

Craig Franklin Purchase

Born: 1974; Newfoundland, Canada; **Citizenship:** Canadian

Contact:

Department of Biology, Memorial University
St. John's, Newfoundland
A1B 3X9, Canada

Phone: 709-864-4452; Email: cfpurchase@mun.ca
Twitter: @CraigPurchase
Website: <http://www.ucs.mun.ca/~cfpurchase>

Current Appointments

- Memorial University
 - Professor, Department of Biology
 - Cross-appointed to the Department of Ocean Sciences
 - Cross-appointed to the School of Fisheries
 - Graduate Program in Cognitive & Behavioural Ecology
 - Graduate Program in Environmental Science
- President, Canadian Aquatic Resources Section (CARS) – American Fisheries Society
- Governing Board Member – American Fisheries Society
- Science Atlantic – Biology Division
- Director, Salmonid Association of Eastern Newfoundland

Employment History

2020 - **Professor**, Memorial University
2019 – 2020 **Visiting Professor** (sabbatical), University of Western Australia
2014 – 2020 **Associate Professor** (tenured), Memorial University
2008 – 2014 **Assistant Professor** (tenure-track), Memorial University
2007 & 2006 **NSERC Visiting Fellow**,
Fisheries & Oceans Canada – Northwest Atlantic Fisheries Centre
2006 **Research Scientist** (temporary),
Fisheries & Oceans Canada – Bedford Institute of Oceanography
2006 **Chief Scientist** (temporary), Seafood Producers Association of Nova Scotia
2005 **Lecturer** (temporary), Department of Biology, Saint Mary's University
2005 **Sessional Instructor**, Biology Department, Dalhousie University
2005 & 2004 **NSERC Postdoctoral Research Fellow**, Dalhousie University
1998 **Research Assistant**, Ocean Sciences Centre, Memorial University
1997 **Research Coordinator**, Protected Areas Association of Newfoundland & Labrador
1996 **Research Assistant**, Ocean Sciences Centre, Memorial University

Education

- 2004 **Doctor of Philosophy**, University of Toronto (Zoology Department)
 2000 **Master of Science**, Memorial University (Biology Department)
 1999 **Graduate Teaching Program** (Certificate), Memorial University
 1997 **Bachelor of Science (Honours)**, 1st Class, Memorial University (Biology Department)
-

Awards and Scholarships

Awards

- 2019 Institute of Advanced Studies Visiting Fellow, University of Western Australia
 2019 Forrest Research Foundation International Visiting Fellow, University of Western Australia
 2014 Dobbin Scholar, Ireland Canada University Foundation
 2003 Ramsay Wright Award (Top 2 Graduate Students)
 Department of Zoology, University of Toronto
 2003 Larkin Award (Best fisheries Ph.D. student in Canada), Canadian Aquatic Resources Section, American Fisheries Society
 2003 Carl E. Atwood Graduate Award in Zoology, University of Toronto
 2003 & 2002 Frederick P. Ide Graduate Award, University of Toronto
 2000 Fellow of the School of Graduate Studies, Memorial University
 1999 & 1998 Recognition of Excellence, School of Graduate Studies, Memorial University
 1997 Honorable Mention for presentation at meeting of the Aquaculture Association of Canada
 1997 Best Paper at the Atlantic Universities Aquaculture Conference

Scholarships

Major

- 2006 Natural Sciences & Engineering Research Council of Canada (NSERC) Visiting Fellow in a Canadian Government Laboratory (\$100,000)
 2003 Natural Sciences & Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship (\$80,000)
 2002 Ontario Graduate Scholarship (\$15,000)
 2001 Ontario Graduate Scholarship "Separate Competition" (\$15,000)
 1999 Natural Sciences & Engineering Research Council of Canada (NSERC) Postgraduate Scholarship B (\$38,400)
 1997 Natural Resource Development Scholarship, Government of Newfoundland & Labrador (\$15,000)

Minor

- 2003 Doctoral Completion Grant, University of Toronto
 2003 – 1999 Graduate Fellowships, Department of Zoology, University of Toronto
 1998 Scholarship of the Natural History Society of Newfoundland & Labrador
 1997 Graduate Fellowship, Memorial University

Research

Publications

Manuscripts in peer-reviewed scientific journals

- Noted are my HQP for each publication, and the publication PI*.

55) **Purchase***, C.F., J.P. Evans, & J Roncal. Integrating natural and sexual selection across the biphasic life cycle. In Revision. <https://ecoevorxiv.org/eu3am/>

54) MacDonald, K.J., S.J. Leroux*, & **C.F. Purchase***. Landscape, demographic, and dispersal parameters influence the spread and establishment of an aquatic biological invasion. In Review. Pre-print DOI <https://doi.org/10.21203/rs.3.rs-1514165/v1>

53) Lantiegne, T.H., & **C.F. Purchase***. Can cryptic female choice prevent invasive hybridization in external fertilizing fish? In Revision. BioRxiv pre-print doi.org/10.1101/2021.12.17.473195

52) Graziano, M., S. Palit, A. Yethiraj, S. Immler, M.J.G. Gage, & **C.F. Purchase***, 2023. Frequency-dependent viscosity of salmon ovarian fluid has biophysical implications for sperm-egg interactions. Journal of Experimental Biology, In Press. <https://doi.org/10.1242/jeb.244712>

51) Penney, H.D., D. Keefe, R. Perry, & **C.F. Purchase***, 2022. Evidence of hatch time-based growth compensation in the early life history of two salmonid fishes. Ecology & Evolution 12, e9636. <https://doi.org/10.1002/ece3.9636>

50) **Purchase***, C.F., A.C. Rooke, M.J. Gaudry, J.R. Treberg, E.A. Mittell, M.B. Morrissey & M.D. Rennie, 2022. A synthesis of senescence predictions for indeterminate growth, and support from multiple tests in wild lake trout. Proceedings of the Royal Society B, 289: 20212146.

49) Van Leeuwen*, T.E., J.B. Dempson, C.M. Burke, N.I. Kelly, M.J. Robertson, R.J. Lennox, T.B. Havn, M. Svenning, R. Hinks, M.M. Guzzo, E.B. Thorstad, **C.F. Purchase**, & A.E. Bates, 2020. Mortality of Atlantic salmon after catch and release angling: assessment of a recreational Atlantic salmon fishery in a changing climate. Canadian Journal of Fisheries and Aquatic Sciences, 77: 1518-1528.

48) **Purchase***, C.F., & A.C. Rooke, 2020. Freezing ovarian fluid does not alter how it affects fish sperm performance: creating a cryptic female choice “spice rack” for use in split-ejaculate experimentation. Journal of Fish Biology, 96: 693-699.

47) Orbach, D.N., A.C. Rooke, J.P. Evans, T.E. Pitcher, & **C.F. Purchase***, 2020. Assessing the potential for post-ejaculatory female choice in a polyandrous beach spawning fish. Journal of Evolutionary Biology, 33: 449-459.

- 46) Penney, H.D., M.A. Litt, & **C.F. Purchase***, 2019. Threshold temperature constraints on reproduction of the banded killifish (*Fundulus diaphanous*). *Journal of Freshwater Ecology*, 34: 771-782.
- 45) Orbach, D.N., M. Donovan, & **C.F. Purchase***, 2019. Sexually selected traits are larger and more variable in male than female beach-spawning capelin (*Mallotus villosus*). *Journal of Fish Biology*, 95: 1385-1390.
- 44) Beirão*, J., T.B. Egeland, **C.F. Purchase**, & J.T. Nordeide, 2019. Fish sperm competition in hatcheries and between wild and hatchery origin fish in nature. *Theriogenology*, 133: 201-209.
- 43) Beirão, J., L. Baillon, M.A. Litt, V. Langlois, & **C.F. Purchase***, 2019. Impact of crude oil and dispersant on capelin (*Mallotus villosus*) embryo development. *Marine Environmental Research*, 147: 90-100.
- 42) Rooke, A.C., B. Palm-Flawd, & **C.F. Purchase***, 2019. The impact of a changing winter climate on the hatch phenology of one of North America's largest Atlantic salmon populations. *Conservation Physiology*, 7(1) coz015.
- 41) Beirão, J., M.A. Litt, & **C.F. Purchase***, 2018. Chemically dispersed oil and dispersant affect sperm fertilizing ability but not sperm swimming behaviour in capelin (*Mallotus villosus*). *Environmental Pollution*, 241: 521-528.
- 40) Penney, H.D., J. Beirão, & **C.F. Purchase***, 2018. Phenotypic plasticity during external embryonic development is affected more by maternal effects than multiple abiotic factors in brook trout. *Evolutionary Ecology Research*, 19: 171-194.
- 39) Beirão, J., J.A. Lewis, B.F. Wringe, & **C.F. Purchase***, 2018. A novel sperm adaptation to evolutionary constraints on reproduction. *Ecology & Evolution*, 2018: 2343-2349.
- 38) Loeppky, A.R., **C.F. Purchase**, & G.K. Davoren*, 2018. Maternal investment and ambient water chemistry influence chemical signatures in embryonic otoliths of capelin, *Mallotus villosus*. *Journal of Experimental Marine Biology and Ecology*, 498: 25-31.
- 37) **Purchase***, C.F., B. Palm-Flawd, & L. Charron, 2018. Performance of instream Jordan-Scotty salmon egg incubators under different installation and siltation conditions. *North American Journal of Fisheries Management*, 38: 462-468.
- 36) **Purchase***, C.F., 2018. Low tolerance to salt water in a marine fish: new and historical evidence for surprising local adaptation in the well-studied commercially exploited capelin. *Canadian Journal of Fisheries and Aquatic Sciences*, 75: 673-681.
- 35) **Purchase***, C.F., 2017. First report of *Trachipterus arcticus* (Lampriformes: Trachipteridae) from Canadian waters. *Canadian Field Naturalist*, 131(4): 325-327.

