

# Curriculum Vitae Alexandra B. Morton



## Education

Degree	Year	University
B.Sc	1977	American University
Honourary Doctorate of Science	2010	Simon Fraser University

## 1988 Registered Professional Biologist

## Experience and Expertise

Abundance and impact of sea lice *Lepeophtheirus salmonis* on wild juvenile salmonids. Fate and occurrence of escaped Atlantic salmon in gillnet fishery. Migratory routes and habitat utilization of juvenile pink and chum salmon, Broughton Archipelago. Biological, environmental and economic impact of industrial salmon farming. Social structure, behaviour, ecology, social structure and acoustics of killer whales and Pacific white-sided dolphins.

## Experience specific to testimony on impact of aquaculture on wild salmon

- Ten years field work on migration and impact of salmon farms on juvenile salmon.
- Presented on disease impact of salmon farms on Fraser sockeye 2009 Simon Fraser University invitational think tank on collapse of Fraser sockeye.
- Presented hypothesis on salmon farm disease impact on Fraser sockeye at Pacific Salmon Commission June 2010 workshop.
- 2009 Traveled to Norway presented at U. Bergen on salmon farm impact on wild salmon in British Columbia
- 2003 Sea Lice Action Plan Meeting of Scientists Simon Fraser University
- Sea lice collaborative research with Dr. Brent Hargreaves under Pacific Salmon Forum
- Presented research on sea lice UBC, *Sea lice Review and Summary of Research Priorities*
- Invited to debate Dick Beamish, Simon Jones, Brent Hargreaves on farm-origin sea lice Impact on wild salmon before the Special Legislative Committee on Sustainable Aquaculture
- Testified before the Standing Committee on Fisheries and Oceans April 12, 2010

## Positions/Research

1978-1979 Navel Oceans Systems Center sound production of dolphins

1981 - present Director Raincoast Research Society

1984 Initiate long-term field study killer whale ecology in the Broughton Archipelago.

1987 Research Social structure, ecology and acoustics Pacific white-sided dolphins

1996 - 1999 Representative and alternative representative for Area A Mount Waddington Community Resource Board.

1999 Co-found Broughton Archipelago Stewardship Alliance.

2001-2008 Co-founder/member Coastal Alliance Aquaculture Reform

2002 - Certified as a Registered Professional Biologist #1414

2007-present Director Salmon Coast Field Station

### Refereed Publications

Krkosek, M, Connors, B., Morton, A., Lewis, M. A., Dill, L. M., and R. Hilborn (in press) Effects of parasites from salmon farms on productivity of wild salmon. PNAS

Morton, A. B., 1986. Sound and behavioral correlation in captive *Orcinus orca*. In: Kirkeveld, B.C. and Lockhard, J.S. (eds.) Behavioral biology of killer whales. Alan R. Liss, Inc. New York. Pp. 303-333.

Morton, A.B. 1990. A quantitative comparison of the behaviour of resident and transient forms of the killer whale off the central British Columbia coast. Report of the International Whaling Commission. (special issue 12): 245-248.

Morton, A.B. 2000. Occurrence, photo-identification and prey of Pacific white-sided dolphins (*Lagenorhynchus obliquidens*) in the Broughton Archipelago, Canada 1985-1997. Marine Mammal Science. 16(1):80-93.

Morton, A.B. and Symonds, H.K. 2002. Displacement of *Orcinus orca* by high amplitude sound in British Columbia, Canada. ICES Journal of Marine Science. 59: 71-80

Morton, A.B. and Volpe J. 2002 A description of escaped farmed Atlantic salmon *Salmo salar* captures and their characteristics in one Pacific salmon fishery area in British Columbia Canada, in 2000. Alaska Fishery Research Bulletin, 9: 102-109.

Ford, J.K.B., G. Ellis, L. Barret-Lennard, A.B. Morton, R. Palm and K.C. Balcomb. Diet Specialization in two sympatric populations of killer whales (*Orcinus orca*) in coastal British Columbia and adjacent waters. Canadian Journal of Zoology. 21: 603-618

Morton, A.B., and Williams R . 2003 Infestation of the sea louse *Lepeophtheirus salmonis* (Krøyer) on juvenile pink salmon *Oncorhynchus gorbuscha* (Walbaum) in British Columbia, Canadian Field Naturalist, 117: 634-641

Morton, A.B., Routledge, R., Peet, C. and Ladwig, A 2004 Sea lice, *Lepeophtheirus salmonis*, infection rates on juvenile chum and pink salmon in the nearshore marine environment in British Columbia. Canadian Journal of Fisheries and Aquatic Science, 61: 147-157.

Blaylock, R. B. Overstreet, R.M. and Morton, A.B. 2005 The pathogenic copepod *Phrixocephalus cincinnatus* (Copepoda: Pennellidae) in the eye of arrowtooth flounder, *Atherestes stomias*, and rex sole, *Glyptocephalus zachirus*, from British Columbia. The European Association of Fish Pathologists, 25: 116-123.

Ford, J.K.B., Matkin, D.R., Balcomb, K.C., Briggs, D. Morton, A.B., Killer whale attacks on Minke Whales: prey capture and antipredator tactics In Press, Marine Mammal Science 21: 603-618.

