

# SC/68C/E/14

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**Report on strandings of melon-headed whales (*Peponocephala electra*) in Mauritius,  
August/ September 2020**

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## **Report on strandings of melon-headed whales (*Peponocephala electra*) in Mauritius, August/ September 2020**

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On 26 August 2020, a mass stranding of melon-headed whales, *Peponocephala electra*, involving both live and dead animals, was reported on the south-east coast of Mauritius Island at several places around Grand Sable (Figure 1), which lies within a lagoon system sheltered by several barrier islands and sandbanks. Local pleasure craft operators and fishermen worked together with officers from the Albion Fisheries Research Centre and the National Coast Guard to organize a response. Teams worked to push the remaining pods seemingly ‘trapped’ inside the lagoon to regain open water. Efforts to herd animals out of the lagoon continued until the 4<sup>th</sup> of September. Of particular value was the involvement of via A number of web-based virtual meetings with international experts (such as the International Fund for Animal Welfare (IFAW)) were of particular value in providing advice on how to herd animals out of the lagoon, based on previous experience on Cape Cod (K. Moore, *pers. comm.*) and in Madagascar (Southall et. al., 2013). Besides almost daily meetings among stakeholders in Mauritius on dealing with the situation, numerous virtual meetings with international experts facilitated a process on finding the best possible solution and a way forward.

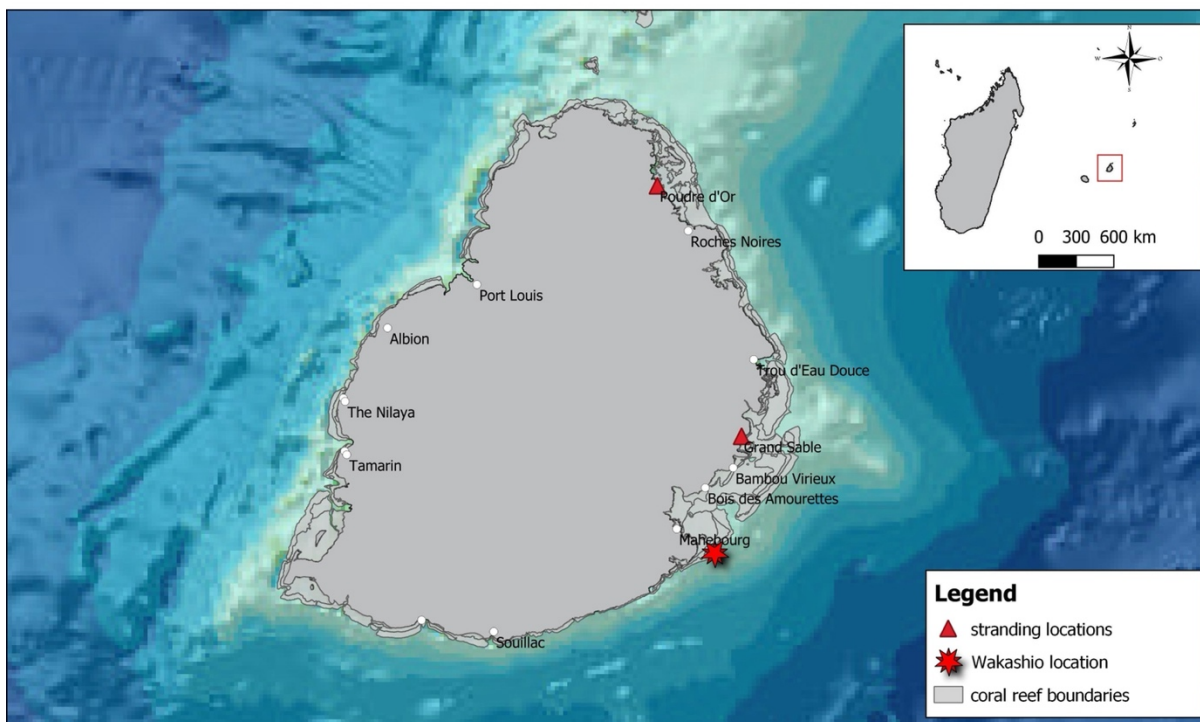


Figure 1: Map of Mauritius with stranding locations.

