

## **DR. LAWRENCE M. DILL, FRSC**

### **Professor Emeritus, Simon Fraser University**

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#### **Educational Background**

1972 Ph.D. Ecology, University of British Columbia, Canada  
1967 M.Sc. Fisheries, University of British Columbia, Canada  
1966 B.Sc. Zoology, University of British Columbia, Canada

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#### **Employment History at Academic Institutions**

2000 - Current Adjunct Professor, University of Western Australia, Perth  
1999 - 2007 Endowed "Burnaby Mountain" Professor  
1989 - 2009 Director, Behavioural Ecology Research Group, Simon Fraser University  
1985 - Current Professor (Emeritus since 2007), Biological Sciences, Simon Fraser University  
1978 - 1985 Associate Professor, Biological Sciences, Simon Fraser University  
1979 - 1980 Visiting Associate Professor, Animal Resource Ecology, UBC  
1974 - 1978 Assistant Professor, Biological Sciences, Simon Fraser University  
1972 - 1974 Assistant Professor, Biology, York University, Downsview, Ontario

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#### **Other Employment History**

1967 - 1969 Research Biologist, Canada Department of Fisheries, Vancouver, B.C.

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## Senior Supervisory Duties of a Thesis/Dissertation/or Major Project

Name	Degree	Project/Thesis Title	Status	Began	Completed
White, Don	MA (SAR)		Active	2009-1	
Suraci, Justin	M.Sc.		Completed	2008-3	2011-2
Davis, Bradley	M.Sc.		Completed	2006-3	2009-2
Losos, Craig	MSc		Completed	2006-3	2008-2
Connors, Brendan,	PhD		Completed	2005-3	2011-1
Mages, Paul,	M.Sc.		Completed	2005-1	2008-3
Thomson, Jordy,	Ph.D.		Completed	2005-1	2011-1
Chuchman, Brandi	M.Sc.		Completed	2003-2	2006-2
Gray, Suzanne	Ph.D.		Completed	2002-3	2006-3
Laroche, Karl	M.Sc.		Completed	2002-3	2006-2
Webster, Sandra	Ph.D.		Completed	2001-3	2006-1
Frid, Alejandro	Ph.D.		Completed	1999-3	2006-2
Wirsing, Aaron	Ph.D.		Completed	2001-3	2005-3
Kerford, Meg	M.Sc.		Completed	2002-3	2005-2
Semeniuk, Christina	M.Sc.		Completed	1999-3	2003-2
Mitchell, Jeremy	Ph.D.		Completed	1995-3	2003-2
Hamilton, Ian	Ph.D.		Completed	1997-1	2001-3
Willis, Pamela	M.Sc.		Completed	1997-3	2001-2
Heithaus, Michael	Ph.D.		Completed	1997-1	2001-1
Sharpe, Fred	Ph.D.		Completed	1992-3	2000-3
Hugie, Don	Ph.D.		Completed	1991-1	1999-1
Grand, Tamara	Ph.D.		Completed	1993-1	1997-3
Houtman, Robert	Ph.D.		Completed	1988-1	1995-1

Name	Degree	Project/Thesis Title	Status	Began	Completed
Abbot, Douglas	M.Sc.		Completed	1991-1	1994-2
Baird, Robin	Ph.D.		Completed	1988-3	1994-2
Dehn, Michael	Ph.D.		Completed	1986-3	1994-2
Harvey, H	M.Sc.		Completed	1990-1	1993-3
Martel, Guy	Ph.D.		Completed	1984-3	1992-2
Cartar, Ralph,	Ph.D.		Completed	1984-3	1989-3
Nonacs, Peter	Ph.D.		Completed	1982-3	1988-2
Abrahams, Mark,	Ph.D.		Completed	1982-3	1987-3
Abbott, Jeremy,	M.Sc.		Completed	1980-3	1985-3
Donnelly, Wayne	M.Sc.		Completed		1985-2
Dunbrack, Robert,	Ph.D.		Completed		1984-3
Puckett, Kate,	M.Sc.		Completed		1983-3
Giguère, Louis,	Ph.D.		Completed		1981-2

### Serving on a Committee of a Thesis/Dissertation/or Major Project

Name	Degree	Project/Thesis Title	Status	Began	Completed
Chubaty, Alex	MSc		Active		
Ma, Brian	PhD		Completed		
Dutton, Greg	MRM		Completed		2007-3
Hamilton, Nell	MSc		Completed		
Lebourdais, Sunny	M.Sc.		Completed	2003-3	
Hooper, David	M.Sc.	Computing Science	Withdrawn	1995-3	
Hoover, Shelley	Ph.D.		Completed	2000-3	2005-3
Peterson, Jason	M.Sc.		Completed	2001-3	2004-3
Ball, Jeff	M.Sc.		Completed	2000-3	2004-3
Rodway, Michael	Ph.D.		Completed	1998-1	2003-3

