

February 2020

BENJAMIN DANIEL BARST
Research Assistant Professor
Water and Environmental Research Center
University of Alaska Fairbanks
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HIGHLIGHTS

- PhD in Water Science from Institut national de la recherche scientifique – eau terre environnement (INRS-ETE)
- Winner of the *Prix du Rayonnement International* 2015 for contributing to the international reputation of INRS-ETE through international collaborations
- Recipient of a Centennial Postdoctoral Award from the University of Alaska Fairbanks
- Demonstrated success in obtaining research funding (> \$1,000,000)
- Co-author of 17 peer-reviewed publications
- Experience working on collaborative projects and engaging non-academic stakeholders in environmental research

EDUCATION

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|-------|-----------|-----------------------|--------------------------------|
| • PhD | 2010-2015 | Water Science | INRS-ETE, Université du Québec |
| • MSc | 2008-2010 | Environmental Science | University of North Texas |
| • BA | 2006-2008 | Biochemistry | University of North Texas |
| • BSc | 2001-2005 | Wildlife Biology | Adams State University |

APPOINTMENTS

- Research Assistant Professor, Water and Environmental Research Center, University of Alaska Fairbanks, 2020-
- Centennial Postdoctoral Scholar, Alaska Stable Isotope Facility, Water and Environmental Research Center, University of Alaska Fairbanks, 2018 - 2020
- Postdoctoral Fellow, Department of Natural Resource Sciences, McGill University, 2015 - 2018

FUNDING

Pending (total: USD \$65,478):

- \$65,478 (USD), Role: Co-Investigator, Southwest Alaska Salmon Habitat Partnership, “Site-Specific Copper Toxicity to Bristol Bay Sockeye Salmon: Olfactory Inhibition and Water Quality Criteria”, 2020-2021

Awarded (total: United States Dollars (USD) \$782,215 / Canadian Dollars (CAD) \$430,138):

- \$30,089 (USD), Role: Principal Investigator, Alaska NSF EPSCoR, “Investigation of mercury contamination of stream water and nearshore biota collected along a gradient of glacial influence”, 2020-2021
- \$149,129 (USD), Role: Principal Investigator, Alaska Sea Grant, NOAA, “Copper toxicity to Bristol Bay sockeye salmon larvae under field-relevant water quality conditions”, 2020-2022

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- \$437,997 (USD), Role: Principal Investigator, North Pacific Research Board, “A novel approach to track mercury through marine food webs”, 2019-2022
- \$75,000 (USD), Role: Co-Principal Investigator, IDeA Network of Biomedical Research Excellence (INBRE), National Institutes of Health, “Dried blood spots as a tool for diet and trace element exposure assessment”, 2019-2020
- \$90,000 (USD), Centennial Postdoctoral Award, University of Alaska Fairbanks, 2018 – 2020
- \$230,000 (CAD), Role: Co-Principal Investigator, National Contaminants Advisory Group, Department of Fisheries and Oceans Canada, “Identification of priority contaminants and their potential effects on early life stages of the endangered copper redhorse (*Moxostoma hubbsi*)”, 2017 – 2020
- \$156,138 (CAD), Role: Co-Principal Investigator, Northern Contaminants Program, “Investigation of the toxic effects of mercury in landlocked Arctic char”, 2015 – 2018
- \$44,000 (CAD), NSERC CREATE Environmental Innovation Postdoctoral Award, 2016 – 2017

PUBLICATIONS (3 in preparation, 2 in review, 17 in print; *graduate and **undergraduate student mentored; †equal contributions among authors)

In preparation:

22. Marchand H.; **Barst, B.D.**; Boulanger, E.; Vachon, N.; Houde, M.; Xia, J.; Liu, P.; Bayen, S.; Liu, L.; Head, J. Impact of environmental contaminants on early life stages of the endangered copper redhorse; transcriptomic and organismal level responses. For submission to *Aquatic Toxicology*.
21. **Barst, B.D.**; Hadrava, J.**; Labrie, J.; Basu, N.; Dietz, R.; Sonne, C.; Rosabal, M. Subcellular partitioning of trace elements in Greenland polar bear (*Ursus maritimus*) livers. For submission to *Environment International*.
20. **Barst, B.D.**; Hudelson, K.; Lescord, G.L.; Crémazy, A.; Santa-Rios, A.*; Fisk, A.T.; Basu, N.; Drevnick, P.E. Effects of non-native fish on food web structure and mercury biomagnification along a dissolved organic carbon gradient. For submission to *Environmental Toxicology & Chemistry*.

In review:

19. Golzadeh, N.*; **Barst, B.D.**; Basu, N.; Baker, J.C.; McKinney, M. Evaluating the concentrations of total mercury, methylmercury, selenium, and selenium:mercury molar ratios in traditional foods of the Bigstone Cree in Alberta, Canada. Revision submitted to *Chemosphere*, January 16, 2020.
18. Santa-Rios, A.*†; **Barst, B.D.**†; Basu, N.† Mercury speciation in whole blood and dried blood spots from capillary and venous sources. Revision submitted to *Analytical Chemistry*, January 27, 2020.

