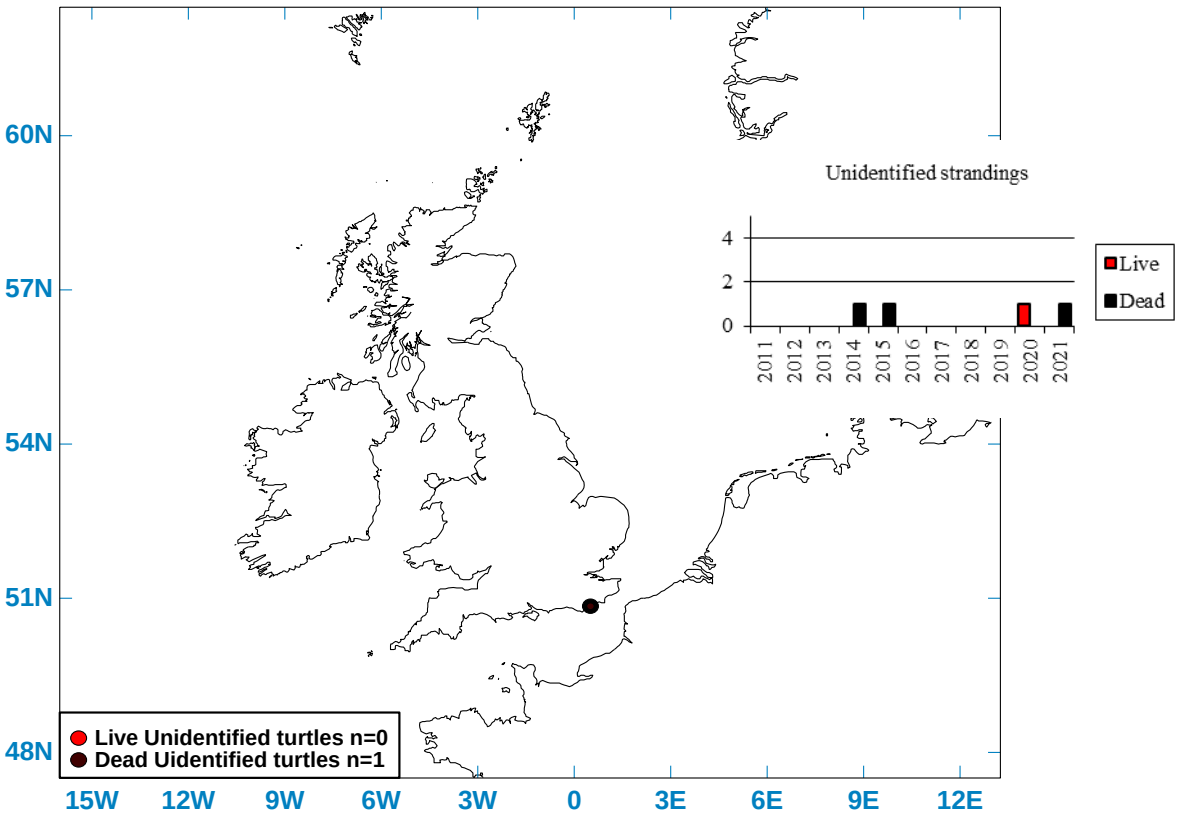


Figure 15. *Unidentified strandings 2021.*

All leatherback strandings and sightings, both dead and alive have been plotted by month for the period 2011 - 2021 (n=276) shown in **Figure 16.** The average figure was taken over 2011-2021 and plotted in **Figure 17.** 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 2011 - 2021 period is the loggerhead (n=55). The data for this species are plotted in **Figure 18** and **Figure 19.**

