



D.W. Johnston
Curriculum Vitae

David W. Johnston

Ph.D.

Profile

I am interested in the application of science and scientific techniques to marine conservation issues including: understanding the foraging ecology and habitat needs of marine animals at various spatial and temporal scales; the design and utility of marine protected areas and the concept of marine wilderness; the effects of climate variability and climate change on marine animals; the sustainability of incidental mortality and directed harvests of marine animals; the effects of sound and noise pollution on marine mammals and the suitable application of new technological approaches to marine conservation. I have experience working in a variety of marine ecosystems - from the highly productive and dynamic waters of the California Current and Bay of Fundy, to the oligotrophic waters of the central Pacific.

Employment Experience

Leader, Cetacean Research Unit, PIFSC. August 2007 to Present.

Joint Institute of Marine and Atmosphere Research. University of Hawai'i at Manoa. 1000 Pope Road, Marine Science Building 312 Honolulu, HI 96822. Supervisor: Bud Antonelis. Direct the cetacean research unit within the Protected Species Division of the NMFS Pacific Islands Fisheries Science Center in Honolulu. Initiate, plan, and execute a variety of population assessment, habitat/ecosystem, fishery interaction and passive acoustic studies on cetaceans throughout the Pacific Islands Region (the waters of Hawaii, Palmyra Atoll, Jarvis Island, Johnston Atoll, Howland and Baker Islands, Wake Island, American Samoa, Guam and the Commonwealth of the Northern Mariana Islands). Supervise permanent and temporary staff and raise external funds to support ongoing research projects.

Cetacean Population Biologist. January 2005 to July 2007

Joint Institute of Marine and Atmosphere Research. University of Hawai'i at Manoa. 1000 Pope Road, Marine Science Building 312 Honolulu, HI 96822. Supervisor: Jason Baker. Responsible for initiating the NMFS cetacean research program for the Pacific Islands Region.

Postdoctoral Fellow. April 2004 to December 2004.

Monterey Bay Aquarium Research Institute (MBARI)/Monterey Bay National Marine Sanctuary. 7700 Sandholdt Rd. Moss Landing. CA 95039-9644. Supervisor: Dr. Francisco Chavez. Responsible for examining historic and recent CalCOFI/MBARI hydrographic and biological data in context of monitoring ecological change in the Monterey Bay National Marine Sanctuary.

Marine Ecologist. September 1995 to July 2003.

International Marine Mammal Association (IMMA) Inc. 1474 Gordon St. Guelph, ON Canada N1L 1C8. Supervisor: Dr. D. M. Lavigne. Responsible for identifying marine conservation issues and developing scientific approaches to understanding and mitigating human effects on marine ecosystems, with a focus on marine mammal-fishery interactions and noise pollution. Managed multi-year collaborative projects resulting in publications in the primary scientific literature.

Education

Ph.D. (April 2004)

Thesis Title: Fine scale oceanography and foraging marine predators: The ecology and conservation of an island wake ecosystem in the Bay of Fundy, Canada.

Nicholas School of the Environment and Earth Sciences

Duke University Marine Laboratory, Beaufort, North Carolina USA.

Advisor: Dr. A. J. Read

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M.Sc. (August 1995)

Thesis Title: Spatial and temporal differences in heavy metal concentrations in tissues of harbour porpoises (*Phocoena phocoena* L.) from the Western North Atlantic. Department of Zoology, University of Guelph, Guelph, Ontario, Canada.

Advisor: Dr. D. E. Gaskin (Deceased)

B.Sc. (April 1993)

Department of Zoology, University of Guelph, Guelph, Ontario, Canada.
Specialized Honours Marine Biology.

Academic Appointments

Cetacean Population Biologist

Joint Institute for Marine and Atmospheric Research
School of Ocean and Earth Science and Technology
University of Hawaii at Manoa, 1000 Pope Road,
Marine Science Building 312 Honolulu, HI 96822.

Adjunct Assistant Professor

Duke University Marine Laboratory, Division of Marine Science and Conservation,
Nicholas School of the Environment and Earth Sciences, Duke University.
135 Duke Marine Lab Rd., Beaufort NC 28516

Current Grants and Funding

Pacific Islands Fisheries Science Center (2008) - **\$145,000**. Funds for initiating a cetacean research program at the PIFSC. **Principle Investigator**

Pacific Islands Fisheries Science Center (2007) - **\$145,000**. Funds for initiating a cetacean research program at the PIFSC. **Principle Investigator**

Pacific Islands Fisheries Science Center (2006) - **\$145,000**. Funds for initiating a cetacean research program at the PIFSC. **Principle Investigator**

Marine Mammal Commission (2006-2007) - **\$40,000**. Funds to establish collaborative photo-identification catalog for spinner dolphins in the Pacific Islands Region. See <http://pipin.org>
Principle Investigator

North Pacific Research Board (2006-2007) **\$30,000**. Spatial modeling of potential calving grounds for endangered North Pacific right whales in the Pacific Islands Region. **Principle Investigator**.

