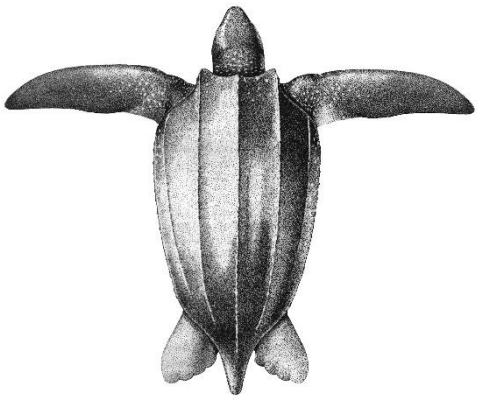
Marine Environmental Monitoring

www.strandings.com

British Isles & Irish Marine Turtle Strandings & Sightings Annual Report 2018

R.S.Penrose & L.R.Gander. February 2019



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1. SUMMARY

A total of 18 live and dead marine turtles were reported to TURTLE during 2018.
One Kemp's ridley turtle and 17 leatherback turtles.

Live stranded
There were no live stranded turtles reported in 2018.

Live sightings
Eight leatherback turtles were sighted alive at sea. Two in England; Three in Scotland; Three in the Republic of Ireland.
Two of the live turtles were entangled in fishing gear and released.

Dead sightings
Two leatherback turtles were sighted dead at sea in England, one was entangled in fishing gear.

Dead strandings
Seven leatherback turtles stranded dead. Four in England; three in Republic of Ireland.
One Kemp's ridley turtle stranded dead in Wales.

Post mortem examination
One leatherback turtle received a post mortem examination by the Irish Strandings Project.
Two leatherback turtles received an examination and basic samples taken by students from the University of Exeter.

A loggerhead turtle found in 2015 in England received a port mortem examination by CSIP at ZSL.

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

Repatriation
T2016/030 Olive ridley turtle at Grand Canaria was euthanased and received a post mortem examination by the Pathology Unit Veterinary Faculty of the University of Las Palmas.

TURTLE record totals
The current total of 2810 is broken down thus:
1342 Republic of Ireland; 677 England; 405 Scotland; 279 Wales; 41 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**.).

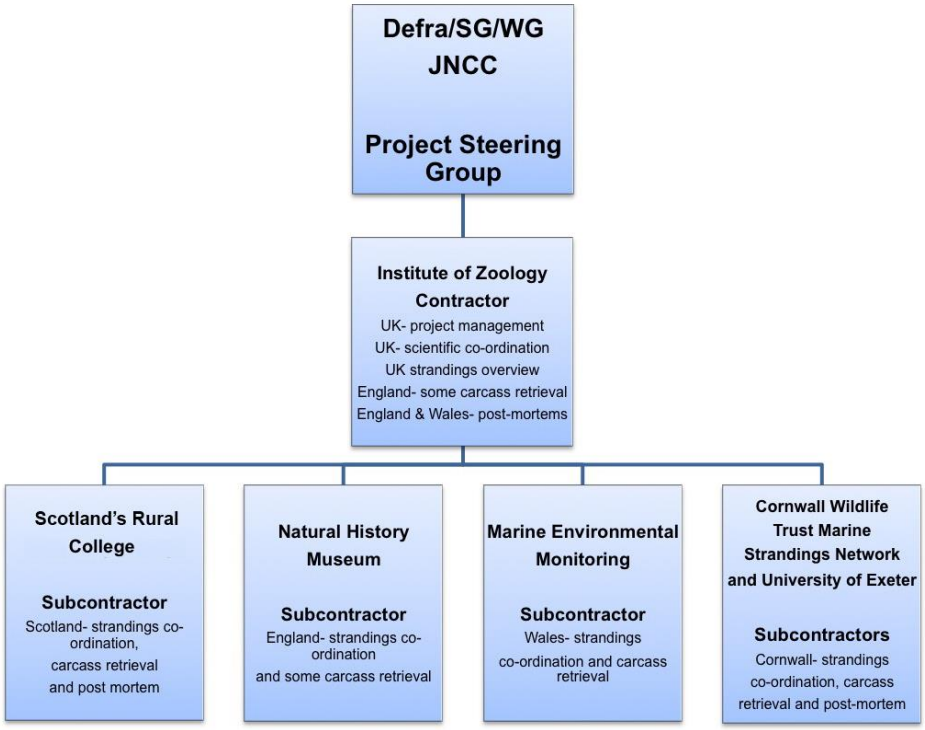


Figure 1. *Current technical co-ordination of the Cetacean Strandings Investigation Programme (CSIP).*

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 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**[1] 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 *or Gillian Benson, 02080 261060* gillian.benson@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
- **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 2018.

Table 1.

2018 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 *(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	0	1	**1**
Leatherback turtle *(Dermochelys coriacea)*	1	1	0	0	1	2	0	6	1	3	0	2	**17**
Loggerhead turtle *(Caretta caretta)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
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	0	0	0	0	**0**
Total animals	**1**	**1**	**0**	**0**	**1**	**2**	**0**	**6**	**1**	**3**	**0**	**3**	**18**

Table 2.

2018 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	0	0	**0**
Leatherback turtle *(Dermochelys coriacea)*	0	0	0	0	0	2	0	4	1	1	0	0	**8**
Loggerhead turtle *(Caretta caretta)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
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	0	0	0	0	**0**
Total animals	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**1**	**1**	**0**	**0**	**8**

Table 3.

2018 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	0	1	**1**
Leatherback turtle *(Dermochelys coriacea)*	1	1	0	0	1	0	0	2	0	2	0	2	**9**
Loggerhead turtle *(Caretta caretta)*	0	0	0	0	0	0	0	0	0	0	0	0	**0**
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	0	0	0	0	**0**
Total animals	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**2**	**0**	**3**	**10**

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.