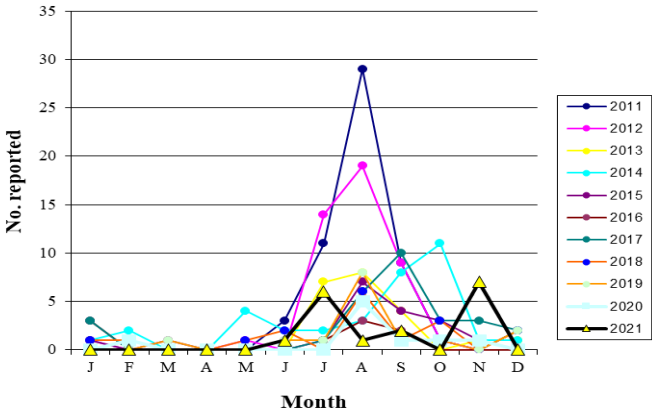


Figure 16. *All leatherbacks by month.*

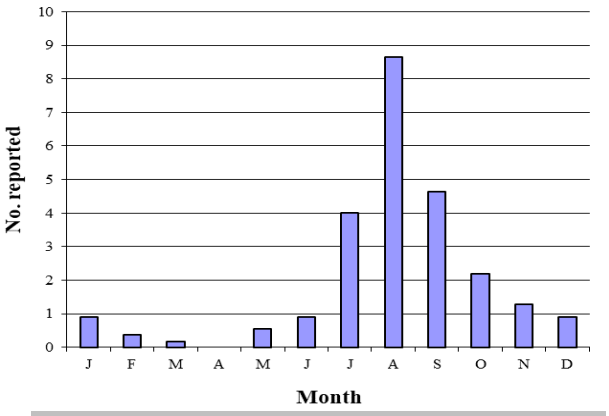


Figure 17. *All leatherbacks average over 2011-2021*

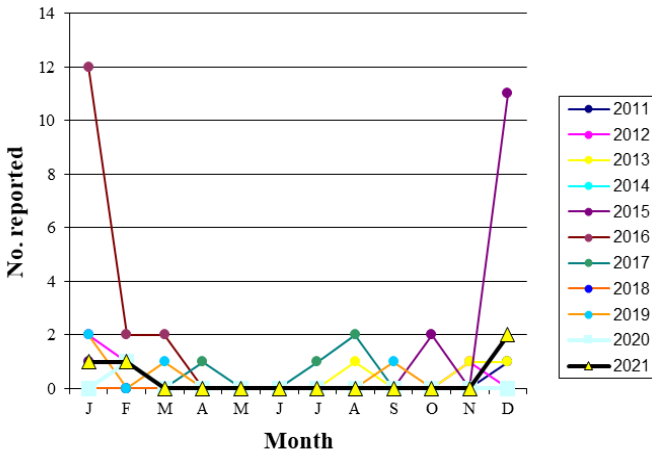


Figure 18. *All loggerheads by month.*

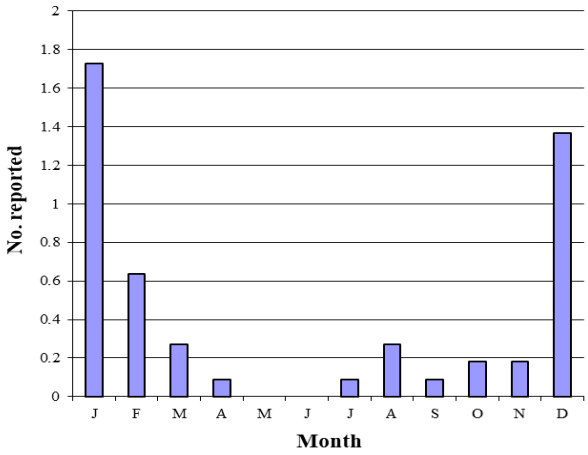


Figure 19. *All loggerheads average over 2011-2021.*

Table 4.

Cumulative number of records.		
Country	**All Species**	
	2021	**1748 - 2021**
Rep. of Ireland	6	1358
England	7	699
Scotland	11	425
Wales	5	292
N. Ireland	0	41
Isle of Man	1	37
Channel Islands	0	17
Offshore	0	13
Total	**30**	**2882**

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 – 2021** column.

Table 5.

Species Comparison.														
Country	*2001 - 2011* **2011 - 2021**													
	GT		**HB**		**KR**		**LBT**		**LOG**		**OR**		**UNI**	
England	*1*	0	*0*	0	*3*	14	*155*	98	*30*	20	*0*	0	*58*	26
Scotland	*2*	2	*0*	0	*4*	6	*84*	42	*32*	5	*0*	0	*11*	3
Rep. of Ireland	*1*	0	*0*	0	*1*	4	*164*	72	*30*	17	*0*	0	*16*	3
Wales	*0*	4	*0*	0	*3*	12	*75*	54	*15*	7	*0*	1	*11*	1
Channel Islands	*1*	0	*0*	0	*0*	1	*0*	2	*1*	2	*0*	0	*2*	0
N. Ireland	*0*	0	*0*	0	*0*	0	*8*	1	*0*	0	*0*	0	*2*	1
Isle of Man	*0*	0	*0*	0	*0*	0	*16*	3	*0*	3	*0*	0	*4*	0
Offshore	*0*	0	*0*	0	*0*	0	*5*	4	*0*	1	*0*	0	*1*	1
Total	***5***	**6**	***0***	**0**	***11***	**37**	***507***	**276**	***108***	**55**	*0*	**1**	***105***	**35**

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 - 2021).	
Species	**TOTAL**
Green turtle *(Chelonia mydas)*	**15**
Hawksbill turtle *(Eretmochelys imbricata)*	**1**
Kemp's ridley turtle *(Lepidochelys kempii)*	**76**
Leatherback turtle *(Dermochelys coriacea)*	**2127**
Loggerhead turtle *(Caretta caretta)*	**268**
Olive ridley turtle *(Lepidochelys olivacea)*	**1**
Unidentified	**394**
Total animals	**2882**

The total records held in TURTLE are 2882 (end of 2021). 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, 2001-2011 / 2011-2021 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 2021.

6. LIVE STRANDING EVENTS 2021.

Three turtles were reported as live-stranding in 2021, these are listed below;

T2021/13 was a Kemp's ridley turtle found on Talacre beach, North Wales on the 28th November. Originally thought to be dead further investigation showed it to be alive and it was recovered to Anglesey Sea Zoo for rehabilitation. At time of writing the turtle is doing well.

