Supplementary Materials

An Expert Elicitation of the Effects of Low Salinity Water Exposure on Bottlenose Dolphins

***Tables***

**Table S1**. Expert elicitation workshop participants, relevant expertise and roles.

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| --- | --- | --- |
| **Name** | **Relevant expertise** | **EE Role** |
| Leslie Hart | Epidemiology and endocrinology | Expert |
| Michael Janech | Disease in marine mammals | Expert |
| Eric Jensen | Husbandry and veterinary medicine of bottlenose dolphins | Expert |
| Keith Mullin | Distribution and ecology of cetaceans | Expert |
| Deborah Fauquier | Veterinary medicine, impacts of disease and environmental change on marine organisms | Expert |
| Lorelei Schwacke | Epidemiology and biostatistics | Expert |
| Padraig Duignan | Veterinary pathology | Expert |
| Cormac Booth | Expert elicitation & facilitation approaches | Facilitator |
| Denise Grieg | Effects of pollutants and environmental factors on marine mammals | Recorder |
| Teri Rowles | Marine Mammal Health and Stranding Program Coordinator – NMFS | Observer |
| Erin Fougères | Stranding Program Administrator – NMFS | Observer |
| Lance Garrison | Marine mammal ecology and conservation | Observer |
| Ryan Takeshita | Bottlenose dolphin telemetry and salinity regime | Observer |
| Abby McClain | Veterinary science and husbandry of bottlenose dolphins | Observer |
| Cynthia Smith | Veterinary science and adverse health effects in wild cetaceans | Observer |
| Jaclyn Daly-Fuchs | Estuarine and marine resource management | Observer |
| Leonard Thomas | Expert elicitation and statistics | Observer |

***Experts’ ‘Expertise and Interests’ Statements***

**Deborah Ann Fauquier**, DVM, MPVM, PhD is a Veterinary Medical Officer in the Office of Protected Resources at the National Marine Fisheries Service in Washington, D.C. She previously worked as an Associate Veterinarian at The Marine Mammal Center in Sausalito, California, and an Adjunct Scientist at Mote Marine Laboratory in Sarasota, Florida. She has over 20 years’ experience working with live and stranded marine animals, she received her Veterinary and Master’s degrees from the University of California-Davis and her PhD degree in Biological Oceanography from the University of California-Santa Cruz. Her research interests include investigating the impacts of disease and environmental changes on marine organisms. Vested interests—Understanding disease, environmental changes, and other health issues that are impacting NMFS Protected Resources, specifically marine mammals within the U.S.

**Eric Jensen**, DVM currently serves as the Managing Veterinarian for the U.S. Navy Marine Mammal Program and Head of the Scientific and Veterinary Support Branch, Naval Information Warfare Center Pacific. San Diego, CA. Eric has more than 30 years working with the care and husbandry of bottlenose dolphins globally. Originally from Iowa, he attended veterinary school at Iowa State University College of Veterinary Medicine. Research interests focus on the advancement of bottlenose dolphin and sea lion medicine.

**Keith D. Mullin**, PhDreceived a Ph.D. in Zoology from Mississippi State University and is a Research Biologist with the Southeast Fisheries Science Center, National Marine Fisheries Service in Pascagoula, Mississippi. He has over 30 years of experience conducting assessment surveys of cetaceans in the U.S. Gulf of Mexico and Atlantic Ocean. He led an effort to monitor common bottlenose dolphins impacted by variable salinity in Lake Pontchartrain, Louisiana from 2007 to 2014. His research interests are the abundance, distribution and habitat of cetaceans in the Gulf of Mexico, western North Atlantic and Caribbean Sea.

**Leslie Hart,** Ph.D., M.S. is an Assistant Professor of Public Health at the College of Charleston, located in Charleston, SC. At the College, Leslie teaches undergraduate courses in Research Design, Biostatistics, and Epidemiology, and her research agenda is primarily focused on human and marine mammal exposure to endocrine-disrupting chemicals added to common consumer products. She previously worked as a Wildlife Epidemiologist for the National Oceanic and Atmostpheric Administration (NOAA) to help investigate bottlenose dolphin health impacts associated with exposure to environmental stressors and contaminants. Her degrees are from the Medical University of South Carolina (Ph.D., Epidemiology), the College of Charleston (M.S., Environmental Studies), and the College of William and Mary (B.S., Biology and Environmental Studies). She has 19 years of experience working with marine mammals, and her dissertation research focused on identifying the distribution and determinants of skin lesions in wild bottlenose dolphins, including linkages with water temperature and salinity.