- 34) Wringe, B.F., **C.F. Purchase**, & I.A. Fleming*, 2017. In search of a cultured fish phenotype: a systematic review, meta-analysis, and vote counting analysis. *Reviews in Fish Biology and Fisheries*, 26: 351-373.
- 33) Clarke*, C.N., D.J. Fraser, & **C.F. Purchase**, 2016. Lifelong and carry-over effects of early captive exposure in a recovery program for Atlantic salmon. *Animal Conservation*, 19 (4): 350-359.
- 32) Wringe, B.F., I.A. Fleming*, & **C.F. Purchase**, 2015. Rapid morphological divergence of cultured Atlantic cod of the northwest Atlantic from their source population. *Aquaculture Environment Interactions*, 7: 167-177.
- 31) Wringe, B., I.A. Fleming*, & **C.F. Purchase**, 2015. The spawning success of cultured and wild male Atlantic cod does not differ during paired contests. *Marine Ecology Progress Series*, 535: 197-211.
- 30) Warner, L.A., **C.F. Purchase***, & G. Veinott, 2015. Seasonal variation in estuarine habitat use by native Atlantic salmon (*Salmo salar*) and invasive brown trout (*Salmo trutta*) in southeast Newfoundland. *Northeastern Naturalist*, 22: 424-436.
- 29) Beirão, J., **C.F. Purchase***, B.F. Wringe, & I.A. Fleming, 2015. Inter-population ovarian fluid variation differentially modulates sperm motility in Atlantic cod. *Journal of Fish Biology*, 87: 54-68.
- 28) Beirão, J., J. Lewis, & **C.F. Purchase***, 2015. Spermatozoa ultrastructure of two osmerid fishes in the context of their family (Teleostei: Osmeriformes: Osmeridae). *Journal of Applied Ichthyology*, 31 (Supplement 1): 28-33.
- 27) Mitchell, J.S., & **C.F. Purchase***, 2014. Rapid colonization of a species at risk: a new eastern range limit for Banded killifish, *Fundulus diaphanus* in Newfoundland. *Northeastern Naturalist*, 21: 41-44.
- 26) Beirão, J., **C.F. Purchase***, B.F. Wringe, & I.A. Fleming, 2014. Wild Atlantic cod sperm motility is negatively affected by ovarian fluid of farmed females. *Aquaculture Environment Interactions*, 5: 61-70.
- 25) Veinott*, G., P.A.H. Westley, **C.F. Purchase**, & L. Warner, 2014. Experimental evidence simultaneously confirms and contests assumptions implicit to otolith microchemistry research. *Canadian Journal of Fisheries & Aquatic Sciences*, 71: 356-365.
- 24) Beirão, J., **C.F. Purchase***, B.F. Wringe, & I.A. Fleming, 2014. Sperm plasticity to elevated seawater temperatures in Atlantic cod (*Gadus morhua*) is affected more by population origin than individual environmental exposure. *Marine Ecology Progress Series*, 495: 263-274.
- 23) Puckrin, O.A., **C.F. Purchase***, & E.A. Trippel, 2013. Using purposeful inbreeding to reduce outbreeding depression caused by escaped cultivated Atlantic cod. *Aquaculture Environment Interactions*, 4: 207-221.
- 22) Zimmermann, E., **C.F. Purchase**, I.A. Fleming*, & J. Bratney, 2013. Dispersal of wild and escapee farmed Atlantic cod (*Gadus morhua*) in Newfoundland. *Canadian Journal of Fisheries & Aquatic Sciences*, 70: 747-755.

- 21) **Purchase***, C.F., & D.T.R. Moreau, 2012. Stressful environments induce novel phenotypic variation: hierarchical reaction norms for sperm performance of a pervasive invader. *Ecology and Evolution*, 2(10): 2567-2576.
- 20) Zimmermann, E., **C.F. Purchase**, & I.A. Fleming*, 2012. Reducing the incidence of net cage biting and the expression of escape-related behaviours in Atlantic cod (*Gadus morhua*) with feeding and cage enrichment. *Applied Animal Behaviour Science*, 141: 71-78.
- 19) **Purchase***, C.F., & P. Earle, 2012. Modifications to the ImageJ computer assisted sperm analysis (CASA) plugin greatly improve efficiency and fundamentally alter the scope of attainable data. *Journal of Applied Ichthyology*, 28: 1013-1016.
- 18) Veinott*, G., P.A.H. Westley, L.A. Warner, & **C.F. Purchase**, 2012. Assigning origins in a potentially mixed-stock recreational sea trout (*Salmo trutta*) fishery. *Ecology of Freshwater Fish*, 21: 541-551.
- 17) Rennie, M.D., **C.F. Purchase**, B.J. Shuter, N.C. Collins*, P.A. Abrams, & G.E. Morgan, 2010. Prey life-history and bioenergetic responses across a predation gradient. *Journal of Fish Biology*, 77: 1230-1251.
- 16) **Purchase***, C.F., I.A.E. Butts, A. Alonso-Fernández, & E.A. Trippel, 2010. Thermal reaction norms in sperm performance of Atlantic cod (*Gadus morhua*). *Canadian Journal of Fisheries & Aquatic Sciences*, 67: 498-510.
- 15) Wheeler*, J.P., **C.F. Purchase**, P.D.M. Macdonald, R. Fill, L. Jacks, H. Wang, & C.L. Ye, 2009. Temporal changes in maturation, mean length-at-age, and condition of spring-spawning Atlantic herring (*Clupea harengus*) in Newfoundland waters. *ICES Journal of Marine Science*, 66: 1800-1807.
- 14) Rennie, M.D., **C.F. Purchase**, N.P. Lester, N.C. Collins*, B.J. Shuter, & P.A. Abrams, 2008. Lazy males? Bioenergetic differences in energy acquisition and metabolism help to explain sexual size dimorphism in percids. *Journal of Animal Ecology*, 77: 916-926.
- 13) **Purchase**, C.F., & J.A. Hutchings*, 2008. A temporally stable spatial pattern in the spawner density of a freshwater fish: evidence for an ideal despotic distribution. *Canadian Journal of Fisheries & Aquatic Sciences*, 65: 382-388.
- 12) **Purchase***, C.F., D.J. Hasselman, & L.K. Weir, 2007. Relationship between fertilization success and the number of milt donors in rainbow smelt *Osmerus mordax* (Mitchell): implications for population growth rates. *Journal of Fish Biology*, 70: 934-946.
- 11) **Purchase***, C.F., J.A. Hutchings, & G.E. Morgan, 2006. The biological and statistical significance of life history invariants in walleye (*Sander vitreus*). *Evolutionary Ecology Research*, 8: 295-308.
- 10) Rennie, M.D., N.C. Collins, **C.F. Purchase**, & A. Tremblay*, 2005. Predictive models of benthic invertebrate methylmercury in Ontario and Quebec lakes. *Canadian Journal of Fisheries & Aquatic Sciences*, 62: 2770-2783.

- 9) **Purchase, C.F.**, N.C. Collins, G.E. Morgan, & B.J. Shuter*, 2005. Predicting life history traits of yellow perch *Perca flavescens* from environmental characteristics of lakes. Transactions of the American Fisheries Society, 134: 1369-1381.
- 8) **Purchase, C.F.**, N.C. Collins*, G.E. Morgan, & B.J. Shuter, 2005. Sex-specific covariation among life history traits of yellow perch (*Perca flavescens*). Evolutionary Ecology Research, 7: 549-566.
- 7) **Purchase, C.F.**, N.C. Collins, & B.J. Shuter*, 2005. Sensitivity of maximum sustainable harvest rates to intra-specific life history variability of lake trout (*Salvelinus namaycush*) and walleye (*Sander vitreus*). Fisheries Research, 72: 141-148.
- 6) Shuter*, B.J., N.P. Lester, J. La Rose, **C.F. Purchase**, K.Vascotto, G. Morgan, N.C. Collins, & P.A. Abrams, 2005. Optimal life histories and food web position: linkages between somatic growth, reproductive investment and mortality. Canadian Journal of Fisheries & Aquatic Sciences, 62: 738-746.
- 5) **Purchase, C.F.**, D.L. Boyce, & J.A. Brown*, 2002. Occurrence of hypomelanization in cultured yellowtail flounder. Aquaculture Research, 33: 1191-1193.
- 4) **Purchase, C.F.**, & J.A. Brown*, 2001. Stock-specific changes in growth rates, food conversion efficiencies, and energy allocation in response to temperature change in juvenile Atlantic cod. Journal of Fish Biology, 58: 36-52.
- 3) **Purchase, C.F.**, S.V. Goddard, & J.A. Brown*, 2001. Production of antifreeze glycoproteins in cultured and wild juvenile Atlantic cod (*Gadus morhua* L.) under common laboratory environments. Canadian Journal of Zoology, 79: 610-615.
- 2) **Purchase, C.F.**, D.L. Boyce, & J.A. Brown*, 2000. Growth and survival of juvenile yellowtail flounder (*Pleuronectes ferrugineus*) under different photoperiods. Aquaculture Research, 31: 547-552.
- 1) **Purchase, C.F.**, & J.A. Brown*, 2000. Inter-population differences in growth rates and food conversion efficiencies of young Grand Banks and Gulf of Maine Atlantic cod (*Gadus morhua*). Canadian Journal of Fisheries & Aquatic Sciences, 57: 2223-2229.

Other publications

- 6) **Purchase, C.F.** 2022. The undiscovered contraception: does post-ejaculatory cryptic female choice reduce hybridization in salmonids? Pages xxx-xxx in J. S. Gregory editor. Wild Trout XIII: Reducing the gap between science and public opinion, West Yellowstone, Montana.
- 5) Van Leeuwen*, T.E., J.B. Dempson, C.M. Burke, N.I. Kelly, M.J. Robertson, R.J. Lennox, T.B. Havn, M-A. Svenning, M.M. Guzzo, E.B. Thorstad, **C.F. Purchase**, & A.E. Bates, 2020. Temperature-induced mortality assessment of catch and release angling on Atlantic Salmon (*Salmo salar* L.). DFO Can. Sci. Advis. Sec. Res. Doc. 2020/029. vi + 51p.

- 4) Gavaris*, S., K.J. Clark, A.R. Hanke, **C.F. Purchase**, & J. Gale, 2010. Overview of discards from Canadian commercial fisheries in NAFO Divisions 4V, 4W, 4X, 5Y, and 5Z for 2002-2006. Canadian Technical Report of Fisheries & Aquatic Sciences 2873: vi + 112 p.
- 3) **Purchase**, C.F., H.P. Benoît, D.L. Boyce, G.E. Brown, V. Gotceitas, B.J. Laurel, V. Puvanendran, & R.J. Thompson, 2006. TRIBUTE: Joseph A. Brown, Ph.D. Canadian Journal of Fisheries & Aquatic Sciences, 63: iii-iv.
- 2) Boyce, D.L., C.F. **Purchase**, V. Puvanendran, & J.A. Brown, 1998. Designing rearing environments for on-growing of juvenile yellowtail flounder (*Pleuronectes ferrugineus*). Bulletin of the Aquaculture Association of Canada, Proceedings from Aquaculture Canada 1998, 98(2): 23-24.
- 1) **Purchase**, C.F., & J.A. Brown, 1997. Growth of juvenile yellowtail flounder (*Pleuronectes ferrugineus*) under different photoperiods. Bulletin of the Aquaculture Association of Canada, Proceedings from Aquaculture Canada 1997, 97(2): 51-52.

Theses

Purchase, C.F. 2004. Influence of sexually dimorphic growth and environmental heterogeneity on intra-specific life history traits. Ph.D. Thesis, Zoology Department, University of Toronto. Toronto, Ontario, Canada.

Purchase, C.F. 2000. Inter-population differences in growth and energy allocation of young northwest Atlantic cod (*Gadus morhua* L.) revealed under common environment experiments. M.Sc. Thesis, Biology Department, Memorial University. St. John's, Newfoundland, Canada.

Purchase, C.F. 1997. Growth and survival of normally pigmented and hypomelanized juvenile yellowtail flounder (*Pleuronectes ferrugineus*) under different photoperiods. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland, Canada.

Supervised student theses

MacDonald, K.J. 2022. Movers and shakers: exploring the complex dynamics of aquatic biological invasions. M.Sc. Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.