Name	Degree	Project/Thesis Title	Status	Began	Completed
Rotaru, Adam	M.Sc.	Computing Science	Completed	1998-3	2002-2
McCutchen, Nicole	M.Sc.		Completed	1998-3	2001-2
Burns, James	M.Sc.		Completed	1998-3	2001-1
Morbey, Yolanda	Ph.D.		Completed	1996-1	2001-1
Schamel, Douglas	Ph.D.		Completed	1995-3	2000-3
Arifin, Zainal	Ph.D.		Completed	1994-1	2000-1
Lougheed, Cecilia	M.Sc.		Completed	1996-2	1999-3
Vanderkist, Brett	M.Sc.	Examining Committee	Completed		1999-1
Robinson, M,	M.Sc.	Examining Committee	Completed		1998-1
Cotter, J.E,	M.Sc.		Completed		1996-3
Price, Karen	Ph.D.		Completed	1990-1	1994-2
Zaklan, S	M.Sc.	Examining Committee	Completed		1994-1
Tyre, Richard	M.Sc.		Completed	1991-3	1993-3
Green, D	M.Sc.		Completed	1990-2	1993-1
Gillis, David	Ph.D.		Completed	1986-3	1992-3
Carriere, Yves	Ph.D.		Completed	1987-1	1991-3
Bai, B	Ph.D.		Completed	1986-3	1991-3
Wilson, S	M.Sc.		Completed	1987-3	1990-3
Lalonde, Robert	Ph.D.		Completed	1983-3	1990-3
Price, Karen	M.Sc.		Completed	1987-3	1989-3
Steeger, C	M.Sc.		Completed	1987-1	1989-3
Forbes, L	Ph.D.	Examining Committee	Completed	1985-3	1989-2
Machutchon, A	M.Sc.		Completed	1984-3	1988-3
Juanes, F,	M.Sc.		Completed		1987-2
Reynolds, John	Ph.D.		Withdrawn	1985-3	1987-2
Emms, S.K,	M.Sc.		Completed		1987-1
Fleming, I.A,	M.Sc.		Completed		1986-2
Coleman, R	M.Sc.		Completed	1983-3	1986-1
Orr, Christopher	Ph.D.		Completed	1980-3	1985-3
Lee, P	M.Sc.		Completed		1985-2
Fretwell, M	M.Sc.		Completed		1984-3
Vanden Berghe, E,	M.Sc.		Completed		1984-3
Wardle, A.R,	M.P.M.	Examining Committee	Completed		1984-1
Richardson, H,	Ph.D.		Completed		1983-1
Robinson, S.M,	M.Sc.		Completed		1983-1

Name	Degree	Project/Thesis Title	Status	Began	Completed
Alfaro, R.J,	Ph.D.		Completed		1980-1
Butler, R.N,	M.Sc.		Completed		1980-1
Goulet, L.A,	Ph.D.		Completed		1979-3
Henkelman, D.H,	M.Sc.		Completed		1979-2
Schaefer, V.H,	Ph.D.		Completed		1978-3
Mumby, P,	M.P.M.	Examining Committee	Completed		1978-2
Mueller, C,	Ph.D.		Completed		1977-2
Vandersar, T,	Ph.D.		Completed		1977-1
McLean, J,	Ph.D.	Examining Committee	Completed		1976-1
Pace, D.R,	Ph.D.		Completed		1975-3
Peterson, Jason	M.Sc.		Active	2002-1	
Ball, Jeff	M.Sc.		Active	2001-3	

## Graduate Supervision Outside SFU (incl. External Examinations)

Name	Degree	Status	Dates	Role
			-	External Examiner
<b>Area:</b>	Psychology			
<b>Institution:</b>	Carleton Univ.			
			-	External Examiner
<b>Institution:</b>	McGill University			
			-	External Examiner
<b>Institution:</b>	Sir George Williams Univ.			
Sallabanks, R	Ph.D.		-	Committee Member
<b>Institution:</b>	U. of Oregon			
Reinhardt, U	Ph.D.		-	Committee Member
<b>Institution:</b>	University of British Columbia			
Brown, Gayle	Ph.D.		-	Committee Member
<b>Institution:</b>	University of British Columbia			
Groves, Sarah	Ph.D.		-	Committee Member
<b>Institution:</b>	University of British Columbia			
Webb, Tim	Ph.D.		-	Committee Member
<b>Institution:</b>	University of British Columbia			
Cheneval, Olivier	Ph.D.		-	Committee Member
<b>Institution:</b>	University of British Columbia			
Hoover, Trent	Ph.D.		-	Committee Member
<b>Area:</b>	Engineering			

Name	Degree	Status	Dates	Role
<b>Institution:</b>	University of British Columbia			
Dupuch, A.	Ph.D.		2002 -	Committee Member
<b>Institution:</b>	University Quebec, Trois Rivieres			
Szabo, Andy	M.Sc.		2001 - 2004	Committee Member
<b>Area:</b>	Geography			
<b>Institution:</b>	University of Victoria			

## Supervision of Research Personnel

August 2002 -	Part Time, Gordon, Ian, M.Sc, Tech <b>Funded by:</b> NSERC Operating Grant
December 1999 - August 2002	Part Time, Witt, D, B.Sc., Tech <b>Funded by:</b> NSERC Operating Grant
May 1997 - March 2001	Full Time, Rochette, R., Dr. (Laval.U), Ph.D, Post-doctoral Fellowship <b>Funded by:</b> FCAR (Quebec) and NSERC
February 1999 - September 2000	Full Time, Wilson, B., Dr. (U. Aberdeen), Ph.D, Post-doctoral Fellowship <b>Funded by:</b> Leverhulme Trust
April 1981 - December 1999	Full Time, Fraser, A, Tech, B.Sc. (SFU) <b>Funded by:</b> NSERC Operating Grant
January 1993 - December 1994	Full Time, Hughes, N., Dr. (U. Alaska), Ph.D. <b>Funded by:</b> NSERC International Post-doctoral Fellowship
November 1993 - May 1994	Full Time, Damsgard, B., Dr. (Tromso, Norway) <b>Funded by:</b> Norwegian Research Council
September 1989 - January 1991	Full Time, Hedrick, A., Dr. (U. of Cal.Davis), Ph.D. <b>Funded by:</b> NATO Postdoctoral Fellowship, NSERC International Post-doctoral Fellowship, President's Research Grant (Operating)
December 1988 - November 1990	Full Time, Soluk, D., Dr. (Toronto), Ph.D. <b>Funded by:</b> Salary - NSERC PDF, Research - NSERC Operating Grant
September 1985 - September 1987	Full Time, Lima, S.L., Dr. (SUNY), Rochester), Ph.D. <b>Funded by:</b> NSERC Operating Grant, President's Research Grant, Faculty of Science, Department of Biological Sciences, NATO Post-doctoral Fellowship
January 1983 - April 1985	Full Time, Ydenberg, R.C., Dr. (Oxford), Ph.D. <b>Funded by:</b> Salary of N.S.E.R.C. PDF, Research - Dept. of Fisheries and Oceans Subvention.
January 1976 - December 1976	Full Time, Major, P.F., Dr.(Santa Cruz), Ph.D. <b>Funded by:</b> N.R.C. Assoc. Committee on Bird Hazards to Aircraft