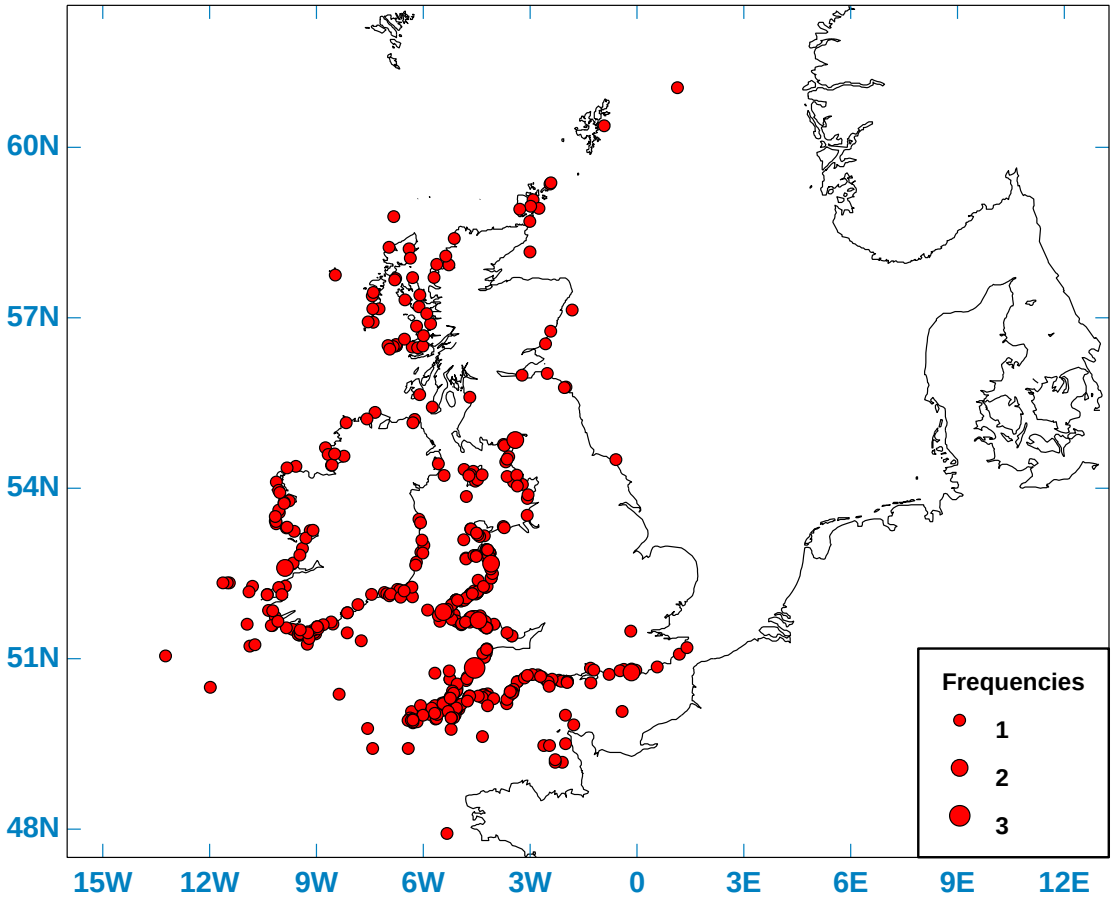


Figure 2. *All species sightings & strandings 2008-2018.*

All species, sightings & strandings over the eleven year period 2008-2018 have been plotted in **Figure 2.**

Please note: Additional effort was put into the TURTLE database during 2018 to make it compatible with the new NBN Atlas. During this time, spatial co-ordinates were plotted to historical 'at sea' records where only 'text' locations had previously existed. As a result, a comparison of the 2008-2018 map (above), with the 2007-2017 map shown in the 2017 annual report, show an increase in plots, therefore these additional plots are not attributed solely to the change in year.