T2021/15 was another Kemp's ridley turtle found alive at Northam Burrows, near Appledore, North Devon on the 11th December. The turtle was recovered to Blue Reef Aquarium, Cornwall where unfortunately it died the next day.

T2021/18 was a loggerhead turtle found alive at Carna, Co.Galway, Ireland on the 15th December. The turtle was recovered to Galway Atlantaquaria, where it died a few days later.

6.1 Rehabilitation

Only one turtle, a Kemp's ridley **T2021/13** found on Talacre beach, North Wales on the 28th November survived in rehabilitation. Originally thought to be dead when found further investigation showed it to be alive and it was recovered to Anglesey Sea Zoo for rehabilitation. At time of writing the turtle is doing well.

6.2 Repatriation.

Loggerhead turtle **T2019/01** held with Exploris Aquarium, Portaferry, Northern Ireland was repatriated to the Canary Islands on the 16th September 2021 courtesy of AER LINGUS.



Plate 1. Loggerhead turtle **T2019/01** being released in the Canary Islands with Exploris's Portia Sampson and State veterinarian Pascual Calabuig.

7. BYCATCH.

A leatherback turtle was found alive entangled in pot rope between Dartmouth and Start Point, Devon on the 15th July 2021. It was successfully released by fishermen and a video of the event featured on BBC local News.

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.

Three turtles were recovered to the project in 2021 in a suitable condition to undergo a full post-mortem examination.
These were a loggerhead turtle **T2021/01** a Kemp's ridley turtle **T2021/15** and a loggerhead turtle **T2021/18.** These are covered in more detail below.

T2021/01 was a juvenile loggerhead turtle stranded dead at Buck's Mill, Devon on the 25th January 2021. The turtle was recovered by the finder to her home where it was later picked-up by CSIP observing Covid restrictions at the time. Examination took place at ZSL, London where the cause of death was found to be granulomatous pneumonia with cold stunning being a contributing factor.

T2021/15 was a Kemp's ridley turtle found stranded alive at Northam Burrows, near Appledore, North Devon on the 11th December 2021. The turtle was recovered to Blue Reef Aquarium in Newquay, Cornwall where it unfortunately died the next day. A post-mortem examination was carried out by the Cornwall Marine Pathology Team where the cause of death was found to be starvation/hypothermia (cold stunning).

T2021/18 was a loggerhead turtle found stranded alive at Carna, Co.Galway, Ireland on the 15th December 2021. The turtle was recovered to Galway Atlantaquaria, where it sadly died a few days later. Examination took place at Regional Veterinary Lab Athlone where the cause of death was found to be extreme cold stunning- beyond the point of recovery with supportive therapy.

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.

Coronavirus (SARS Covid-19) pandemic continued through 2021 still having an effect on the free movement of the public. Restrictions were slightly less than the previous year due to vaccinations. It is not clear if this relaxing of restrictions had any effect on reporting of marine turtles but numbers of turtles reported were higher than the previous year.

T2021/10 was a leatherback turtle found floating dead at Rosyth dockyard in Scotland on the 5th November 2021. The carcass was taken by the following tide. Injuries to the carapace would appear to be two parallel diagonal deep cuts most likely caused by a ships propellor. However, it is not known if these injuries were caused pre or post-mortem.



Plate 2. Leatherback turtle **T2021/10.**

11. PUBLICITY.

The Strandings Web-site has been maintained to provide details of MEM and the CSIP. 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 https://strandings.com/annual-reports/
Posters and leaflets produced to increase awareness of the project have continued to be distributed.

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

12. ACKNOWLEDGEMENTS.

Marine Environmental Monitoring wishes to acknowledge the following;

Air Lingus for flying loggerhead turtle T2019/01 to the Canary Islands for release.

Cornwall Wildlife Trust, Dr Tom Doyle, Irish Whale and Dolphin Group (IWDG), Dave Wall NBDC, University of Exeter's Cornwall campus, Gabriel King, British Divers Marine Life Rescue, Nick Davison SMASS, Peter Richardson MCS, Pascual Calabuig, Frankie Hobro Anglesey Sea Zoo, Blue Reef Aquarium, Galway Atlantaquaria, Portia Sampson Exploris Aquarium and Gem Simmons.

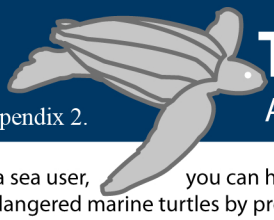
Natural England, NatureScot, National Parks & Wildlife Service and the Welsh Government for financial support towards the British & Irish TURTLE database.

13. APPENDICES.

Appendix 1. 2021 TURTLE data.
Appendix 2. UK Turtle Code.
Appendix 3. Morphometrics.

Appendix 1.