**Lori Schwacke, PhD** currently serves as Chief Scientist for Conservation Medicine at the National Marine Mammal Foundation (NMMF), supporting NMMF efforts to improve the health and conservation of marine mammal populations worldwide. Dr. Schwacke’s research career has focused on the connections among marine wildlife health, human health, and the marine environment. For the 16 years prior to joining NMMF, she worked for the National Oceanic and Atmospheric Administration (NOAA) where she led an interdisciplinary research team for the NOAA Oceans and Human Health Initiative. She also led efforts to assess and quantify injuries to Gulf of Mexico dolphin populations following the *Deepwater Horizon* oil spill, and has continued that research for the decade since the spill. Dr. Schwacke holds a PhD in Biostatistics, Epidemiology, and Systems Science from the Medical University of South Carolina and a BS in Computer Science from Florida State University.

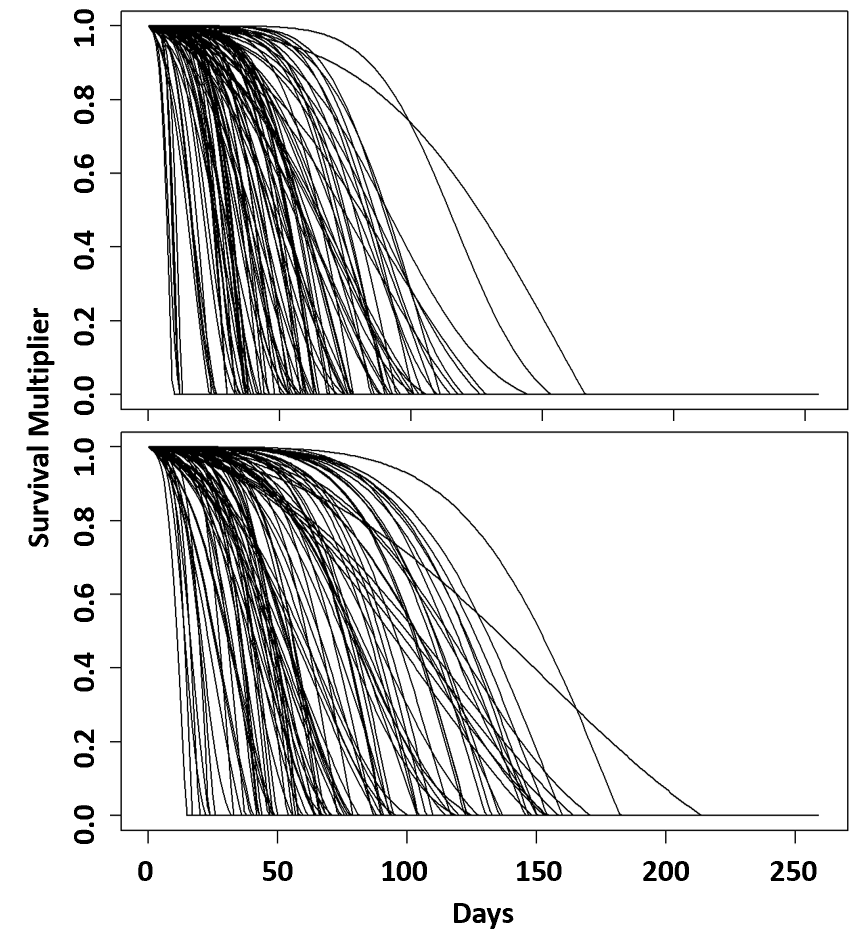
**Michael Janech, PhD** is an Associate Professor at the College of Charleston and the South Carolina Smart State Endowed Chair in Marine Environmental Health. He was previously the Director of the Nephrology Proteomics Laboratory at the Medical University of South Carolina, Charleston, SC. He has 15 years experience conducting protein analysis for marine mammals and has created target protein assays for bottlenose dolphins in collaboration with the National Marine Mammal Foundation and US Navy Marine Mammal Program. He received his Ph.D. in Molecular and Cellular Biology – Marine Biomedicine track from the Medical University of South Carolina. His interests include renal pathophysiology, proteomics, mass spectrometry, and applying these methods to investigate disease in marine mammals.