In print:

17. **Barst, B.D.**; Wooller, M.J.; O'Brien, D.M.; Santa-Rios, A.*; Basu, N.; Köck, G.; J.J. Johnson, Muir, D. Dried blood spot sampling of landlocked Arctic char (*Salvelinus alpinus*) for estimating mercury exposure and stable carbon isotope fingerprinting of essential amino acids. Accepted, *Environmental Toxicology and Chemistry*, 2020.

16. Ortega-Rodriguez, C.*; Chumchal, M.; Drenner, R.; Kennedy, J.; Nowlin, W.; **Barst, B.D.**; Polk, K.; Hall, M.; Williams, E.; Lauck, K.; Santa Rios, A.; Basu, N. Relationship between methyl mercury contamination and proportion of aquatic and terrestrial prey in diets of seven taxa of shoreline spiders. *Environmental Toxicology & Chemistry*, 2019, 38 (11), 2503-2508.
15. Dietz, R.; Letcher, R.J.; Desforages, J.P.; Eulaers, I.; Sonne, C.; Wilson, S.; Andersen-Ranberg, E.; Basu, N.; **Barst, B.D.** et al. Current state of knowledge on biological effects from contaminants on arctic wildlife and fish. *Science of the Total Environment*, 2019, 696, 133792.
14. Hudelson, K.; Muir, D.C.G.; Drevnick, P.E.; Köck, G.; Iqaluk, D.; Wang, X.; Kirk, J.; **Barst, B.D.**; Grgicak-Mannion, A.; Shearon, R.; Fisk, A. Temporal trends and lake-to-lake variation in Arctic char (*Salvelinus alpinus*) mercury concentrations from six High Arctic lakes in Nunavut, Canada. *Science of the Total Environment*, 2019, 678, 801-812.
13. Lin, H.*; Santa-Rios, A*;**Barst, B.D.**; Basu, N. Bayen, S. Occurrence and bioaccessibility of mercury in commercial rice samples in Montreal (Canada). *Food & Chemical Toxicology*, 126, 72-78.
12. Boulanger, E.*; **Barst, B.D.**; Alloy, M.; Blais, S.; Houde, M.; Head, J.A. Assessment of environmentally contaminated sediment using a contact assay with early life stage zebrafish (*Danio rerio*). *Science of the Total Environment* 2019, 659, 950-962.
11. **Barst, B.D.**; Drevnick, P.E.; Muir, D.; Gantner, N.; Power, M.; Köck, G.; Chéhab**, N; Swanson, H.; Rigét, F.; Basu, N. Screening-level risk assessment of methylmercury for non-anadromous Arctic char (*Salvelinus alpinus*). *Environmental Toxicology & Chemistry*, 38 (3), 489-502.
10. Sonne, C.; Basu, N.; Desforages, J.P.; Dietz, R.; Eulaers, I.; Jenssen, B.M.; Letcher, R.J.; **Barst, B.D.**; Bustnes, J.O.; Bytingsvik, J.; Ciesielski, T.M.; Drevnick, P.E.; Haarr, K.H.; Mallory, M.; Pedersen, K.; Provencher, J.F.; Styrihave, B.; Tartu, S. Biological effects of contaminant exposure in Arctic wildlife and fish. *AMAP Assessment 2018: Biological Effects of Contaminants on Arctic Wildlife and Fish*.
9. **Barst, B.D.**; Rosabal, M.; Drevnick, P.E.; Campbell, P.G; Basu, N. Subcellular partitioning of trace elements (Cd, Pb, As, Hg, Se) in the livers of Alaskan yelloweye rockfish (*Sebastes ruberrimus*). *Environmental Pollution* 2018, 242, 63-72.
8. **Barst, B.D.**; Ahad, J.M.E.; Rose, N.; Jautzy, J.; Drevnick, P.; Gammon, P.; Sanei, H.; Savard, M. Lake-sediment record of PAH, mercury, and fly-ash particle deposition near coal-fired power plants in Central Alberta. *Environmental Pollution* 2017, 231, 644-653.
7. Perkins, M.*; **Barst, B.D.**; Hadrava, J.**; Basu, N. Mercury speciation and subcellular distribution in experimentally-dosed and wild birds. *Environmental Toxicology & Chemistry* 2017, 36 (12), 3289-3298.
6. Bradley, M. A.*; **Barst, B.D.**; Basu, N. A Review of Mercury Bioavailability in Humans and Fish. *International Journal of Environmental Research & Public Health* 2017, 14 (2), 169.
5. **Barst, B.D.**; Rosabal, M.; Campbell, P. G.; Muir, D. G.; Wang, X.; Köck, G.; Drevnick, P. E. Subcellular distribution of trace elements and liver histology of landlocked Arctic char (*Salvelinus alpinus*) sampled along a mercury contamination gradient. *Environmental Pollution* 2016, 212, 574-583.