RecordKey	peciesCo	ightStran	AliveDead	EndDate	Country	County	Location	Notes
T2021/01	LOG	ST	DEAD	25/01/2021	ENGLAND	DEVON	Buck's Mill	Juv. loggerhead found upside down on the strandline by Fiona Baker and recovered to her home. Later stored frozen with Mary Breeds, awaiting collection due to Covid.
T2021/02	UNI	SEA	ALIVE	12/02/2021	ENGLAND	CORNWALL	St Ives	Reported as a 3-4 foot loggerhead by NCI St Ives 150 metres from shore swimming strongly against the current in a force 8 gale.
T2021/03	LOG	ST	DEAD	11/02/2021	EIRE	DUBLIN	Rush beach, Dublin	Found on Rush beach, . Reported in The Irish Times 20/03/2021.
T2021/04	LBT	SEA	ALIVE	04/07/2021	SCOTLAND	DUMFRIES & GALLOWA	off Colvend coast.	Sighted and videod by local fisherman. https://www.youtube.com/watch?v=KXsldVKHpNo
T2021/05	LBT	SEA	ALIVE	15/07/2021	ENGLAND	DEVON	Between Dartmouth and Start Point.	Entangled in pot rope, released. Video of lbt free swimming on BBC local News. Filmed by fisherman Paul Millman.
T2021/06	LBT	SEA	ALIVE	18/07/2021	WALES	SWANSEA	Seen 100metres off Oxwich Point.	Seen 100metres off Oxwich Point by Oxwich Watersports.
T2021/07	LBT	SEA	ALIVE	20/07/2021	WALES	SWANSEA	Near Worms Head, I of 2.	Near Worms Head, I of 2.
T2021/08	LBT	SEA	ALIVE	20/07/2021	WALES	SWANSEA	Near Worms Head 2 of 2.	Near Worms Head 2 of 2.
T2021/09	LBT	SEA	ALIVE	19/08/2021	SCOTLAND	HIGHLAND	50 metres offshore Ardnamurchan Point lighthouse.	A calm windless day swimming 50 metres offshore Ardnamurchan Point lighthouse.
T2021/10	LBT	SEA	DEAD	04/11/2021	SCOTLAND	FIFE	Rosyth Dockyard	Carapace sliced diagonally open in two places, possible ship strike, propeller damage. Photographs taken but carcass washed away.
T2021/11	LBT	SEA	ALIVE	17/11/2021	WALES	CARMARTHENSHIRE	Carmarthen Bay	
T2021/12	KR	ST	DEAD	20/11/2021	SCOTLAND	WESTERN ISLES	Culla on the W coast of Benbecula	It was found at Culla on the W coast of Benbecula at NF 76204 53641 on the 20th. The carapace was 62cm long and 64cm wide. The length from the beak to the rear of the carapace was 82cm.
T2021/13	KR	ST	ALIVE	28/11/2021	WALES	FLINTSHIRE	Talacre	Recovered from beach and taken to Anglesey Sea Zoo.
T2021/14	KR	ST	DEAD	05/12/2021	SCOTLAND	WESTERN ISLES	Traigh Iar beach on Sollas, North Uist. HS6 5BS	Turtle not recovered for examination as deemed too decomposed.
T2021/15	KR	ST	ALIVE	11/12/2021	ENGLAND	DEVON	Found at Northam Burrows, near Appledore, North Devon.	Taken to Blue Reef Aquarium, Newquay. Died next day. PME by James Barnett
T2021/16	LBT	ST	DEAD	30/11/2021	SCOTLAND	HIGHLAND	Kilchoan, Ardnamurchan	Decomposed remains. Retrospective report.
T2021/17	KR	ST	DEAD	29/11/2021	SCOTLAND	WESTERN ISLES	Tràigh Rosamol, Isle of Harris.	Retrospective report via Peter Richardson MCS. Carcass buried on beach by finder.
T2021/18	LOG	ST	ALIVE	20/12/2021	EIRE	GALWAY	Carna, Co.Galway	Taken to Galway Atlantaquaria, died a few days later.
T2021/19	LOG	ST	DEAD	30/12/2021	SCOTLAND	DUMFRIES & GALLOWA	Drumantrae Bay, just north of Ardwell	Retro report, received 4th Jan 2022.
T2021/20	KR	ST	DEAD	17/12/2021	ENGLAND	SOMERSET	East Quantoxhead, north Somerset.	Retro report, received 5th Jan 2022. Carapace with some soft tissue kept by the finder.
T2021/21	LBT	SEA	ALIVE	09/07/2021	ENGLAND	DORSET	Butterstreet Cove near Chickerall.	Retro report, received 5th Jan 2022 from MCS.
T2021/22	LBT	SEA	ALIVE	08/09/2021	SCOTLAND	WESTERN ISLES	200 metres from shore observed from boat.	Retro report, received 5th Jan 2022 from MCS. Observed 10 metres from boat.
T2021/23	LBT	SEA	ALIVE	15/09/2021	SCOTLAND	ARGYLL & BUTE	1 mile from shore observed from boat.	Retro report, received 5th Jan 2022 from MCS. Observed 100 metres from boat.
T2021/24	UNI	ST	DEAD	29/09/2021	ENGLAND	SUSSEX	Bulverhythe beach	Retro report, received 5th Jan 2022 from MCS.
T2021/25	LBT	ST	DEAD	27/06/2021	SCOTLAND	ARGYLL & BUTE	Calgary beach, Mull	Retro report from CSIP database
T2021/26	LBT	ST	DEAD	07/11/2021	EIRE	WATERFORD	Tramore	Retro report via Tom Doyle
T2021/27	KR	ST	DEAD	21/12/2021	EIRE	KERRY	Rossbeigh	Retro report via Tom Doyle
T2021/29	LBT	ST	DEAD	28/11/2021	EIRE	DONEGAL	Rossbeg	Retro report from NBDC
T2021/30	LBT	ST	DEAD	18/11/2021	EIRE	MAYO	Mulranny beach	Report from IWDG
T2021/31	LBT	SEA	ALIVE	10/11/2021	ISLE OF MAN	ISLE OF MAN	Bay Stacka	"the turtle I saw was definitely a leatherback and was about 4 to 4 and half feet long. The turtle swam off directly out to sea and sank out of sight. I didn't see it again."



