JOHN WILLIAM DURBAN, Ph.D.   jdurban@neaq.org

SYNOPSIS
Three decades of research ([118 publications](#)) with federal, academic and non-profit organizations to support marine mammal conservation in the U.S. and overseas. John integrates field and analytical methods to study the health and population responses of endangered whales, the effects of climate change on marine mammals, and the impacts of Navy sonar on at-risk cetaceans. He has pioneered several novel field approaches for data collection, most recently the use of unoccupied aerial systems (drones) for quantitative photogrammetry measurements of health. At the population level, John conducts quantitative analyses of abundance, demographics and life history using photographic mark-recapture, and assessments of movements, habitat use and spatial risk using satellite telemetry, pioneering the application of Bayesian statistical methods. John has extensive experience of leading large collaborative research teams in the field and laboratory. Currently funded research projects include monitoring the health of endangered Southern Resident killer whales in the eastern North Pacific and endangered right whales in the North Atlantic, studying health and population status of killer whales as apex predators in rapidly changing marine systems in Alaska, and quantifying the behavioral responses of social dolphins to Navy sonar exposure. His multi-disciplinary research also has a focus on effective communication of science, specifically the use of powerful drone photographs of whale health in media platforms that can reach the public and increase their understanding and engagement on key conservation issues.

EDUCATION
1995-1998. B.S. First Class Honors Zoology-Animal Ecology, University of Aberdeen (UK)
1999–2002. Ph.D. Zoology, University of Aberdeen (UK)
2020-2024. Associate Professor of Fisheries, Wildlife and Conservation. Oregon State University

CURRENT POSITIONS
Senior Scientist, Anderson Cabot Center for Ocean Life, New England Aquarium; 2025-present
        Chair of the Spatial Ecology, Mapping and Assessment (EcoMap) Program

Associate Senior Scientist; North Gulf Oceanic Society; 2020-present
        Population studies of killer whales as top predators in the Gulf of Alaska, combining
        photogrammetry and photo-identification to study responses to environmental change.

EMPLOYMENT HISTORY
2021-2024. Senior Scientist; Sealife Response, Rehabilitation and Research
Studies of the health of at-risk whale populations including drone photogrammetry to monitor the growth and body condition of endangered Southern Resident killer whales and linking whale health and population status round the Antarctic Peninsula.
2019-2024. Senior Scientist; Southall Environmental Associates, Inc.
Using drone imagery to quantify the behavioral responses of social dolphins to Navy sonar exposure, including field data collection and supervision of a data analysis team. Additional field and data analysis projects using drone photogrammetry to monitor the health of endangered North Atlantic right whales.
2017-2019. Supervisory Marine Biologist, NOAA SW Fisheries Science Center
Lead of the Cetacean Health and Life History Program in the Marine Mammal and Turtle Division. Supervised a team of 16-20 federal scientists, contractors, research associates and students who worked together to integrate photogrammetry, biomarkers, stranding necropsies and population studies to assess the health of whales. John's individual research focus was integrating photogrammetry and population assessment in studies of eastern North Pacific gray whales, North Atlantic Right whales, Southern Resident killer whales and killer whales in Antarctica. Led a pioneering drone program for cetacean photogrammetry.

2016-2017. Research Marine Biologist, NOAA SW Fisheries Science Center.
Led the application of drone technology to photogrammetric studies of whales, notably endangered Southern Resident killer whales, North Atlantic right whales, eastern North Pacific gray whales and killer whales in Antarctica. Additional duties included developing analytical techniques for mark-recapture and telemetry data and producing estimates of abundance of gray whales from shore-based surveys.

2009-2016. Research Biologist, NOAA SW Fisheries Science Center
Under contract to Center for Whale Research, WA, and Ocean Associates, VA. Research on the population assessment of marine mammals; including quantitative assessments of abundance using mark-recapture and Bayesian hierarchical models, with specific application to abundance estimation of eastern North Pacific gray whales. Spatial assessments of movements and habitat use using satellite telemetry in studying the behavioral and population response of cetaceans to sonar exposure at the US Navy's Atlantic Test and Evaluation Center in the Bahamas, and assessing the ecological differences within a diverse killer whale assemblage around in the warming waters around the Antarctic Peninsula. Pioneered research using drone platforms to conduct photogrammetric studies of whales, with the first ever drone application in 2014 to Northern and Southern Resident killer whales, followed by photogrammetry of eastern North Pacific gray whales and blue whales in the Southern Ocean.

2005-2009. Research Biologist, NOAA Alaska Fisheries Science Center
Under contract to the Center for Whale Research, WA. Research on the role of killer whales as apex predators in the Gulf of Alaska, Bering Sea and Aleutian Islands. Led field efforts using photo-identifications, photogrammetry, satellite tagging and biopsy sampling; Developed novel mark-recapture models for assessing the abundance and population dynamics of killer whales.

2003-2005. Post-Doctoral Research Associate, National Research Council.
Hosted by the NOAA Alaska Fisheries Science Center, Seattle, WA. Quantitative population assessment of killer whales round the Aleutian Islands and Gulf of Alaska. This involved leading field teams to collect photo-identification and line-transect survey data and developing novel Bayesian methods for the analysis of photo-identification data to make inference about abundance and population structure.