Community Service

Member, Society for Marine Mammalogy.

Co-Convener, Ethics in Marine Mammal Science Workshop. Society for Marine Mammalogy's Biennial Conference on the Biology of Marine Mammals.

Member, Ad Hoc Ethics Committee. Society for Marine Mammalogy.

Founding Member, Steering Committee. Pacific Islands Photo-Identification Network (PIPIN)
<http://pipin.org>

Member, Marine Mammal Advisory Council. Western Pacific Fisheries Management Council.

Member, Program Committee. International Conference on Marine Mammal Protected Areas.
<http://icmmpa.org>

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Manuscript Reviewer, Marine Mammal Science, Journal of Applied Ecology, Endangered Species Research, Marine Environmental Research, Marine Ecology Progress Series.

Awards and Honors

Employee of the Year Nomination, Research Corporation of the University of Hawaii. 2006. Recognized for outstanding accomplishments while developing the cetacean research program at the Pacific Islands Fisheries Science Center.

Fred Fairfield Memorial Award for Innovative Marine Mammal Research. 2003.
Island in the stream: Integrating physical oceanography and remote sensing to examine habitat use of marine mammals in an island wake in the Bay of Fundy, Canada. 15th Biennial Conference on the Biology of Marine Mammals, Greensboro NC. December 14-19, 2003.

Rachel Carson Graduate Fellowship. 2003.
Duke University Marine Laboratory.
Fellowship in support of dissertation completion - September 2003 - April 2004.

Best Student Oral Presentation. 2003.
Island in the Stream: Marine Mammals Forage in an Island Wake in the Bay of Fundy, NB Canada. 17th Annual Conference of the European Cetacean Society Las Palmas de Gran Canaria, Spain. March 9-13, 2003.

Best Student Presentation. 1995.
Changes in total mercury in the tissues of harbour porpoises *Phocoena phocoena* (L) from the Bay of Fundy, Canada, during 1970 – 1989. 22nd Annual Aquatic Toxicity Workshop. St. Andrew's NB Canada October 4, 1995.

Teaching Experience

Co-Instructor, Duke University Marine Laboratory.
Marine Mammal Biology - Research Ethics, Ecosystems Observations and Quantitative Survey Techniques. Develop and teach modules on ethics, oceanographic observations and survey techniques for studying marine mammal populations in the wild. Co-instructors: Dr. Damon Gannon and Dr. Layla Sayigh. July-August 2007.

Co-Instructor, Duke University Marine Laboratory.
Marine Conservation Biology - Co-existing with threatened and endangered species in paradise. Co-developed and co-taught an experiential field course focusing on the science and management of negative interactions between species at risk and human activities in Hawaii. Co-Instructors: Dr. Andy Read. March-April, 2006, 2007, 2008.
See student weblog: <http://marineresearch.ca/hawaii/>

Guest Lecturer, University of Hawaii, Manoa.
Marine Mammal Biology. Using line transect surveys, mark/recapture photo-identification studies and passive acoustic monitoring to study cetacean populations in the Pacific. Spring & Fall Semester 2007.

Guest Lecturer, University of North Carolina, Wilmington.
Biological Oceanography. Linking the foraging behavior of marine predators with dynamic oceanographic features. Spring Semester 2003.

Instructor, Duke University Marine Laboratory.
Developed and taught novel graduate/undergraduate course: **The idea of marine wilderness and its application to marine conservation.** This course combined a lecture and seminar slot and reviewed current wilderness concepts (terrestrial and marine) and their applicability to marine protected area design and implementation. Spring Semester 2003.

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Guest Lecturer, Duke University Marine Laboratory.

Conservation of Marine Mammals. Noise pollution and habitat exclusion in marine mammals. Spring semester 2002.

Teaching Assistant, University of Guelph.

Taught lab sections and graded papers and exams for a variety of courses including: **Invertebrate Zoology I&II, Aquatic Biology, Conservation Biology, Wildlife Conservation and Management, Natural Resource Policy.** September 1992 to April 1995.