Fifty-three individuals of two species were found dead between 26. August and 21. September (26 days): 52 melon-headed whales and a single bottlenose dolphin (*Tursiops* spp). Samples were collected and necropsies carried out on 26 of the carcasses. Representatives from two local NGOs, the Marine Megafauna Conservation Organisation Mauritius (MMCO) and Mauritius Marine Conservation Society (MMCS), as well as Drop of Blue Ltd, assisted with the necropsies as observers, taking photos and notes. Members of the international community, namely the Expert Panel for Strandings of the International Whaling Commission (IWC), together with scientists and veterinarians from the south-western Indian Ocean/IndoCet network, assisted local responders remotely over cell phones via Whatsapp, including providing real-time guidance on necropsy procedures (ear bone extraction).

During a parliamentary debate of the Seventh National Assembly of the Republic of Mauritius on 3. November 2020, the Minister of Blue Economy, Marine Resources, Fisheries and Shipping indicated that in order to identify the causes of the death of the marine mammals, the ministry sought the assistance of the Livestock and Veterinary Division of the Ministry of Agro-Industry and Food Security to carry out necropsies (Republic of Mauritius, 2020). Twenty-six necropsies were performed between 26 August and 4 September 2020. Findings from the necropsies stated lacerations, fractured mandibles, large bite wounds, empty stomachs, congested and emphysematous lungs, acoustic fat haemorrhage and gas embolism as the most common lesions. The interpretation of these findings by the Veterinary Services Division indicated that the main cause of the death of the melon-headed whales was barotrauma, which could have been triggered by a multitude of factors, such as navy sonar, oil industry airguns, undersea earthquakes, and volcanic eruptions. Regarding the latter two, no major event was recorded in the region prior to the stranding event, according to the IRIS seismic monitoring (<http://ds.iris.edu/seismon/index.phtml>). Swabs and samples of the liver,

lung, stomach content, kidney, skin, blood, melon, spleen, adrenal gland and intestine were taken from 19 melon-headed whales and one bottlenose dolphin and were sent to the Forensic Science Laboratory of the Veterinary Services for further toxicological and aliphatic hydrocarbon residue analysis. The toxicological screening yielded negative test results for all the samples, whereas aliphatic hydrocarbons were detected in samples from 11 whales. One carcass of a melon-headed whale found in Poudre d'Or, on the north-east coast, was in a necrotic and eviscerated state, and its death was attributed to septicaemia and hypovolemic shock.

The report from the Forensic Science Laboratory (FSL) has not been made public. Although the event occurred a few weeks after the grounding of the bulk carrier 'Wakashio' on the same coast, which resulted in an oil spill in the area, the exact cause of the strandings has not yet been determined. This will require further analyses of the samples collected, including histology, and a full epidemiological investigation of different potential causes.

The IWC engaged with both the Mauritian government as well as the Indian Ocean Rim Association (IORA), offering expert advice and support in analysing samples through an independent international panel of expert scientists to investigate the cause of the strandings. Unfortunately, besides the continuous contacts of IWC experts with local scientists, the Mauritian government never responded formally to the official letter sent by the IWC secretariat, underlining the urgent need of a formal recognition of this initiative worldwide. A possible cooperation with other related initiatives of Intergovernmental Organisations (e.g. the World Organization for Animal Health (formerly *Office International des Épizooties*), IUCN, etc.) and other non-institutional organisations (such as the Global Stranding Network (GSN)) could help in this direction.

The melon-headed whale is one of the 13 cetacean sightings recorded around the waters of Mauritius (Webster et al., 2020). A stranding event also involving melon-headed whales was reported in March 2005 in the same area when approximately 70 individuals stranded in the lagoon south of Grand Sable (Bois des Amourettes and Bambous Virieux) on the south-east coast of the island. Of the 70 whales, 35 died in the lagoon. Other groups of animals (estimated to be 80-100 dolphins) were apparently trapped in the lagoon in the area at the same time. The organized herding operation was successful and after a few days, the animals left the lagoon (L'Express 2005; Ministry of Agro-Industry & Fisheries 2005).

Out of habitat and mass stranding events like this one highlight the value of a regional stranding network, such as the one recently established under IndoCet. A network enables efficient connectedness and information flow amongst partners of the regional stranding network (in this case colleagues from close-by Reunion Island being able to assist Mauritian colleagues) and facilitates greater information exchange and support from international experts, such as the IWC's expert advisory panel on strandings. Highlighting the regional collaboration within a network (for example see Plön et al., 2020) showcases the efforts in the region and thus facilitates further training and possibly research and response funding for partners in the network. As a first step, further standardisation of protocols is suggested (ACCOBAMS; Plön et al., 2015; DeQuiros et al. 2018; Mazzariol et al., 2018; IJsseldijk et al 2019, <http://iusa.ulpgc.es/the-study-of-gas-embolism-in-stranded-marine-mammals/>).

