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ABUNDANCE AND BEHAVIOURAL ECOLOGY OF BOTTLENOSE DOLPHINS (*Tursiops truncatus*) IN THE MARLBOROUGH SOUNDS, NEW ZEALAND.

A thesis presented in partial fulfilment of the requirements for the degree of

Master of Science

in

Conservation Biology

at Massey University, Albany, New Zealand.

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2007

ABSTRACT

In order to survive, animals require both food and protection from predators. These ecological factors are major determinants in habitat selection and social interactions. Determining the causes of habitat selection and examining the behavioural ecology of marine mammals is often a difficult task. In the ever-changing marine environment, factors such as shifts in prey availability, turbidity, sea surface temperature, and salinity result in a highly dynamic ecosystem that influences distribution. This research's primary focus was to establish baseline information on the behavioural ecology of bottlenose dolphins, *Tursiops truncatus* in and around the Marlborough Sounds, New Zealand. Boat based surveys, photo-identification, and group focal follows were used to assess spatial distribution, abundance, home range, and social interactions. Boat based surveys were conducted from 2003 to 2005. Photo-identification data collected from 1997 to 2005 were used in analysis. Uniquely marked individuals (n = 335) were sighted throughout the Marlborough Sounds and long-term site fidelity was observed among members in this large open population. Aggregations of between 3 to 172 individuals were observed with a median group size of 12. Group size was influenced by the presence of calves, with groups tending to be larger when calves were present. Larger groups were found to rest more than smaller groups and resting occurred less in the spring months. Association patterns revealed long- and short-term preferred associations between individuals throughout the Sounds. Distribution and movement patterns of dolphins showed they used all areas within the Marlborough Sounds. The population of bottlenose dolphins observed in the Marlborough Sounds were found to be semi-resident with 211.5 (C.I. =

195 – 232) individuals utilising the Sounds year round while other individuals were found to migrate in and out of the area on an annual basis. The Marlborough Sounds appear to be only a portion of a much larger home range for this population.

ACKNOWLEDGEMENTS

Firstly, a sincere thank you to Dr. Mark Orams and Professor Brian Springett for giving me the opportunity to start this project, helping with the funding of the research boat and for their generous support and advice.

Thank you to Associate Professor Dianne Brunton and Dr. Tim Markowitz for graciously overseeing the final stages of my thesis write up. Your help and support in my time of need were invaluable.

This research could not have been achieved without the financial support from Rock Steady Incorporated (RSI) and the Department of Conservation during the initial set up and field work, and thank you to the Sir Peter Blake Trust for their support during the analysis and write up stages of my thesis. Also, thank you to Port Marlborough, Marlborough Power Boat Centre, Stabi craft, Safety at Sea, Lowrance electronics and Yamaha for their kind support during the initial purchasing of safety equipment, all things boat related and for their help with the general maintenance and up keep of the boat. A special thanks to Pete and Takutai Beech for their support, knowledge, and loving spirits who welcomed me into the Marlborough Sounds so graciously. Thank you to the Marlborough Sounds Restorative Trust for making my life and project run smoother.

Thank you to my brother Ryan, without the backing of RSI none of this would have been possible. I am so grateful to Dr. Tim Markowitz and Karen Stockin, who kindly offered their direction, editing skills, support and friendship throughout the entire process of this master's.

Thank you both for being such wonderful role models. You are truly an inspiration to everyone around you.

Thank you to Wendy Schrader for all of the help with statistics during the final stages of analysis. You were a wonderful friend and mentor throughout this process. Thank you for always taking time to listen and helping me find my Buddha nature. You have changed my life forever. I am wiser, emotionally stable and overall a better person because of you.

Thank you to Drs. April Harlin, Tim Markowitz, Ingrid Visser and to Gabriela de Tezanos Pinto and Les and Zoey Battersby for use of their photos. The generosity you showed by allowing the use of your data greatly added to the photo-identification catalogue.

Thank you to Danny Bolten, Dan and Amy from Dolphin Watch, all the King Salmon and Mussel Farm workers and general members of the public, whose texts and phone calls were invaluable.

Thank you to all the volunteers who helped out over the three years of field observations and a special thank you to Hannah Russell, Monique Jansen van Rensburg, Gemma Cave and Haley Gullery, who's friendship and help through various aspects of this project were amazing and more than I could have asked for.

I am so grateful to have such a patient and understanding partner whose support has helped me throughout this entire process. Chris, thank you for putting up with me and my dramas. You are

my home away from home. I could not have done this without you. I love you honey bunches and bunches.

Finally, to my loving and supportive family, my parents Earl and Nona Merriman and brother Ryan Merriman. Thank you from the depths of my heart. Without your support the journey would have been far more difficult. Thank you for helping me to accomplish all my goals and dreams. I love you all so much and even though you are far away you are always in my thoughts and heart. Thank you for letting me be such a free spirit

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