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4. Jautzy, J. J.; Ahad, J. M.; Gobeil, C.; Smirnoff, A.; **Barst, B.D.**; Savard, M. M. Isotopic Evidence for Oil Sands Petroleum Coke in the Peace–Athabasca Delta. *Environmental Science & Technology* 2015, 49 (20), 12062-12070.
3. **Barst, B.D.**; Bridges, K.; Korbas, M.; Roberts, A. P.; Van Kirk, K.; McNeel, K.; Drevnick, P. E. The role of melano-macrophage aggregates in the storage of mercury and other metals: An example from yelloweye rockfish (*Sebastes ruberrimus*). *Environmental Toxicology & Chemistry* 2015, 34 (8), 1918-1925.
2. **Barst, B.D.**; Hammerschmidt, C. R.; Chumchal, M. M.; Muir, D. C.; Smith, J. D.; Roberts, A. P.; Rainwater, T. R.; Drevnick, P. E. Determination of mercury speciation in fish tissue with a direct mercury analyzer. *Environmental Toxicology & Chemistry* 2013, 32 (6), 1237-1241.
1. **Barst, B.D.**; Gevertz, A. K.; Chumchal, M. M.; Smith, J. D.; Rainwater, T. R.; Drevnick, P. E.; Hudelson, K. E.; Hart, A.; Verbeck, G. F.; Roberts, A. P. Laser ablation ICP-MS co-localization of mercury and immune response in fish. *Environmental Science & Technology* 2011, 45 (20), 8982-8988.

MENTORING AND TEACHING

Student mentoring:

- Juliette Funck, Ph.D. student, University of Alaska Fairbanks
- Yuber Palacios-Torres, Ph.D. student, Technological University of Choco
- Hugo Marchand, Ph.D. student, McGill University
- Nasrin Golzadeh, Ph.D. student, McGill University
- Andrea Santa-Rios, Ph.D. student, McGill University
- Marie Perkins, Ph.D. student, McGill University
- Emily Boulanger, M.Sc. student, McGill University
- Hefei Lin, M.Sc. student, McGill University
- Celeste Ortega-Rodriguez, M.Sc. student, Texas Christian University
- Lyell Buttermore, undergraduate student, McGill University
- Nathalie Chéhab, undergraduate student, McGill University
- Justine Hadrava, undergraduate student, McGill University

Undergraduate and graduate teaching:

- Guest Lecturer, Stable Isotopic Techniques in Environmental Research, University of Alaska Fairbanks, February 2020
- Guest Lecturer, Organisms II, McGill University, March 2017
- Guest Lecturer, Ecotoxicology, McGill University, September 2016
- Guest Lecturer, Ecotoxicology, McGill University, September 2015
- Teaching Assistant, Graduate Field Course, INRS-ETE, September 2012-2013
- Teaching Assistant, Alpine Ecology, University of North Texas, Summer 2010
- Guest Lecturer, Environmental Science, University of North Texas, September 2009
- Teaching Assistant, Principles of Biology I Laboratory, University of North Texas, 2008-2009

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PUBLIC OUTREACH AND MEDIA COVERAGE

- Presented “Isotopes and the Ice Age” at STEM Night, Pearl Creek Elementary, Fairbanks Alaska, January 30, 2020
- University of North Texas, “UNT Biology Alum Takes On Alaskan Wilderness” <https://cos.unt.edu/news/unt-biology-alum-takes-alaskan-wilderness>, Denton, TX, USA, May 23, 2019
- EurekAlert, “Fish can detox too -- but not so well, when it comes to mercury” https://www.eurekalert.org/pub_releases/2018-11/mu-fcd112018.php, November 20, 2018
- Yukon news, “Scientists studying ancient bison horns hope to unlock ice-age mysteries” <https://www.yukon-news.com/life/scientists-studying-ancient-bison-horns-hope-to-unlock-ice-age-mysteries/>, Whitehorse, YT, Canada, November 1, 2018
- CBC news, “Alaska researchers test hundreds of ancient bison horns in Whitehorse” <https://www.cbc.ca/news/canada/north/alaska-bison-climate-change-whitehorse-1.4875453> <https://www.cbc.ca/news/canada/north/cbc-northbeat-october-24-2018-1.4877330> Whitehorse, YT, Canada, October 24, 2018
- Discussed contaminant trends in landlocked Arctic char with local high school students and indigenous groups at the 25th anniversary of the Northern Contaminants Program’s “Researcher Expo”, Yellowknife, NWT, Canada, September 25, 2017
- Interviewed on McGill Community Public Radio, Youth Science Journalism Workshop, Montreal, Quebec, Canada, May 13, 2017
- Volunteer, McGill University, Let’s Talk Science – a charitable organization focused on education and outreach to support youth development, February 2017-current
- Met with members of the Bigstone Cree to discuss contaminant levels in their traditional foods, Wabasca, Alberta, Canada, January 2017
- Co-presented “Oil spills and their impacts on aquatic environment and on human health” at the Workshop for First Nations in Quebec and the Energy East pipeline file, December 2015
- Presented fish anatomy to Inuit of Resolute Bay, Nunavut, Canada, July 2011/2012
- Interviewed on National Public Radio, “Basic biology research could improve camouflage”, Greeley, Colorado, USA, July 2009