Appendix 2.

The United Kingdom & RoI Turtle Code

Advice for sea users on how to deal with marine turtle encounters

As a sea user, you can help in the effort to protect endangered marine turtles by providing information about your encounters with these spectacular creatures in UK waters.

MARINE TURTLES ARE LEGALLY PROTECTED

There is no offence if turtles are caught accidentally in fishing gear. Nor is it an offence to help turtles if entangled or stranded, or temporarily to hold dead turtles for later examination by experts.

However, marine turtles are protected in Britain. This means that:

- turtles may not be deliberately killed or caught
- live turtles may not be landed unless for the purpose of tending them or enabling their subsequent release
- dead turtles or shells obtained from turtles in UK waters may not be possessed unless the animal was lawfully acquired
- turtles and their derivatives may not be sold or offered for sale without UK government permission, unless they are antiques acquired before 1st June 1947 (with documented proof)
- turtles and their derivatives may not be imported or exported without UK government permission.

The following legislation pertains to marine turtles:

- Wildlife and Countryside Act 1981 (as amended), in England and Wales.
- Conservation of Habitats and Species Regulations 2010, in England and Wales.
- Conservation (Natural Habitats, &c.) Regulations 1994 *as amended*, in Scotland.
- Conservation (Natural Habitats etc.) (Amendment) Regulations (Northern Ireland) 2007.
- Control of Trade in Endangered Species (Enforcement) Regulations (1997) *as amended*, in the UK.
- Customs and Excise Management Act 1979.
- Isle of Man Wildlife Act 1990.

PLEASE REPORT ALL TURTLE ENCOUNTERS

ENGLAND/WALES

ALL RECORDS
Rod Penrose, Marine Environmental Monitoring
01239 683033 (24hrs)
www.strandings.com

LIVE STRANDINGS/ ENTANGLEMENTS
RSPCA 0300 1234999
BDMLR 01825 765546

ISLE OF MAN

Dr Peter Duncan
DEFA - Isle of Man Government
01624 685835 (main)
Marine Operations Centre
01624 686628 (24hrs)

SCOTLAND

ALL RECORDS
Marine Monitoring Team, Scottish Natural Heritage,
01463 725009

DEAD STRANDINGS
Nick Davison, Scottish Rural College (SRUC)
01463 243030
07979 245893
strandings@sruc.ac.uk

LIVE STRANDINGS/ ENTANGLEMENTS
SSPCA 03000 999999

NORTHERN IRELAND

ALL RECORDS
The Portrush Coastal Zone (DAERA)
028 7082 3600

REPUBLIC OF IRELAND

ALL RECORDS
Dr Tom Doyle
School of Biological, Earth & Environmental Sciences, University College Cork

00353 (0) 87 1354938 (24hrs)

Report online at: **www.euroturtle.org/turtlecode & www.mcsuk.org**

RECORD THE FOLLOWING DETAILS

All information is valuable, but the following details are particularly useful:

- **A description** of the turtle (alive or dead), identification of species (at least to leatherback/ hard-shelled level) and overall straight length. Note any damage (e.g. cuts, scars) and **take photographs** when possible.
- **Location** (longitude & latitude/ OS grid reference), **date** and **time** of sighting.
- **Other observations**, such as turtle's behaviour, whether caught in fishing gear (including exact nature of entanglement, gear involved) etc.
- **Presence of tags**. Many conservation projects place plastic or metal tags on turtles' flippers, which display identification numbers and a return address. Record any tag details if this can be done without causing disturbance to the turtle.

Please report all dead turtles, even if they have to be discarded at sea. Records from diaries or logbooks, however old, are also of interest.

WHAT TO DO IF YOU FIND A SICK OR ENTANGLED TURTLE

Immediately report the turtle to the relevant contact. Marine turtles will drown if trapped underwater, but prompt action can save them. A turtle that is entangled or trapped is likely to be stressed. Large turtles deliver a serious bite and a blow from a flipper can be painful, so be careful. Due to possible health risks involved in handling turtles, always wear rubber gloves.

TURTLES ENTANGLED AT SEA

Approach calmly and cautiously and ensure first of all that the turtle's head is above water so that it can breathe if it is alive.

ALIVE: AVOID TOWING TURTLES TO SHORE. They should be disentangled and released at sea whenever possible.