Lantiegne, T.H. 2021. Cryptic female choice and gamete-mediate paternal effects in the context of interspecific hybridization. M.Sc. Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.

Poulos, S. 2019. Embryo development under context of hybridization and a review of regional patterns in hybrid frequencies of Atlantic salmon and brown trout. M.Sc. Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.

- Penney, H.D. 2019. Environmental and maternal effects on hatch characteristics and early growth of fishes in Newfoundland and Labrador. Ph.D. Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Wringe, B. 2016. Effects of exposure to culture in fishes: the existence of common morphological responses among species, and their impact on the interaction between escapee and wild Atlantic cod (*Gadus morhua*). Ph.D. Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Pemberton-Renaud, V. 2015. Fertilization success in capelin (*Mallotus villosus*) as a function of sperm exposure to water at different salinities. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Puckrin, O. 2014. Effectiveness of purposeful inbreeding to reduce the likelihood of outbreeding depression due to 'escaped embryos' of cultivated Atlantic cod (*Gadus morhua*). M.Sc. Thesis, Biology, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Litt, M.A. 2014. A landmarked-based geometric morphometric analysis of body shape variation in brook charr (*Salvelinus fontinalis*) from four populations with different life histories on Cape Race, Newfoundland. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Clarke, C.N. 2014. Life-long transgenerational effects of early experience in Atlantic salmon (*Salmo salar*). M.Sc. Thesis, Environmental Science, Memorial University, St. John's, Newfoundland & Labrador, Canada.
- Warner, L.A. 2013. The incidence of anadromy and seasonal estuary use of native Atlantic salmon and brook charr, and invasive brown trout. M.Sc. Thesis, Biology, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Earle, M. 2013. The effect of female size, and egg size, on offspring quality in capelin (*Mallotus villosus*) developing under two salinities. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Lewis, J. 2013. The effects of salinity on sperm swimming characteristics of marine spawning capelin and freshwater spawning anadromous rainbow smelt (Family Osmeridae). B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Donovan, M. 2012. Variation and allometry in the secondary sexual characteristics of the capelin (*Mallotus villosus*) a sexually dimorphic species. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Zimmermann, E.W. 2012. Escape-related behaviour of Atlantic cod (*Gadus morhua*): motivation to escape from sea cages and spatiotemporal dispersal post-escape. M.Sc. Thesis, Cognitive & Behavioural Ecology Graduate Program, Memorial University. St. John's, Newfoundland & Labrador, Canada.
- Hurley, M.T. 2010. Divergence in trophic morphology in brown trout (*Salmo trutta*) populations of

eastern Newfoundland. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.

Murphy, A.J. 2010. Fecundity of capelin, *Mallotus villosus*, in five regions surrounding Newfoundland in 2007. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.

Blades, L. 2008. Factors affecting egg quality in capelin, *Mallotus villosus*. B.Sc.(Hons) Thesis, Biology Department, Memorial University. St. John's, Newfoundland & Labrador, Canada.

Research Presentations

Invited research seminars/presentations

27) Purchase, C.F. 2022. Selection insights from fish reproduction. Biology Graduate Student Association Seminar Series, Memorial University, St. John's, NL.

26) Purchase, C.F., 2019. Perils of fornicating on the beach: reproductive constraints in a keystone fish may underpin collapse of the Northwest Atlantic foodweb. Public Lecture Series, Institute of Advanced Studies, the University of Western Australia, Crawley, AU.

25) Purchase, C.F., 2019. Gamete ecology and hybridization in salmonids fishes. Seminar Series, School of Biological Sciences, the University of Western Australia, Crawley, AU.

24) Purchase, C.F., & S.J. Leroux, 2019. Distribution and relative abundance of diadromous fishes in Placentia Bay, NL. Oceans Protection Plan – Coastal Environmental Baseline Program Partners Meeting. St. John's, NL.

23) Purchase, C.F., 2019. Global synthesis of the effectiveness of various salmonid spawning habitat enhancements and key recommendations for Newfoundland salmon. World Wildlife Fund, Salmon Habitat Restoration Workshop. St. John's, NL.

22) Purchase, C.F., 2018. Quirky sex on the beach: newly discovered perils of capelin reproduction. Lunchtime Seminar Series, School of Fisheries, Marine Institute. St. John's, NL.

21) Purchase, C.F., 2017. Sperm plasticity: a selection conundrum. Departmental Seminar Series, University of Glasgow. Glasgow, UK.

20) Purchase, C.F., 2017. Ecology and evolution of fish sperm. Departmental Seminar Series, University of Stirling. Stirling, UK.

19) Purchase, C.F., 2017. Gamete performance under natural and unnatural stress. Departmental Seminar Series, University of Ottawa. Ottawa, ON.

18) Purchase, C.F., 2015. Gamete plasticity under reproductive perturbation. Departmental Seminar Series, University of Manitoba. Winnipeg, MB.

- 17) Purchase, C.F., 2015. Egg stocking in the Rennie's River watershed and the salmon reproduction research projects it has created. Salmonid Association of Eastern Newfoundland, River Talk Series. St. John's, NL.
- 16) Purchase, C.F., 2014. Reproductive ecology of salmonids. Marine and Freshwater Research Centre Seminar Series, Galway-Mayo Institute of Technology. Galway, Ireland.
- 15) Purchase, C.F., 2014. Reproductive performance of beach spawning capelin is remarkably sensitive to salinity. Centre for Fisheries Ecosystems Research, Fisheries & Marine Institute. St. John's, NL.
- 14) Purchase, C.F., 2013. How to do it I: Automation of the free ImageJ CASA plugin. 4th International Workshop on the Biology of Fish Gametes. Albufeira, Portugal.
- 13) Purchase, C.F., 2013. Phenotypic plasticity in reproductive performance: insights from fish sperm and embryos. School of Life Sciences Seminar Series, University of Lincoln. Lincoln, England.
- 12) Purchase, C.F., 2013. A synopsis of some new (& surprising) research on capelin reproduction. Fisheries & Oceans Canada, Regional Advisory Process on NL capelin. St. John's, NL.
- 11) Purchase, C.F., 2011. Plasticity and the colonization of aliens. Great Lakes Institute for Environmental Research, University of Windsor. Windsor, ON.
- 10) Purchase, C.F., 2011. From cell to ecology; fish sperm as a model for studies of phenotypic plasticity. Research Institute of Fish Culture and Hydrobiology, University of South Bohemia. Vodňany, Czech Republic.
- 9) Purchase, C.F., 2010. Patterns and processes of intra-specific life history variation in fishes. Department Seminar Series, Concordia University. Montreal, PQ.
- 8) Purchase, C.F., 2010. A myriad of scales: patterns, causes, and importance of phenotypic variability in fishes. Biology Department Seminar Series, University of Toronto at Mississauga. Mississauga, ON.
- 7) Purchase, C.F., 2008. What's a fish to do? Hierarchical responses to variable environments. Science Seminar Series, St. Andrews Biological Station. St. Andrews, NB.
- 6) Purchase, C.F., 2007. Hypothesized environmental and evolutionary influences on maturation of Newfoundland herring. Fisheries Oceanography Committee Workshop, Bedford Institute of Oceanography. Dartmouth, NS.
- 5) Purchase, C.F., 2006. Invariance and environmental correlates: two predictive approaches for investigating percid life history variability. Harvest Fisheries Seminar Series, Bedford Institute of Oceanography. Dartmouth, NS.
- 4) Purchase, C.F., 2005. On intra-specific life history variation: population and gender differences in the lives of yellow perch. Department Seminar Series, Saint Mary's University. Halifax, NS.

3) Purchase, C.F., 2002. On the demise of Atlantic cod: how intra-specific adaptation and phenotypic plasticity may limit the recovery of the fish that changed the world. Department of Zoology Ecolunch Series, University of Toronto. Toronto, ON.

2) Purchase, C.F., 2002. Oh my cod! Nature versus nurture and recovery expectations of the northern cod stock. Ecology & Evolution Seminar Series, McMaster University. Hamilton, ON.

1) Purchase, C.F., 2002. Genetic variation and phenotypic plasticity in Atlantic cod: implications for stock identification and recovery. Department Seminar Series, University of Toronto at Mississauga. Mississauga, ON.

Contributed (given by me)

38) Purchase, C.F. 2022. The undiscovered contraception: does post-ejaculatory cryptic female choice reduce hybridization in salmonids? Wild Trout Symposium XIII. West Yellowstone, Montana, USA.

37) Purchase, C.F., M. Rennie, A. Rooke, & J. Treberg, 2019. The potential for no reproductive senescence in wild populations of a long-lived indeterminate growing vertebrate. Biology of Spermatozoa Biennial Meeting. Nynäsgård, Sweden.

36) Purchase, C.F., M. Rennie, A. Rooke, & J. Treberg, 2019. Old funks don't always have junk spunk: a clear lack of reproductive senescence in sperm quality within the long-lived indeterminate growing lake trout. Canadian Conference for Fisheries Research, London, ON.

35) Purchase, C.F., & A.C. Rooke, 2018. Incubation temperature and the timing of hatch in Atlantic salmon eggs from the Exploits River. Canadian Society of Zoologist Annual Meeting, St. John's, NL.

34) Beirão, J., J. Lewis, B.F. Wringe, & C.F. Purchase, 2017. The bizarre spawning behaviour of capelin and their equally peculiar sperm. Biology of Spermatozoa Biennial Meeting. Bakewell, England.

33) Beirão, J., Litt MA, & C.F. Purchase, 2017. Impact of crude oil and dispersants on capelin embryo development. Canadian Conference for Fisheries Research, Montreal, PQ.

32) Penney, H.D., Beirão, J., C.F. Purchase, 2017. Relative contributions of environmental and maternal effects on embryonic development of brook trout from Cape Race, Newfoundland. Canadian Conference for Fisheries Research, Montreal, PQ.

31) Purchase, C.F. 2016. Unexpected reproductive sensitivity to salinity in marine spawning capelin. Canadian Society for Ecology & Evolution. St. John's, NL.

30) Beirão, J., J. Lewis, & C.F. Purchase, 2014. Extraordinary sexual behaviour of capelin extends to bizarre behaving sperm. Canadian Society for Ecology & Evolution. Montreal, PQ.

29) Beirão, J., J. Lewis, & C.F. Purchase, 2013. Semen biology and the effects of salinity on sperm activation in two osmerids that spawn in different environments. 4th International Workshop on the Biology of Fish Gametes. Albufeira, Portugal.