SCHOLARSHIPS AND AWARDS

- *Prix Du Rayonnement International* – for international collaborations and contribution to the influence of the institution, INRS-ETE, June 2016, **CAD \$250**
- INRS-ETE, Travel scholarship for International Conference on Mercury as a Global Pollutant, Edinburgh, Scotland, July 2013, **CAD \$500**
- INRS-ETE tuition waiver for qualified foreign students, August 2010
- Graduate Assistant Teaching Scholarship, College of Arts and Sciences, University of North Texas, summer 2010, **USD \$1,500**
- Graduate Assistant Teaching Scholarship, College of Arts and Sciences, University of North Texas, spring 2010, **USD \$1,500**

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SYNERGISTIC ACTIVITIES

- **International team member:** Temporal trend monitoring of mercury and persistent organic pollutants (POPs) in Arctic char in the Canadian High Arctic 2011 - 2018
- **Workshop contributor:** 1) Alaska NSF EPSCoR Mentoring Workshop, Fairbanks, Alaska (2019), 2) Responsible Conduct of Research Workshop, Fairbanks, Alaska (2019), 3) One Health, One Future, Fairbanks, Alaska (2019), 4) CREATE Environmental Innovation Eye Opener: Regional and Provincial Land Use Planning: An Industry Perspective in Alberta, Canada (2016); 5) Northern Contaminants Program Workshops (2015 and 2017); 6) Intercultural Indigenous Workshop at McGill University (2017); 7) CREATE Environmental Innovation Eye Opener: Engaging Hunting and Fishing Stakeholders (2017)
- **Contributor:** Arctic Monitoring and Assessment Programme (AMAP) – Exposure to and biological effects of organohalogen contaminants and mercury in Arctic wildlife and fish (2015-2019)
- **Session chair:** 1) November 2015, Wildlife Toxicology. Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Salt Lake City, Utah, USA; 2) July 2013, Mercury exposure and effects in fish and wildlife, 11th International Conference on Mercury as a Global Pollutant, Edinburgh, Scotland.
- **Visiting researcher:** 1) Delta Laboratory, Geological Survey of Canada – Lake sediment geochemistry; 2) Environmental Change Research Centre, University College London – Fly-ash in lake sediments

REVIEWER EXPERIENCE

Journal reviews (Total = 36):

Analytica Chimica Acta (1), *Arctic Science* (1), *Comparative Biochemistry and Physiology* (1), *Ecology and Evolution* (1), *Ecotoxicology* (1), *Environmental Pollution* (4), *Environmental Research* (2), *Environmental Science and Pollution Research* (2), *Environmental Science and Technology* (6), *Environmental Toxicology and Chemistry* (5), *Geosciences* (1), *International Journal of Environmental Research and Public Health* (2), *Integrated Environmental Assessment and Management* (1), *Journal of Aquatic Animal Health* (1), *Journal of Environmental Sciences* (1), *Marine Pollution Bulletin* (2), *Microscopy Research and Technique* (1), *Science of the Total Environment* (2), *Toxics* (1)

Grant reviews (Total = 2)

2020 Northern Contaminants Program (Canada), Environmental Monitoring Grants

INVITED SEMINARS (Total = 3)

1. November 2019, “Dried blood spots: A tool for assessing diet and mercury exposure in fish and humans”, University of Alaska Fairbanks, Water and Environmental Research Center Seminar Series
2. March 2019, “Temporal trends and effects of mercury in landlocked Arctic char”, University of North Texas, Ecology and Physiology Seminar Series
3. November 2016, “Mercury speciation in fish liver at the organ, tissue, and subcellular levels: implications for toxicity”, University of Windsor Graduate Student Seminar Series

PLATFORM AND POSTER PRESENTATIONS (Total = 68)

