



How to improve collection of relevant data on marine debris from stranded cetaceans
ASCOBANS-ACCOBAMS MARINE DEBRIS WORKSHOP: New and emerging aspects

Saturday, 15 April 2023 - O Grove, Galicia, Spain









Sperm whale:
Subadult male 16.4m.
Western Isles November
2019

- M665-19: 100kg of marine debris- plastic including sections of net, bundles of rope, plastic cups, bags, gloves, packing straps and tubing

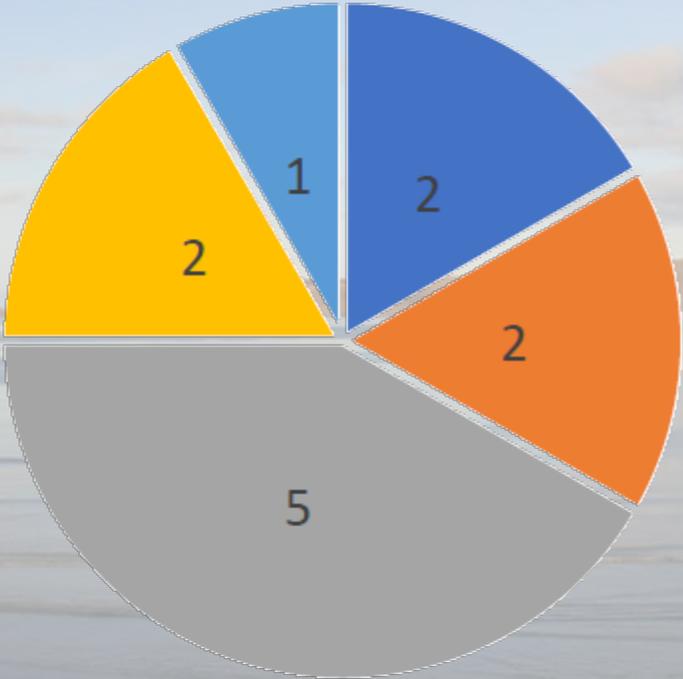


- Fishing rope comprised 37% of the overall 100kg debris
- Many of the ropes were tied or fused
- The biggest bundle weighed 29.4 kg and comprised ropes of different thicknesses and netting
- The longest piece of untangled rope 25.3m
- Single piece of 433 x 244cm fishing net weighing 11kg





Proportions of the Types of Debris Found in the Sperm Whales Stomach Contents



- Non plastic debris
- Fishing nets
- Fishing Ropes
- Plastic sheeting
- Other plastic debris