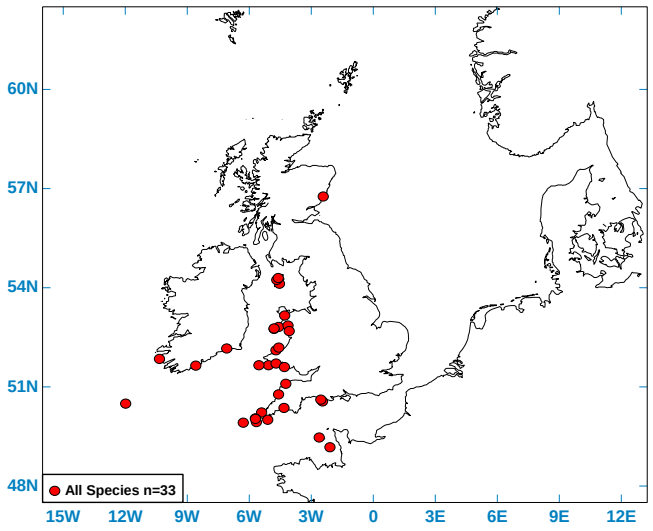


Figure 3. *All species sightings & strandings 2016.*

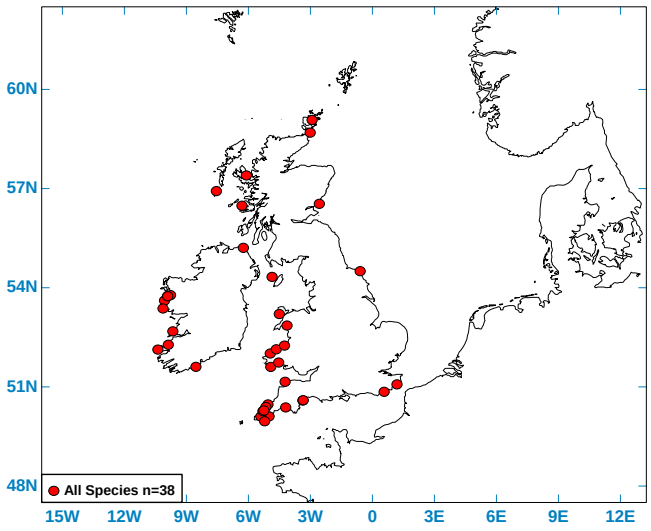


Figure 4. *All species sightings & strandings 2017.*

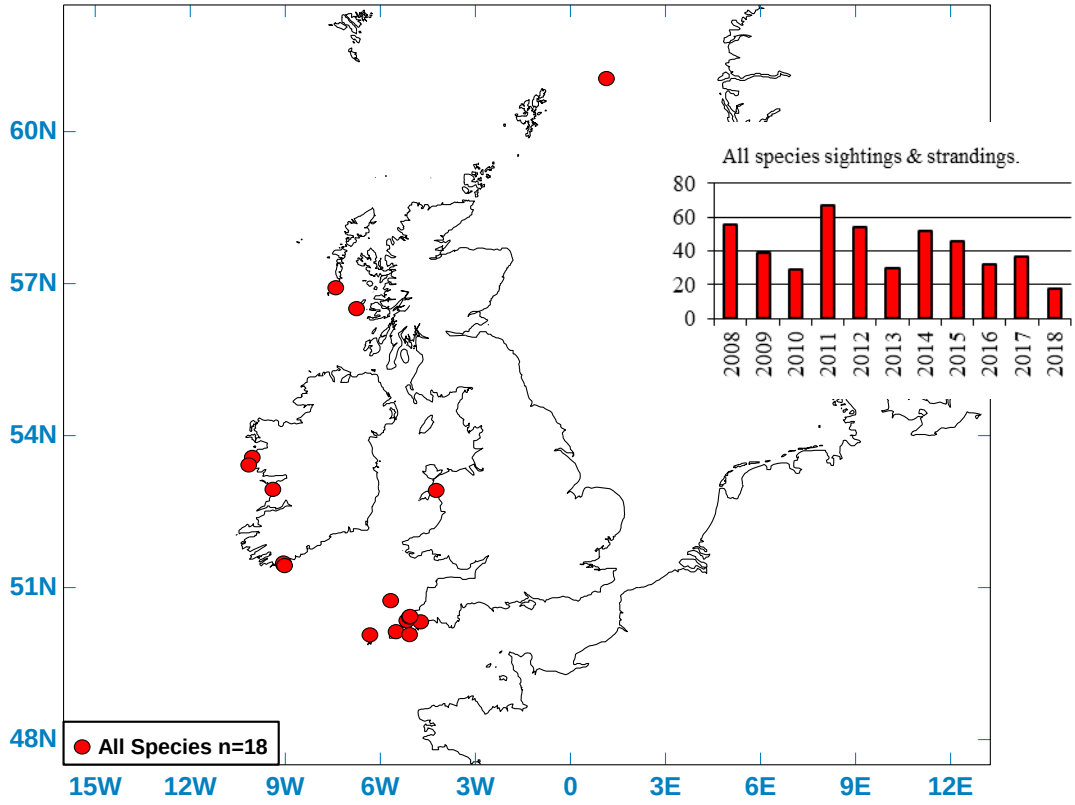


Figure 5. *All species sightings & strandings 2018.*

4.1 Sightings.

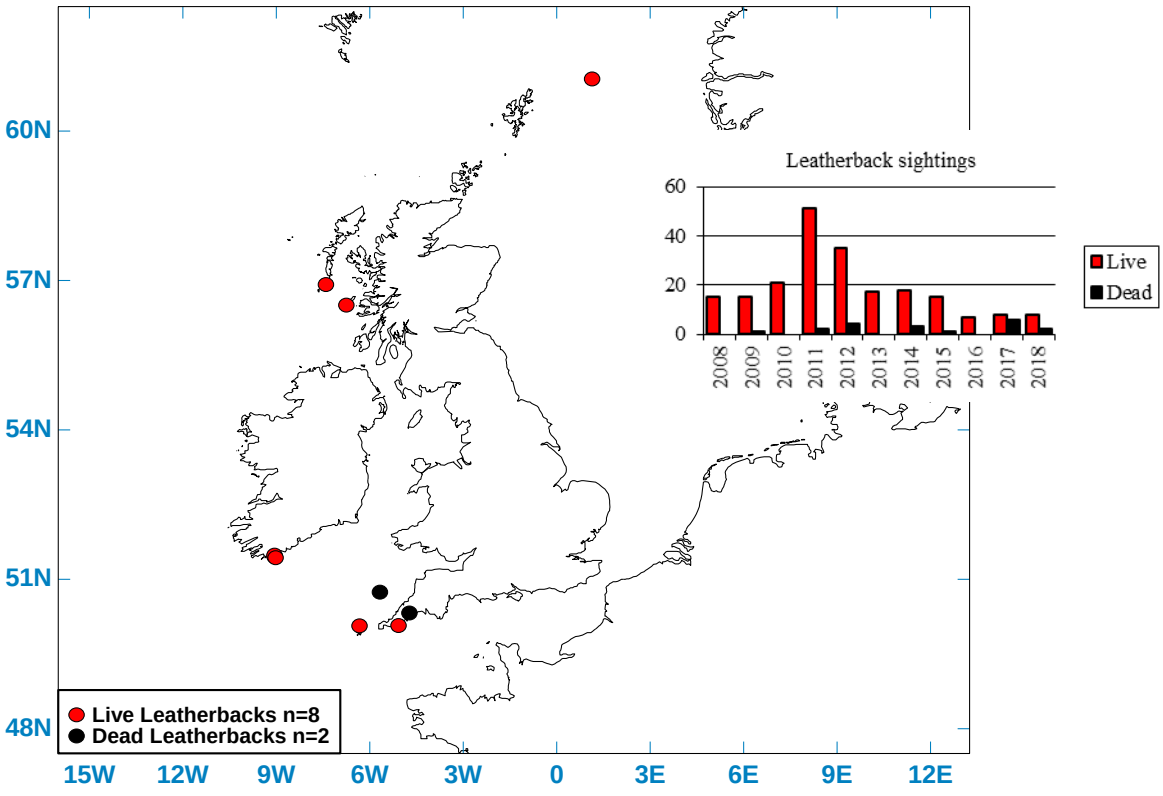


Figure 6. *Leatherback sightings 2018.*

No live or dead loggerhead sightings were reported during 2018. However, sightings of both live and dead loggerhead turtles have been recorded in recent years as shown in **Figure 7**.

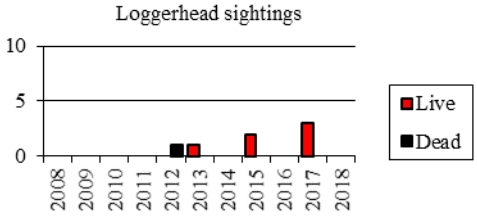


Figure 7. *Loggerhead sightings 2018.*

No live or dead unidentified sightings were reported during 2018. However, sightings of both live and dead unidentified turtles have been recorded in recent years as shown in **Figure 8**.

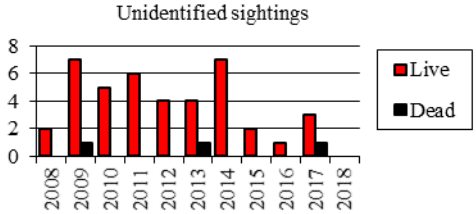


Figure 8. *Unidentified sightings 2018.*

4.2 Strandings.

No live or dead green turtle strandings were reported during 2018. However, strandings of both live and dead green turtles have been recorded in recent years as shown in **Figure 9.**

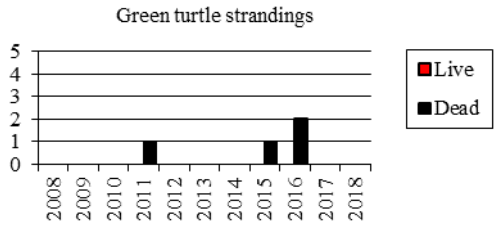


Figure 9. *Green turtle strandings 2018.*

No live or dead hawksbill turtle strandings were reported during 2018. 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.