- 28) Purchase, C.F., 2013. Externally fertilizing sperm are ideally suited for studies on phenotypic plasticity: a synopsis and some examples with fish. Biology of Spermatozoa Biennial Meeting. Bakewell, England.
- 27) Beirão, J., C.F. Purchase, I.A. Fleming, & B.F. Wringe, 2013. Cod sperm motility plasticity to temperature is similar between Newfoundland and New Brunswick populations. Canadian Conference for Fisheries Research. Windsor, ON.
- 26) Puckrin, O.A., C.F. Purchase, and E.A. Trippel, 2012. Can purposeful inbreeding depress the likelihood of outbreeding depression when non-native populations escape from aquaculture operations? In symposium Aquaculture escapes: from their causes and consequences to their prevention. World Aquaculture Society. Prague, Czech Republic.
- 25) Purchase, C.F., & D.T.R. Moreau, 2012. Near lack of plasticity in brown trout sperm performance to pH. Canadian Conference for Fisheries Research. Moncton, NB.
- 24) Purchase, C.F. & D. Moreau, 2011. Individual and population level reaction norms for brown trout sperm performance to pH. 3rd International Workshop on the Biology of Fish Gametes. Budapest, Hungary.
- 23) Purchase, C.F., I.A.E. Butts, A. Alonso-Fernández & E.A. Trippel, 2010. Phenotypic plasticity in the swimming performance of cod sperm as a function of temperature. Canadian Society for Ecology & Evolution. Quebec City, PQ.
- 22) Purchase, C.F., I.A.E. Butts, A. Alonso-Fernández & E.A. Trippel, 2010. Reaction norms of cod sperm performance as a function of temperature. Canadian Conference for Fisheries Research. Winnipeg, MB.
- 21) Purchase, C.F. & J.A. Hutchings, 2009. Spatial/temporal patterns in the spawning densities of brook trout. Canadian Conference for Fisheries Research. Ottawa, ON.
- 20) Purchase, C.F. & J.A. Hutchings, 2008. No free choice in brook trout: spawning densities in a pristine river follow a despotic distribution. The George Barlow Commemorative Symposium on Fish Reproduction Behavior, Mating, and Parental Care Strategies. Ecological & Evolutionary Ethology of Fishes Colloquium. Boston, USA.
- 19) Purchase, C.F. & F. Mowbray, 2008. Continued use of ancient submerged capelin spawning beaches 350 km from shore. Canadian Conference for Fisheries Research. Halifax, NS.
- 18) Purchase, C.F. 2007. Life history and habitat variability. Inaugural Joe Brown Marine Sciences Symposium. St. John's, NL.
- 17) Purchase, C.F., D.J. Hasselman, & L.K. Weir, 2007. Fertilization success and the number of milt donors in rainbow smelt. Canadian Conference for Fisheries Research. Montreal, PQ.

- 16) Purchase, C.F., J.A. Hutchings, & G.E. Morgan, 2004. Statistical versus biological deviation in walleye life history invariants. Ecological & Evolutionary Ethology of Fishes Colloquium. Skagafjörður, Iceland.
- 15) Purchase, C.F., N.C. Collins, B.J. Shuter, & G.E. Morgan, 2003. Predicting life history traits of yellow perch from relationships with environmental variables. Canadian Conference for Fisheries Research. St. John's, NL.
- 14) Purchase, C.F., N.C. Collins, B.J. Shuter, B.A. Henderson, & G.E. Morgan, 2003. Sex-specific life history variation among populations of yellow perch. American Fisheries Society, Annual Meeting. Quebec City, PQ.
- 13) Purchase, C.F., 2003. Can sex-specific life history traits be predicted in un-sampled populations of yellow perch? Ontario Ecology & Ethology Colloquium. Hamilton, ON.
- 12) Purchase, C.F., N.C. Collins, B.J. Shuter, B.A. Henderson, & G.E. Morgan, 2003. Temperature effects on population dynamics of yellow perch (*Perca flavescens*). Canadian Conference for Fisheries Research. Ottawa, ON.
- 11) Purchase, C.F., 2002. Sex ratio, sexual dimorphism and their relation to life history variation in yellow perch (*Perca flavescens*). Ecological & Evolutionary Ethology of Fishes Colloquium. Quebec City, PQ.
- 10) Purchase, C.F., N.C. Collins, B.A. Henderson, & G.E. Morgan, 2002. Annual repeatability in determining life history traits: implications for predicting population parameters from lake characteristics. Canadian Conference for Fisheries Research. Vancouver, BC.
- 9) Purchase, C.F., N.C. Collins, & B.A. Henderson, 2001. Phenotypic variation in age and size of maturity in yellow perch (*Perca flavescens*). Canadian Society of Zoologists, Annual Meeting. Sudbury, ON.
- 8) Purchase, C.F., N.C. Collins, & B.A. Henderson, 2001. Life history variation in Ontario yellow perch (*Perca flavescens*). Canadian Conference for Fisheries Research. Toronto, ON.
- 7) Purchase, C.F., S.V. Goddard, & J.A. Brown, 2000. A comparison of blood plasma antifreeze glycoprotein production in populations of cultured and wild juvenile Atlantic cod (*Gadus morhua* L.) under common laboratory environments. Canadian Society of Zoologists, Annual Meeting. St. Andrews, NB.
- 6) Purchase, C.F., & J.A. Brown, 1999. Growth rate of two populations of Northwest Atlantic cod (*Gadus morhua* L.) under common environments. Fisheries Society of the British Isles, Symposium on Environment, Development, & Growth of Fishes. St. Andrews, Scotland.
- 5) Purchase, C.F., & J.A. Brown, 1999. The effect of source population on growth rate of northwest Atlantic cod (*Gadus morhua* L.) larvae: indication of countergradient variation. Aldrich Interdisciplinary Conference, Memorial University. St. John's, NL.

- 4) Boyce, D.L., C.F. Purchase, V. Puvanendran, & J.A. Brown, 1998. Designing rearing environments for on-growing of juvenile yellowtail flounder (*Pleuronectes ferrugineus*). Aquaculture Canada. St. John's, NL.
- 3) Purchase, C.F., & J.A. Brown, 1998. Comparative growth of three populations of Atlantic cod (*Gadus morhua* L.) under common environments. Aquaculture Canada. St. John's, NL.
- 2) Purchase, C.F., & J.A. Brown, 1997. Growth of juvenile yellowtail flounder (*Pleuronectes ferrugineus*) under three photoperiods. Aquaculture Canada. Quebec City, PQ.
- 1) Purchase, C.F., & J.A. Brown, 1997. Growth of juvenile yellowtail flounder (*Pleuronectes ferrugineus*) under three photoperiods. Atlantic Provinces Council of the Sciences, Atlantic Universities Aquaculture Conference. Truro, NS.

Conference presentations by my students/postdocs

- 58) MacDonald, K., S.J. Leroux, C.F. Purchase 2021. Spread and establishment dynamics of a pervasive aquatic invader, brown trout (*Salmo trutta*) on the island of Newfoundland. Canadian Society for Ecology and Evolution. Virtual due to Covid.
- 57) MacDonald, K., S.J. Leroux, C.F. Purchase 2021. Movers and shakers: the spread of invasive brown trout on the island of Newfoundland. Canadian Conference for Fisheries Research. Virtual due to Covid.
- 56) MacDonald, K., C.F. Purchase, S.J. Leroux, 2019. Distribution and relative abundance of diadromous fishes in Placentia Bay. Salmonid Council of Newfoundland & Labrador, Annual Meeting, St. John's, NL.
- 55) Lantiegne, T.H., & C.F. Purchase, 2019. Conspecific sperm preference in potentially hybridizing native and non-native Newfoundland salmonids. Salmonid Association of Eastern Newfoundland, River Talk Series. St. John's, NL.
- 54) Philipp, M., & C.F. Purchase, 2019. Sexual signaling and mate quality of virgin and repeat spawning Atlantic salmon. Salmonid Association of Eastern Newfoundland, River Talk Series. St. John's, NL.
- 53) Lantiegne, T.H., & C.F. Purchase, 2019. Conspecific sperm preference in context of hybridization. Biology Graduate Student Symposium. St. John's, NL.
- 52) Philipp, M., & C.F. Purchase, 2019. Sexual signaling and mate quality of virgin and repeat spawning Atlantic salmon. Biology Graduate Student Symposium. St. John's, NL.
- 51) Poulos, S., & C.F. Purchase, 2018. Developmental characteristics of an indigenous and invasive hybrid fish (*Salmo salar* x *Salmo trutta*). American Fisheries Society, Annual Meeting. Atlantic City, NJ.
- 50) Penney, H.D., M.A. Litt, C.F. Purchase, 2018. Banded killifish on the edge: potential reproductive issues in a species of concern. Biology Graduate Student Symposium, St. John's, NL.

- 49) Palm-Flawd, B., D. Cotter, K. Thomas, N. Ó Maoiléidigh, D. Brophy, C.F. Purchase, 2017. Early marine growth effects on maturation of Atlantic salmon (*Salmo salar*). Biology Graduate Student Symposium. St. John's, NL.
- 48) Palm-Flawd, B., Penney, H.D., Stein, T., & Purchase, C.F. 2017. Maternal spawning history effects on yolk quality and embryonic development in Atlantic salmon (*Salmo salar*). Biology Graduate Student Symposium. St. John's, NL
- 47) Penney, H.D., Purchase, C.F., Perry R.C., & Keefe, D.G. 2017. Life in the fast lane: Possible evidence of age-based growth compensation in young of the year charrs. Biology Graduate Student Symposium. St. John's, NL.
- 46) Beirão, J., M.A. Litt, C.F. Purchase, 2017. Chemically dispersed crude oil affects sperm fertilizing ability but not sperm swimming in capelin (*Mallotus villosus*). International Workshop on the Biology of Fish Gametes. Vodňany, Czech Republic.
- 45) Palm-Flawd, B., D. Cotter, K. Thomas, N. Ó Maoiléidigh, D. Brophy, C.F. Purchase, 2017. Early marine growth and population effects on age of maturity. NoWPas, Shaftesbury, England.
- 44) Palm-Flawd, B., J. McCarthy, K. Conrad, C.F. Purchase, 2017. Linking urban habitats and smolt production in St. John's, Newfoundland. Atlantic Salmon Trust, from Headwater to Headland, Improving smolt survival in rivers and estuaries. Berwick-Upon-Tweed, England.
- 43) Palm-Flawd, B., Penney, H., Stein, T., C.F. Purchase, 2017. Spawning history effects on yolk composition and offspring development in female Atlantic salmon. Canadian Conference for Fisheries Research, Montreal, PQ.
- 42) Kocabas, M., Yandi, I., C.F. Purchase, 2016. Combined effects of salinity and light colour on embryo and larval development of Newfoundland capelin. FABA International Symposium on Fisheries and Aquatic Sciences, Antalya, Turkey.
- 41) Kocabas, M., Yandi, I., C.F. Purchase, 2016. The interactive influence of salinity and temperature on embryo-larval development of rainbow smelt. FABA International Symposium on Fisheries and Aquatic Sciences, Antalya, Turkey.
- 41) Palm-Flawd, B., H. Penney, T. Stein, C.F. Purchase, 2016. Maternal spawning history effects on egg quality. NoWPas, Sacré-Coeur, Quebec.
- 40) Palm-Flawd, B., D. Cotter, K. Thomas, N. O'Maoileidigh, D. Brophy, C.F. Purchase, 2016. The first winter at sea: a critical growth period for Atlantic salmon. International Marine Conservation Congress, St. John's, NL.
- 39) Palm-Flawd, B., H.D. Penney, T. Stein, C.F. Purchase, 2016. Determining maternal reproductive strategies of Atlantic salmon through colour analysis of eggs. International Marine Conservation Congress, St. John's, NL.