1. December 2019, "Influence of Permafrost Disturbances and Increased Turbidity on Trends of Mercury and POPs in Landlocked Arctic Char in East and West Lake, Melville Island, Nunavut". D. Muir, **B.D. Barst**, X. Wang, A. Cabrerizo, J. Kirk, D. Iqaluk, S.F. Lamoureux, M.J. Lafrenière. Platform at ArcticNet 2019, Halifax, Canada.
2. December 2019, "Influence of Permafrost Disturbances and Increased Turbidity on Trends of Cesium and Rubidium in Arctic Char in East and West Lake, Melville Island, Nunavut". S. Burke, D. Muir, X. Wang, **B.D. Barst**, J. Kirk, D. Iqaluk, S.F. Lamoureux, M.J. Lafrenière. Poster at ArcticNet 2019, Halifax, Canada.
3. November 2019, "National view of temporal atmospheric anthropogenic mercury deposition across Canada using lake sediment cores". S. Roberts, J. Kirk, D. Muir, A. Gleason, G. Lawson, F. Yang, X. Wang, M. Pilote, J. Keating, M. Evans, A. Ryjkov, A. Dastoor, J. Wiklund, P. Drevnick, A. Bertolo, C. Cooke, **B.D. Barst**. Platform at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Toronto, Canada.
4. November 2019, "Assessment of the concentrations of mercury, selenium, and their molar ratios in traditional foods of the Bigstone Cree community in Alberta, Canada". N. Golzadeh, **B.D. Barst**, N. Basu, J. Baker, J. Auger, M. McKinney. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Toronto, Canada.
5. November 2019, "Trends and climate-related drivers of Arctic char trace metal concentrations from two lakes on Melville Island, Nunavut". S. Burke, D. Muir, X. Wang, **B.D. Barst**, J. Kirk, S. Lamoureux, M. Lafrenier. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Toronto, Canada.
6. November 2019, "Impact of agricultural pesticides on the endangered copper redhorse; transcriptomic and organismal level responses at an early life stage". H. Marchand, **B.D. Barst**, E. Boulanger, N. Vachon, M. Houde, J. Head. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Toronto, Canada.
7. October 2019, "Contaminants in landlocked char from lakes near Resolute Bay". D.C.G. Muir, G. Köck, **B.D. Barst**, J. Kirk, A. Cabrerizo, X. Wang, D. Iqaluk. Poster at Northern Contaminants Program Workshop, Whitehorse, YT, Canada.
8. October 2019, "Does exposure to agriculture pesticides impact early life stages of an endangered fish that is endemic to Quebec?". H. Marchand, **B.D. Barst**, E. Boulanger, N. Vachon, M. Houde, J. Head. Platform at 46th Canadian Ecotoxicity Workshop, Quebec City, Quebec.
9. October 2019, "Non-native fish affect food web structure but not rates of mercury biomagnification". **B.D. Barst**, K. Hudelson, G. Lescord, A. Santa Rios, A. Fisk, N. Basu, P. Drevnick. Poster at 46th Canadian Ecotoxicity Workshop, Quebec City, Quebec.
10. September 2019, "Relationship between methyl mercury contamination and proportion of aquatic and terrestrial prey in diets of seven taxa of shoreline spiders". C. Ortega-Rodriguez, M. Chumchal, R. Drenner, J. Kennedy, W. Nowlin, **B.D. Barst**, K. Polk, M. Hall, E. Williams, K. Lauck, A. Santa Rios, N. Basu. Platform at 14th International Conference on Mercury as a Global Pollutant, Krakow, Poland.
11. May 2019, "Influence of permafrost disturbances and increased turbidity on trends of mercury and other elements in Arctic char in East and West Lake, Melville Island, Nunavut". D.C.G. Muir, X. Wang, A. Cabrerizo, **B.D. Barst**, J. Kirk, D. Iqaluk, M. Pope, S.F. Lamoureux,

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- M.J. Lafrenière. Poster at Society of Environmental Toxicology and Chemistry, European Annual Meeting, Helsinki, Finland.
12. November 2018, "Screening-level risk assessment of methylmercury for non-anadromous Arctic char (*Salvelinus alpinus*)". **B.D. Barst**, P. Drevnick, D. Muir, N. Basu, G. Köck, M. Power, F. Rigét, H. Swanson. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Sacramento, CA, USA.
 13. November 2018, "Subcellular distribution of trace elements in polar bear (*Ursus maritimus*) livers". J. Hadrava, **B.D. Barst**, J. Labrie, R. Dietz, C. Sonne, N. Basu, M. Rosabal. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Sacramento, CA, USA.
 14. November 2018, "Does exposure to contaminants during early life stages impede recovery of the endangered copper redhorse?". H. Marchand, **B.D. Barst**, E. Boulanger, M. Houde, N. Vachon, J. Head. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Sacramento, CA, USA.
 15. October 2018, "Modulation of DNA methylation and mRNA expression in early life stage zebrafish (*Danio rerio*) exposed to benzo[a]pyrene". J. Head, L.M. Legault, M. Alloy, **B.D. Barst**, E. Boulanger, T.L. Colton, M. Houde, S. McGraw. Poster at Canadian Ecotoxicity Workshop, Vancouver, BC, Canada.
 16. June 2018, "The introduction of non-native fish changes diet and mercury levels in native brook charr (*Salvelinus fontinalis*)". **B.D. Barst**, K. Hudelson, M. Chumchal, A. Fisk, P. Drevnick. Poster at International Charr Symposium, Duluth, MN, USA.
 17. June 2018, "Subcellular distribution of trace elements in polar bear liver from (*Ursus maritimus*) Greenland". J. Hadrava, **B.D. Barst**, J. Labrie, N. Basu, M. Rosabal. Poster at Society of Environmental Toxicology and Chemistry, Chapitre Saint Laurent, Québec, QC, Canada.
 18. May 2018, "Modulation of DNA methylation and mRNA expression in early-life stage zebrafish (*Danio rerio*) exposed to benzo[a]pyrene". J. Head, L. Legault, M. Alloy, **B.D. Barst**, E. Boulanger, T. Colson, M. Houde, S. McGraw. Poster at Society of Environmental Toxicology and Chemistry, European Annual Meeting, Rome, Italy.
 19. December 2017, "*In vitro* bioaccessibility of mercury from traditional foods of Bigstone Cree First Nation (Alberta, Canada)". N. Golzadeh, M. Bradley, **B.D. Barst**, J. Baker, J. Augeur, N. Basu. Poster at Arctic Change, Quebec City, QC, Canada.
 20. November 2017, "Effects of early-life exposure to benzo[a]pyrene (BaP) on gene expression and promoter methylation in zebrafish (*Danio rerio*)". M. Alloy, L. Legault, **B.D. Barst**, E. Boulanger, M. Houde, S. McGraw, J. Head. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Minneapolis, MN, USA.
 21. November 2017, "Metals and PAH contamination of Cultus Lake, BC: Risks to federally-listed populations of sockeye salmon and coastrange sculpin". P. Drevnick, **B.D. Barst**, J. Ahad, T. Veverica, D.T. Selbie. Platform at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Minneapolis, MN, USA.
 22. November 2107, "Effects of early-life exposure to PAH-contaminated sediment in fish". E. Boulanger, M. Alloy, **B.D. Barst**, M. Houde, S. Blais, J. Head. Platform at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Minneapolis, MN, USA.