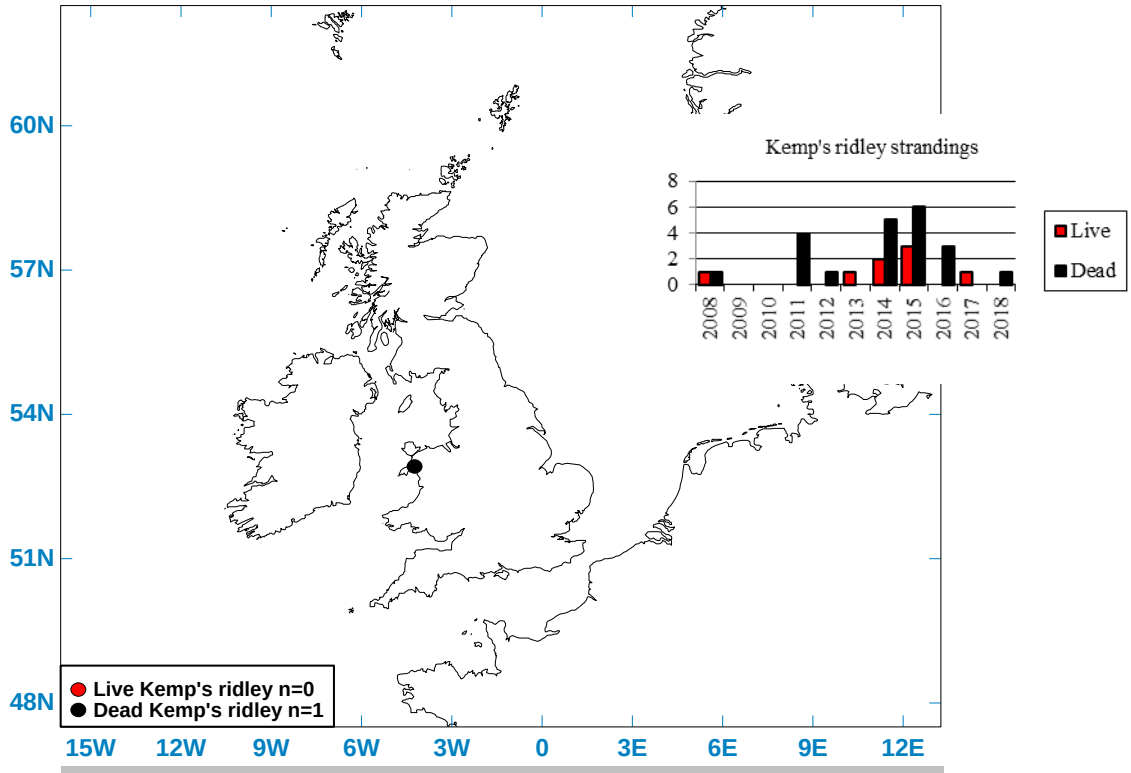


Figure 10. *Kemp's ridley strandings 2018.*

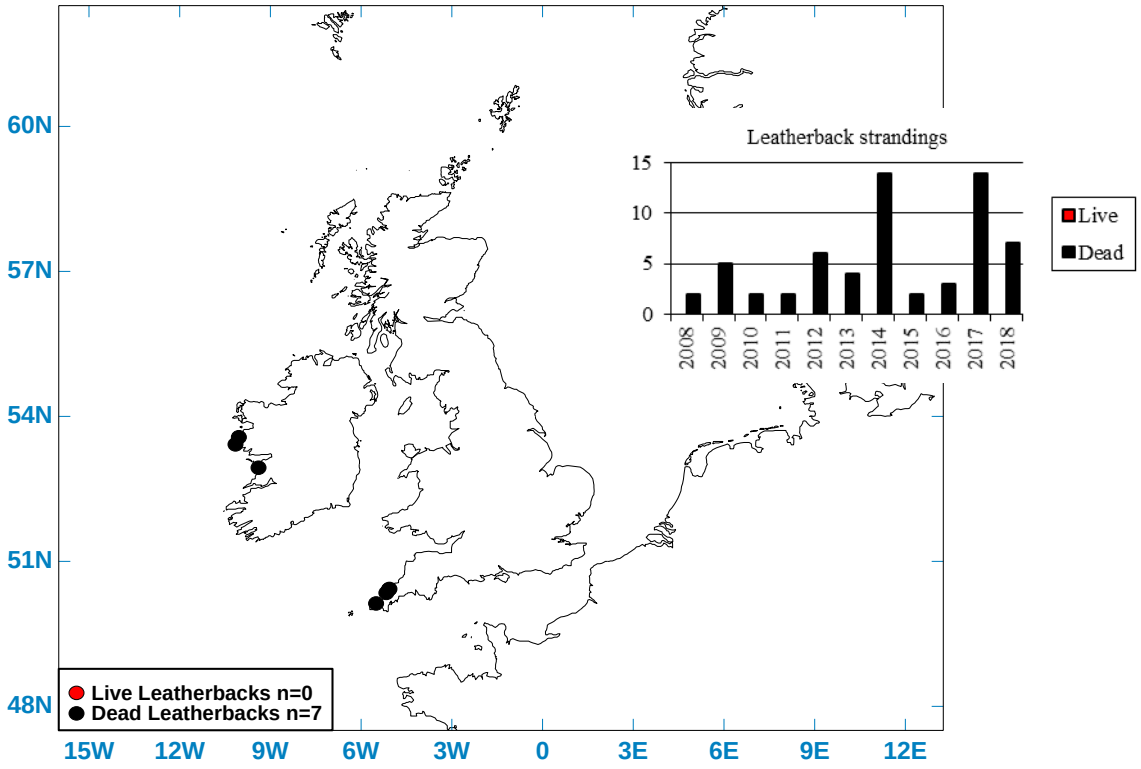


Figure 11. *Leatherback strandings 2018.*

No live or dead loggerhead turtle strandings were reported during 2018. However, strandings of both live and dead loggerhead turtles have been recorded in recent years as shown in Figure 12.

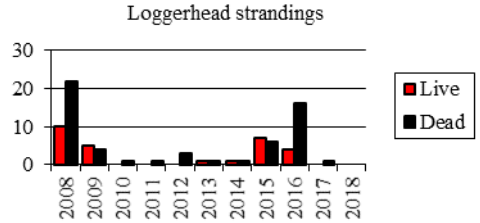


Figure 12. *Loggerhead strandings 2018.*

No live or dead olive ridley turtle strandings were reported during 2018. However, a live stranding of an olive ridley turtle was recorded in recent years as shown in **Figure 13.**

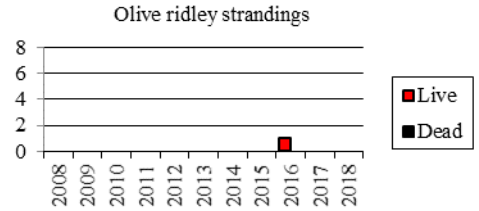


Figure 13. *Olive ridley strandings 2018.*

No live or dead unidentified turtle strandings were reported during 2018. However, strandings of both live and dead unidentified turtles have been recorded in recent years as shown in Figure 14.