- 38) Penney, H.D., Purchase C.F., Perry, R.C., & Keefe, D.G. 2016. Early life history characteristics of charrs from northern Labrador: An examination of emergence time and size in Arctic and brook charrs. Canadian Society for Ecology & Evolution, St. John's, NL.
- 37) Palm-Flawd, B., H.D. Penney, T. Stein, C.F. Purchase, 2016. Egg quality differences in virgin and experienced Atlantic salmon. Canadian Society for Ecology & Evolution, St. John's, NL.
- 36) Palm-Flawd, B., D. Cotter, K. Thomas, N. O'Maoileidigh, D. Brophy, C.F. Purchase, 2016. The first winter at sea: a critical growth period for Atlantic salmon. Biology Graduate Student Symposium, St. John's, NL.
- 35) Penney, H.D., J. Beirao, C.F. Purchase, 2016. Maternal influence on multi-dimensional phenotypic plasticity in brook trout embryos. Biology Graduate Student Symposium, St. John's, NL.
- 34) Palm-Flawd, B., H.D. Penney, T. Stein, C.F. Purchase, 2016. Are you my mother? Linking egg colour with spawning tactics of Atlantic salmon. Biology Graduate Student Symposium, St. John's, NL.
- 33) Charron, L., B. Palm-Flawd, C.F. Purchase, 2016. Reducing siltation in Jordan Scotty incubators for salmon conservation. Canadian Conference for Fisheries Research, St. John's, NL.
- 32) Palm-Flawd, B., D. Cotter, K. Thomas, N. O'Maoileidigh, D. Brophy, C.F. Purchase, 2016. Comparing marine growth rates between grilse and 2SW ranched Atlantic salmon and the relative influences on age at maturity. Canadian Conference for Fisheries Research, St. John's, NL.
- 31) Litt, M.A., H.D. Penney, C.F. Purchase, 2016. The effects of temperature and conductivity on embryonic development and survival in banded killifish, a species of concern in Newfoundland. Canadian Conference for Fisheries Research, St. John's, NL.
- 30) Penney, H.D., J. Beirao, C.F. Purchase, 2016. Parental influence on context dependent phenotypic plasticity of brook charr embryos. Canadian Conference for Fisheries Research, St. John's, NL.
- 29) Wringe, B.F., E.A. Trippel, C.F. Purchase, I.A. Fleming, 2016. Across a great divide: fitness effects of hybridization between Newfoundland and New Brunswick strain Atlantic cod. Canadian Conference for Fisheries Research, St. John's, NL.
- 28) Penney, H.D., R. Perry, D. Keefe, C.F. Purchase, 2015. Investigations of emergence time and growth rates of young of the year charr among fjords in northern Labrador, Canada. 8th International Charr Symposium. Tromsø, Norway.
- 27) Palm, B., D. Cotter, N. O'Maoileidigh, K. Thomas, D. Brophy, C.F. Purchase, 2015. Does marine growth rate influence age at maturity in Atlantic salmon? NoWPas, Galway, Ireland.
- 26) Wringe, B.F., I.A. Fleming, & C.F. Purchase, 2015. A cultured phenotype in fishes as revealed through meta-analysis. Canadian Conference for Fisheries Research, Ottawa, ON.

- 25) Penney, H.D., J. Beirão, & C.F. Purchase, 2014. Temperature variability and acidity affect incubation time of brook trout embryos. Larval Fish Conference, American Fisheries Society Annual Meeting. Quebec City, PQ.
- 24) Wringe, B.F., C.F. Purchase, E.A. Trippel, & I.A. Fleming, 2014. The potential for interbreeding between wild and farmed Atlantic cod. Biology Graduate Student Symposium, St. John's, NL.
- 23) Litt, M.A, H.D. Penney, J. Beirão, & C.F. Purchase, 2014. Morphometric variation in brook charr from four populations with different life histories on Cape Race, Newfoundland. Biology Undergraduate Research Symposium. St. John's, NL.
- 22) Earle, M.G., & C.F. Purchase, 2013. Influence of mother length and egg weight on offspring quality of capelin (*Mallotus villosus*) in benign and stressful incubation environments. Biology Undergraduate Research Symposium. St. John's, NL.
- 21) Lewis, J., J. Beirão, & C.F. Purchase, 2013. The effects of salinity on sperm swimming characteristics of marine spawning capelin and the freshwater spawning, anadromous rainbow smelt (Family Osmeridae). Biology Undergraduate Research Symposium. St. John's, NL.
- 20) Earle, M.G., & C.F. Purchase, 2013. The effect of female size and egg size on offspring quality in capelin (*Mallotus villosus*) developing under two salinities. Science Atlantic Aquaculture & Fisheries Conference. Wolfville, NS.
- 19) Lewis, J., J. Beirão, & C.F. Purchase, 2013. The effects of salinity on sperm motility in two osmerid fishes. Science Atlantic Aquaculture & Fisheries Conference. Wolfville, NS.
- 18) Wringe, B.F., C.F. Purchase, E.A. Trippel, & I.A. Fleming, 2013. Mating success of single male farmed Atlantic cod in completion with wild males. Newfoundland Aquaculture Industry Alliance, Gander, NL.
- 17) Zimmermann, E., C.F. Purchase, I.A. Fleming, & J. Bratney, 2012. Why do cod escape from sea cages and where do they go post-escape. In symposium Aquaculture escapes: from their causes and consequences to their prevention. World Aquaculture Society, Prague, Czech Republic.
- 16) Beirão, J., C.F. Purchase, I.A. Fleming, & B.F. Wringe, 2012. Sperm motility of wild males enhanced by the ovarian fluid of wild vs. aquaculture escaped females. In symposium Aquaculture escapes: from their causes and consequences to their prevention. World Aquaculture Society, Prague, Czech Republic.
- 15) Wringe, B.F., C.F. Purchase, E.A. Trippel, & I.A. Fleming, 2012. The fitness of hybrid New Brunswick and Newfoundland strain Atlantic cod (*Gadus morhua*) relative to that of their non-hybrid half-sibs. In symposium Aquaculture escapes: from their causes and consequences to their prevention. World Aquaculture Society, Prague, Czech Republic.
- 14) Zimmermann, E., C.F. Purchase, I.A. Fleming, and J. Bratney, 2012. "On the Lam" dispersal of escapee Atlantic cod. Biology Graduate Student Symposium, Memorial University. St. John's, NL.

- 13) Zimmermann, E., C.F. Purchase, & I.A. Fleming, 2012. Atlantic cod escapes: motivation and dispersal. Canadian Conference for Fisheries Research, Moncton, NB.
- 12) Clarke, C., C.F. Purchase, & D.J. Fraser, 2012. Effects of conservation release and captive rearing strategies on fitness-related measures for Inner Bay of Fundy (IBoF) Atlantic salmon. Canadian Conference for Fisheries Research, Moncton, NB.
- 11) Wringe, B., I.A. Fleming, & C.F. Purchase, 2011. Male-male mating competition between wild and farmed Atlantic cod. European Aquaculture Society. Rhodes, Greece.
- 10) Zimmermann, E., C.F. Purchase, & I.A. Fleming, 2011. Motivation of Atlantic cod (*Gadus morhua*) to escape from sea cages. European Aquaculture Society. Rhodes, Greece.
- 9) Puckrin, O.A., E.A. Trippel, & C.F. Purchase, 2011. Inbreeding among cultivated Atlantic cod (*Gadus morhua*) and its effects on offspring. ICES Annual Science Conference, Poland.
- 8) Puckrin, O.A., E.A. Trippel, & C.F. Purchase, 2011. Occurrence of inbreeding among farmed Atlantic cod (*Gadus morhua*) and subsequent embryo quality. Canadian Society for Ecology & Evolution, Banff, AB.
- 7) Warner, L.A., C.F. Purchase, & G. Veinott, 2011. The ability to migrate may influence the cost/benefit ratio of migration for a given species of salmonid. Canadian Society for Ecology & Evolution, Banff, AB.
- 6) Puckrin, O.A., E.A. Trippel, & C.F. Purchase, 2010. Potential inbreeding of farmed Atlantic cod (*Gadus morhua*) and subsequent quality and effect of embryos released into the environment. ICES Annual Science Conference, France.
- 5) Vilimek, M., C.F. Purchase, & F. Mowbray, 2010. Another piece of the puzzle: Evaluating long-term life history trends of a non-commercial species to better address fishery impacts on Northwest Atlantic stocks. Canadian Society for Ecology & Evolution, Quebec City, PQ.
- 4) Warner, L.A., C.F. Purchase, & G. Veinott, 2010. Use of a small Newfoundland estuary by invasive brown trout. Canadian Society for Ecology & Evolution, Quebec City, PQ.
- 3) Vilimek, M., C.F. Purchase, & F. Mowbray, 2009. Long-term life history trends in Newfoundland northern sand lance. Canadian Conference for Fisheries Research, Ottawa, ON.
- 2) Warner, L.A., C.F. Purchase, & G. Veinott, 2009. Anadromy and residency life histories in sympatric salmonids. Canadian Conference for Fisheries Research, Ottawa, ON.
- 1) Blades, L.E., C.F. Purchase, & B.S. Nakashima, 2008. Factors affecting egg quality in capelin. Atlantic Provinces Council of the Sciences Undergraduate Biology Conference. St. John's, NL.

Presentations by other coauthors (* gave presentation)

- 8) Beirão*, J., T.B. Egeland, C.F. Purchase, & J.T. Nordeide, 2019. Fish sperm competition in hatcheries and between wild and hatchery origin fish in nature. 7th International Workshop on the Biology of Fish Gametes. Rennes, France.
- 7) Loeppky*, A., C.F. Purchase, G. Davoren, 2016. Does maternal investment effect otolith chemistry of larval capelin? Annual Larval Fish Conference of the American Fisheries Society, Solomons, Maryland, USA.
- 6) Loeppky*, A., C.F. Purchase, G. Davoren, 2016. Can otolith chemical signatures identify the natal habitat of larval capelin? Canadian Conference for Fisheries Research, St. John's, NL.
- 5) Zimmermann, E.W., C.F. Purchase, I.A. Fleming*, & J. Bratney, 2013. Dispersal of wild and escapee Atlantic cod (*Gadus morhua*) in Newfoundland. 2nd International Conference on Fish Telemetry. Grahamstown, South Africa.
- 4) Trippel*, E.A., C.F. Purchase, O.A. Puckrin, E. Zimmermann, B.F. Wringe, J. Bratney, & I.A. Fleming, 2012. Atlantic cod mariculture in Canada: an evaluation of the risk and mitigation of escapes. ICES Annual Science Conference, Norway.
- 3) Rennie*, M.D., N.C. Collins, C.F. Purchase, & A. Tremblay, 2004. Predictive models of benthic invertebrate methylmercury. American Society of Limnology & Oceanography, Annual Meeting. Savannah, Georgia.
- 2) Brown*, J.A., & C.F. Purchase, 2000. Inter-population differences in phenotypic response among Atlantic cod populations (common-garden experiments). ICES Cod Growth Workshop. Dartmouth, NS.
- 1) Brown*, J.A., V. Puvanendran, & C.F. Purchase, 1999. Inter-population differences in cod performance: a Canadian perspective. High Technology Centre, University of Bergen. Bergen, Norway.