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23. September 2017, "Contaminant trends and biological effects in landlocked char". D. Muir, **B.D. Barst**, G. Köck, A. Cabrerizo, D. Iqaluk, X. Wang, N. Basu, J. Kirk. Northern Contaminants Program Workshop, Yellowknife, NWT, Canada.
24. July 2017, "Investigation of mercury toxicity in landlocked Arctic char in high arctic lakes". **B.D. Barst**, P. Drevnick, M. Rosabal, P. Campbell, J. Hadrava, D. Muir, G. Köck, N. Basu. Platform at 13th International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA.
25. July 2017, "Mercury speciation and subcellular distribution in experimentally-dosed and wild birds". M. Perkins, **B.D. Barst**, J. Hadrava, N. Basu. Platform at 13th International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA.
26. July 2017, "Mercury and stable isotopes of nitrogen reveal an aquatic diet for seven taxa of shoreline spiders". C. Ortega-Rodriguez, M. Chumchal, R. Drenner, J. Kennedy, K. Lauck, K. Polk, M. Hall, **B.D. Barst**, A. Santa-Rios, N. Basu. Platform at 13th International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA.
27. July 2017, "*In vitro* bioaccessibility of mercury from traditional foods of Bigstone Cree First Nation (Alberta, Canada)". N. Golzadeh, M. Bradley, **B.D. Barst**, J. Baker, J. Auger, and N. Basu. Poster at 13th International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA.
28. July 2017, "Subcellular distribution of mercury in polar bear (*Ursus maritimus*) liver". J. Hadrava, **B.D. Barst**, M. Perkins, R. Dietz, C. Sonne, N. Basu. Poster at 13th International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA.
29. July 2017, "Alternative testing methods: comparing test sensitivities between fish embryo and fish cell models". M. Alloy, **B.D. Barst**, N. Basu. Poster at 13th International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA.
30. July 2017, "Toxicokinetics of mercury demethylation: mercury accumulation and speciation in the livers of marine and freshwater fish species". B. Soulen, **B.D. Barst**, K. Bridges, P. Drevnick, A. Roberts. Poster at 13th International Conference on Mercury as a Global Pollutant, Providence, Rhode Island, USA.
31. May 2017, "Effects of early-life exposure to contaminated sediment in fish". E. Boulanger, M. Alloy, **B.D. Barst**, M. Houde, S. Blais, J. Head. Poster at the CRRD Research Day, Montreal, Canada.
32. May 2017, "Investigation of mercury toxicity in landlocked Arctic char sampled along a mercury contamination gradient". **B.D. Barst**. Platform at the McGill Northern Research Network Forum, Montreal, Canada.
33. November 2016, "Mercury speciation in fish liver at the organ, tissue, and subcellular levels: implications for toxicity". **B.D. Barst**. University of Windsor, Graduate Student Seminar, Invited Platform, Windsor, Ontario, Canada.
34. November 2016, "Investigation of mercury toxicity in landlocked Arctic char in high arctic lakes". **B.D. Barst**, P. Drevnick, M. Rosabal, P.G.C. Campbell, J. Hadrava, D. Iqaluk, D.C.G. Muir, G. Köck, and N. Basu. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Orlando, Florida, USA.
35. November 2016, "Subcellular distribution of trace elements in the livers of yelloweye rockfish". **B.D. Barst**, M. Rosabal, P. Drevnick, N. Basu, and P.G.C. Campbell. Poster at