- Morton, A.B., Routledge, R. and Williams R. 2005 Temporal patterns of sea lice infestation on wild Pacific salmon in relation to the fallowing of Atlantic salmon farms. *American Journal of Fisheries Management*. 25: 811-821
- Krkosek, M., A. Morton, and J.P. Volpe. 2005. Nonlethal Assessment of Juvenile Pink and Chum Salmon for Parasitic Sea Lice Infections and Fish Health. *Transactions of the American Fisheries Society*. 134: 711-716
- Morton, A. B. and Routledge (2006) Mortality rates for juvenile pink and chum salmon (*Oncorhynchus gorbuscha* and *keta*) infested with sea lice (*Lepeophtheirus salmonis*) in the Broughton Archipelago. *Alaska Fisheries Research Bulletin*. 11:2, 146-152.
- Morton, A.B. and Richard Routledge (2006) Fulton's Condition Factor: Is it a valid measure of sea lice impact on juvenile salmon? *North American Journal of Fisheries Management*. 26,56-62.
- Krkosek, M., Lewis, M.A., Volpe, J.P., & Morton, A.B.. 2006. Fish Farms and sea lice infestations of wild juvenile salmon in the Broughton Archipelago - A rebuttal to Brooks (2006). *Reviews in Fisheries Science*. 14: 1-11.
- Morton, A.B. and Williams, R. 2006. Response of the Sea Louse *Lepeophtheirus salmonis* infestation levels on juvenile wild Pink, *Oncorhynchus gorbuscha*, and Chum, *O. keta*, salmon, to arrival of parasitized wild adult salmon. *Canadian Field Naturalist*. 120:2
- Krkosek, M., Lewis, M. A., Volpe, J.P. and Morton, A.B.. 2006. Fish Farms and Sea Lice Infestations of Wild Juvenile Salmon in the Broughton Archipelago—A Rebuttal to Brooks (2005). *Reviews in Fisheries Science*, 14: 1-11
- Krkosek, M., Lewis, M., Morton, A. Frazer, N., and Volpe, J. 2006. Epizootics of wild fish induced by farm fish *Proceedings of the National Academy of Sciences of the USA*, 103: 15506-15510.
- Krkosek, M., Ford, J. S., Morton, A.B., Lele, S., Myers, R.A., & Lewis, M.A., 2007. Declining wild salmon populations in relation to parasites from farm salmon. *Science*. 318, 1772-1775.
- Krkosek, M., Ford, J. S., Morton, A.B., Lele, S., & Lewis, M.A., 2008. Response to comment on 'Declining wild salmon populations in relation to parasites from farm salmon'. *Science*. 322, 1790-1791.
- Krkosek, M., Ford, J. S., Morton, A.B., Lele, S., & Lewis, M.A., 2008. Sea lice and pink salmon declines: A response to Brooks and Jones. *Reviews in Fisheries Science*. 16, 413-420.
- Morton, A.B., Routledge, R. and Krokosek, M. 2008. Sea lice infestation of wild juvenile salmon and herring associated with fish farms off the east central coast of Vancouver Island, BC. *North American Journal of Fisheries Management* 28, 523-532.
- Krkosek, M., A. Morton, J. Volpe, & M.A. Lewis, 2009. Sea lice and salmon population dynamics: Effects of exposure time for migratory fish. *Proceedings of the Royal Society of London Series B* 272:689-696
- Krkosek, M, Connors, B. M., Ford, H. Peacock, S., Mages, P., Ford, J. S., Morton, A., Volpe, J. P. Hilborn, R. Dill, L. M. Lewis, M. A. in press. Fish farms, parasites, and predators: Implications for salmon population dynamics. *Ecological Applications*
- Morton, A., Routledge, R., McConnell, A., Krkosek, M. 2011. Sea lice dispersion and salmon survival in relation to salmon farm activity in the Broughton Archipelago. *ICES Journal of Marine Science*. 68 pp 144-156

## **Conferences**

2006 - Speaker Salmon Aquaculture Dialogue, Vancouver BC

2007 - Organizer Think Tank on local management of fishery resources in Broughton Archipelago

2009 - Speaker - Speaking for the Salmon Think Tank 2009

2010 - Presenter on disease and salmon farms Pacific Salmon Commission June

2011 - Second Ransom Myers lecturer, International Marine Conservation Congress

2011- Speaker on impact of salmon farms APBBC Conference

2011 - Presenter on impact of salmon farms American Fisheries Society *had to cancel to be a witness at Cohen Inquiry*

## **Radio**

Saving Salmon Paul Kennedy Ideas one hour 2010/2011

## **Awards**

1991 Sheila A. Egoff Children's Prize BC Book Prizes

2002 Honourable Mention Nature and the Environment Category - National Outdoor Book Award (Listening to Whales)

2003 Environmental Contribution Award - Service on the Sea

2004 Animal Action Award - International Fund for Animal Welfare

2005 Winner BC Book Prize (Stain Upon the Sea)

2005 Roderick Haig-Brown Conservation Award - Totem Flyfishers

2006 Murray Newman Award - Vancouver Aquarium

2007 Conservationist of the Year by BC Wildlife Federation

2008 Roland Michener Conservation Award Canadian Wildlife Federation

2008 Eugene Rogers environmental Award

2010 Honouary Doctorate of Science Simon Fraser University

2010 Wings WorldQuest