



Gray whale stranding records in Mexico during the Unusual Mortality Event (2019-2022)



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Unusual Mortality Events (UME) occur when mortalities increase above an average annual rate. In 2019 the U.S. NOAA declared a gray whale UME along the North Pacific coast of North America. In Mexico, there were 277 gray whale stranding records between 2019 and 2022 (81, 88, 55 and 53 respectively) The majority of the whales (75%) stranded in Ojo de Liebre lagoon and the surrounding areas. 114 whales were females, 114 males, and 49 were of undetermined sex. The age classes of the dead whales were: 135 adults, 60 subadults, 54 yearling whales and 25 calves. The number of strandings is likely an underestimate of actual mortalities, because of: differences in detectability, the dimensions of the area where the gray whales are distributed along the Baja California Peninsula and the differences in search effort conducted, mainly due to COVID-19 restrictions in 2020 and 2021. Even when the examination of some of the stranded whales suggested that a decline in body condition may have contributed to the increase in gray whale mortality, this hypothesis has not been confirmed due to a high number of carcasses with an advanced decomposition, so the cause of UME for gray whales is still undetermined.

Background

During 1999-2000 there was a UME for gray whales in the North Pacific Ocean, characterized by animal with a poor body condition, but the main cause of this event was not determined. In 2019 U.S. NOAA declared again a UME and since then 578 gray whale carcasses has been found along Mexico, U.S. and Canada coast.

Methods

Information on dead stranded gray whales was collected by researchers from LSIESP and PRIMMA/UABCS (San Ignacio Lagoon and Bahía Magdalena-Almejas); ESSA and CONANP in Ojo de Liebre Lagoon and Strandings Network of SOMEMMA (Gulf of California and Mexican Pacific Coast)

Results

Between 2019 and 2022 there were 277 gray whale strandings (81, 88, 55 and 53 respectively), 75% of them occurred in Ojo de Liebre lagoon and the surrounding areas. From the total, 114 whales were females, 114 males, and 49 were of undetermined sex. The age classes of the dead whales were: 135 adults, 60 subadults, 54 yearling whales and 25 calves.

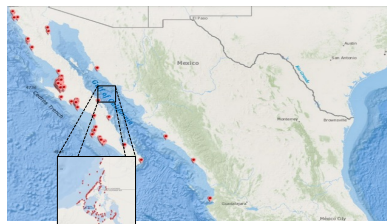


Fig 1. Distribution of gray whales stranded in Baja California Peninsula, Mexico (2019-2022) (noaa.maps.arcgis.com)

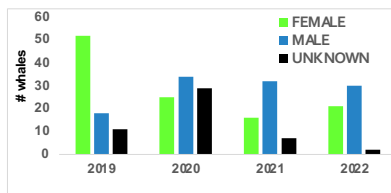


Fig.2 Total number of gray whales stranded in Mexico by sex during (2019-2022) UME

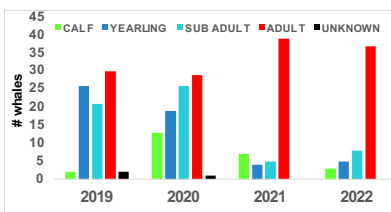


Figure 3. Total number of gray whales stranded in Mexico by age categories during (2019-2022) UME

Conclusions

- The proportion of males and females stranded during the UME 2019-2022 was 1:1, but in 2019 there were almost triple of females stranded than males
- 75% of strandings occurred in Ojo de Liebre Lagoon
- The main age group that stranded were the adults followed by subadults
- 69% of whales stranded were on advanced decomposition, so the body condition could not be determined
- The stranding numbers decreased continually since 2019
- 7.9% of the whales stranded (n=22) were emaciated (poor body condition)

Acknowledgements

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