Invited Expert at Workshops

- 2021 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2021 Fisheries & Oceans Canada, Regional Advisory Process on capelin (invited)
- 2021 Fisheries & Oceans Canada, Pre-Cosewic assessment for listing of anadromous Atlantic salmon (invited)
- 2019 Fisheries & Oceans Canada, Review of the Marine Harvest Atlantic Canada Aquaculture Siting Baseline Assessments (invited)
- 2019 Distribution and relative abundance of diadromous fishes in Placentia Bay, NL. Oceans Protection Plan – Coastal Environmental Baseline Program Partners Meeting (invited)
- 2019 World Wildlife Fund, Salmon Habitat Restoration Workshop (invited)
- 2019 Fisheries & Oceans Canada, Recovery Potential Assessment for lumpfish (invited)
- 2019 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2019 Fisheries & Oceans Canada, Regional Advisory Process on capelin (invited)
- 2018 Salmonid Council of Newfoundland and Labrador, Annual Meeting (invited)
- 2018 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2018 Fisheries & Oceans Canada, Regional Advisory Process on capelin (invited)
- 2018 WWF & Humber ACAP, Aquatic Habitat Restoration Workshop (invited)

- 2018 Fisheries & Oceans Canada, Biological Effects of Petroleum Products on Aquatic Wildlife (invited)
- 2017 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2017 Fisheries & Oceans Canada, National Peer Review meeting on development of toxicity standard methods for heavy oils in aquatic ecosystems (invited)
- 2015 Fisheries & Oceans Canada, Regional Science Advisory Process on capelin (invited)
- 2013 NL Fisheries & Aquaculture, Sustainable Aquaculture Strategy consultations (invited)
- 2013 Fisheries & Oceans Canada, Regional Framework for capelin reference points (invited)
- 2013 Fisheries & Oceans Canada, Regional Framework for herring assessment (invited)
- 2013 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2012 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2012 Fisheries & Oceans Canada, Recovery Potential Assessment for southern Newfoundland Atlantic salmon (invited)
- 2011 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2010 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2010 Fisheries & Oceans Canada, Regional Advisory Process on NL capelin (invited)
- 2009 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2009 Fisheries & Oceans Canada, Regional Advisory Process on NL herring (invited)
- 2008 The Harris Centre Workshop on Community Research Partnerships: Resource Management in Marine & Freshwater Environments (invited)
- 2008 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2008 Fisheries & Oceans Canada, Regional Advisory Process on NL herring (invited)
- 2008 Fisheries & Oceans Canada, Regional Advisory Process on NL capelin (invited)
- 2007 Fisheries & Oceans Canada, Regional Advisory Process on NL salmonids (invited)
- 2006 Fisheries & Oceans Canada, Regional Advisory Process on Scotian Shelf snow crab (invited)

Invited Public Engagement & Media Interviews

- 2022 CBC St. John's "The Broadcast" on capelin research
- 2022 The Telegram/Saltwire on a brine experiment with capelin
- 2022 The life of Professor Jeff Hutchings, CBC "The Broadcast".
- 2022 Senescence in lake trout
CBC St. John's "The Broadcast", CBC Thunder Bay "Superior Morning", CTV news, Montreal Gazette, Toronto Star, National Post, Winnipeg Sun
- 2021 CBC St. John's Morning Show & CBC Newfoundland Morning Show on effect of low water on fish
- 2019 CBC French TV interview on capelin oil work
- 2019 Main feature on salmon research for 28 min TV episode produced by the Salmonid Association of Eastern Newfoundland and the Atlantic Salmon Conservation Foundation. Rogers TV.
- 2019 Capelin oil spill research. CBC Fisheries Broadcast.
- 2019 Capelin oil spill research. MUN Gazette article.
- 2019 Salmon research, Quebec Science magazine
- 2018 Eel biology, for episode of Rare Earth Uncovered, Aboriginal Peoples Television Network.
- 2018 Salmon research, NTV Evening Newshour, Newfoundland Television.
- 2018 Capelin reproduction. World Wildlife Fund, Public Engagement Series.
- 2018 Salmon research, CBC Fisheries Broadcast.
- 2018 Salmon funding from Atlantic Salmon Conservation Foundation. MUN Gazette article.

- 2018 Capelin reproduction impacted by salinity. CBC Fisheries Broadcast.
- 2017 Salmon research, education, and rehabilitation. CBC Morning Show, and online.
- 2017 Capelin biology. NTV Evening Newshour, Newfoundland Television.
- 2017 Capelin reproduction. World Wildlife Fund, Public Engagement Series.
- 2017 Salmon research. VOCM Friday night talk show.
- 2017 Fish identification workshop. Salmonid Association of Eastern Newfoundland.
- 2017 Oil dispersant research. Canadian Broadcasting Corporation.
- CBC TV: CBC Nova Scotia, CBC Newfoundland and Labrador
 - CBC Radio: CBC As it Happens, CBC Fisheries Broadcast, CBC morning NS
- 2017 Expertise brought to COSEWIC. MUN Gazette article.
- 2016 Capelin reproduction. World Wildlife Fund, Public Engagement Series.
- 2016 Where have we come in fisheries science? NTV Evening Newshour, Newfoundland Television.
- 2015 Foreign salmon. The Broadcast, Canadian Broadcasting Corporation.
- 2015 Capelin reproduction. The Broadcast, Canadian Broadcasting Corporation.
- 2015 Weird sex: the unusual morphology, behaviour and gametes of capelin. Monthly Lecture, NatureNL.
- 2015 The future of salmon in our rivers. Annual General Meeting, Northeast Avalon Atlantic Coastal Action Program.
- 2015 Beach side Q&A on capelin reproduction with Dr. Purchase. NatureNL Public Information Sessions.
- 2015 Urban salmon, public engagement and associated research activities. Annual Dinner & Auction, Salmonid Association of Eastern Newfoundland in conjunction with Project Healing Waters Fly Fishing Canada.
- 2015 Salmon life cycle and what we can do to help. Scouts Canada, 1st Mary Queen of Peace Beaver Colony A.
- 2015 Celtic connections. Prescience Magazine.
- 2015 Salmon reproduction research. Fisheries Broadcast, Canadian Broadcasting Corporation
- 2014 New salmon research in Newfoundland. Spawner Magazine
- 2013 Atlantic salmon reintroduction. NTV Evening News hour, Newfoundland Television.
- 2013 Trout biology (1 hour radio dialogue). Cross-talk, Canadian Broadcasting Corporation
- 2013 Capelin biology. DownHome Magazine
- 2013 Refining aquacultural practices. International Innovation, pages 64-65. Research Media Ltd. Bristol, U.K.
- 2010 COSEWIC recommendations on Atlantic salmon. Fisheries Broadcast, Canadian Broadcasting Corporation
- 2010 COSEWIC recommendations on Atlantic cod. Fisheries Broadcast, Canadian Broadcasting Corporation

Research Grants & Contracts

- 2022 Natural and sexual selection linkages across the biphasic life cycle: experimental insight from fish. NSERC DG program. C.F. Purchase; \$140,000.
- 2018 Distribution and relative abundance of diadromous fishes in Placentia Bay, NL. Fisheries and Oceans Canada. S.J. Leroux & C.F. Purchase; \$104,467.
- 2018 Terrestrial and freshwater ecology field research vehicle. NSERC Research Tools and Instruments Grant. Y. Wiersma, C. Brown, & C.F. Purchase; \$58,083.

- 2018 Recommendation report on techniques to supplement salmon spawning habitat in Newfoundland and Labrador. World Wildlife Fund Canada. C.F. Purchase, personal contract; \$23,000.
- 2016 Gamete ecology in variable environments. NSERC DG program. C.F. Purchase; \$172,480.
- 2016 Salmon gametes as a source for research, restocking and public engagement. Atlantic Salmon Conservation Foundation. C.F. Purchase; \$110,000.
- 2015 Impacts of crude oil and dispersants on capelin reproductive performance. Fisheries and Oceans Canada. C.F. Purchase: \$74,965.
- 2015 Research on offspring quality of virgin/repeat spawning grilse salmon and the success of Jordan/Scotty incubators undertaken in conjunction with salmon reintroduction to Rennie's River. Atlantic Salmon Conservation Foundation. C.F. Purchase; \$15,000.
- 2015 Incubation sensitivity to winter temperatures in four DUs of Atlantic salmon in Canada. Atlantic Salmon Conservation Foundation. C.F. Purchase; \$95,000.
- 2015 Fish Reproduction. Internal Bridge Grant, Faculty of Science, Memorial University. C.F. Purchase; \$8500.
- 2012 Effects of climate change on salmonid populations of the high subarctic tundra eco-region (The George Plateau). Department of Environment and Conservation, Government of Newfoundland & Labrador. C.F. Purchase; \$48,000.
- 2009 Fish ecology research laboratory. Research Development Corporation IRIF Leverage R&D Fund. C.F. Purchase; \$90,716.
- 2009 Fish Ecology Research Program Startup Funding. Government of Newfoundland & Labrador IRIF Ignite R&D Fund. C.F. Purchase; \$67,500.
- 2009 Anadromy and migratory history of the brown trout population in the Renew's River ecosystem. Fisheries & Oceans Canada Contract. C.F. Purchase; \$9990.
- 2009 Shared field vehicle. NSERC Research Tools and Instruments Grant. Y. Wiersma, S. Zeigler, & C.F. Purchase; \$29,400.
- 2009 Data assessment for study on long-term trends in life histories of sand lance. Fisheries & Oceans Canada Contract. C.F. Purchase; \$4000.
- 2008 Assessing and mitigating risk from a diversifying aquaculture industry: the potential for interaction between escapee and wild Atlantic cod. NSERC Strategic Project Grant. I.A. Fleming, C.F. Purchase, E.A. Trippel, & J. Brattey; \$443,800.
- 2008 Fish ecology research laboratory. Canadian Foundation for Innovation, Leaders Opportunity Fund. C.F. Purchase; \$81,456.
- 2008 Intraspecific fish life history variability at multiple scales. NSERC Discovery Grant. C.F. Purchase; \$85,000.
- 2008 Brown trout habitat utilization in Renew's River. Fisheries & Oceans Canada Contract. C.F. Purchase; \$9975.
- 2006 Browns Bank North scallop census. Seafood Producers Association of Nova Scotia Contract for Chief Scientist. C.F. Purchase; \$8320.
- 2002 Predicting life history parameters of Ontario yellow perch. Ontario Federation of Anglers & Hunters, Sport Fisheries Research Grant. C.F. Purchase; \$2000.