M407-15
Cuviers beaked whale
Ziphius cavirostris

6.05m adult male

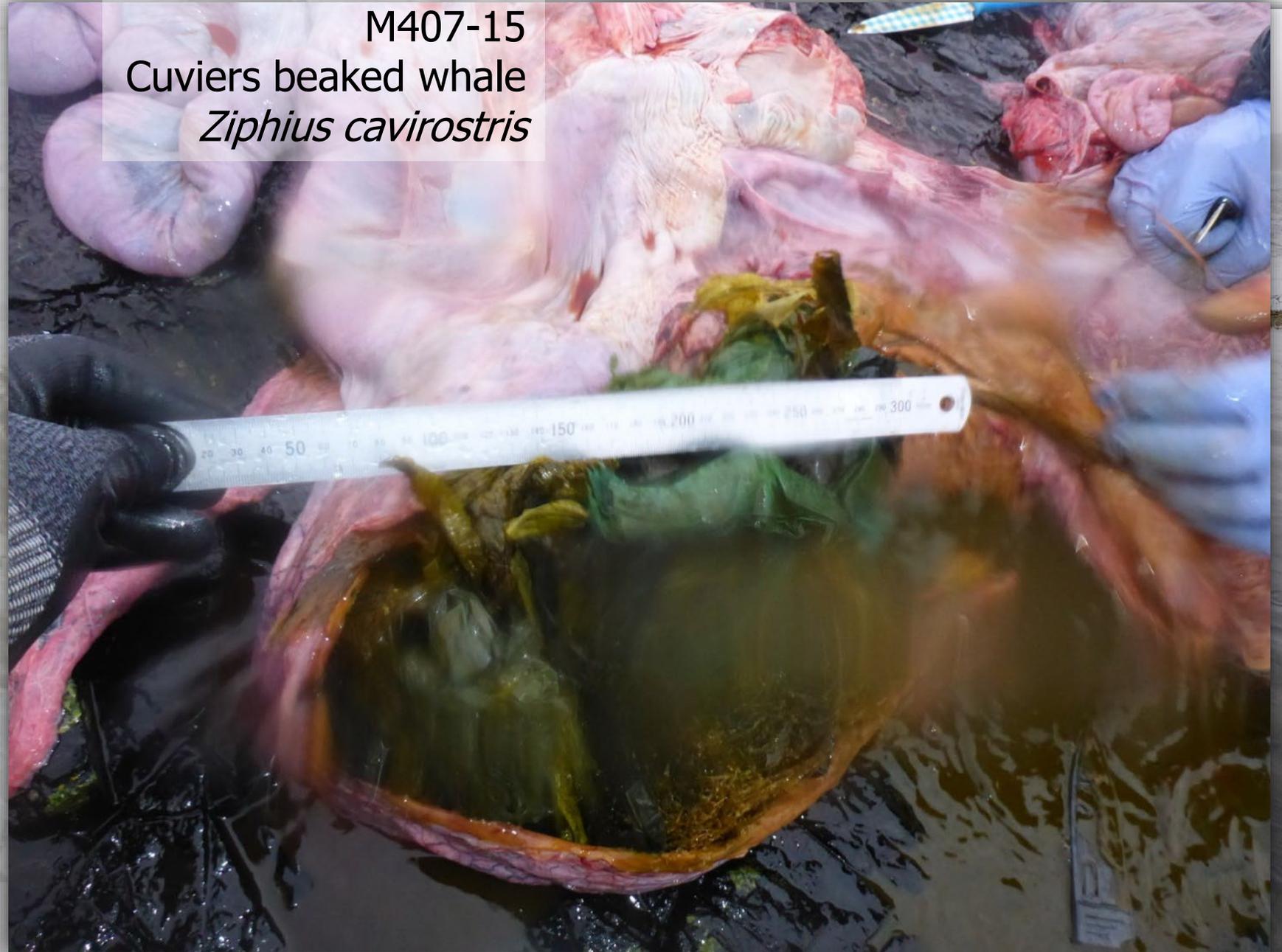
Good body condition

Underlying moderate to severe kidney pathology

Stomach impacted with plastic marine debris

52 separate pieces largely comprising plastic sheet

4kg in total weight





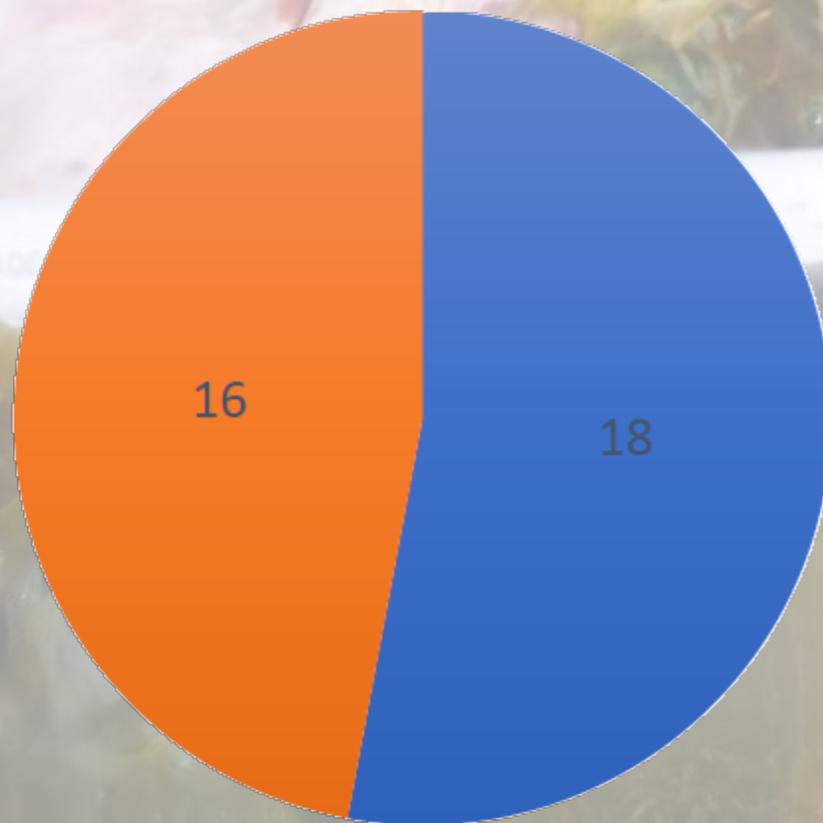
Between Jan 1992
and Dec 2022,
SMASS undertook
2345 necropsy
examinations....