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- Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Orlando, Florida, USA.
36. November 2016, "Lake-sediment record of PAH, mercury, and fly-ash particle deposition near coal-fired power plants in Central Alberta, Canada". **B.D. Barst**, J.M.E. Ahad, N.L. Rose, J.J. Jautzy, P. Drevnick, P. Gammon, H. Sanei, and M. Savard. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Orlando, Florida, USA.
 37. November 2016, "In situ method for evaluating the early life toxicity of contaminated sediments in walleye (*Sander vitreus*)". E. Boulanger, **B.D. Barst**, M., Alloy, M. Houde, S. Blais, J. Head. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Orlando, Florida, USA.
 38. June 2016, "Mercury speciation in fish liver at the organ, tissue, and subcellular levels: implications for toxicity". **B.D. Barst**, P. Drevnick, M. Korbas, N. Basu. Platform presentation, User's Science Seminar, Argonne National Laboratory, Argonne, Illinois, USA.
 39. June 2016, "In situ method for evaluating the early life toxicity of contaminated sediments in walleye (*Sander vitreus*)". E. Boulanger, **B.D. Barst**, M. Alloy, M. Houde, S. Blais, and J. Head. Poster at Society of Environmental Toxicology and Chemistry Chapitre Saint Laurent, Québec, Québec, Canada.
 40. December 2015, "Effects of mercury on Arctic char". **B.D. Barst**, P. Drevnick, D.C.G. Muir, G. Köck, and N. Basu. Platform presentation, Northern Contaminants Workshop, Vancouver, British Columbia, Canada.
 41. June 2015, "Mercury Speciation in Fish Liver at the Organ, Tissue, and Sub-cellular Levels: Implications for Toxicity". **B.D. Barst**, M. Rosabal, P.G.C. Campbell, K. Bridges, M. Korbas, A.P. Roberts, M.M. Chumchal, and P.E. Drevnick. Poster at 12th International Conference on Mercury as a Global Pollutant, Jeju, Korea.
 42. December 2014, "Mercury speciation in fish liver at the organ, tissue, and subcellular levels: implications for toxicity". **B.D. Barst** and P. Drevnick. Platform presentation, University of Michigan, Ann Arbor, Michigan, USA.
 43. November 2014, "Mercury accumulation and speciation in the livers of marine and freshwater fish species". B.K. Soulen, D.H. Adams, **B.D. Barst**, J. Smith, P. Drevnick, M.M. Chumchal, and A. Roberts. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Vancouver, British Columbia, Canada.
 44. August 2014, "Determination of mercury in fish tissue with a direct mercury analyzer". **B.D. Barst** and P. Drevnick. Platform presentation, National Environmental Monitoring Conference, Washington DC, USA.
 45. May 2014, "Mercury flux to lake sediments in Yukon: evidence of local, regional, and global influences". P. Drevnick, **B.D. Barst**, and collaborators. Poster at PALS (Paleolimnology Symposium), Québec, Québec, Canada.
 46. November 2013, "Evidence of mercury toxicity in Alaskan yelloweye rockfish". **B.D. Barst** and P. Drevnick. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Nashville, Tennessee, USA.
 47. September 2013, "Mercury flux to lake sediments in Yukon: evidence of local, regional, and global influences". P. Drevnick, **B.D. Barst**, and collaborators. Poster at 20th Annual NCP Results Workshop, Ottawa, Ontario, Canada.