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## Current Research Interests

Behavioural Ecology. My major research interests are in the development and testing of optimality models of foraging, predator avoidance and habitat selection behaviours, and laboratory and field study of the decision rules used by animals to ensure adaptive behavioural responses in these contexts. Of particular interest at the present time are situations in which animals must trade off foraging opportunity and predation risk. I am also interested in the influence of predation risk on reproductive behaviours and life history decisions, and the influence of adaptive decision making on population and community characteristics.

[Animal Decision Making/Foraging/Predation]

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## Completed Works

### Refereed Journals or Refereed Conference Proceedings

Wirsing, A., Heithaus, M. and Dill, LM. 2011. Predator-induced modifications to diving behavior vary with foraging mode. *Oikos* 120: 1005-1012.

Jensen, E.L., Dill, L.M. and Cahill, JF, Jr. 2011. Applying behavioral-ecological theory to plant defense: Light-dependent movement in *Mimosa pudica* suggest a trade-off between predation risk and energetic reward. *Am Nat* 177: 777-381.

Krkošek, M., Connors, B.M., Ford, H., Peacock, S., Mages, P., Ford, J.S., Morton, A., Volpe, J.P., Hilborn, R., Dill, L.M., and Lewis, M.A. 2011. Fish farms, parasites and predators: implications for salmon population dynamics. *Ecological Applications* 21: 897-914.

Orrock, J.L., Dill, L.M., Sih, A., Grabowski, J.H., Peacor, S.D., Peckarsky, B.L., Preisser, E.L., Vonesh, J.R. and Werner, E.E.. 2010. Predator effects in predator-free space: the remote effects of predators on prey. *The Open Ecology Journal* 3: 22-30.

Connors, BM, Hargreaves, NB, Jones, SRM and Dill LM. 2010. Predation intensifies parasite exposure in a salmonid food chain. *J. Appl. Ecol.* 47: 1365-1371.

Connors, BM, Krkosek, M, Ford, J and Dill, LM. 2010. Coho salmon productivity in relation to salmon lice from infected prey and salmon farms. *J. Appl. Ecol.* 47: 1372-1377.

Mages P and Dill LM. 2010. The effect of sea lice (*Lepeoptheirus salmonis*) on juvenile pink salmon (*Oncorhynchus gorbuscha*) swimming endurance. *Can J Fish Aquat Sci* 67: 2045-2051.

Losos CJC, Reynolds JD and Dill LM. 2010. Size-selective predation by threespine sticklebacks on sea lice: a novel cleaning behaviour. *Ethology* 116: 981-989.

Dupuch A, Dill LM and Magnan P. 2009. Testing the effects of resource distribution and inherent habitat riskiness on simultaneous habitat selection by predators and prey. *Anim Behav* 78: 705-713.

Heithaus MR, Wirsing AJ Burkholder D, Thomson J and LM Dill. 2009. Towards a predictive framework for predator risk effects: the interaction of landscape features and prey escape tactics. *J Anim Ecol* 78: 556-562.

- Thomson JA, Burkholder D, Heithaus MR and LM Dill. 2009. Validation of a rapid visual-assessment technique for categorizing the body condition of Green Turtles (*Chelonia mydas*) in the field. *Copeia* 2009: 251-255.
- Dupuch, A, Magnan, P, Bertolo, A, Dill, LM and Proulx, M. 2009. Does predation risk influence habitat use by northern redbelly dace *Phoxinus eos* at different spatial scales? *J Fish Biol* 74: 1371-1382.
- Dill, LM, Losos, CJC, Connors, BM, and Mages, P. 2009. Comment on Beamish et al. (2007) "A proposed life history strategy for the salmon louse, *Lepeophtheirus salmonis* in the subarctic Pacific". *Aquaculture* 286: 154-155.
- Laroche, RK, Kock, AA, Dill, LM and Oosthuizen, WH. 2008. Running the gauntlet: a predator-prey game between sharks and two age-classes of seals *Anim Behav* 76: 1901-1917.
- Peckarsky, BL, Abrams, PA, Bolnick, DI, Dill, LM, Grabowski, JH, Luttbeg, B, Orrock, JL, Peacor, SD, Preisser, EL and Schmitz, OJ. 2008. Revisiting the classics: considering nonconsumptive effects in textbook examples of predator-prey interactions. *Ecology* 89: 2416-2425.
- Gray, SM, Dill, LM, Tantu, FY, Loew, ER, Herder, F and McKinnon, JS. 2008. Environment-contingent sexual selection in a colour polymorphic fish. *Proc Roy Soc Lond B* 275: 1785-1791.
- Gray, S.M., McKinnon, J.S., Tantu, F.Y and L.M. Dill. 2008. "Sneaky" egg-eating in *Telmatherina sarasinorum*, an endemic fish from Sulawesi. *J Fish Biol* 73, 728-731.
- Connors, B.M., Krkosek, M. and L.M. Dill. 2008. Sea lice escape predation on their host. *Biology Letters* 4: 455-457.
- Connors B.M., Juarez-Colunga E. and L.M. Dill. 2008. Effects of varying salinities on *Lepeophtheirus salmonis* survival on juvenile pink and chum salmon. *J Fish Biol* 72, 1825-1830
- Kerford, MR, Wirsing, AJ, Heithaus, MR and LM. Dill. 2008. Danger on the rise: diurnal tidal state mediates an exchange of food for safety by the bar-bellied sea snake *Hydrophis elegans*. *Mar Ecol Progr Ser* 358: 289-294.
- Wirsing, AJ, Heithaus, MR, Frid, A and LM Dill. 2008. Seascapes of fear: evaluating sublethal predator effects experienced and generated by marine mammals. *Marine Mammal Science* 24:1-15
- Frid, A., Baker, G.G. and Dill, L.M. 2008. Do shark declines create fear-released systems? *Oikos* 117: 191-201.
- Heithaus, MR, Wirsing, AJ, Frid, A, and Dill, LM. 2007. Behavioral indicators in marine conservation: lessons from a pristine seagrass ecosystem. *Israel Journal of Ecology and Evolution* 53: 355-370.
- Wirsing, A. J., M. R. Heithaus, and L.M. Dill. 2007. Can you dig it? Use of excavation, a risky foraging tactic, by dugongs is sensitive to predation danger. *Animal Behaviour* 74, 1085-1091.
- Wirsing, A. J., M. R. Heithaus, and L. M. Dill. 2007. Fear factor: do dugongs (*Dugong dugon*) trade food for safety from tiger sharks (*Galeocerdo cuvier*)? *Oecologia* 153: 1031-1040.
- Webster, S.J., Dill, L.M. and Korstrom, J.S. 2007. The effects of depth and salinity on juvenile Chinook salmon *Oncorhynchus tshawytscha* (Walbaum) habitat choice in an artificial estuary. *Journal of Fish Biology* 71:842-851.
- Wirsing, A. J., Heithaus, M.R. and L. M. Dill. 2007. Can measures of prey availability improve our ability to predict the abundance of large marine predators? *Oecologia* 153: 563-568.
- Webster, S.J., Dill, L.M. and K. Butterworth. 2007. The effect of sea lice infestation on the salinity preference and energetic expenditure of juvenile pink salmon (*Oncorhynchus gorbuscha*). *Canadian Journal of Fisheries and Aquatic Sciences* 64: 672-680.

