

ZSL SCIENCE AND CONSERVATION EVENT

CSI of the Sea: what have we learnt from 30 years of investigating cetacean strandings?



Tuesday 11 January 2022
6:00pm – 7:30pm UK Time (GMT)

Online event livestreamed to [zsl.org/IOZYouTube](https://www.zsl.org/IOZYouTube)
[Direct link: <https://youtu.be/Rhvi3OBn0jA>]

There is no charge for this event, and no need to register in advance

AGENDA

Rob Deaville, Cetacean Strandings Investigation Programme (CSIP), Institute of Zoology,
Zoological Society of London

Introduction to CSI of the Sea: investigating UK strandings

James Barnett, Cornwall Marine Pathology Team and CSIP

The death of a harbour porpoise; a bycatch case study

Nick Davison, Scottish Marine Animal Stranding Scheme, University of Glasgow

The Darker side of Dolphins; A bottlenose dolphin attack case

Dr Andrew Brownlow, Scottish Marine Animal Stranding Scheme, University of Glasgow

Lulu the killer whale: one tragic death in a sea of statistics?

Rob Deaville, CSIP, Institute of Zoology, Zoological Society of London

Forever blowing bubbles - gas embolism in a Risso's dolphin

ABSTRACTS

The death of a harbour porpoise; a bycatch case study

James Barnett, [Cornwall Marine Pathology Team](#) and [Cetacean Strandings Investigation Programme](#) (CSIP)

Bycatch, the incidental capture of non-target animals in active fishing gear, is a significant conservation and indeed welfare concern for cetaceans, despite legislation to try and mitigate its effect. One area of particular concern is the Celtic Sea and Cornwall (which borders the Celtic Sea), as it is a known hotspot for bycatch in the United Kingdom. Between one quarter and one third of all animals examined post mortem in Cornwall are determined to be cases of bycatch and the case of one particular animal, an adult female harbour porpoise, is used here to illustrate the signs of bycatch seen in stranded cetaceans.

James Barnett has been involved with marine mammals for nearly thirty years. In the 1990s, he worked as vet for the Cornish Seal Sanctuary and the Sea Life Centres and, after moving into lab work, he continued his interests in marine mammal rescue with British Divers Marine Life Rescue. In 2008, while a Veterinary Investigation Officer for the Animal Health and Veterinary Laboratories Agency, his marine mammal interests switched primarily to pathology and he has continued to necropsy stranded marine mammals around the Cornish coast since that time. In 2018, he was awarded the Zoological Society of London's Silver Medal for his contribution to the public understanding and appreciation of zoology.

The Darker side of Dolphins; A bottlenose dolphin attack case

Nick Davison, [Scottish Marine Animal Stranding Scheme](#), University of Glasgow

An unusual pattern of trauma found in harbour porpoise was first reported in the early 1990's. These consisted of parallel marks regularly spaced on the skin of harbour porpoises. This was accompanied by blunt force trauma typically broken ribs and ruptured internal organs. Because of the nature of the trauma and the very regular marks on the skin, this trauma was assumed to be anthropogenic in origin. Possibly propeller damage or a new form of bycatch.

However investigations by Harry Ross and Professor Ben Wilson showed that these marks in the skin were identical to the interdental spacing of the bottlenose dolphins, suggesting a more sinister side of dolphin behaviour. This was not widely accepted at the time possibly due to the public's image of the bottlenose dolphin being a playful gentle animal. Later in the decade film of an actual attack taking place came to light, proving that Harry and Ben were right. In Scotland, attacks by bottlenose dolphins now account for just over one quarter of porpoises examined at post mortem.

Nick Davison has been the stranding coordinator and microbiologist at the Scottish Marine Animal Stranding Scheme (SMASS) UK since 2012. He is a research associate at the University of Glasgow, UK and is a member of the IWC expert panel on Brucella in marine mammals. Before taking up the coordinator post for SMASS he worked on strandings in Cornwall from the 1980's and helped develop necropsy protocols with what became the CSIP.