If alert & active

- Do not use a gaff to pull the turtle alongside and do not haul leatherbacks aboard.
- Avoid pulling hard on the turtle's flippers as they may dislocate or break.
- Carefully disentangle the turtle, making sure that as much net and line as possible has been removed before the animal is released.
- Make sure that the vessel is stopped and out of gear before carefully sliding the turtle back into the water.
- Ensure that the turtle is clear of the vessel before moving away.

ONLY if disentanglement at sea is impossible should the turtle be brought ashore.

Tow leatherbacks very slowly and make sure the animal's head is above water so that it can breathe. Release leatherbacks in shallow water, not on land. Other species should be retained and reported.

If traumatised/inactive

(no or slight movement, limbs flexible and limp, no decomposition)

Severely traumatised hard-shelled turtles can be saved if they are small enough to fit on your boat.

- Wrap the turtle in a towel soaked in seawater. Do not cover the nostrils.
- Place the animal in a sheltered and secure place on its belly. To drain the lungs, raise the back end of the shell so the turtle is resting at approximately 30°. Keep it in this position until you return to shore.
- Leatherbacks should **not** be hauled aboard. If inactive, they can be towed to shore very slowly, ensuring they are able to breathe at all times.

DEAD: There may be serious health risks involved in handling dead turtles. Inexperienced individuals are advised not to touch them. Where possible, record the details listed above and, only if the specimen is fresh, bring it back to shore and place in cold storage. Always wear rubber gloves when handling turtles.

TURTLES STRANDED ON LAND

Leatherback turtles

Leatherbacks found stranded on beaches are usually very weak, dead or dying, but might still be saved.

If apparently uninjured:

- Carefully drag the turtle back to the sea and release it (enlist the help of several people and pull the shell rather than the flippers).
- Do not drag the animal over rocks, as this will cause severe damage.
- If stranded on rocks, it may be better to wait for the incoming tide to provide some buoyancy before dragging the turtle back to sea.

Other species (hard-shelled)

Loggerhead, Kemp's ridley, green and hawksbill turtles encountered on UK shores are usually cold stunned juveniles and should not be placed back in the sea.

- Wrap the turtle in a towel soaked in seawater, do not cover the nostrils
- Place the animal in a sheltered and secure place on its belly. If inactive, raise the back end of the shell so the turtle is resting at approximately 30° to drain the lungs. Report the turtle as soon as possible.

Dead turtles of all species are valuable for research and should be reported as soon as possible. Fresh specimens should be preserved in a cold store where possible. These animals will undergo a full post-mortem examination within the DEFRA-funded UK Cetacean Strandings Investigation Project (CSIP).

For copies of this code and information about turtles in UK waters, contact MCS on 01989 566017 or info@mcsuk.org

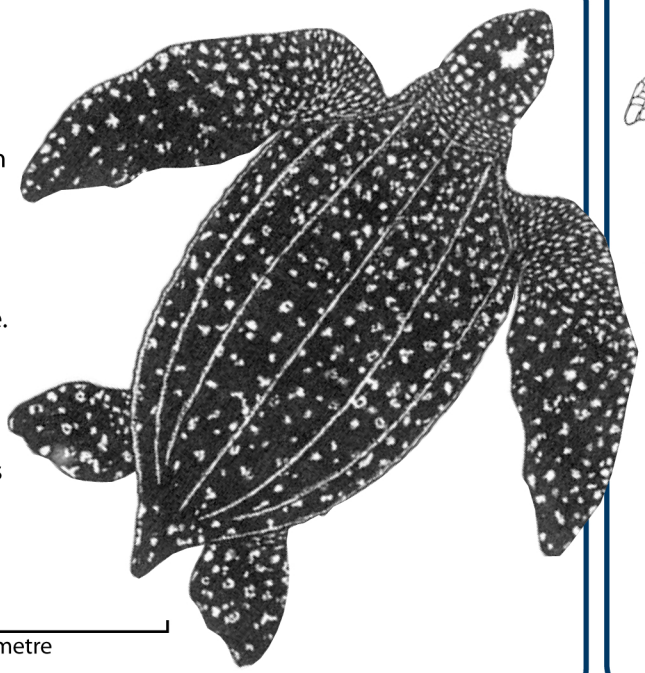
Marine Turtles in the UK & RoI

Endorsed by: defra (Department for Environment Food and Rural Affairs), SEAFISH, marinescotland

Of the world's seven marine turtle species, five have been recorded in UK waters. They are the leatherback, loggerhead, Kemp's ridley, green and hawksbill turtles. The leatherback, the largest marine turtle, is the species most frequently recorded in UK waters. Leatherbacks have a flexible, leathery shell and are unique among reptiles in that they are able to metabolically raise their body temperature above that of their immediate environment, allowing them to survive in colder waters. Each summer leatherbacks migrate to UK waters where they feed on jellyfish. The other four species have hard shells and are less frequently encountered in UK waters, where they usually occur as stray juveniles carried by currents from warmer seas.