**Patrick (Pádraig) J. Duignan**, DVM, Ph.D. is the Chief Pathologist at The Marine Mammal Center, Sausalito, CA, and holds adjunct faculty positions in veterinary pathology at the University of Calgary, Canada, and in Wildlife Health at UC Davis, CA. He completed his B.Sc. (Zoology), M.Sc. (Biochemistry) and DVM at University College Dublin, Ireland, Ph.D. at the Ontario Veterinary College, Canada, and anatomic pathology residencies at OVC and UC Davis, California. Previous positions included tenured professorships at the University of Calgary, Canada, University of Melbourne, Australia, and Massey University, New Zealand. He has 30-years experience in wildlife pathology and research with an emphasis on marine mammals. He has 103 peer reviewed publications in scientific journals and ten book chapters and numerous presentations at conferences, symposia and workshops globally. He has conducted field and laboratory research on pinnipeds and cetaceans in Ireland, U.K., Canada, the USA, New Zealand and Australia. He is currently responsible for diagnostic pathology in marine mammals at TMMC and leads research on several relevant diseases including domoic acid poisoning, urogenital carcinoma, leptospirosis and sarcocystosis. General interests include emerging infectious diseases, disease ecology, and the influence of climate change on infectious disease epidemiology. External research projects include identifying markers for chronic stress in narwhals, morbillivirus infection in pinnipeds and cetaceans, and dermatitis bottlenose dolphins in Australia.

**Table S2**. Expert elicitation programme.

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Method** | **Date** | **Purpose** |
| Introductory Webinar | Online meeting | 1 November 2019 | To introduce experts to the expert elicitation process, discuss the objectives of this EE and get initial expert perspectives on what information would be useful to have in the workshop. |
| Elicitation training | Online | 2–18 Nov. 2019 | An online training course to be completed by each expert before the EE workshop. The 2-hour duration course is available at: <http://www.smruconsulting.com/products-tools/pcod/pcod-project-outputs/online-expert-elicitation-course/> |
| Evidence Dossier Presentations & EE scoping | In-person workshop | 19 Nov. 2019 | The first day of the workshop was spent presenting the “Evidence Dossier” (in the form of presentations of published and grey literature by subject specialists). This concluded with a EE scoping exercise, involving experts – to determine appropriate scenarios and questions for the elicitation. |
| Elicitation Workshop (in person) | In-person workshop | 20 & 21 Nov. 2019 | A formal expert elicitation for the three scenarios and dose response function shape. |

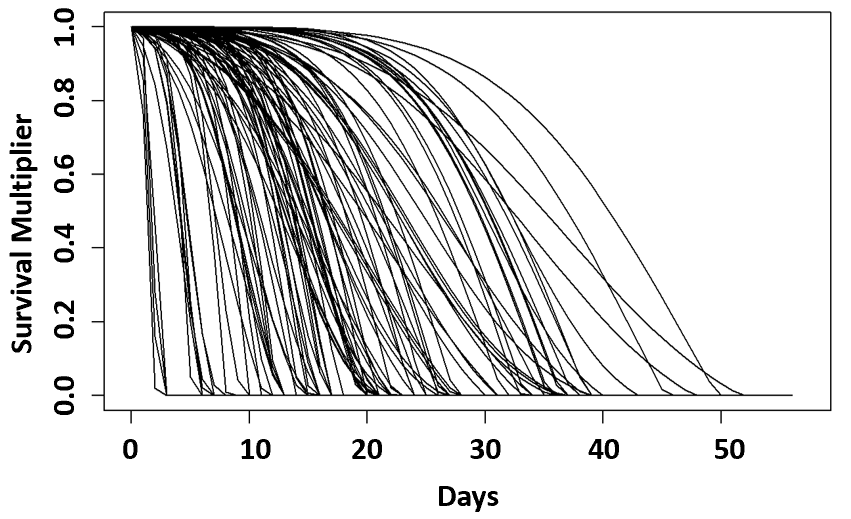
***Supplemental figures***



**1A)**

**1B)**

**Figure S1.** Outputs of the dose response functions for scenarios 1A and 1B. Figure shows the first 100 realizations from dose response in Figure 3, demonstrating the range of shapes produced.



**Figure S2.** Outputs of the dose response functions for scenario 2. Figure shows the first 100 realizations from dose response in Figure 3, demonstrating the range of shapes (note x-axis is different from Figure S1).