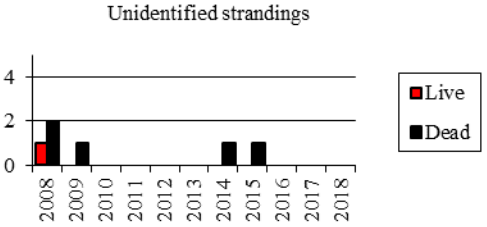


Figure 14. *Unidentified strandings 2018.*

All leatherback strandings and sightings, both dead and alive have been plotted by month for the period 2008 - 2018 (n=296) shown in **Figure 15.** The average figure was taken over 2008-2018 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 2008 - 2018 period is the loggerhead (n=87). The data for this species are plotted in **Figure 17** and **Figure 18.**

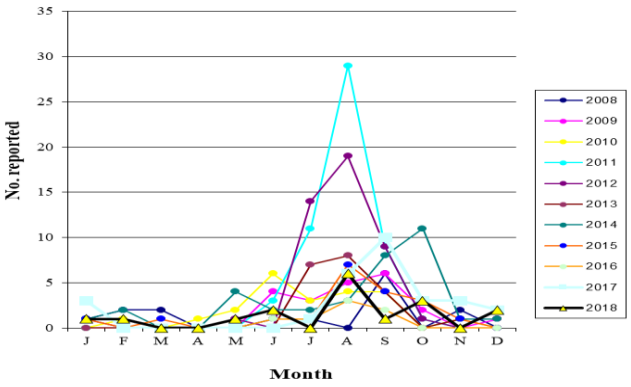


Figure 15. *All leatherbacks by month.*

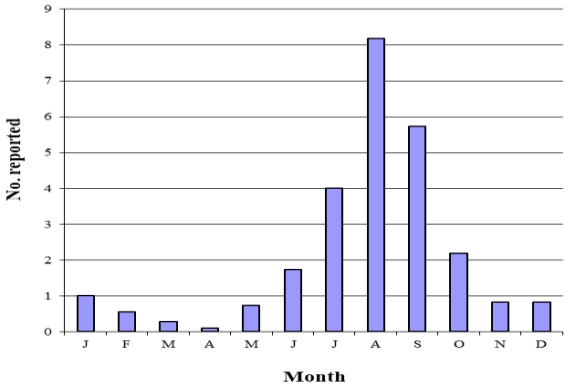


Figure 16. *All leatherbacks average over 2008-2018*

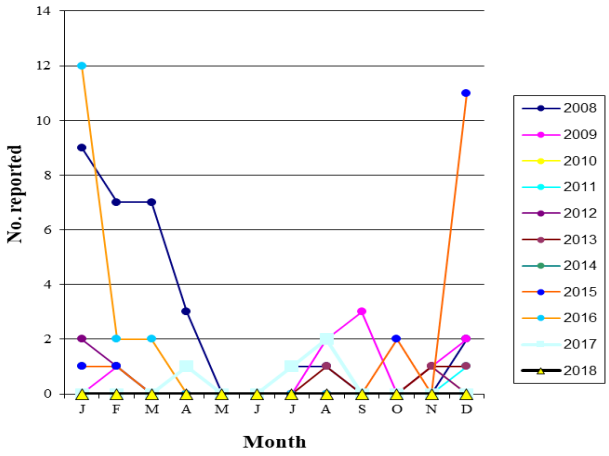


Figure 17. *All loggerheads by month.*

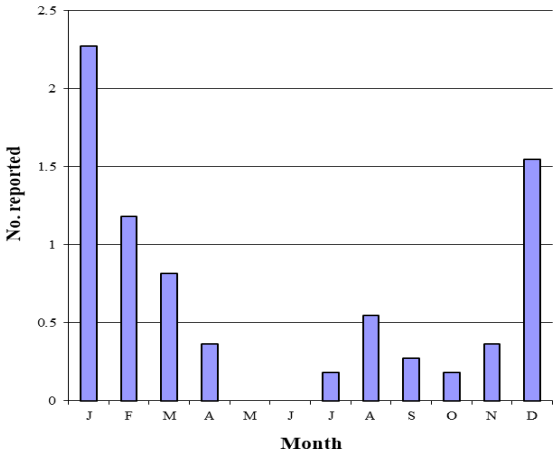


Figure 18. *All loggerheads average over 2008-2018.*

Table 4.

Cumulative number of records.		
Country	**All Species**	
	2018	**1748 - 2018**
Rep. of Ireland	6	1342
England	8	677
Scotland	3	405
Wales	1	279
N. Ireland	0	41
Isle of Man	0	36
Channel Islands	0	17
Offshore	0	13
Total	**18**	**2810**

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 – 2018** column.

Table 5.

Species Comparison.														
Country	*1998 - 2008* **2008 - 2018**													
	GT		**HB**		**KR**		**LBT**		**LOG**		**OR**		**UNI**	
England	*1*	0	*0*	0	*7*	11	*175*	97	*29*	29	*0*	0	*52*	30
Scotland	*2*	1	*0*	0	*3*	4	*97*	40	*33*	7	***0***	0	*14*	4
Rep. of Ireland	*1*	0	*0*	0	*0*	3	*222*	81	*29*	28	*0*	0	*21*	8
Wales	*0*	3	*0*	0	*3*	11	*69*	65	*14*	17	***0***	1	*10*	5
Channel Islands	*1*	0	*0*	0	*0*	1	*0*	2	*1*	2	*0*	0	*2*	0
N. Ireland	*0*	0	*0*	0	*0*	0	*14*	3	*0*	0	***0***	0	*2*	1
Isle of Man	*0*	0	*0*	0	*0*	0	*13*	4	*0*	3	*0*	0	*3*	1
Offshore	*0*	0	*0*	0	*0*	0	*5*	4	*0*	1	***0***	0	*0*	1
Total	***5***	**4**	***0***	**0**	***13***	**30**	***595***	**296**	***106***	**87**	*0*	**1**	***104***	**50**

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 - 2018).	
Species	**TOTAL**
Green turtle *(Chelonia mydas)*	**13**
Hawksbill turtle *(Eretmochelys imbricata)*	**1**
Kemp's ridley turtle *(Lepidochelys kempii)*	**67**
Leatherback turtle *(Dermochelys coriacea)*	**2080**
Loggerhead turtle *(Caretta caretta)*	**258**
Olive ridley turtle *(Lepidochelys olivacea)*	**1**
Unidentified	**390**
Total animals	**2810**

The total records held in TURTLE are 2825 (end of 2018). 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, 1998-2008 / 2008-2018 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.

T2016/030 Menai, the olive ridley that was flown to Gran Canaria to hopefully speed her recovery failed to respond to the improved climate and was euthanised in January 2018. A post-mortem examination was undertaken by the Pathology Unit Veterinary Faculty of the University of Las Palmas of Gran Canaria. Severe diffuse fibrinopurulent arthritis was found in the right scapular/humeral joint with severe granulomatous multifocal pneumonia in the left lung. Further investigations are on-going to identify molecular microbiological isolates from both lung and joint.