- Wirsing, A. J., M. R. Heithaus, and L. M. Dill. 2007. Living on the edge: dugongs prefer to forage in microhabitats that allow escape from rather than avoidance of predators. *Animal Behavior* 74: 93-101.
- Willis, P.M., and Dill, L.M. 2007. Mate guarding in male Dall's porpoises (*Phocoenoides dalli*). *Ethology* 113:587-597.
- Frid, A, Dill, LM, Thorne, RE, and Blundell, GM. 2007. Inferring prey perception of relative danger in large-scale marine ecosystems. *Evol Ecol Res* 9: 635-649.
- Heithaus, M.R., Frid, A., Wirsing, A.J., Dill, L.M., Fourqurean, J.W., Burkholder, D., Thomson, J. and Bejder, L. 2007. State-dependent risk-taking by green sea turtles mediates top-down effects of tiger shark intimidation in a marine ecosystem. *Journal of Animal Ecology* 76: 837-844.
- Laroche RK, Kock AA, Dill LM, Oosthuizen WH. 2007. Effects of provisioning ecotourism activity on the behaviour of white sharks *Carcharodon carcharias*. *Mar Ecol Progr Ser* 338:199-209.
- Heithaus MR, Wirsing AJ, Dill LM. 2007. Long-term movements of tiger sharks satellite-tagged in Shark Bay, Western Australia. *Mar Biol* DOI 10.1007/s00227-006-0583-y
- White, DW, Dill, LM and Crawford, CB. 2007. A common conceptual framework for behavioral ecology and evolutionary psychology. *Evol Psychol* 5: 275-288.
- Rova, A. Mori, G and LM Dill. 2007. One fish, two fish, butterflyfish, trumpeter: recognizing fish in underwater video. IAPR Conference on Machine Vision Applications, 2007
- Frid, A, Heithaus, MR and Dill, LM. 2007. Dangerous dive cycles and the proverbial ostrich. *Oikos* 116: 893-902.
- Webster, S.J. Dill, L.M. 2007. Estimating the energetic cost of abiotic conditions using foraging behaviour. *Evolutionary Ecology Research* 9: 123-143
- Gray, S.M., Dill, L.M., and J.S. McKinnon. 2007. Cuckoldry incites cannibalism: male fish turn to cannibalism when perceived certainty of paternity decreases. *Am Nat* 169: 258-263.
- Heithaus, M.R. and L.M. Dill. 2006. Does tiger shark predation risk influence foraging habitat use by bottlenose dolphins at multiple spatial scales? *Oikos* 114: 257-264
- Wirsing, A.J., Heithaus, M.R, and L.M. Dill. 2006. Tiger shark (*Galeocerdo cuvier*) abundance and growth in a subtropical embayment: evidence from seven years of standardized fishing effort. *Mar Biol* 149: 961-968
- Webster, S.J. and Dill, L.M. 2006. The energetic equivalence of changing salinity and temperature to juvenile salmon. *Funct Ecol*. 20: 621-629.
- Heithaus, M. R., Hamilton, I.M., Wirsing, A.J. and L. M. Dill. 2006. Validation of a randomization procedure to assess animal habitat preferences: microhabitat use of tiger sharks in a seagrass ecosystem. *J Anim Ecol* 75: 666-676
- Frid, A., Baker, G. and L.M. Dill. 2006. Do resource declines increase predation rates on North Pacific harbor seals? A behavior-based plausibility model. *Mar Ecol Progr Ser* 312: 265-275
- Semeniuk, C.A.D. and Dill, L.M. 2006. Anti-predator benefits of mixed-species groups of cowtail stingrays (*Pastinachus sephen*) and whipsnakes (*Himantura uarnak*) at rest. *Ethology* 112: 33-43.
- Riley, C.A. and Dill, L.M. 2005. The Little Miss Muffet effect: quantifying the effect of predation risk on foraging patch choice by houseflies (*Musca domestica*). *J. Insect Behav* 18: 847-857
- Semeniuk, C.A.D. and Dill, L.M. 2005. Cost/benefit analysis of group and solitary resting in the cowtail stingray, *Pastinachus sephen*. *Behav. Ecol*. 16: 417-426.

