



Marine debris obstructing stomach of a young Minke whale (*Balaenoptera acutorostrata*) stranded in Normandy, France.



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Abstract

On April 06, 2002, a young female Minke whale (*Balaenoptera acutorostrata*) - 3.97m in length - stranded in Normandy (France). Stomach content analysis revealed a significant quantity (22 pieces) of man-made rubbish, mostly plastic bags from stores, garbage, etc., completely obstructing the digestive system.

Introduction

Ocean pollution caused by waste materials of human origin, specifically plastics, is of significant importance. In spite of the numerous cases of marine debris ingestion by cetaceans, birds, turtles and other marine species, the real impact of such a phenomenon on the populations has yet to be quantified. Basic description of man-made rubbish ingestion by this *Mysticeti* cetacean, can bring new elements to the scientific community.

Description

On April 06, 2002, a young Minke whale (*Balaenoptera acutorostrata*) stranded on a beach in Normandy (Lestre -50-, France). The discovery and the analysis of this case were made possible by the stranding intervention regional network of the GECC, included in the national program lead by the CRMM of La Rochelle.

Animal characteristics : female, 3.97m in length, unknown weight but cachectic, undetermined age but probably very young and not weaned (plate of baleen not functional).

Unfortunately, an autopsy could not be performed by a veterinarian. However, samples have been performed for substances such as heavy metals, organochlorines, etc. The stomach was completely removed and the frozen.



Fig.1. The Minke whale (*Balaenoptera acutorostrata*) stranded on the beach of Lestre (50 - FRANCE).



Fig.2. The Minke whale (*Balaenoptera acutorostrata*) stomach.

On July 03, 2002, the Cotentin Cetaceans Study Group, with the help of the Laboratory of Marine Biology and Biotechnology- University of Caen performed an analysis of the stomach. The stomach of this *Mysticeti* did not contain any traces of aliments but many plastic bags as well as other forms of debris. Moreover, a necrosis of the mucous gastric membrane was also observed.



Fig.3. The autopsy.

The stomach of the small Minke whale contained approximately 720g (humid weight) of plastic waste equaling a total volume of around 15 liters.

After cleaning and drying, 22 pieces of plastics from diverse origins have been identified. The sizes of the plastics varied, with the largest measuring 100 x 20 cm, the plastics are comprised of heterogeneous materials: translucent, opaque, white or colored, aluminum covered...

The total surface of these plastics is approximately 3.50 m².



Fig.4. The Minke whale (*Balaenoptera acutorostrata*) stomach content.
One plastic bag mentioned : « We SUPPORT good farm animal welfare ».

List of Plastic Debris Resulting from Preformed Stomach Analysis

We have identified:

- 1 "free doks schools" crisps packaging made of plastic and aluminium
- 2 English supermarket plastic bags.
- 7 various colored dustbin bag fragments: black (one, 25x70cm), white (one, 70x75cm) and blue.
- 7 transparent plastic bags (complete and fragments): one, 90x30 cm and an other, 100x20 cm.
- 1 food product packaging...

Discussion

Although plastic bags are regularly found in the intestines of different cetaceans, pinnipeds, birds, turtles, etc., we do not yet know the extent of the impact that man-made rubbish has burdened upon the populations. It must also be noted that since this is a reported case of stomach obstruction for a baleen whale in France, the finding needs to be interpreted with a certain caution. At the present time, we don't know the exact reason why plastic debris is discovered in the stomach of the *Odontoceti* and, less often, in *Mysticeti* species. However, several hypotheses have been made: Is it due to confusion with prey? An accidental ingestion? Or perhaps due to the habit of weak animals to "eat all that is found"?

Before making conclusions about a causal link between the increasing marine pollution by plastic debris and the death of the animals, stomach content analysis, histopathology, ecotoxicological, ecological and ethological analysis should be carried out on a systematic basis.

Whether or not there is a direct or indirect link between human activity and marine wildlife status, the impact of the debris on the animals is a factor that needs to be taken into consideration, not only by the general public, who must be urged not to throw away their rubbish at sea, but consideration must also be taken by the industries and the government to switch to biodegradable products.

References

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