Research Supervision

Postdoctoral Fellows

- 2018 Dr. Dara Orbach (part-time)
- 2016 Dr. José Beirão Santos
- 2014-2015 Dr. Mehmet Kocabaş

2012-2013 Dr. José Beirão Santos (co-supervised)
 2011 Dr. Laura Weir (part-time)

Research Assistants

2017-2018 Anna Rooke
 2017-2018 Ellen Peroni
 2010 Darek Moreau

Technicians

2016 - 2018 Terry Sullivan, Science Technician I, Memorial University
 2017 Mohammad Fahmy, Science Technician I, Memorial University
 2016 Jonathan Hand, Science Technician I, Memorial University
 2015 Margaret Litt, Science Technician I, Memorial University
 2015 Louis Charron, Science Technician I, Memorial University
 2012 Martin Cuddy, Science Technician II, Memorial University
 2012 & 2011 Michelle Bachan, Science Technician II, Memorial University
 2011 Martin Cuddy, Science Technician I, Memorial University

Independent Graduate Research (in progress or year completed)

In Progress Ranjan Wagle, M.Sc. Biology, Memorial University
 In Progress Madison Philipp, M.Sc. Biology, Memorial University
 2021 Kelly MacDonald, M.Sc. Biology, Memorial University
 2021 Tyler Lantiegne, M.Sc. Biology, Memorial University
 2014-2017 Brittany Palm-Flawd (withdrawn), Ph.D. Biology, Memorial University
 2019 Steven Poulos, M.Sc. Biology, Memorial University
 2019 Heather Penney, Ph.D. Biology, Memorial University
 2016 Sun Zeyu, M.E.S., Memorial University
 2016 Brendan Wringe, Ph.D. Biology, Memorial University (co-supervised)
 2014 Olivia Puckrin, M.Sc. Biology, Memorial University (co-supervised)
 2014 Corey Clarke, M.Sc. Environmental Science, Memorial University (co-supervised)
 2013 Lucas Warner, M.Sc. Biology, Memorial University
 2012 Emily Zimmermann, M.Sc. Cognitive & Behavioural Ecology, Memorial University (co-supervised)
 2008-2011 Michael Vilimek (did not complete), M.Sc. Biology, Memorial University

Independent Undergraduate Research

2015 Violaine Pemberton-Renaud, B.Sc.(Hons) thesis, Memorial University
 2014 Margaret Litt, B.Sc.(Hons) thesis, Memorial University
 2013 Mark Earle, B.Sc.(Hons) thesis, Memorial University
 2013 Jason Lewis, B.Sc.(Hons) thesis, Memorial University
 2012 Meagan Donovan, B.Sc.(Hons) thesis, Memorial University
 2010 Michael Hurley, B.Sc.(Hons) thesis, Memorial University
 2010 Andrew Murphy, B.Sc.(Hons) thesis, Memorial University
 2008 Lindsay Blades, B.Sc.(Hons) thesis, Memorial University (co-supervised)
 2003 Daniel Lai, Independent Undergraduate Research Program, University of Toronto at Mississauga (co-supervised)

Other Undergraduate Research

2021 Jayme Bonnell, SURA (science university research award), Memorial University
 2017 Lindsee Clark, SURA (science university research award), Memorial University
 2016 Tanner Stein, SURA (science university research award), Memorial University
 2014 Violaine Pemberton-Renaud, NSERC USRA, Memorial University
 2014 Margaret Litt, SURA (science university research award), Memorial University
 2013 Jason Lewis, SURA (science university research award), Memorial University
 2013 Mark Earle, NSERC USRA, Memorial University
 2012 Justin Strong, NSERC USRA, Memorial University
 2012 Jason Lewis, SURA (science university research award), Memorial University
 2011 Renee Hamel, NSERC USRA, Memorial University
 2010 Michael Hurley, NSERC USRA, Memorial University
 2009 Michael Hurley, NSERC USRA, Memorial University

Interns

2014 Sean Chilibeck, Intern, Conservation Corps Newfoundland & Labrador
 2010 & 2009 Marcel Field, Intern, Conservation Corps Newfoundland & Labrador

Summer Students

2022 Gage Moffatt, Summer Research Assistant, Memorial University
 2022 Nick Murphy, Summer Research Assistant, Memorial University
 2017 Tommi White, Spring Research Assistant, Memorial University
 2016 Devin Saunders, Spring Research Assistant, Memorial University
 2016 Laura Dawson, Summer Research Assistant, Memorial University
 2012 Miranda McGrath, Summer Research Assistant, Memorial University
 2009 Andrew Murphy, SWASP student, Memorial University
 2009 Grant Samson, Summer Research Assistant, Memorial University
 2007 & 2006 Brianna Browning, Summer Student, Fisheries & Oceans Canada (co-supervised)
 2007 Ainsley Decker, Research Assistant, Fisheries & Oceans Canada (co-supervised)
 2000 Michael Lau, Field Assistant, Cooperative Freshwater Ecology Unit

Memorial University Career Experience Students

2022 Kaitlyn Gladney, MUCEP student, Memorial University
 2018-2019 Coady Fitzpatrick, MUCEP student & Spring Research Assistant, Memorial University
 2017-2018 Taylor Hughes, MUCEP student, Memorial University
 2017 Devin Saunders, MUCEP student and spring field assistant, Memorial University
 2016 Leah Burrows, MUCEP student, Memorial University
 2016 Ethan Armstrong, MUCEP student, Memorial University
 2015 - 2016 Tanner Stein, MUCEP student, Memorial University
 2015 Brianna King, MUCEP & SWASP student, Memorial University
 2015 Justin Forward, MUCEP student, Memorial University
 2014 & 2015 Violaine Pemberton-Renaud, MUCEP student, Memorial University
 2013 Mary Allison Butt, MUCEP student, Memorial University
 2013-2014 Margaret Litt, MUCEP student, Memorial University
 2013 & 2012 Daniel Windeler, MUCEP student, Memorial University
 2013 & 2012 Sarah Power, MUCEP student, Memorial University
 2012 & 2011 Justin Strong, MUCEP student, Memorial University

2012 – 2010 Jason Lewis, MUCEP, SWASP & CSJ student, Memorial University
2010 Alexander Elliott, MUCEP student, Memorial University
2010 Meagan Careen, MUCEP student, Memorial University
2010 & 2009 Patricia Howse, MUCEP student, Memorial University

Memorial University International Work Experience Students

2017-2018 Cassidy Edwards, ISWEP student, Memorial University
2014 - 2016 Mohammad Fahmy, ISWEP student, Memorial University
2016 Alvi Rahman, ISWEP student, Memorial University
2016 Linqiao Xia, ISWEP student, Memorial University
2015 Tasmia Zahn, ISWEP student, Memorial University
2014 Rafael Tiburcio, ISWEP student, Memorial University

Women in Science and Engineering (High School) Students

2015 Makaila Hudson, WISE student
2014 Robin Seward, WISE student
2013 Brianna King, WISE student

Professional Service, Interaction & Outreach

Scientific Reviewer

Editor

2011 – 2018 Northeastern Naturalist

Journals of Manuscripts Reviewed

Aquaculture Environment Interactions
Aquaculture Research
Archiv Für Hydrobiologie
Behavioural Ecology
Biology Letters
Canadian Journal of Fisheries & Aquatic Sciences
Canadian Journal of Zoology
Cells
Comparative Biochemistry & Physiology
Ecology of Freshwater Fish
Environmental Biology of Fish
Evolutionary Applications
Fish Physiology & Biochemistry
Fisheries & Oceans Canada
Functional Ecology
Journal of Fish Biology
Journal of Applied Ecology
Journal of Applied Ichthyology
Journal of Thermal Biology
Marine Biology Research

North American Journal of Aquaculture
North American Journal of Fisheries Management
Proceedings of the Royal Society of London
The American Naturalist
Transactions of the American Fisheries Society

Grant Proposals

Alberta Conservation Association
Canada Foundation for Innovation
Czech Science Foundation
Faroese Research Council
Great Lakes Fishery Commission
Irish Research Council
National Science Foundation (U.S.A.)
National Fund for Scientific & Technological Development (Chile)
Natural Sciences & Engineering Research Council of Canada
 Discovery Grants
 Strategic Grants
 Create Grants

Animal Care Proposals

Trent University
Saint Mary's University

Award Competition Reviews

Larkin Award, Canadian Aquatic Resources Section, American Fisheries Society

Committee & Board Service

Non-university

2022 *Director*; Salmonid Association of Eastern Newfoundland
2022 - 2023 *President*; Canadian Aquatic Resources Section, American Fisheries Society
2021 - *Member*; Science Atlantic – Biology Division
2020 - 2021 *Vice President*; Canadian Aquatic Resources Section, American Fisheries Society
2009 - 2020 *Member*; Marine Fishes Specialist Subcommittee, Committee on the Status of
 Endangered Wildlife in Canada (COSEWIC) – appointed 3 times
2013 - *Member*; Ecological Projects Committee, Salmonid Association of Eastern NFLD
2011 - 2018 *Member*; Board of Editors, Northeastern Naturalist
2017 *Member*; Selection committee for a COSEWIC co-chair
2015 *President*; Canadian Conference for Fisheries Research
2005 - *Member*; Centre for Marine Biodiversity
2008 *Chairman of the Board of Directors*;
 Protected Areas Association of Newfoundland & Labrador
2007 & 2006 *Member*; Board of Directors, Protected Areas Association of Newfoundland & Labrador
2006 *Member*; Board of Directors, Canadian Parks & Wilderness Society
 (Newfoundland & Labrador Chapter)

University Administration

- 2022 - 2023 *Elected Chair*; Promotion & Tenure Committee, Memorial University Biology Department
- 2022 – 2023 *Chair*; Awards Committee, Faculty of Science
- 2022 - *Member*; Board of Study, Bonne Bay Marine Station
- 2020 – 2023 *Elected Member*; University Senate, Memorial University
- 2020 - 2021 *Elected Chair*; Promotion & Tenure Committee, Memorial University Biology Department
- 2018 – 2023 *Member*; Senate Committee on Honorary Degrees and Ceremonial
- 2017 – 2020 *Member*; Awards Committee, Faculty of Science
- 2018 – 2019 *Elected Chair*; Promotion & Tenure Committee, Memorial University Biology Department
- 2017 - 2019 *Member*; Academic Advisory Committee, Fisheries Science Program, Marine Institute of Memorial University
- 2017 - 2018 *Elected Chair*; Promotion & Tenure Committee, Memorial University Biology Department
- 2015 - 2018 *Elected Member*; University Senate, Memorial University
- 2015 - 2017 *Member*; Promotion & Tenure Committee, Memorial University Biology Department
- 2011 - 2014 *Member*; Board of Study, Cognitive & Behavioural Ecology, Memorial University
- 2010 - 2014 *Member*; Faculty of Science Council, Graduate Studies Committee
- 2010 - 2013 *Member*; Graduate Studies Committee, Memorial University Biology Department
- 2013 *Member*; Biology & Animal Care task forces for design of new core science facilities, Memorial University
- 2013 & 2012 *Member*; Promotion & Tenure Committee, Memorial University Biology Department
- 2010 & 2009 *Member*; Head's Advisory Committee, Memorial University Biology Department
- 2009 & 2008 *Member*; Nominations Committee, Faculty of Science, Memorial University
- 2009 & 2008 *Member*; Promotion & Tenure Committee, Memorial University Biology Department
- 2003 & 2002 *Member*; Academic Board of Governing Council, University of Toronto
- 2002 & 2001 *Elected Member*; Graduate Affairs Committee, University of Toronto
- 2003 – 2000 *Member*; Curriculum Committee, University of Toronto at Mississauga
- 1997 & 1996 *Elected Member*; Memorial University Biology Society