- Baird, R.W., Hanson, M.B. and Dill, L.M. 2005. Factors influencing the diving behaviour of fish-eating killer whales: sex differences and diel and interannual variation in diving rates. *Can. J. Zool.* 83: 257-267.
- Mitchell, J.S. and Dill, L.M. 2005. Why is group size correlated with the size of the host sea anemone in the false clown anemonefish? *Can. J. Zool.* 83: 372-376.
- Heithaus, M.R., Frid, A., Wirsing, A.J., Bejder, L. and Dill, L.M. 2005. Biology of sea turtles under risk from tiger sharks at a foraging ground. *Mar. Ecol. Progr. Ser.* 288: 285-294.
- Willis, P.M., Crespi, B.J., Dill, L.M., Baird, R.W. and M.B. Hanson. 2004. Natural hybridization between Dall's porpoises (*Phocoenoides dalli*) and harbour porpoises (*Phocoena phocoena*). *Can. J. Zool.* 82: 828-834.
- Dupuch, A., Magnan, P. and L.M. Dill. 2004. Sensitivity of northern redbelly dace, *Phoxinus eos*, to chemical alarm cues. *Can. J. Zool.* 82: 407-415.
- Hamilton, I.M. and L.M. Dill. 2003. Group foraging by a kleptoparasitic fish: a strong inference test of social foraging models. *Ecology* 84: 3349-3359.
- Wilson, B., Batty, R.S. and L.M. Dill. 2003. Pacific and Atlantic herring produce burst pulse sounds. *Proc. R. Soc. Lond. B (Suppl.)* 271: S95-S97.
- Hamilton, I.M. and L.M. Dill. 2003. The use of territorial gardening versus kleptoparasitism by a subtropical reef fish (*Kyphosus cornelii*) is influenced by territory defendability. *Behav. Ecol.* 14: 561-568.
- Dill, L.M., Dill, E.S. and Charles, D. 2003. Feeding preferences of Monkey Mia dolphins: results from a simultaneous choice protocol. *Mar. Mamm. Sci.* 19: 650-660.
- Rochette, R., Dunmall, K. and L.M. Dill. 2003. The effect of life-history variation on the population size of a rocky intertidal snail (*Littorina sitkana*). *J. Sea Res.* 49: 119-132.
- Dill, L.M., Heithaus, M.R. and C.J. Walters. 2003. Behaviourally mediated indirect interactions in marine communities and their conservation implications. *Ecology* 84: 1151-1157.
- Hamilton, I.M. and L.M. Dill. 2002. Monopolization of food by zebrafish (*Danio rerio*) increases in risky habitats. *Can. J. Zool.* 80: 2164-2169.
- Heithaus, M.R., McLash, J.J., Frid, A., Dill, L.M. and G.J. Marshall. 2002. Novel insights into green sea turtle behaviour using animal-borne video cameras. *J. Mar. Biol. Assoc. U.K.* 82: 1049-1050.
- Frid, A. and L.M. Dill. 2002. Human-caused disturbance stimuli as a form of predation risk. *Cons. Ecol.* 6 (1):11 [online: <http://www.consecol.org/vol6/iss1/art11>].
- Wilson, B. and L.M. Dill. 2002. Pacific herring respond to simulated odontocete echolocation calls. *Can. J. Fish. Aquat. Sci.* 59, 542-553.
- Hamilton, I.M. and L.M. Dill. 2002. Three-player social parasitism games: implications for resource defense and group formation. *Am. Nat.* 159, 670-680.
- Heithaus, M.R. and L.M. Dill. 2002. Food availability and tiger shark predation risk influence bottlenose dolphin habitat use. *Ecology* 83, 480-491.
- Heithaus, M.R., Dill, L.M., Marshall, G.T. and B. Buhleier. 2002. Habitat use and foraging behavior of tiger sharks *Galeocerdo cuvier* in a seagrass ecosystem. *Mar. Biol.* 140, 237-248.
- Heithaus, M.R., Frid, A. and L.M. Dill. 2002. Shark-inflicted injury frequencies, escape ability and habitat use of green and loggerhead turtles. *Mar. Biol.* 140, 229-236.
- Heithaus, M.R. and L.M. Dill. 2002. Feeding strategies and tactics. Pp. 412-422 in Perrin, W.F., Würsig, B. and J.G.M. Thewissen, eds. "Encyclopedia of Marine Mammals,". Academic Press, N.Y.
- Heithaus, M.R., G.J. Marshall, B.M. Buhleier, and L.M. Dill. 2001. Employing Crittercam to study habitat use and behavior of large sharks. *Marine Ecology Progress Series* 209: 307-310.

- Abbot, P., and L.M. Dill. 2001. Sexually transmitted parasites and sexual selection in the milkweed leaf beetle (*Labidomera clivicollis*) *Oikos*. 92: 91-100.
- Rochette, R., and L.M. Dill. 2000. Mortality, behavior and the effects of predators on the intertidal distribution of littorinid gastropods. *J. Exp. Mar. Biol. Ecol.* 253: 165-191.
- Warner, R.R., and L.M. Dill. 2000. Courtship displays and coloration as indicators of safety rather than of male quality: the safety assurance hypothesis. *Behav. Ecology*. 11: 441-451.
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### Other Publications

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Dill, L.M. 1970. The 1969 Fulton River Sockeye Fry Quality and Ecology Program: Summary of Results. Tech. Rept. 1970-14. Dept. of Fisheries of Canada. Vancouver, B.C. 42 pp.

Dill, L.M. 1969a. Annotated Bibliography of the Salmonid Embryo and Alevin. Tech. Rept. Dept. of Fisheries of Canada. Vancouver, B.C. 190 pp.

