



MARINE MAMMAL COMMISSION

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Dr. Mridula Srinivasan, Director
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Dear Drs. Schwacke, Srinivasan, and Garrison:

The Marine Mammal Commission would like to thank you for your participation in the “Effects of Low Salinity Exposure on Bottlenose Dolphins” webinar on 23 March 2021, and the presentations made by Drs. Schwacke and Garrison on the status and health of the Barataria Bay (BB) stock of common bottlenose dolphins and the potential effects of the Mid-Barataria Sediment Diversion (MBSD) on that dolphin stock.

The BB stock of bottlenose dolphins experienced significant mortality from the 2010 Deepwater Horizon (DWH) oil spill. There was a 51 percent mean proportional decrease of the BB bottlenose dolphin stock as a result of acute DWH oil spill-related exposure (Schwacke et al. 2017). A large percentage of the pre-spill cohort continues to exhibit poor health, most notably from persistent lung disease, impaired stress response, and other ailments. The refined population model discussed by Dr. Schwacke on the webinar showed that the BB population is currently near its lowest level, ten years after the spill. The population’s recovery is still uncertain, but the projected time to recovery estimated by the refined model is 32 years. The effects of various restoration efforts (whether positive or negative), as well as a changing climate, were not included in the refined model but Dr. Schwacke noted those effects could have a significant impact on population recovery trajectories.

Dr. Garrison presented a model showing the projected impacts of the MBSD on the BB dolphins, as outlined in more detail in Garrison et al. 2020. The model indicated a 36 percent reduction in the mean annual survival rate of dolphins due to projected freshwater inputs. That projection was based in part on dose-response functions generated by an expert elicitation of the effects of low salinity water exposure on bottlenose dolphins (Cormac and Thomas 2021), which were also presented as part of the 23 March 2021 webinar.

Drs. Schwacke, Srinivasan, and Garrison

Date to be added

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Would it be possible to incorporate the modeled mean annual survival rates estimated by Dr. Garrison into the refined population model discussed by Dr. Schwacke to determine the projected effects of the MBSD project on dolphin recovery over time, and how the MBSD project could delay recovery of the BB dolphin population?

The Commission is very interested to know whether you would be able to conduct these additional analyses, particularly before the end of the public comment period on the MBSD draft environmental impact statement (4 May 2021).

Sincerely,



Peter O. Thomas, Ph.D.,
Executive Director

Cc: Drs. Cormac Booth and Len Thomas, SMRU Consulting, Inc.

References

- Booth, C., and L. Thomas. 2021. An expert elicitation of the effects of low salinity water exposure on bottlenose dolphins. *Oceans* 2(1):179-192.
- Garrison, L.P, J. Litz, and C. Sinclair. 2020. Predicting the effects of low salinity associated with the Mid-Barataria Sediment Diversion project on resident common bottlenose dolphins (*Tursiops truncatus*) in Barataria Bay, Louisiana. NOAA Technical Memorandum NOAA NMFS-SEFSC-748. 97 pages.
- Schwacke, L.H., L. Thomas, R.S. Wells, W.E. McFee, A.A. Hohn, K.D. Mullin, E.S. Zolman, B.M. Quigley, T.K. Rowles, and J.H. Schwacke. 2017. Quantifying injury to common bottlenose dolphins from the Deepwater Horizon oil spill using an age-, sex- and class-structured population model. *Endangered Species Research* 33:265–279.