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The increasing number of euthanasia cases in large whales in Southern Brazil and its challenges

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Introduction

Large whale strandings are always challenging, especially if the animal is alive. Refloating the whale is possible if it is in good health conditions. Euthanasia may be an option when the animal presents disabling injuries, its size or stranding site conditions prevent rescue attempts, or actions to save the animal would only prolong the animal's pain and suffering (Geraci & Lounsbury, 2005).

The decision to euthanize or try to refloat depends on numerous factors particular to each type of stranding, such as the animal's state of health, the presence of disabling injuries, its size, conditions of accessibility to the stranding site and whether attempts to save the animal would only prolong the pain and suffering (Geraci & Lounsbury, 2005).

In 2013 the International Whale Commission (IWC) promoted a workshop on Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans with professionals from all over the World. The report was presented to the SC in 2014 recognising that the issue of how to deal with large stranded whales is a common problem for many coastal states (IWC 2014). The report presents many chemical and physical techniques to approach to large stranded, including chemical sedation (Harms et al., 2014) and high ballistics and explosives (Coughran et al., 2012).

In Brazil, chemical techniques are chosen for the few cases of large whale euthanasia reported so far. In 2010 an adult southern right whale stranded alive in Laguna-Santa Catarina, Brazil (Kolesnikovas et al., 2012), leading to the creation of the Contingency Plan for Large Whale Strandings by the Southern Right Whale Environmental Protection Area (Área de Proteção Ambiental da Baleia Franca-APABF-ICMBio).

Between 2019 to 2022 four Humpbacks whales stranded alive in South Brazil and were submitted to euthanasia. In all cases, the professionals used the low residue euthanasia protocol described by Harms et al. (2014) as baseline for drug choice and dosage. The method demonstrated to be effective even with adaptations.

Euthanasia Cases 2019-2022

1. Humpback Whale stranded on February 27th, 2019

On February 27th, 2019 a 12.7m long and estimated 20 tons Humpback whale stranded in Mostardas Beach (-30.57497,-50.38458) in Rio Grande do Sul/Brazil. The area is monitored by Ceclimar/UFRGS, but they had no trained professionals nor equipment to perform large cetacean euthanasia. CECLIMAR/UFRGS asked for the support of Associação R3 Animal, which has all the necessary equipment and trained professionals.

Half of the whale's body was covered by sand, the animal was considered in poor conditions, and beach conditions did not allow any kind of safe rescue. The staff decided for euthanasia. On March 2nd the following protocol was used: 1-local block with lidocaine, small incision on dorsal bubbler for best access to the epaxial muscle. 2-IM injection of midazolam, acepromazine, cetamin. 3-IM injection of xylazine. 4-after reflex loss, local block with lidocaine and intracardiac injection of KCl. The animal stopped breathing just after the start of KCl administration. (Kolesnikovas et. al., 2019). Drug choice and dosage were calculated based on Harms et al. (2014) and availability.

It took four days to be able to perform the euthanasia after the whaled stranded. The animal was first spotted on February 27th at the end of the day, but CECLIMAR personnel could only reach the area by the next day. After contacting R3 Animal, the second and third day were used for planning and to acquire drugs. The euthanasia was performed on the fourth day. Necropsy was only possible after 48 hours from death and no lesions could be observed because of carcass autolysis.

2. Humpback Whale stranded on October 30th, 2021

On October 30th, 2020, another Humpback whale, 10.0 m long and with an estimated 14 tons, stranded almost in the same place as the whale stranded in 2019 in Mostardas Beach (30°27'07.0"S 50°18'33.0"W). The specimen was located by the local population and the CECLIMAR and the procedure was performed with the help of R3 Animal. The whale was in poor condition and was partially buried in the sand. Rescue was not considered because of beach conditions and no security for the professionals involved.

Based on the protocol used with the whale stranded in 2019, euthanasia was performed in November 1st, using midazolan, acepromazine, and xilazyne, followed by KCl intracardiac injection. Since it was the second euthanasia case of CECLIMAR/R3 Animal, all communication and procedures were better conducted. The animal lost its reflexes just after drug administration and KCl injection. At Necropsy pneumonia and gastroenteritis were observed.
The stranding of this specimen occurred near the site of the 2019 stranding. Access to the site occurred in the same way.

3. Humpback Whale stranded on September 14th, 2022

On September 14th 2022 a third Humpback whale stranded alive in Mostardas Beach (30°49'34.4"S 50°33'59.2"W). On the same day, CECLIMAR contacted R3 Animal for support. It

was a 9,4m long and estimated 12,2 tons animal. Animal evaluation showed that it was also in poor condition as the two previous cases. Drug acquisition and R3 Animal personnel travel occurred in the second day of the stranding.
On 16th September euthanasia was performed. The initial drugs used were midazolam and acepromazine, followed by xylazine. The animal did not lose all reflexes, so veterinarians decided to use expired tiletamine and zolazepam that was available. Just after het injection, the animal lost reflexes and KCl was administered.
Necropsy was performed. Macroscopically no changes associated with the cause of the stranding were observed. Histopathology showed meningoencephalitis and the immunohistochemistry showed a positive result for Morbillivirus.

4. Humpback Whale stranded on October 5th, 2022

Just a few days after case 3, on October 5th, 2022 another Humpback stranded in Jaguaruna Beach-Santa Catarina, Brazil (28°45'48.6"S 49°07'38.9"W). The whale was 11.0 m long and estimated to be 20 tons. Jaguaruna Beach is part of APABF monitoring area so all procedures were conducted under the responsibility of APABF, with the help of other institutions partners of APABF and part of the APABF Stranding Protocol.