Lulu the killer whale: one tragic death in a sea of statistics?

Dr Andrew Brownlow, [Scottish Marine Animal Stranding Scheme](#), University of Glasgow

Numbering a handful of individuals, the iconic West Coast Community of killer whales have been closely monitored for over three decades through photographs, sightings and necropsy data. The UK's only truly resident population of killer whales, most sightings of this group have been around the west of Scotland and all have been decreasing over recent years. No calves have been observed with this group for over 30 years. In January 2016, Lulu, the ninth member of the group, died after becoming entangled and stranded on the Isle of Tiree, and was necropsied by the Scottish Marine Animal Stranding Scheme (SMASS).

The data and statistical analysis generated by long-term surveillance programmes like the CSIP can provide uniquely valuable insights into the complex and cumulative impact of anthropogenic stressors, such as pollution and fisheries interactions. Contaminant analysis of Lulu's blubber tissue showed that she had one of the highest levels of PCB burden ever recorded in the species - 100 times higher than the accepted threshold for PCB toxicity in marine mammals. Although she was old enough to be sexually mature, analysis of her ovaries showed she had never been pregnant- possibly a result of high levels of PCBs which can cause poor health and infertility. Genetic analysis of this group provided further insights into this population, and necropsy data confirmed she had most likely died as a result of becoming entangled in rope, probably originating in creel fishing. Entanglement can lead to drowning, impaired movement, deep tissue laceration, infection and starvation. Entanglements present serious safety issues for those involved in disentangling entangled animals and a significant financial cost to fishermen due to loss of gear. Aside from the animal welfare impacts, there is increasing concern that entanglements may be sufficiently prevalent to cause impact at a population level. Lulu is perhaps therefore an ideal exemplar of some of the key threats and pressures present in our marine environment.

Andrew is a veterinary epidemiologist and pathologist and has led the Scottish Marine Animal Stranding Scheme UK since 2009. He is a senior lecturer at the University of Glasgow, UK and is a member of the International Whaling Commission (IWC) expert panel for strandings. He is a Winston Churchill Memorial Trust Fellow for 2020/21 for work on optimising marine stranding surveillance networks.

Forever blowing bubbles - gas embolism in a Risso's dolphin

Rob Deaville and Paul Jepson [CSIP](#), [Institute of Zoology](#), Zoological Society of London, and Rod Penrose, Marine Environmental Monitoring*

On 17th September 2009, a 2.9 metre adult male Risso's dolphin (*Grampus griseus*) was found dead stranded at Cemlyn, Anglesey. A field necropsy conducted by CSIP staff from the Institute of Zoology and Marine Environmental Monitoring found that it was in moderate-poor nutritional condition at death. The fresh carcass and abrasions on leading edges of fins and flukes were consistent with the

dolphin having live stranded. The primary findings at post-mortem were multifocal, disseminate gas filled cavities within multiple organs. These lesions were most notable within the spleen, which was massively enlarged and markedly abnormal. On cross section, cavities appeared to be filled with colourless, odourless gas that was possibly above atmospheric pressure. Follow up bacteriology proved unrewarding- histopathology confirmed that the gas filled cavities were chronic in nature, with extensive peri-cavitary fibrosis. Subsequent analysis of gas extracted from the spleen was conducted by a team from the University of Las Palmas Gran Canaria. They established that the splenic gas was 95% nitrogen, [consistent with massive off-gassing of tissues excessively supersaturated with nitrogen](#). The findings were considered to be [consistent with chronic gas embolism](#), a condition that can be considered analogous with decompression sickness (DCS) in humans. Risso's dolphins are deep diving species and therefore may be more at risk of developing this DCS like condition. The specific cause of the formation of the lesions in this dolphin are unknown- but *in vivo* gas bubble formation was subsequently proposed as a potential cause of numerous beaked whale strandings [causally linked to exposure to high intensity naval sonar elsewhere in the world](#).