Management Experience

I have extensive experience in project management, within non-governmental, academic and governmental streams. As a member of the Grand Manan Whale and Seabird Research Station management team, I worked within a consensus-based framework for managing this charitable not-for-profit research and education organization. I have managed several multi-year, collaborative scientific projects, including developing funds to support these programs. Most recently, I have been responsible for initiating and running a cetacean research unit for the National Marine Fisheries Service in the recently formed Pacific Islands Region. This includes developing scientific programs, working with collaborators to identify research needs for emerging problems and building capacity locally and remotely within the region to enhance new and ongoing cetacean research. I have planned and executed several large scale cruises on oceanographic vessels.

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Recent and Upcoming Sea-time

2008

Northwestern Hawaiian Islands Humpback Whale Research Cruise. NOAA Ship R/V Oscar Elton Sette. **Chief Scientist.** February-March.

Hawaii Cetacean Line Transect Cruise. NOAA Ship R/V Oscar Elton Sette. **Chief Scientist.** August.

2007

Northwestern Hawaiian Islands Cetacean Research Cruise. NOAA Ship R/V Oscar Elton Sette. **Chief Scientist.** March 26 - April 12.

Pilot whale - fisheries interactions cruise in the proposed Cape Hatteras Special Research Area (CHSRA). R/V Stellwagon. **Scientist.** May 21-31.

2006

American Samoa / Johnston Atoll Cetacean Survey (AJACS). NOAA Ship R/V Oscar Elton Sette. **Chief Scientist.** February 9 - March 28.

2005

Pacific Islands Ecosystem Assessment Survey. NOAA Ship R/V McArthur II. **Scientist and Cruise Leader.** October 16 - December 1.

Right whale - ship strike mitigation research cruise. R/V Stellwagon. **Scientist.** August 17-26.

Cross Seamount High Frequency Acoustic Recorder (HARP) deployment cruise. NOAA Ship R/V Oscar Elton Sette. **Senior Scientist for Cetacean Research.** April 24 - May 6

2004

Gulf Stream Frontal Eddy Ecosystem Assessment Surveys. NSF Ship R/V Cape Hatteras. **Co-Chief Scientist.** July 12 - 19.



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Publications in Preparation

- Johnston, D. W. and C. L. Littnan. *In Prep.* Integrating the effects of climate variability into conservation strategies for marine mammals. **Endangered Species Research Special Issue: Incorporating Climate Change Into Endangered Species Conservation**
- Johnston, D. W., M. Yuen, M. E. Chapla, A. Van Atta and C. Yates. *In Prep.* Applying the precautionary approach to managing interactions between humans and spinner dolphins (*Stenella longirostris*) in Hawai'i. **Marine Policy**
- Forney, K. A., D. R. Kobayashi, and D. W. Johnston. *In Prep.* Effects of gear and habitat on cetacean depredation and bycatch rates in Hawaii-based longline fisheries. **Endangered Species Research Special Issue. Fisheries Bycatch: Problems and Solutions**
- Johnston, D. W. and A. J. Read. *In Prep.* Applying decision analysis frameworks to conserving marine species at risk. Target Journal: **Biological Conservation**.

Peer-Reviewed Publications

- Johnston, D. W., M. A. McDonald, J. J. Polovina R. Domokos, S. Wiggins and J. A. Hildebrand. *In Review.* Temporal patterns in the acoustic signals of beaked whales at Cross Seamount. **Biology Letters**.
- Johnston, D. W., J. Robbins, M. E. Chapla, D. K. Mattila and K. R. Andrews. *In Press.* Diversity, habitat associations and stock structure of odontocete cetaceans in the waters of American Samoa, 2003-2006. **Journal of Cetacean Research and Management**.
- Johnston, D. W., M. E. Chapla, L. E. Williams and D. K. Mattila. 2007. Identification of humpback whale wintering habitat in the Northwestern Hawaiian Islands using spatial habitat modeling **Endangered Species Research**. 3: 249-257
- Johnston, D. W. and A.J. Read. 2007. Flow-field observations of a tidally driven island wake used by marine mammals in the Bay of Fundy, Canada. **Fisheries Oceanography**. 16:422-435
- Nowacek, D. P., L. H. Thorne, D. W. Johnston and P. L. Tyack 2007. Responses of cetaceans to anthropogenic noise. **Mammal Review**. 37: 81-115
- Ingram, S. N., L. Walsh, D. W. Johnston and E. Rogan. 2007. The influence of benthic topography and oceanography on the distribution of fin and minke whales in the Bay of Fundy, Canada: using a whale-watching tour-boat as a platform of opportunity. **Journal of the Marine Biological Society of the U.K.** 87: 149-156
- Baker, J. B. C. L. Littnan and D. W. Johnston. 2006. Potential effects of sea-level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. **Endangered Species Research**. 2: 21-30
- Johnston, D. W., L.H. Thorne, and A.J. Read. 2005. Fin whales (*Balaenoptera physalus*) and minke whales (*Balaenoptera acutorostrata*) exploit a tidally-driven island wake ecosystem in the Bay of Fundy. **Marine Ecology Progress Series**. 305: 287-295.
- Johnston, D. W., A. S. Friedlaender, L. G. Torres and D. Lavigne. 2005. Variation in sea ice cover on the east coast of Canada, 1969 to 2002: Climate variability and implications for harp and hooded seals. **Climate Research**. 29: 209-222.