LEATHERBACK TURTLE

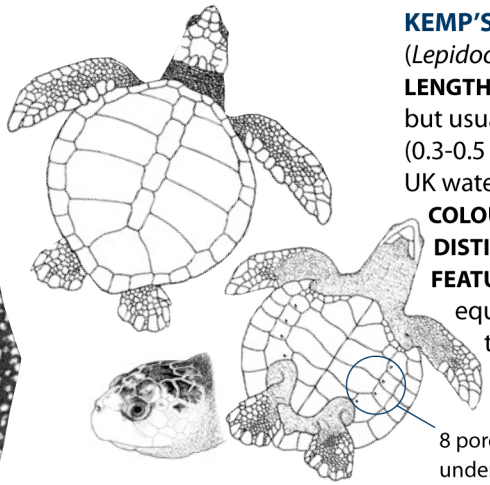
(*Dermochelys coriacea*)
Most frequently recorded species in UK waters.
LENGTH: up to 2.91 metres.
COLOUR: black, spotted with white.
DISTINCTIVE FEATURES: large, up to 916 kg, pronounced longitudinal ridges on shell, which tapers to a blunt spike.



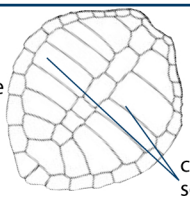
SCALE 1 metre

KEMP'S RIDLEY TURTLE

(*Lepidochelys kempii*)
LENGTH: up to 1 metre, but usually juveniles (0.3-0.5 metres) occur in UK waters.
COLOUR: grey/olive.
DISTINCTIVE FEATURES: shell width equal to or greater than shell length.

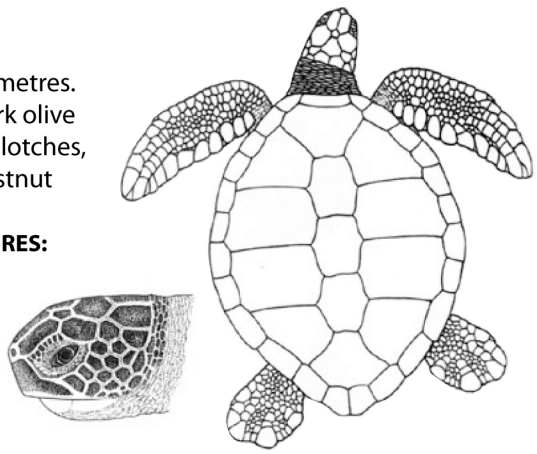


NB: The olive ridley turtle (*Lepidochelys olivacea*) occurs in the Atlantic, but has been recorded only once in UK waters to date. Similar to Kemp's ridley with 8 pores on underside, but has 5-9 pairs of costal scales on shell.



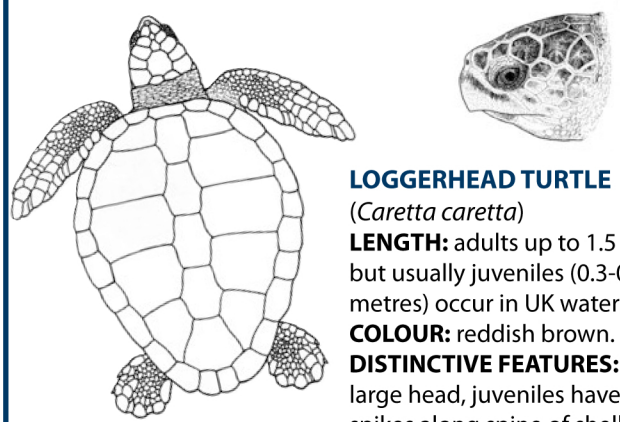
GREEN TURTLE

(*Chelonia mydas*)
LENGTH: up to 1.5 metres.
COLOUR: adults dark olive or grey with dark blotches, juveniles have chestnut coloured shell.
DISTINCTIVE FEATURES: smooth shell, rounded facial profile (not angular).



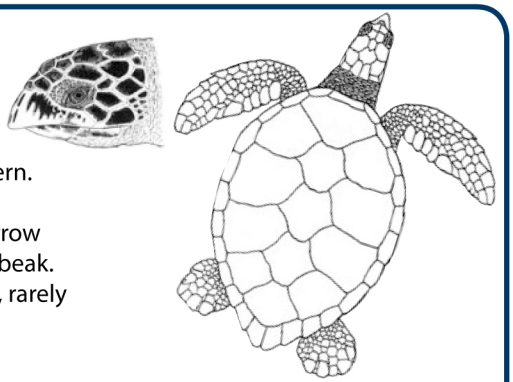
LOGGERHEAD TURTLE

(*Caretta caretta*)
LENGTH: adults up to 1.5 metres, but usually juveniles (0.3-0.5 metres) occur in UK waters.
COLOUR: reddish brown.
DISTINCTIVE FEATURES: large head, juveniles have small spikes along spine of shell.



HAWKSBILL TURTLE

(*Eretmochelys imbricata*)
LENGTH: up to 1.2 metres.
COLOUR: brown, amber and black tortoiseshell pattern.
DISTINCTIVE FEATURES: shell scales overlapping, narrow tapered head with bird-like beak. Largely tropical distribution, rarely encountered in UK waters.