Dill, L.M. 1969b. Fulton River Fry Quality and Ecology Program: Report of 1968 studies. Tech. Rept. 1969-3. Dept. of Fisheries of Canada. Vancouver, B.C. 185 pp.

## Works Accepted for Publication

### Accepted:

Connors, B., Lagass, C. and Dill, L.M. What's love got to do with it? Ontogenetic changes in drivers of dispersal in a marine ectoparasite. Behav Ecol

Krkosek, M., Connors, B., Morton, A., Lewis, M., Dill, L. and Hilborn, R. Effects of parasites from salmon farms on productivity of wild salmon. Proc Natl Acad Sci USA"

## Research/Project Funding - Received

**Contract/Grant:** Operating Grant **Awarded:** 2006 **Period:** 2006 – 2011 (extended to 2012)

**Project Title:** Fear factor: Non-lethal effects of predators on individuals, populations and communities

**Funding:** NSERC Canada Discovery **Type:** External **Annual:** \$55,000 **Total:** \$275,000

**Contract/Grant:** Operating Grant **Awarded:** 2006 **Period:** 2006 - 2008

**Project Title:** Behaviourally-mediated indirect interactions in a subtropical seagrass community

**Funding:** NSF **Type:** External **Annual:** 213,682 **Total:** 547,000 USD

**Involvement:** Joint Investigator **Collaboration:** M. Heithaus, J. Fourqurean and Lawrence M. Dill

**Contract/Grant:** Operating Grant **Awarded:** 2001 **Period:** 2001 - 2006

**Project Title:** Habitat selection: population and community consequences of animal behavioural decisions.

**Funding:** NSERC **Type:** External **Annual:** \$66,000

**Contract/Grant:** Operating Grant **Awarded:** 2003 **Period:** 2003 - 2004

**Project Title:** Effects of prey availability and predation risk on the foraging ecology and demography of harbour seals in Prince William Sound: development and test of a dynamic state variable model

**Funding:** North Pacific Research Board **Type:** External **Annual:** 136,046 **Total:** 172,866USD

**Involvement:** Joint Investigator **Collaboration:** Alejandro Frid, Gail Blundell and Lawrence M. Dill

**Contract/Grant:** Operating Grant **Awarded:** 2003 **Period:** 2003 - 2003

**Project Title:** Foraging ecology of dugongs

**Funding:** National Geographic Society Expedition Council Grants **Type:** External **Annual:** 22,500

**Involvement:** Joint Investigator **Collaboration:** Aaron Wirsing and Lawrence M. Dill

**Contract/Grant:** Operating Grant **Awarded:** 2001 **Period:** 2001 - 2001

**Project Title:** Behavioural interactions between keystone species in a relatively undisturbed seagrass ecosystem, Shark Bay, Western Australia