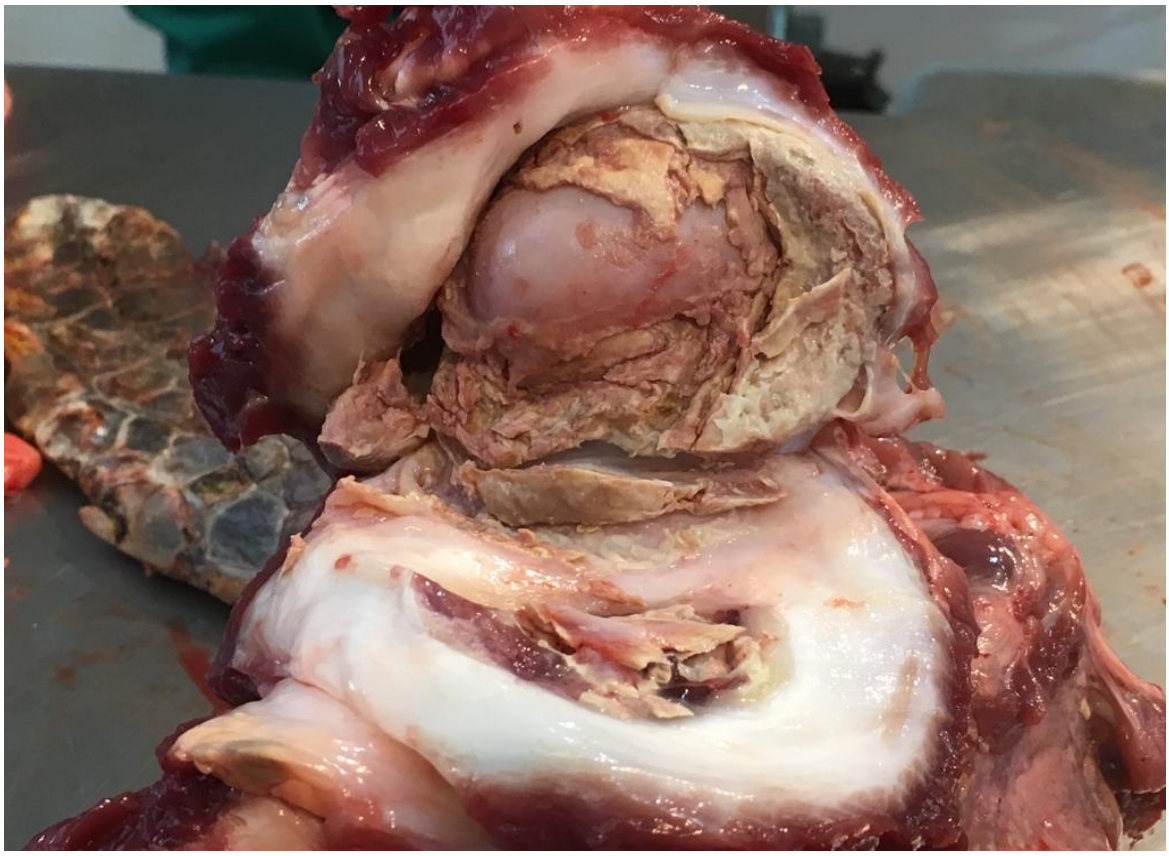


Plate 1. Arthritic humerus joint in Menai **T2016/030**.

Photo by: University of Las Palmas.

5.1 Retrospective Reports.

No retrospective reports were received during 2018.

6. LIVE STRANDING EVENTS 2018.

No live stranded marine turtles were reported during 2018.

6.1 Rehabilitation

No turtles were taken for rehabilitation during 2018.

6.2 Repatriation.

No turtles were repatriated during 2018.

7. BYCATCH.

Three leatherback turtles were reported as being entangled in rope during 2018 with a fourth swimming entangled in unspecified material.

T2018/03 was a live leatherback turtle at sea entangled in rope north of the Isles of Scilly, England on the 11th June 2018. The turtle was freed from the rope by fishermen.

T2018/05 was a live leatherback turtle at sea entangled in pot buoy rope off the Isle of Barra, Western Isles, Scotland on the 13th August 2018. The animal was released alive by fishermen.

T2018/06 was a dead leatherback turtle at sea entangled in pot buoy rope in St Austell Bay, Cornwall on the 2nd August 2018. The carcass was cut free.

T2018/07 was a live leatherback turtle at sea reported as swimming fast approx. 80 miles north east of Lerwick, Shetland Isles with something entangled around its neck on the 21st August 2018.

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.

The following three leatherbacks were attended at their stranding locations and sampled by students studying under Dr Tom Doyle (Ireland) and Professor Brendan Godley (Exeter University).

T2018/02 was a leatherback turtle found stranded dead at Liscannor Bay, County Clare, Ireland on the 3rd February 2018. The carcass was in a state of moderate/advanced decomposition. Nothing of interest was found by students studying under Dr Tom Doyle but the GI tract was removed for later examination for microplastics.

T2018/04 was a leatherback turtle found stranded dead at Marazion beach, Penzance, Cornwall on the 12th August 2018. The carcass was in a state of moderate/advanced decomposition. The carcass was examined by students studying under Professor Brendan Godley, University of Exeter. Deep lesions were found across the carapace consistent with propeller wounds, however, it could not be determined if these injuries were caused pre or post mortem. A small piece of clear plastic sheet was found in the GI tract.

T2018/11 was a leatherback turtle found stranded dead at Tolcarne beach, Newquay, Cornwall on the 25th October 2018. The carcass was in a state of advanced decomposition. The carcass was examined by students studying under Professor Brendan Godley, University of Exeter. A small piece of white plastic sheet (8cm) was found in the GI tract.

T2015/35 a loggerhead turtle that was found stranded alive at Kimmeridge Bay, Dorset in December 2015 and euthanized on welfare grounds following veterinary assessment. The body was frozen and subsequently recovered by the CSIP. It was thawed out and examined in 2018 at ZSL by ZSL staff and MEM.
Both front flippers had been excised just distal to the junction of the humerus and radius/ulna. Cut surfaces appeared to be relatively straight edged with apparently significant granulation, this indicated

Plate 2. Loggerhead turtle **T2015/35** showing excised front flippers.

a degree of chronicity to the lesions suggesting that the injuries had occurred sometime prior to stranding on UK shores. The injuries were considered to be consistent with by-catch, removal from fishing gear and return to sea whilst still alive.

T2015/35 also had good fat deposits which had obviously sustained it on its drift across the Atlantic. On opening the stomach a hard piece of black plastic was found (approx.10cm long) **Plate 3.** with associated haemorrhage in the stomach wall.