Jaguaruna beach is of easy access for the public. On the first day, animal and local conditions were evaluated, and the possibility of rescue was considered. Even without best sea conditions and appropriate boats, there was a rescue attempt, with no success. At the same time, all equipment and drugs for euthanasia were gathered and acquired. On the second day, with forecast of a tropical hurricane and no boat availability, for euthanasia was made. The procedure was programmed for the next low tide on October 7th at 6:00 AM.

Euthanasia was performed using midazolam and acepromazine, followed by xylazine. The loss of reflexes was slower than the former cases, probably because of a lower dose of drugs. As the animal showed no pain reflexes, the head veterinarian decided it was safe to administer KCl.

In this case complete necropsy was also performed. Macroscopically no changes associated with the cause of the stranding were observed. Histopathology showed meningoencephalitis and the immunohistochemistry showed a positive result for Morbillivirus.
All procedures were conducted under international protocols with governmental institutions and NGOs involved. Despite that, IBAMA and the Federal Public Ministry (Ministério Público Federal-MPF) received a complaint of animal wellbeing, including questions about the delay in care and the consideration of euthanasia from the first moment. Having a stranded whale in a populated area is more difficult because professionals must also be aware of that the public and local authorities want rapid answers and easy solutions for complex events.

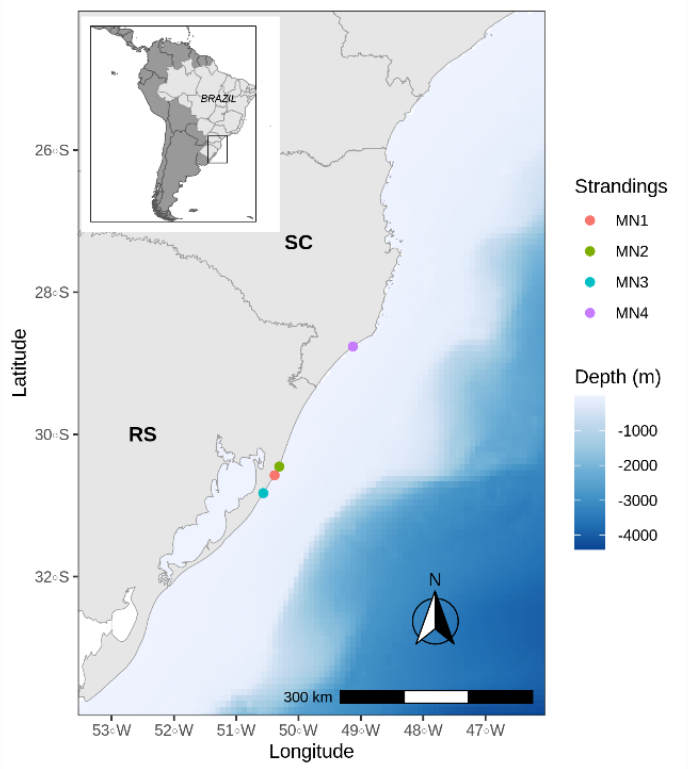

Fig. 1 Map of Southern Brazil showing the stranding sites.

Discussion

The increasing number of humpback whale strandings in Brazil has already been reported (SC/68D/E/04). Among the causes is population growth, increase of human activities hence increasing non-natural deaths, and decrease in food availability. In 2021 a record high of strandings was documented in Brazil with 225 dead animals along the coast, the majority juveniles in South/Southeast Brazil.

In SC/68D meeting, SC also discussed Boys et al. publications (2021, 2022) about cetacean euthanasia. Discussion focused on animal welfare and lack of systematic, standardised data collection at euthanasia events to facilitate assessment of animal welfare impacts and development of evidence-based recommendations. Harms et al. (2018) compiled information about marine mammal euthanasia in a chapter of CRC, showing once again the importance of the theme.

It is important to have a rapid answer to the event considering animal welfare. But logistics are not always easy, and it can take days until euthanasia is performed. In case 1 it took four days to perform euthanasia and in case 4 three days. Performing euthanasia depends not only on equipment and drugs, but also on weather and tide conditions.

Another important point to consider is animal health. The whales in cases 3 and 4 had encephalitis and were positive to Morbillivirus, confirming that refloating would not be indicated. All efforts to perform complete necropsy must be done for diagnostics purpose and also to give an answer to the public and make them understand euthanasia as the best decision for the animal wellbeing.

Even for prepared groups, with trained experts and all equipment available, including drugs availability, performing a whale euthanasia is challenging. Having a professional focused in media communication is also important. The challenges faced in the cases reported are listed below:

Equipment: The most important equipment for chemical euthanasia is the customised needle, which is expensive and not available commercially

Drugs: Do not stock all drugs because it is expensive and if not used, can expire. The only drugs in stock are midazolan and KCl. It is appropriate to have a list of companies that can provide a large amount of acepromazin and xylazin readly.

Trained professionals

It is essential to have many trained veterinarians because if one is not available, others can perform the euthanasia. We recommend having at least two veterinarians at the location of the event.

Media and people

Euthanasia continues to be a controversial topic in our society. Stranded whales are always a commotion and having centralized communication is a need.

Legislation: role of government and other authorities

The presence of environmental authorities such as IBAMA and ICMBio in complex events involving cetacean rescue is always desirable to avoid complaint.

Established official stranding service/protocol

Having an established official stranding service protocol allows the correct decisions to be taken and increases the chance of a successful rescue, safe for all involved professionals.

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