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48. July 2013, "Evidence of mercury toxicity in yelloweye rockfish". **B.D. Barst** and P. Drevnick. Poster at 11th International Conference on Mercury as a Global Pollutant, Edinburgh, Scotland.
49. March 2013, "Bioavailability of methylmercury to Arctic char on Cornwallis Island, Nunavut". K. Hudelson, **B.D. Barst**, and P. Drevnick. Poster at 43rd International Arctic Workshop, Amherst, Massachusetts, USA.
50. November 2012, "Macrophage centers: a synthesis of their implications for mercury fate and toxicity in fish". A. Roberts, M.M. Chumchal, P. Drevnick, K. Kidd, B. Moore, D. H. Adams, **B.D. Barst**, J. Smith, and K. Batchelar. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Long Beach, California, USA.
51. April 2012, "Investigation of mercury toxicity in landlocked char in high arctic lakes". **B.D. Barst**, D.C.G. Muir, D. Iqaluk, G. Köck, P.G.C. Campbell, C. Fortin, P. Drevnick. Poster at IPY 2012 Conference, Montréal, Québec, Canada.
52. November 2011, "Determination of inorganic mercury in fish liver by direct mercury analyzer". **B.D. Barst**, C. Hammerschmidt, M. Chumchal, D. Muir, J. Smith, T. Rainwater, and P. Drevnick. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Boston, Massachusetts, USA.
53. November 2011, "Comparison of mercury localization, speciation, and histology in multiple fish species from Caddo Lake, a fresh water wetland". J. Smith, M. Chumchal, J. Schulmeier, G. Verbeck, B. Matherne, **B.D. Barst**, and A. Roberts. Platform presentation, Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Boston, Massachusetts, USA.
54. November 2011, "UV tolerance of high elevation copepods of the Colorado Rocky Mountains". K. Hudelson, **B.D. Barst**, J. Smith, and A. Roberts. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Boston, Massachusetts, USA.
55. August 2011, "Effects of carotenoprotein expression on UV tolerance in high elevation copepods". Poster at K. Hudelson, **B.D. Barst**, J. Smith, and A. Roberts. Ecological Society of America Meeting, Austin, Texas, USA.
56. July 2011, "Laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) imaging of mercury distribution in fish liver tissue. J. Smith, **B.D. Barst**, M.M. Chumchal, A. Gevertz, A. Hart, G. Verbeck, P. Drevnick, and A. Roberts. Poster at 10th International Conference on Mercury as a Global Pollutant, Halifax Nova Scotia, Canada.
57. July 2011, "Determination of inorganic mercury in fish liver by direct mercury analyzer". **B.D. Barst**, C. Hammerschmidt, M. Chumchal, D. Muir, J. Smith, T. Rainwater, and P. Drevnick. Poster at 10th International Conference on Mercury as a Global Pollutant, Halifax Nova Scotia, Canada.
58. June 2011, "Laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) imaging of mercury distribution in fish liver". **B.D. Barst**, J. Smith, M. Chumchal, A. Gevertz, K. Hudelson, A. Hart, G. Verbeck, P. Drevnick, and A. Roberts. Platform presentation Annual Canadian Chemistry Conference, Montréal, Québec, Canada.
59. May 2011, "Effects of carotenoprotein expression on UV tolerance and phototoxicity in high elevation copepods". K. Hudelson, **B.D. Barst**, J. Smith, and A. Roberts. South Central Regional Poster at Society of Environmental Toxicology and Chemistry Meeting, Denton, Texas, USA.

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60. May 2011, "Mercury accumulates in melano-macrophage aggregates in wild fish livers: Evidence of link between mercury exposure and negative effects on the health of wild fish." **B.D. Barst**, A. Gevertz, M. Chumchal, J. Smith, T. Rainwater, P. Drevnick, K. Hudelson, A. Hart, G. Verbeck, and A. Roberts. Platform presentation, South Central Regional Society of Environmental Toxicology and Chemistry Meeting, Denton, Texas, USA.
61. November 2010, "Mercury speciation: implications for wild fish populations". **B.D. Barst**, J. Smith, M. Chumchal, P. Drevnick, A. Gevertz, A. Roberts. Poster at Society of Environmental Toxicology and Chemistry, North American Annual Meeting, Portland, Oregon, USA.
62. May 2010, "Mercury-related liver damage in fish from Caddo Lake, TX/LA". **B.D. Barst**, A. Gevertz, M. Chumchal, A. Roberts. Poster at Society of Environmental Toxicology and Chemistry, European Annual Meeting, Seville, Spain.
63. March 2010, "Plankton and planes: pigment control in alpine copepods". A. Roberts, M. Kovach, **B.D. Barst**, K. Hudelson, J. Smith, B. Venables, and W. Waller. Platform presentation, National Park Service Rocky Mountain Research Meeting. Estes Park, Colorado, USA.
64. March 2010, "Role of carotenoids in ameliorating PAH-photoinduced toxicity. M. Kovach, **B.D. Barst**, K. Hudelson, J. Smith, and A. Roberts. Poster at National Park Service Rocky Mountain Research Meeting. Estes Park, Colorado, USA.
65. January 2010, "Simple mechanisms of color control in aquatic organisms". A. Roberts, M. Kovach, **B.D. Barst**, M. Alloy, K. Hudelson, J. Smith, and B. Matherne. Platform presentation, US Air Force Office of Scientific Research Conference. Division of Natural Materials, Extremophiles, and Natural Systems". Washington DC, USA.
66. November 2009, "Carotenoid compound effects on PAH-induced phototoxicity in alpine zooplankton". M. Kovach, **B.D. Barst**, A. Roberts, University of North Texas. Poster at Society of Environmental Toxicology and Chemistry North American Annual Meeting, New Orleans, Louisiana, USA.
67. November 2009, "Mercury-related liver damage in fish from Caddo Lake, TX". **B.D. Barst**, A. Gevertz, P. Drevnick, M. Chumchal, A. Roberts. Poster at Society of Environmental Toxicology and Chemistry North American Annual Meeting, New Orleans, Louisiana, USA.
68. April 2009, "The role of oxidative stress in the hepatotoxicity of methylmercury to fish". **B.D. Barst**, M. Chumchal, P. Drevnick, A. Gevertz, A. Roberts. Poster at Graduate Research Day, University of North Texas, Denton, Texas, USA.