Four days prior to this loggerhead stranding in 2015, another loggerhead T2015/33 was reported live-stranding on Caldy Island, Pembrokeshire again with both front flippers cut off, this animal died on the island and wasn't recovered for examination due to severe weather with no ferries running at that time. Both these animals were reported-on at the time in the 2015 Annual Turtle Report p20.
As a result of these injuries 'fields' have been added to the TURTLE database to record the incidence of flipper loss. Since 2015 eleven loggerheads have been recorded both alive and dead with either single, partial or both front flippers missing.

Plate 3. **T2015/35** showing a hard piece of black plastic in the stomach.

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 2018.

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 and Gabriel King.

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. 2018 TURTLE data.
Appendix 2. UK Turtle Code.
Appendix 3. Morphometrics.

RecordKey	peciesCo	ghtStran	AliveDead	EndDate	Country	County	Location	Notes
T2018/01	LBT	ST	DEAD	18/01/2018	ENGLAND	CORNWALL	Perranporth	Remains of tail-end of carapace only
T2018/02	LBT	ST	DEAD	03/02/2018	EIRE	CLARE	Liscannor Bay	Carcass examined by Tom Doyle's students.
T2018/03	LBT	SEA	ALIVE	11/06/2018	ENGLAND	ISLES OF SCILLY	9.6Km north of the Isles of Scilly	Turtle was entangled in rope, freed by fishermen
T2018/04	LBT	ST	DEAD	12/08/2018	ENGLAND	CORNWALL	Marizion	waiting on further info. Carcass investigated by students from Exeter Uni under Brendan Godley.
T2018/05	LBT	SEA	ALIVE	13/08/2018	SCOTLAND	WESTERN ISLES	Barra	Found entangled in pot buoy rope, released alive by fishermen.
T2018/06	LBT	SEA	DEAD	02/08/2018	ENGLAND	CORNWALL	St Austel Bay	Found dead entangled in pot buoy rope, cut free. Several reports on floating carcass until making landfall at Polkerris
T2018/07	LBT	SEA	ALIVE	21/08/2018	SCOTLAND	SHETLAND	Roughly 80 miles north east of Lerwick .	Sighted at sea swimming fast but with something entangled around its neck.
T2018/08	LBT	SEA	ALIVE	03/09/2018	SCOTLAND	ARGYLL & BUTE	1/2 mile south of Milton.	
T2018/09	LBT	SEA	ALIVE	14/10/2018	ENGLAND	CORNWALL	Falmouth Bay	Seen from boat, appeared healthy and swimming towards the shore.
T2018/10	LBT	SEA	DEAD	13/10/2018	ENGLAND	CORNWALL	30 miles NW of Newquay	Reported via Marine Life UK twitter feed.
T2018/11	LBT	ST	DEAD	25/10/2018	ENGLAND	CORNWALL	Tolcarne beach, Newquay	Reported via James Barnett. Exeter students to examine and sample.
T2018/12	LBT	ST	DEAD	21/12/2018	ENGLAND	CORNWALL	Whipsiderry beach, Newquay	Reported on Beachcombing (British Coastline) Facebook Page. Could possibly be remains of T2018/11.
T2018/13	KR	ST	DEAD	24/12/2018	WALES	GWYNYDD	Criccieth	Reported via Peter Richardson MCS 27th Dec.
T2018/14	LBT	ST	DEAD	11/05/2018	EIRE	GALWAY	Cleggan Bay	Small part of very decomposed carapace.
T2018/15	LBT	SEA	ALIVE	04/06/2018	EIRE	CORK	Seen, Reen Pier to Galley Head.	Cork whale watching vessel (Cork Whale Watch).
T2018/16	LBT	SEA	ALIVE	28/08/2018	EIRE	CORK	High Island, Glandore.	Cork whale watching vessel (Cork Whale Watch).
T2018/17	LBT	SEA	ALIVE	29/08/2018	EIRE	CORK	Galley Head.	Cork whale watching vessel (Cork Whale Watch).
T2018/18	LBT	ST	DEAD	16/12/2018	EIRE	GALWAY	Balleyconneely.	Decomposed carapace only.

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

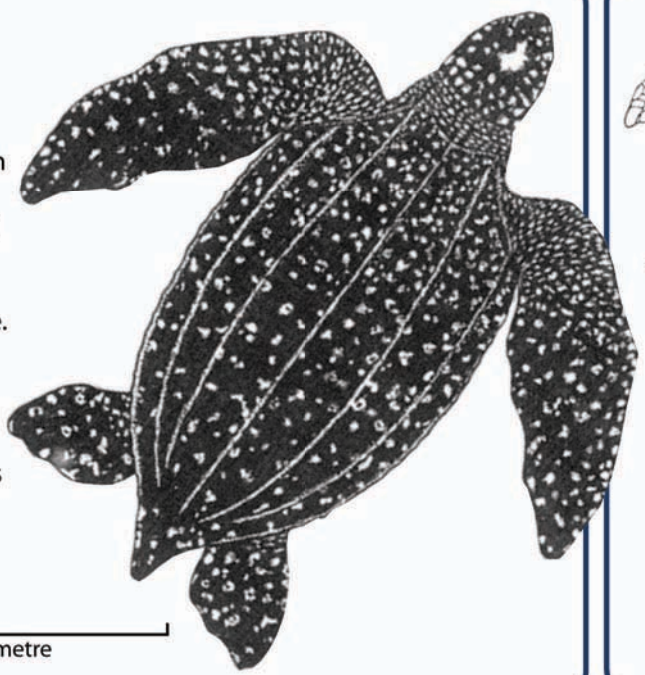
Marine Turtles in the UK & RoI

Endorsed by: defra, 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

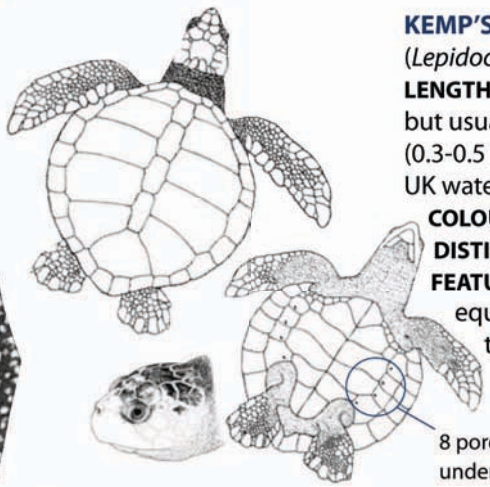
(*Dermochelys coriacea*)
Most frequently recorded species in UK waters.
LENGTH: up to 2.91 metres.
COLOUR: black, spotted with white.
DISTINCTIVE FEATURES: large, up to 916 kg, pronounced longitudinal ridges on shell, which tapers to a blunt spike.