1993-2002. Research Assistant, Center for Whale Research, Friday Harbor, WA
Population assessment of Southern Resident killer whales as part of the Orca Survey project in Washington State and ecological studies of whales and dolphins in the Bahamas as part of the Bahamas Marine Mammal Survey. Duties included field research using photo-identification and biopsy sampling from small boat platforms and also laboratory analysis of photo-identification images for database entry.

20 SELECTED PAPERS (full list of publications)

4 on Photographic Mark-Recapture
Durban, J.W., Matkin, C.O., Ellifrit, D.K. et al. 2023. Quantifying a stopover of killer whales preying on gray whales rounding the Alaska Peninsula. Marine Ecology Progress Series, 724, pp.1-15.

Durban, J., Ellifrit, D., Dahlheim, M., Waite, J., Matkin, C., Barrett-Lennard, L., Ellis, G., Pitman, R., LeDuc, R. and Wade, P., 2010. Photographic mark-recapture analysis of clustered mammal-eating killer whales around the Aleutian Islands and Gulf of Alaska. Marine Biology, 157(7), pp.1591-1604.

Fearnbach, H., Durban, J.W., Ellifrit, D.K. et al. 2022. A decade of photo-identification reveals contrasting abundance and trends of Type B killer whales in the coastal waters of the Antarctic Peninsula. Marine Mammal Science, 38(1), pp.58-72.

Fearnbach, H., Durban, J., Parsons, K. et al. 2012. Photographic mark–recapture analysis of local dynamics within an open population of dolphins. Ecological Applications, 22, pp.1689-1700.

4 on Drone Photogrammetry

Durban, J.W., Fearnbach, H., Barrett-Lennard, L.G. et al., 2015. Photogrammetry of killer whales using a small hexacopter launched at sea. Journal of Unmanned Vehicle Systems, 3(3), pp.131-135.

Durban, J.W., Moore, M.J., Chiang, G. et al. 2016. Photogrammetry of blue whales with an unmanned hexacopter. Marine Mammal Science, 32(4), pp.1510-1515.

Fearnbach, H., Durban, J.W., Barrett-Lennard, L.G. et al. 2020. Evaluating the power of photogrammetry for monitoring killer whale body condition. Marine Mammal Science, 36(1), pp.359-364.

Stewart, J.D., Durban, J.W., Fearnbach, H. et al. 2021. Survival of the fattest: linking body condition to prey availability and survivorship of killer whales. Ecosphere, 12(8), p.e03660.

4 on North Atlantic Right Whales

Pirotta, E., Tyack, P.L., Durban, J.W. et al. 2024. Decreasing body size is associated with reduced calving probability in critically endangered North Atlantic right whales. Royal Society Open Science, 11(2), p.240050.

Stewart, J.D., Durban, J.W., Knowlton, A.R. et al. 2021. Decreasing body lengths in North Atlantic right whales. Current Biology, 31(14), pp.3174-3179.

Stewart, J.D., Durban, J.W., Fearnbach, H. et al. 2022. Larger females have more calves: influence of maternal body length on fecundity in North Atlantic right whales. Marine Ecology Progress Series, 689, pp.179-189.

Christiansen, F., Dawson, S.M., Durban, J.W. et al. 2020. Population comparison of right whale body condition reveals poor state of the North Atlantic right whale. Marine Ecology Progress Series, 640, pp.1-16.

4 on Spatial Assessments and Risk

Southall, B.L., Durban, J.W., Calambokidis, J. et al. 2024. Behavioural responses of common dolphins to naval sonar. Royal Society Open Science, 11(10), p.240650.

Durban, J.W., Southall, B.L., Calambokidis, J. et al. 2022. Integrating remote sensing methods during controlled exposure experiments to quantify group responses of dolphins to navy sonar. Marine Pollution Bulletin, 174, p.113194.

Reisinger, R.R., Trathan, P.N., Johnson, C.M., Joyce, T.W., Durban, J.W. et al. 2022. Spatiotemporal overlap of baleen whales and krill fisheries in the Western Antarctic peninsula region. Frontiers in Marine Science, 9, p.914726.

Joyce, T.W., Durban, J.W., Claridge, D.E. et al. Behavioral responses of satellite tracked Blainville's beaked whales to mid-frequency active sonar. Marine Mammal Science, 36(1), pp.29-46.

4 on Whales and Climate Change

Durban, J.W., Fearnbach, H., Paredes, A. et al. 2021. Size and body condition of sympatric killer whale ecotypes around the Antarctic Peninsula. Marine Ecology Progress Series, 677, pp.209-217.

Friedlaender, A.S., Joyce, T., Durban, J.W. et al. 2021. Sympatry and resource partitioning between the largest krill consumers around the Antarctic Peninsula. Marine Ecology Progress Series, 669, pp.1-16.

Perryman, W.L., Joyce, T., Weller, D.W. and Durban, J.W. 2021. Environmental factors influencing eastern North Pacific gray whale calf production 1994–2016. Marine Mammal Science, 37(2), pp.448-462.

Stewart, J.D., Joyce, T.W., Durban, J.W. et al. 2023. Boom-bust cycles in gray whales associated with dynamic and changing Arctic conditions. Science, 382(6667), pp.207-211.

A PICTURE IS WORTH A THOUSAND WORDS

John's photogrammetry research provides powerful illustrations of whale health that have featured in many print and online platforms in the U.S. and Internationally.