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- Johnston, D. W., A.J. Westgate and A.J. Read. 2005. Effects of fine scale oceanographic features on the distribution and movements of harbour porpoises (*Phocoena phocoena*) in the Bay of Fundy. **Marine Ecology Progress Series**. 295: 279-293.
- Gannon, D. P., D. W. Johnston, A.J. Read and D.P. Nowacek. 2004. Resonance and dissonance: Science, ethics and the sonar debate. **Marine Mammal Science**. 20: 213-214.
- Johnston, D. W. 2002. The effect of acoustic harassment devices on harbour porpoises (*Phocoena phocoena*) in the Bay of Fundy, Canada. **Biological Conservation**. 108: 113-118.
- Johnston, D. W., P. Meisenheimer and D. M. Lavigne. 2000. An evaluation of management objectives for Canada's commercial harp seal hunt, 1996-1998. **Conservation Biology**. 14: 729-737.
- Johnston, D. W. and T.H. Woodley. 1998. A survey of acoustic harassment device (AHD) use in the Bay of Fundy, NB, Canada. **Aquatic Mammals**. 24: 51-61.
- Taylor, V.J., D. W. Johnston and W.C. Verboom. 1997. Acoustic harassment device (AHD) use in the aquaculture industry and implications for marine mammals. **Proceedings of the Institute of Acoustics**. 19: 267-276.
- Palka, D. L., A. J. Read, A. J. Westgate and D. W. Johnston. 1996. Summary of the current knowledge of harbour porpoises in US and Canadian waters. **Report of the International Whaling Commission**. 46:559-565.

Reports, Chapters, Popular-press and Books

- Gales, N. N., C. L. Littnan and D. W. Johnston. *In Prep*. Ethics in Marine Mammal Research. pages XX-XX *In* (I. Boyd, D. Bowen and S. Iverson, [eds.]. **Marine Mammal Ecology and Conservation: A Handbook of Techniques** .
- Chapla, M. E., D. W. Johnston and K. Urian. 2007. **Pacific Islands Photo-Identification Network Workshop Report**. Pacific Islands Fisheries Science Center Administrative. Report. H-07-02, 28pp
- Johnston, D. W. 2006. A hard days night: Spinner dolphins need their rest too. **Ka Pili Kai**. 28: 9-11.
- Reeves, R. R., A. J. Read and D. W. Johnston. 2006. **Report: Workshop on Research Needs for the Conservation and Management of Cetaceans in the Pacific Islands Region**. Pacific Islands Fisheries Science Center, PIFSC Special Publication, SP-06-002
- Hannah, J. and D. W. Johnston. 2004. **Whales of Atlantic Canada and the Northeastern United States. A Field Guide**. International Marine Mammal Association Inc. Guelph, ON. 72pp.
- Wells, P.G., P.D. Keizer, J. L. Martin, P. A. Yeats, K. M. Ellis and D. W. Johnston. 1996. The chemical environment in the Bay of Fundy. Pages 37-56 *In* J.A. Percy, P.G. Wells and A.J. Evans [eds.]. **Bay of Fundy Issues: A scientific overview**. Environment Canada – Atlantic Region Occasional Report No. 8.

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Invited Seminars

Johnston, D. W., J. D. Baker, C. L. Littnan, A.S. Friedlaender and L.G. Torres. 2005. Conservation challenges for pinniped populations in tropical and temperate marine systems: Climate variability, habitat loss and anthropogenic effects. Invited paper: Duke University Marine Laboratory Fall Seminar Series. August.

Johnston, D. W. 2003. Wilderness Concepts and Marine Conservation. Invited paper: Conservation Seminar Series. University of British Columbia. November.

Johnston, D. W. 2001. A brief summary of the effects of acoustic harassment devices (AHDs) on harbour porpoises (*Phocoena phocoena*) in Canada. Exclusion distances and theoretical zones of influence. Invited paper: Workshop on Interactions between Dolphins and Fisheries in the Mediterranean: Evaluation of Mitigation Alternatives. Istituto Centrale per la Ricerca Applicata al Mare (ICRAM). Roma, 4-5 May 2001. ICRAM/AHD/INFO 9.