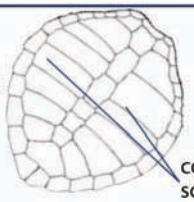
SCALE 1 metre

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.

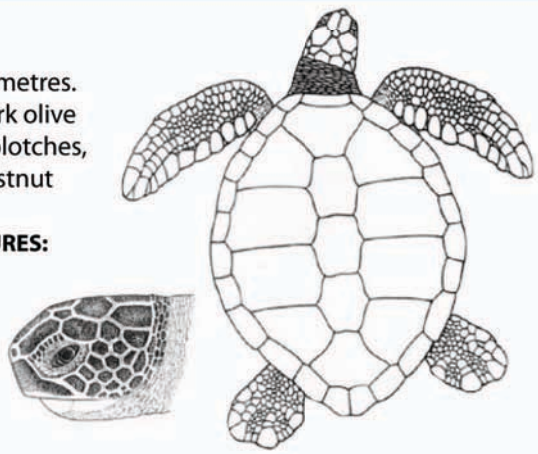


NB: The olive ridley turtle (*Lepidochelys olivacea*) occurs in the Atlantic, but has not been recorded in UK waters to date. Similar to Kemp's ridley with 8 pores on underside, but has 5-9 pairs of costal scales on shell.



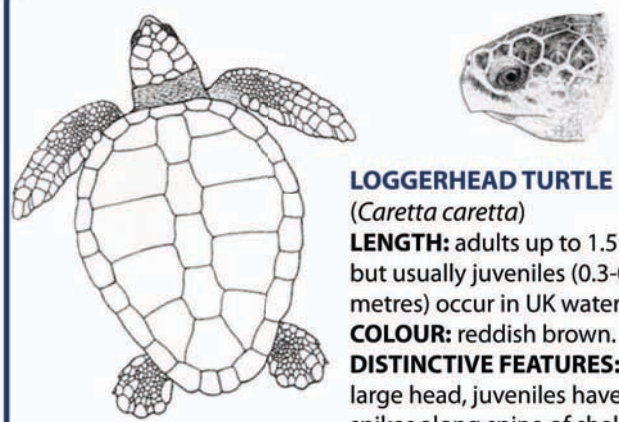
GREEN TURTLE

(*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).



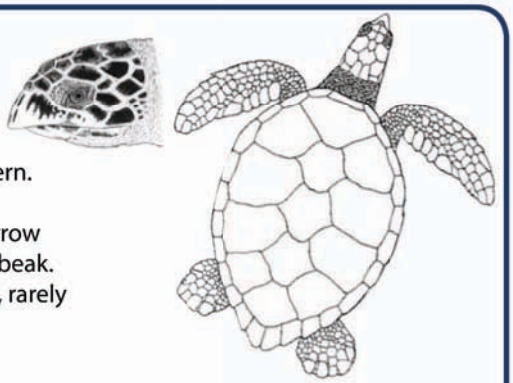
LOGGERHEAD TURTLE

(*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, Cyngor Cefn Gwlad Cymru Countryside Council for Wales, MEDASSET, The Wildlife Trusts, Marine Environmental Monitoring, Marine Turtle Research Group, Isle of Man Government, Queen's University Belfast

353-2015

Scottish Natural Heritage Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

ARC TRUST, NIEA Northern Ireland Environment Agency www.ni-environment.gov.uk

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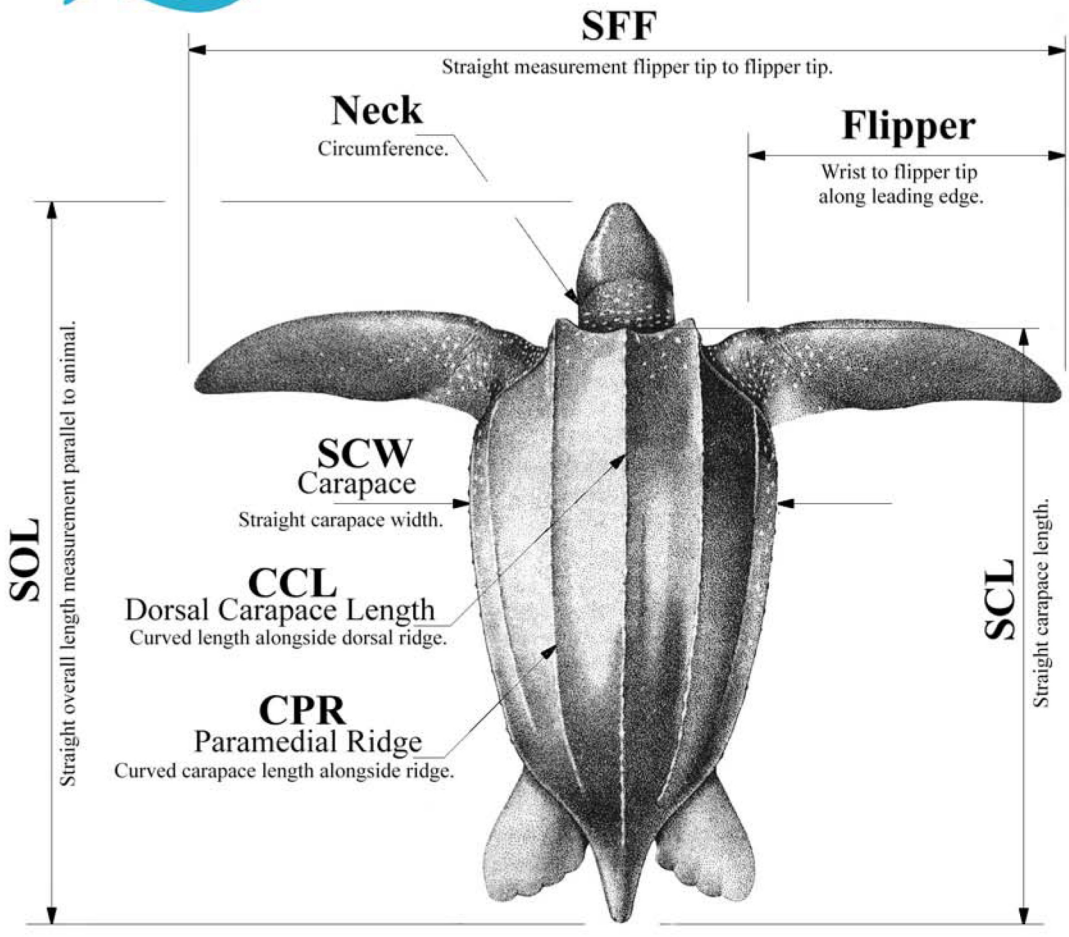
Appendix 3.

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.