**Funding:** PADI Foundation **Type:** External **Total:** \$4,800 US

**Contract/Grant:** Operating Grant **Awarded:** 1997 **Period:** 1997 - 2001

**Project Title:** Foraging and habitat selection in salmonids and cetaceans

**Funding:** N.S.E.R.C. **Annual:** \$57,000 plus **Total:** \$251,370

**Contract/Grant:** Small Grant **Awarded:** 1999 **Period:** 1999 - 1999

**Project Title:** Habitat use by large marine mammals: an ecosystem approach.

**Funding:** PADI Foundation **Annual:** \$6,600 U.S. **Total:** \$6,600 U.S.

**Contract/Grant:** Equipment Grant **Awarded:** 1998 **Period:** 1998 - 1998

**Project Title:** Field Vehicle.

**Funding:** N.S.E.R.C. **Total:** \$21,177.

**Collaboration:** with two others

**Contract/Grant:** Operating Grant **Awarded:** 1993 **Period:** 1993 - 1996

**Project Title:** Animal decision-making under the risk of predation and parasitism

**Funding:** N.S.E.R.C. Operating **Annual:** \$60,000 **Total:** \$180,000

**Contract/Grant:** Research Grant **Awarded:** 1993 **Period:** 1993 - 1996

**Project Title:** Foraging site selection in juvenile coho salmon

**Funding:** Electric Power Research Institute **Total:** \$44,500 US

**Involvement:** Joint Investigator **Collaboration:** to support T. Grand

**Contract/Grant:** Research Grant **Awarded:** 1994 **Period:** 1994 - 1995

**Project Title:** Food preferences of bottlenose dolphins; Monkey Mia, West Australia

**Funding:** N.S.E.R.C. - Grant for Research Aboard **Total:** \$3,500

**Contract/Grant:** Research Grant **Awarded:** 1992 **Period:** 1992 - 1993

**Project Title:** Behavioural interactions between harbor seals & killer whales in B.C.

**Funding:** Dept. of Fisheries & Oceans - Subventions **Total:** \$7,000

**Contract/Grant:** Research Grant **Awarded:** 1992 **Period:** 1992 - 1993

**Project Title:** Influence of predation risk on vole population dynamics

**Funding:** B.C. Science Council - G.R.E.A.T. Awards **Total:** \$17,000

**Involvement:** Joint Investigator **Collaboration:** to support M. Dehn

**Contract/Grant:** Operating Grant **Awarded:** 1990 **Period:** 1990 - 1993

**Project Title:** Animal decision making under predation risk

**Funding:** N.S.E.R.C. Operating **Annual:** \$60,000 **Total:** \$180,000

- Contract/Grant:** Research Grant **Awarded:** 1991 **Period:** 1991 - 1992  
**Project Title:** Behavioural interactions between harbor seals & killer whales in B.C.  
**Funding:** Dept. of Fisheries & Oceans - Subventions **Total:** \$5,000
- Contract/Grant:** Research Grant **Awarded:** 1991 **Period:** 1991 - 1992  
**Project Title:** Influence of predation risk on vole population dynamics  
**Funding:** B.C. Science Council - G.R.E.A.T. Awards **Total:** \$16,000  
**Involvement:** Joint Investigator **Collaboration:** to support M. Dehn
- Contract/Grant:** Research Grant **Awarded:** 1990 **Period:** 1990 - 1991  
**Project Title:** Behavioural interactions between harbor seals & killer whales in B.C.  
**Funding:** Dept. of Fisheries & Oceans - Subventions **Total:** \$5,000
- Contract/Grant:** Research Grant **Awarded:** 1990 **Period:** 1990 - 1991  
**Project Title:** Influence of predation risk on vole population dynamics  
**Funding:** B.C. Science Council - G.R.E.A.T. Awards **Total:** \$14,000  
**Involvement:** Joint Investigator **Collaboration:** to support M. Dehn
- Contract/Grant:** Research Grant **Awarded:** 1990 **Period:** - 1990  
**Project Title:** Effects of predation risk on mating behaviour  
**Funding:** S.F.U. President's Research Grant **Total:** \$3,477
- Contract/Grant:** Operating Grant **Awarded:** 1987 **Period:** 1987 - 1990  
**Project Title:** The economics of anti-predator behaviour  
**Funding:** N.S.E.R.C. Operating **Annual:** \$60,000 **Total:** \$180,000
- Contract/Grant:** Travel Grant **Awarded:** 1986 **Period:** 1986 - 1987  
**Project Title:** Travel to Australia and New Zealand  
**Funding:** N.S.E.R.C. Travel **Total:** \$1,270
- Contract/Grant:** Equipment Grant **Awarded:** 1986 **Period:** 1986 - 1987  
**Project Title:** Field Vehicle  
**Funding:** N.S.E.R.C. - Equipment **Total:** \$17,801  
**Involvement:** Joint Investigator **Collaboration:** with 6 others
- Contract/Grant:** Operating Grant **Awarded:** 1984 **Period:** 1984 - 1987  
**Project Title:** The economics of predator avoidance behaviour  
**Funding:** N.S.E.R.C. Operating **Annual:** \$49,778 **Total:** \$149,334
- Contract/Grant:** Research Grant **Awarded:** 1985 **Period:** - 1985  
**Project Title:** Portion of salary for PDF  
**Funding:** S.F.U. President's Research Grant **Total:** \$5,000  
**Involvement:** Joint Investigator **Collaboration:** S. Lima
- Contract/Grant:** Research Grant **Awarded:** 1984 **Period:** 1984 - 1985  
**Project Title:** Foraging ecology of scoters (*Melanitta*.sp.)  
**Funding:** Dept. of Fisheries & Oceans - Subventions **Total:** \$8,000