Johnston, D. W. and A. J. Read 2000. Ethics and Field Experimentation: Tagging Marine Mammals. Invited paper: Tagging Workshop European Cetacean Society. Cork, Ireland April.

Johnston, D. W. 1998. From Sea to Pinging Sea: The potential harmful effects of the use of acoustic deterrent devices (ADDs). Invited paper: Workshop on reducing cetacean by-catches: progress with acoustic deterrents. World Marine Mammal Science Conference. Monaco. January.

Selected Conference Presentations

Johnston, D. W., C. L. Littnan and J. D. Baker. 2006. Integrating the effects of climate variability into conservation strategies for marine mammals. 2006 Ecological Society of America 91st Annual Meeting. Memphis, TN. 6-11 August.

Johnston, D. W., J. D. Baker and C. L. Littnan, 2005. Modeling the effects of predicted sea level rise on the terrestrial habitat of Hawaiian monk seals (*Monachus schauinslandi*) and other wildlife in the Northwestern Hawaiian Islands. 16th SMM Biennial Conference on the Biology of Marine Mammals San Diego, CA, 12-16 December.

Johnston, D. W. 2005. Ethics in Academic Societies: Developing professional guidelines for the Society for Marine Mammalogy and other academic groups. 2nd Biennial Workshop on Ethics in Marine Mammal Science. 16th SMM Biennial Conference on the Biology of Marine Mammals San Diego, CA, 12-16 December.

Ingram, S. N., L. Walsh, D. W. Johnston and E. Rogan 2005. Using data collected from a whale watching tour-boat to examine the effects of benthic topography on the distribution of fin whales (*Balaenoptera physalus*) and minke whales (*Balaenoptera acutorostrata*) in the lower Bay of Fundy, Canada. 16th SMM Biennial Conference on the Biology of Marine Mammals San Diego, CA, 12-16 December.

Johnston, D. W. and A.J. Read 2003. Island in the Stream: Integrating physical oceanography and remote sensing to examine habitat use of marine mammals in an island wake in the Bay of Fundy, Canada. 15th Biennial Conference on the Biology of Marine Mammals, Greensboro NC. December 14-19.

Johnston, D. W. and A. J. Read. 2003. Ethics and ecological research: Tagging marine mammals. 1st Biennial Workshop on Ethics in Marine Mammal Science. 15th Biennial Conference on the Biology of Marine Mammals, Greensboro NC. December 13.

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Friedlaender, A. S., **D. W. Johnston**, L. Torres and D. Lavigne. 2003. Variation in sea ice cover on the east coast of Canada, 1969 to 2002: Implications for pagophilic seals. 15th Biennial Conference on the Biology of Marine Mammals, Greensboro NC. December 14-19.

Johnston, D. W. and A. J. Read. 2003. Marine mammal foraging in an island wake in the Bay of Fundy, NB Canada. Society for Conservation Biology Duluth, MN June 28 – July 2.

Friedlaender, A. S., **D. W. Johnston**, L. Torres and D. Lavigne. 2003. Variation in sea ice cover on the east coast of Canada, 1969 to 2002: Implications for pagophilic seals. Society for Conservation Biology. Duluth, MN June 28 – July 2.

Johnston, D. W. and A. J. Read. 2003. Island in the Stream: Marine Mammals Forage in an Island Wake in the Bay of Fundy, NB Canada. European Cetacean Society. Las Palmas, Spain March 9-13.

Johnston, D. W., G. Melvin, A. Dayer, and A. Read. 2001 Foraging behaviour of harbour porpoises in tidal convergences in the Bay of Fundy, Canada. 14th Biennial Conference on the Biology of Marine Mammals. Vancouver, B.C. Nov 28 – Dec 3.

Johnston, D. W. (1999). Effects of acoustic harassment devices on harbour porpoises (*Phocoena phocoena*) in the Bay of Fundy, Canada. 13th Biennial Conference on the Biology of Marine Mammals. Wailea, Maui, HI. November 28 - December 3.

Johnston, D. W. and A. J. Westgate. 1995. Regional differences in organochlorine and heavy metal contaminants in Western North Atlantic harbour porpoises. 11th Biennial Conference on the Biology of Marine Mammals. Orlando, FL. December.

Johnston, D. W., Gaskin, D. E. and R. Wagemann. 1995. Changes in total mercury in the tissues of harbour porpoises, *Phocoena phocoena* (L.) From the Bay of Fundy, Canada, during 1970-1989. 22nd Annual Aquatic Toxicity Workshop. St. Andrews By-The-Sea, NB. October.

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