University Search Committees

- 2019 *Elected Chair*; Search Committee, Director of the Bonne Bay Marine Station, Memorial University
- 2019 *Elected Chair*; Land and Sea Interface Search Committee, Memorial University
- 2018 *Elected Chair*; Search Committee for Head of Biology, Memorial University
- 2017 *Member*; Term to Tenure-track Conversion Committee, Biology Department
- 2015 *Member*; Search Committee, NSERC Industry Research Chair “Fish stock assessment and sustainable harvest advice”, Fisheries and Marine Institute, Memorial University.
- 2012 *Member*; Search Committee, Director of the Bonne Bay Marine Station, Memorial University
- 2012 – 2010 *Member*; Plant Evolutionary Biologist Search Committee, Memorial University
- 2010 *Member*; Community Ecologist Search Committee, Memorial University
- 2009 *Member*; General Search Committee, Memorial University Biology Department

- 2009 *Member*; Search Committee, Chair of the Cognitive & Behavioural Ecology Program, Memorial University
- 2003 *Member*; Search Committee for Lecturer Position, University of Toronto at Mississauga

Academic Research Service

Graduate Student Supervisory Committees (year started)

- 2017 - 2021 Janet Ferguson-Roberts (Marine Biology, Memorial University). M.Sc.
- 2013 - Daigo Kamada (Biology, Memorial University). Ph.D.
- 2013 - 2021 Michael Piersiak (Biology, Memorial University). Ph.D.
- 2012 - Robert Perry (Biology, Memorial University). Ph.D.
- 2013-2016 Jonathan Ebel (Biology, Memorial University). Ph.D.
- 2011-2015 Jennifer Campbell (Biology, Memorial University). M.Sc.
- 2011-2014 Andrew Murphy (Biology, Memorial University). M.Sc.
- 2011-2014 Jenna Munden (Biology, Memorial University). M.Sc.
- 2010-2013 Genevieve D'Avignon (Biology, Memorial University). M.Sc.
- 2010-2012 Shad Madlum (Biology, Memorial University). M.Sc.
- 2010-2012 Livia Goodbrand (Biology, Memorial University). M.Sc.
- 2009-2013 Nyssa Van Vierssen Trip (Biology, Memorial University). M.Sc.
- 2008-2013 Michelle Caputo (Biology, Memorial University). M.Sc.
- 2008-2012 Tara Stevens (Cognitive & Behavioural Ecology, Memorial University). Ph.D.
- 2008-2010 Brettney Pilgrim (Biology, Memorial University). M.Sc.

Thesis Examinations

- 2018 Keenin Coombs (Biology, Memorial University). B.Sc.(Hons) Thesis - examiner
- 2015 Aaron Spares (Biology, Dalhousie University). Ph.D. Thesis – external examiner
- 2014 Barbara Langille (Biology, Memorial University). M.Sc. Thesis - examiner
- 2014 John Winkowski (Biology, Memorial University). M.Sc. Thesis - examiner
- 2011 Kathryn Morton (Biology, Memorial University). Ph.D. Thesis - examiner
- 2010 Louise Copeman (Biology, Memorial University). Ph.D. Thesis - examiner
- 2009 Guangxu Liu (Biology, Memorial University). Ph.D. Thesis - examiner
- 2009 Patrick Abgrall (Cognitive & Behavioural Ecology, Memorial University). Ph.D. Thesis - examiner
- 2009 Aisha Elmelwi (Biology, Memorial University). M.Sc. Thesis - examiner
- 2009 Julia Pantin (Biology, Memorial University). B.Sc(Hons) - examiner
- 2008 Jennifer Monk (Aquaculture, Memorial University). M.Sc. Thesis - examiner

Ph.D. Comprehensive Examinations

- 2018 Mike Laforge (Biology, Memorial University). PhD Comprehensive - examiner
- 2017 Shahinur Islam (Marine Biology, Memorial University). PhD Comprehensive - examiner
- 2016 Kristin Boé (Marine Biology, Memorial University). PhD. Comprehensive - examiner
- 2016 Michael Piersiak (Cognitive & Behavioural Ecology, Memorial University). Ph.D. Comprehensive – examiner
- 2014 Emy Montgomery (Marine Biology, Memorial University). PhD. Comprehensive - examiner
- 2014 Jonathan Ebel (Biology, Memorial University). Ph.D. Comprehensive - examiner
- 2012 Kate Barley (Biology, Memorial University). Ph.D. Comprehensive - examiner
- 2010 Brendan Wringe (Biology, Memorial University). Ph.D. Comprehensive - examiner

- 2010 Craig Knickle (Cognitive & Behavioural Ecology, Memorial University). Ph.D. Comprehensive – examiner
- 2010 Arnault Le Bris (Biology, Memorial University). Ph.D. Comprehensive - examiner
- 2009 Alejandro Burden (Cognitive & Behavioural Ecology, Memorial University). Ph.D. Comprehensive - examiner
- 2009 Alex Bond (Biology, Memorial University). Ph.D. Comprehensive - examiner
- 2008 Nathan Wilke (Biology, Memorial University). Ph.D. Comprehensive - examiner

Conference & Workshop Service

Organization

- 2019 COSEWIC Wildlife Species Assessment Meeting [field trip] (St. John's, N.L.)
- 2016 Canadian Conference for Fisheries Research [lead organizer] (St. John's, N.L.)
- 2016 Canadian Society for Ecology and Evolution (St. John's, N.L.)
- 2015 Thematic Session on Aquaculture and its impacts on aquatic environments, Canadian Conference for Fisheries Research [co-lead organizer] (Ottawa, ON)
- 2012 Special Session on Aquaculture Escapes [co-lead organizer], World Aquaculture Conference (Prague, Czech Republic)
- 2010 Escaping farmed cod and potential for interactions with wild conspecifics [lead organizer] (Saint Andrews, N.B.)
- 2009 The potential for interaction between wild and escapee Atlantic cod [lead organizer] (St. John's, N.L.)
- 2008 APICS Atlantic Universities Undergraduate Biology Conference (St. John's, N.L.)
- 2004 Canadian Conference for Fisheries Research (St. John's, N.L.)

Session Chair

- 2017 Canadian Conference for Fisheries Research (Montreal)
- 2016 Canadian Conference for Fisheries Research (St. John's)
- 2014 Genomes to Biomes (Montreal)
- 2010 Canadian Conference for Fisheries Research (Winnipeg)
- 2009 Canadian Conference for Fisheries Research (Ottawa)
- 2008 Ecological and Evolutionary Ethology of Fishes Colloquia (Boston)
- 2008 Canadian Conference for Fisheries Research (Halifax)

Judging

- 2021 Memorial University – Joe Brown Award
- 2017 Memorial University Biology Graduate Student Symposium
- 2016 Memorial University Biology Graduate Student Symposium
- 2015 Memorial University Biology Graduate Student Symposium
- 2014 Larkin Award – American Fisheries Society
- 2014 Canadian Society for Ecology & Evolution Annual Meeting
- 2014 Memorial University Biology Graduate Student Symposium
- 2011 Memorial University Biology Graduate Student Symposium
- 2009 Canadian Society for Ecology & Evolution Annual Meeting
- 2009 Memorial University Biology Graduate Student Symposium
- 2008 Memorial University Biology Graduate Student Symposium
- 2006 Centre for Marine Biodiversity's Grade 12 Essay Contest

2002 Peel Regional Science Fair
2002 Toronto Final Science Fair
2001 Western Toronto Science Fair

Memberships in Professional – Academic Societies

Canadian Society for Ecology & Evolution
Centre for Marine Biodiversity
American Fisheries Society
Canadian Society of Zoologists
Fishermen & Scientists Research Society
Fisheries Society of the British Isles
Society of Canadian Aquatic Scientists
Society for Conservation Biology
Society for the Study of Evolution

Teaching

Training I Received

1999 Memorial University Graduate Program in Teaching (*a certificate program*)

Teaching Training I Provided

2012 *Mentor*; for Livia Goodbrand, Memorial University Graduate Program in Teaching

Graduate Courses

Faculty: Memorial University

2017S, 2018S, 2022S Field Sampling Approaches and Applied Statistical Philosophy (Biology 7946)

Undergraduate Courses

Faculty: Memorial University

2022W, 2019-2012W Ecology & Evolution of Fishes (Biology 3715)
2019S - 2011S Estuarine Fish Ecology Field Course (Biology 3714)
2011W & 2008W Conservation Biology (Biology/Geography 4650)
2010F Ecology & Evolution of Fishes (Biology 4600)
2009W&F Ichthyology (Biology 4600)
2009W Vertebrate Biology (Biology 2210)

Sessional Instructor (technically a temporary Assistant Professor): Dalhousie University

2005S Applied Field Methods in Fish Ecology

Lecturer: Saint Mary's University

2005F Ecology

Teaching assistantships

Teaching Assistant (full laboratory responsibility): University of Toronto at Mississauga

2003 Biometrics I

2003 Biometrics II
 2002 Ecology
 2002 & 2001 Diversity of Organisms

Demonstrator (shared laboratory responsibility): Memorial University

1999 & 1998 Animal Physiology
 1999 & 1997 Ichthyology
 1998 & 1997 Principles of Biology
 1998, 96, 95 Principles of Ecology
 1997 Introductory Botany
 1997 & 1996 Science for Primary & Elementary Education Students Level II
 1995 Science for Primary & Elementary Education Students Level I

Lectures in other Courses (Course, Institution)

2019 Evolution, Memorial University
 2017 Behavioural Ecology and Sociobiology, Memorial University
 2013 Conservation Biology, Memorial University
 2012 Conservation Biology, Memorial University
 2011 Mammalogy, Memorial University
 2010 Conservation Biology, Memorial University
 2005 Ecology, Saint Mary's University
 2004 Ecology & Evolution of Fishes, Dalhousie University
 2003 Advanced Population Ecology, University of Toronto at Scarborough
 2003 Conservation Biology, McMaster University
 2003 Population Ecology, University of Toronto
 1998 Animal Physiology, Memorial University
 1998 Ichthyology, Memorial University
 1998 Function Biology of Fishes, Memorial University

Other

- Training & Certificates
 - Small Vessel Operator Proficiency – Transport Canada
 - Wilderness & Remote First Aid & CPR/AED Level C (Red Cross)
 - Licensed Guide (Hunting, Fishing, Canoeing & Camping)
 - Pleasure Craft Operating License
 - Marine Emergency Duties A1
 - WHMIS
 - Canadian Council on Animal Care Training Certificates
- Current memberships in non-academic societies/groups
 - Salmonid Association of Eastern Newfoundland (SAEN)
 - Salmon Preservation Association for the Waters of Newfoundland (SPAWN)
 - Atlantic Salmon Federation (ASF)
 - Scouts Canada (1st St. Johns East Scout Troop)
 - Paddle NL
- Halifax Regional Search & Rescue Team (2004-2006)