MARINE TURTLES ARE THREATENED

In UK waters threats include:

- **Accidental entanglement in fishing gear.** Although turtles can dive to great depths, they become stressed and drown when trapped underwater by fishing gear. Fishing gear discarded at sea may also entangle and kill turtles.
- **Marine litter,** especially plastic, which turtles mistake for jellyfish. Once ingested, plastic can block a turtle's gut leading to starvation.
- **Boat collisions.** Turtles often bask and must surface regularly to breathe, leaving them vulnerable to boat strike.

PLEASE BE VIGILANT, AND DO NOT DISCARD FISHING GEAR OR LITTER AT SEA.

Marine Conservation Society, Natural England, Cyfoeth Naturiol Cymru Natural Resources Wales, Medasset, The Wildlife Trusts, Marine Environmental Monitoring, University of Exeter, Isle of Man Government, Queen's University Belfast, NatureScot Scotland's Nature Agency, ARC Trust, NIEA Northern Ireland Environment Agency www.ni-environment.gov.uk

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Illustrations are taken, with permission, from: Eckert, K.L., K.A. Bjorndal, F.A. Abreu-Grobois, and M. Donelly (Editors). 1999. *Research and Management Techniques for the Conservation of Sea Turtles.* IUCN/SSC Marine Turtle Specialist Group Publication No. 4.

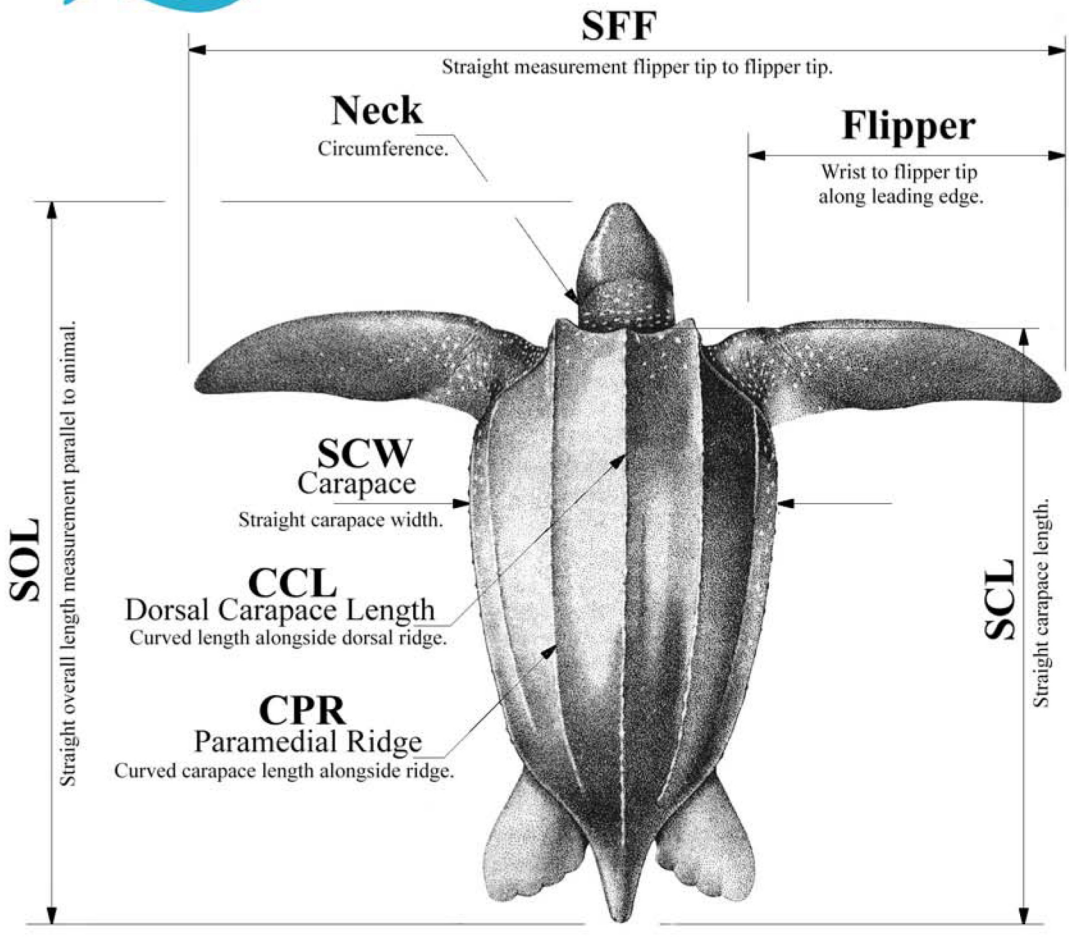
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Appendix 3.

Marine Environmental Monitoring

UK & Eire Marine Turtle Morphometrics.

Ver.1.2



Other Measurements Required.

COL	Curved Overall Length.
CFF	Curved Flipper tip to Flipper tip over Animal.
CCW	Curved Carapace Width.
DMAX	Maximum Body Depth. (Straight).
TTL	Total Tail Length from Plastron.
PTL	From Centre of Cloacal Opening to end of Tail.
WEIGHT	In Kilograms.
SEX	If Known.