At present, analysis of stranding records in Mauritius and the Western Indian Ocean continues (Plön *et al.*, 2020) in an effort to explore previous potentially important events and regional patterns that may provide additional guidance for future stranding events. It is hoped that such an analysis will provide baseline knowledge and determine stranding patterns in the region for guiding response to any potential future events, particularly unusual stranding events; such events may occur more frequently than anticipated, especially in view of the planned Blue/Oceans Economy developments in the Indian Ocean.

Furthermore, such regional efforts assist in further developing the Global Stranding Network established in 2019 to support responses to stranding events and training for regional networks.

## References

ACCOBAMS Resolution 4.16. GUIDELINES FOR A COORDINATED CETACEAN STRANDING RESPONSE

ACCOBAMS Resolution 6.22. CETACEAN LIVE STRANDING

ACCOBAMS Resolution 7.14. Best Practices in Monitoring and Management of Cetacean Stranding

de Quirós, Y. B., Hartwick, M., Rotstein, D. S., Garner, M. M., Bogomolni, A., Greer, W., Niemeyer, M. E., Early, G., Wenzel, F. and M. Moore. 2018. Discrimination between bycatch and other causes of cetacean and pinniped stranding. *Diseases of Aquatic Organisms* 127: 83-95.

Ijseldijk, L. I., Brownlow, A. C. and S. Mazzariol. 2019. Best practice on cetacean postmortem investigation and tissue sampling. Joint ACCOBAMS and ASCOBANS document. 73 pp.

L'Express. 8. March 2005. 'An ecological disaster in our lagoon.

Mazzariol S, Centelleghè C, Cozzi B, Povinelli M, Marcer F, Ferri N, Di Francesco G, Badagliacca P, Profeta F, Olivieri V, Guccione S, Cocumelli C, Terracciano G, Troiano P, Beverelli M, Garibaldi F, Podestà M, Marsili L, Fossi MC, Mattiucci S, Cipriani P, De Nurra D, Zaccaroni A, Rubini S, Berto D, de Quiros YB, Fernandez A, Morell M, Giorda F, Pautasso A, Modesto P, Casalone C, Di Guardo G. 2018. Multidisciplinary studies on a sick-leader syndrome-associated mass stranding of sperm whales (*Physeter macrocephalus*) along the Adriatic coast of Italy. *Scientific Reports* 8(1):11577. doi: 10.1038/s41598-018-29966-7. PMID: 30068967; PMCID: PMC6070578.

Ministry of Agro-Industry & Fisheries, Fisheries Division. Annual Report 2005. 127pp.

Plön S, Adam P-A, Andrianarivelo N, Braulik G, Bunbury N, Collins T, Duffaud M-H, Estrade V, Griffiths O, Inteca G, Hofmeyr G, Marteau C, Mwang'ombe M, Norman S, Olbers J, Rocha D, Seakamela SM, Vermeulen E, Wambergue B, Wilkinson C, Dulau V. 2020. IndoCet stranding network- report on strandings for the Western Indian Ocean region.

*International Whaling Commission. Report of the Scientific Committee meeting.*  
Cambridge, United Kingdom, May 2020. 8pp.

Plön S, De Wet M, Lane E, Wohlsein P, Siebert U, Thompson P. 2015. The importance of a standardized necropsy protocol for health investigations of small cetaceans in South Africa. *African Journal of Wildlife Research* 45:332-341.

Republic of Mauritius, 2020. Seventh National Assembly, Parliamentary Debates, (Hansard), (Unrevised), First Session, Tuesday 03 November 2020.

Southall, B.L., Rowles, T., Gulland, F., Baird, R. W., and Jepson, P.D. 2013. Final report of the Independent Scientific Review Panel investigating potential contributing factors to a 2008 mass stranding of melon-headed whales (*Peponocephala electra*) in Antsohihy, Madagascar.

Webster I. Cockcroft V., Cadinouche A., Huggins A. 2020. Cetacean Diversity of Mauritius. *J. Cetacean Res. Manage.* 21: 45-58.