**Contract/Grant:** Research Grant **Awarded:** 1984 **Period:** 1984 - 1984

**Project Title:** Foraging ecology of scoter ducks

**Funding:** B.C. Government, Youth Employment Program **Total:** \$1,800

**Contract/Grant:** Research Grant **Awarded:** 1983 **Period:** 1983 - 1984

**Project Title:** Foraging ecology of scoters (Melanitta sp.)

**Funding:** Dept. of Fisheries & Oceans - Subventions **Total:** \$8,000

**Contract/Grant:** Operating Grant **Awarded:** 1981 **Period:** 1981 - 1984

**Project Title:** The influence of risk of predation on optimal diet of animals

**Funding:** N.S.E.R.C. Operating **Total:** \$101,379

**Contract/Grant:** Research Grant **Awarded:** 1983 **Period:** 1983 - 1983

**Project Title:** An economic approach to animal flight behaviour

**Funding:** S.F.U. President's Research Grant **Total:** \$1,014

**Contract/Grant:** Research Grant **Awarded:** 1982 **Period:** 1982 - 1983

**Project Title:** Feeding regime: effects on aggression and growth variability in cultured steelhead trout

**Funding:** B.C. Science Council - G.R.E.A.T. Awards **Total:** \$11,500

**Involvement:** Joint Investigator **Collaboration:** to support J. Abbott

**Contract/Grant:** Research Grant **Awarded:** 1981 **Period:** 1981 - 1982

**Project Title:** Coloration of salmonid parr: adaptive significance and implications for stocking

**Funding:** Canadian National Sportsmen's Fund **Total:** \$10,550

**Contract/Grant:** Research Grant **Awarded:** 1981 **Period:** 1981 - 1982

**Project Title:** Coloration of salmonid parr: adaptive significance and implications for stocking

**Funding:** Canadian National Sportsmen's Fund **Total:** \$9,500

**Contract/Grant:** Research Grant **Awarded:** 1981 **Period:** 1981 - 1982

**Project Title:** Adaptive trajectories: rules for animals movement

**Funding:** N.S.E.R.C. - CO-OP **Total:** \$27,980

**Involvement:** Joint Investigator **Collaboration:** with C.S. Holling, U.B.C.

**Contract/Grant:** Research Grant **Awarded:** 1981 **Period:** 1981 - 1982

**Project Title:** Feeding regime: effects on aggression and growth variability in cultured steelhead trout

**Funding:** B.C. Science Council - G.R.E.A.T. Awards **Total:** \$8,500

**Involvement:** Joint Investigator **Collaboration:** to support J. Abbott

**Contract/Grant:** Research Grant **Awarded:** 1981 **Period:** - 1981

**Project Title:** Pedestrian trajectories

**Funding:** B.C. Government, Youth Employment Program **Total:** \$2,940

**Contract/Grant:** Research Grant **Awarded:** 1980 **Period:** 1980 - 1981

**Project Title:** Feeding regime: effects on aggression and growth variability in cultured steelhead trout

**Funding:** B.C. Science Council - G.R.E.A.T. Awards **Total:** \$7,500

**Involvement:** Joint Investigator **Collaboration:** to support J. Abbott

- Contract/Grant:** Research Grant **Awarded:** 1980 **Period:** 1980 - 1981  
**Project Title:** Adaptive trajectories: rules for animals movement  
**Funding:** N.S.E.R.C. - CO-OP **Total:** \$24,350  
**Involvement:** Joint Investigator **Collaboration:** with C.S. Holling, U.B.C.
- Contract/Grant:** Operating Grant **Awarded:** 1978 **Period:** 1978 - 1981  
**Project Title:** Ecological aspects of aggression in juvenile coho salmon (O.kisutch)  
**Funding:** N.S.E.R.C. Operating **Total:** \$41,229
- Contract/Grant:** Travel Grant **Awarded:** 1979 **Period:** 1979 - 1980  
**Project Title:** Travel to Australia (returned unused)  
**Funding:** N.S.E.R.C. Travel **Total:** \$2,128
- Contract/Grant:** Research Grant **Awarded:** 1979 **Period:** - 1979  
**Project Title:** Territory size in juvenile coho salmon  
**Funding:** B.C. Government, Youth Employment Program **Total:** \$2,790
- Contract/Grant:** Research Grant **Awarded:** 1978 **Period:** - 1978  
**Project Title:** Spatial structure of fish schools  
**Funding:** S.F.U. President's Research Grant **Total:** \$1,350
- Contract/Grant:** Operating Grant **Awarded:** 1975 **Period:** 1975 - 1978  
**Project Title:** Distance - contingent behaviour in visual animals  
**Funding:** N.S.E.R.C. Operating **Total:** \$27,531
- Contract/Grant:** Research Grant **Awarded:** 1975 **Period:** 1975 - 1977  
**Project Title:** Spatial structure of bird flocks  
**Funding:** N.R.C. Assoc. Comm. on Bird Hazards to Aircraft **Total:** \$30,330
- Contract/Grant:** Research Grant **Awarded:** 1975 **Period:** - 1975  
**Project Title:** Simulation modelling of ecological processes  
**Funding:** B.C. Government, Youth Employment Program **Total:** \$3,109.60
- Contract/Grant:** Operating Grant **Awarded:** 1972 **Period:** 1972 - 1975  
**Project Title:** Mathematical modelling of the behavioural tactics of predators and prey  
**Funding:** N.S.E.R.C. Operating **Annual:** \$5,000 **Total:** \$15,000
- Contract/Grant:** Equipment Grant **Awarded:** 1973 **Period:** 1973 - 1974  
**Project Title:** Super-8 Film Analyzer  
**Funding:** N.S.E.R.C. - Equipment **Total:** \$8,400
- Contract/Grant:** Research Grant **Awarded:** 1973 **Period:** - 1973  
**Project Title:** Orientation behaviour of visual animals  
**Funding:** York University President's Research Grants **Total:** \$384
- Contract/Grant:** Research Grant **Awarded:** 1972 **Period:** - 1972  
**Project Title:** Behavioural tactics of predators and prey  
**Funding:** York University President's Research Grants **Total:** \$3,170

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## International Project Activity

January 1996 - 2007 Consulting, Indonesia

**Project Title:** Biodiversity Research Facilitation

**Description:** Encourage biodiversity research by returned EIUDP fellows

**Affiliated Institution(s):** EIUDP IDAP? Y

**Funding Agency:** CIDA (via EIUDP)

November 1994 - January 1995 Other, Indonesia

**Project Title:** Facilitating research by faculty in Eastern Indonesian Universities

**Description:** Prepare a report to EIUDP re: means to increase research by returned EIUDP fellows in Eastern Indonesian universities, especially research on biodiversity.

**Affiliated Institution(s):** EIUDP IDAP? Y

**Funding Agency:** CIDA (via EIUDP)

November 1993 - 1993 Consulting, Indonesia

**Project Title:** The Impact of Tourism on Coral Reef Biodiversity

**Description:** Prepare IDRC grant application to study the negative impacts (direct and indirect) of diving activity on Bunaken Marine Park (N.Sulawesi) and means of mitigating these.

**Affiliated Institution(s):** Universitas Sam Ratulangi, Manado, N. Sulawesi IDAP? Y

**Funding Agency:** CIDA (via EIUDP)

1990 - 1990 Teaching, USA

**Project Title:** Coral reef behavioural ecology

**Affiliated Institution(s):** Hawaii Institute of Marine Biology IDAP?

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## Awards, Honors and Scholarships

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|------|---|
| 2004 | <b>Title:</b> Ig Nobel Prize <b>Type:</b> Research<br><b>Organization:</b> (Harvard University)<br><b>Details:</b> Biology                                  |
| 1999 | <b>Title:</b> Burnaby Mountain Endowed Professorship <b>Type:</b> Endowed Professorship<br><b>Organization:</b> SFU   |
| 1999 | <b>Title:</b> University Teaching Award <b>Type:</b> Teaching<br><b>Organization:</b> SFU   |
| 1997 | <b>Title:</b> Faculty of Science "Excellence in Teaching" Award <b>Type:</b> Award<br><b>Organization:</b> SFU  |
| 1997 | <b>Title:</b> Fellow of the Royal Society of Canada (1997) <b>Type:</b> Fellowship<br><b>Details:</b> Elected   |
| 1992 | <b>Title:</b> University Research Professor (1991-1992) <b>Type:</b> Research   |
| 1983 | <b>Title:</b> Selected to deliver J.C. Stevenson Memorial Lecture <b>Type:</b><br><b>Organization:</b> Canadian Conference for Fisheries Research, Winnipeg |

- 1982      **Title:** NSERC Steacie Award (1982 and 1983)    **Type:**  
            **Organization:** NSERC  
            **Details:** Departmental Nominee (unsuccessful)
- 1977      **Title:** "Young Canadian who [had] achieved excellence in the --- Sciences"    **Type:**  
            **Organization:** D.I.N.A.  
            **Details:** Invited to Ottawa for dinner with Queen Elizabeth (Oct. 17, 1977)
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