...of these, the
number that
ingestion of
marine debris
was the
**primary cause
of death...**

... is **1**



Proportions of Types of Debris Found in Cuvier's Beaked Whale



■ Plastic sheeting

■ Plastic bags

From the over 14378 stranding cases recorded from SMASS, 6795 were cetaceans and necropsies were carried out in 1673 cases.

56.9% were harbour porpoises
29.4% pelagic delphinids
5.2% sperm/beaked whale
4.1% mysticetes

Out of 1664 cases, 11 cases were found with macroplastic ingestion with the potential to cause trauma

Species name common (species scientific)	No. of cases found with macroplastic ingestion
Killer whale (<i>Orcinus orca</i>)	1
Northern Bottlenose whale (<i>Hyperoodon ampullatus</i>)	1
Bottlenose dolphin (<i>Tursiops truncatus</i>)	2
White beaked dolphin (<i>Lagenorhynchus albirostris</i>)	2
Harbour porpoise (<i>Phocoena phocoena</i>)	1
Cuvier's beaked whale (<i>Ziphius cavirostris</i>)	1
Striped dolphin (<i>Stenella coeruleoalba</i>)	1
Sperm whale (<i>Physeter macrocephalus</i>)	2

Marine debris microplastic ingestion incidence in Scottish strandings 1992-2023: **0.66%**

Stack of cups and packing straps found inside whale

🕒 12 March



Climate > News

Whale found dead with 100kg 'litter ball' in stomach

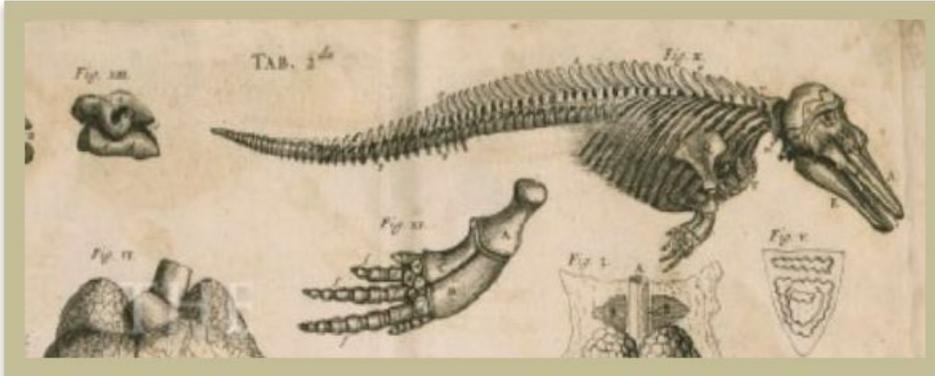
'The amount of plastic in the stomach is horrific, must have compromised digestion, and serves to demonstrate the hazards marine litter can cause to marine life,' say experts

Kate Ng | Monday 02 December 2019 13:28 | comments



Best practice on cetacean post mortem investigation and tissue sampling

Joint ACCOBAMS and ASCOBANS document



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Diet analysis, marine

To minimise the environmental source of contamination, remove the entire components (i.e. of strings or cable ties subsequent analysis should then be performed examination. Gross **marine debris** should be gently rinsed and filtered through a meso plastic (useful for debris up to 500 µm) and preserved for nano-

Due to the high risk of contamination, usually also require a clean room or present in the room and include gloves,

Plastic material recording methods include monofilament, braided lines, and anthropogenic materials. Record the volume, and polymer type,

Necropsy examination of the GIT gives data about:

- Stomach contents:
- Feeding status
- Pathology
- Parasite burden
- Diet studies
- Macroplastic
- Microplastics
- (Nanoplastics..?)

Issues:

- + contamination
- + kit/expertise
- + low incidence

What is the question being asked?

contents from the rectum and Alternatively, separated using (at -20°C) for The GIT opening and parasites and opening should be ate macro and possible), diet could be also plastic analysis materials used negative control pipes type, net, floats, ics, and other graphs), mass, Fourier transform

Proposed 3-tier approach

a) **Physical presence:** Analysis of gastro-intestinal content: Detection of the occurrence and rate of marine litter ingestion and any associated pathology through analysis of the gastro-intestinal content

b) **Exposure:** Analysis of the levels of plastic additives, as a proxy for ingestion:

The plastic additives indirect quantification can be applied both to free-ranging as well as to stranded organisms.

c) **Physiological response:** Analysis of biomarkers for biological responses can be used to detect the potential toxicological effect

Questions:

- Do our necropsy protocol need updating?
- Who can undertake the exposure analysis?
- How should these data be managed?



Environmental Pollution 24.

Contents lists available at [ScienceDirect](#)

Environmental Pollution

journal homepage: www.elsevier.com

: One of the major threats for marine
from the European Cetacean Society w

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