Rob Deaville is a cetologist and has been working within the Defra funded UK Cetacean Strandings Investigation Programme (CSIP) since 1998 and has had the role of CSIP Project Manager for the last 16 years. He is a member of the International Whaling Commission (IWC) expert panel for strandings and has over 25 years' experience in strandings response, recovery and investigation, both in the UK and internationally.

Format of Live Events

- This interactive online event will be livestreamed to our YouTube channel here: zsl.org/IOZYouTube. A direct link to the livestream will also be shared on the event web page before the event.
 - Before attending this event, please read our Code of Conduct found [here](#).
 - This event will run from 6:00pm – 7:30pm, and will be available to watch afterwards on our YouTube channel.
 - Each event will comprise of short presentations from experts in the topic, followed by interactive Q&A and panel sessions. Viewers will be encouraged to join the event live and ask questions using an online platform.
 - If you wish to submit a question to a speaker prior to the event, please send it to scientific.events@zsl.org. Please be aware we may not be able to answer all questions.
 - There is no charge for this event, and no need to register in advance.
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ZSL Wild Science Podcast

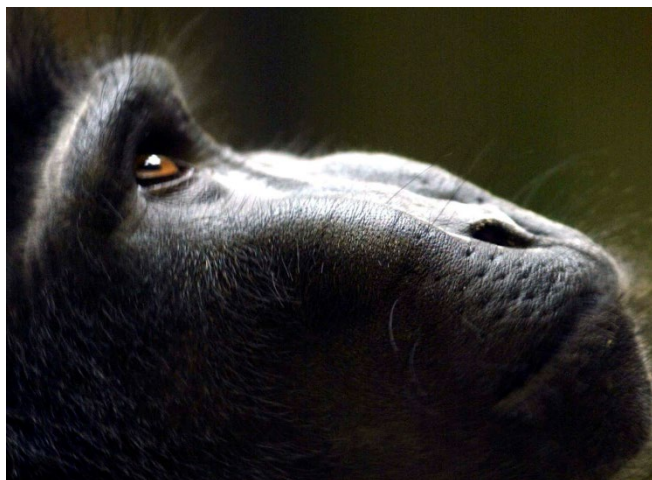
Listen to our latest episode of the award winning [ZSL Wild Science Podcast](#) on wildlife pathology to learn more about Rob Deaville's work with CSIP, alongside three other fantastic ZSL pathologists and veterinarians. Or check our all other episodes on your favourite podcast app - don't forget to **rate** and **review** to help boost us in the charts, and [subscribe](#) so you don't miss any future episodes!

Join our next ZSL Science and Conservation Event

Can understanding animal personalities help us to improve conservation?

8 February 2022, 6:00pm – 7:30pm

Historically, the idea that personality existed in non-human animals was disputed, and it is only relatively recently that the study of animal personality has gained support within the scientific community. With this increase in focus, we are learning more about individual differences and how this knowledge can potentially benefit conservation efforts. In this event, scientists studying animal personality in a variety of settings, both for the management of free-living and reintroduced species, as well as those animals housed in zoos globally, will share the value of studying personality and how it can be used as a conservation tool to help us work for wildlife.



Further Information

- Please contact the Science Communications and Events Manager, Eleanor Darbey (eleanor.darbey@zsl.org), if you have any queries about our Science events or podcasts.
- For press enquiries, please contact the ZSL Press Office: press.office@zsl.org.
- For more information about how to join the ZSL Fellowship programme and engage with a network of thousands who are shaping the future of conservation, please visit: www.zsl.org/membership/zsl-fellowship.
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To feed and care for our 30,000 animals, many of which are endangered, costs £1million a month and the national lockdown has left us struggling. But with your help we can carry on caring for our amazing animals and continue our global conservation work. Support us today – **Join, visit or donate.**