

## **Dr. Jonathan Dale Midwood**

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### **Education**

- Ph.D., Biology, McMaster University, Hamilton, ON, 2007-2012 – *Assessing change in fish habitat and communities in coastal wetlands*
- Honours B.Sc., Biology – Biodiversity Specialization, McMaster University, Hamilton, ON, 2007 – *Use of IKONOS imagery and depth to classify wetland macrophytes in Georgian Bay coastal wetlands*

### **Awards & Honours**

- Ontario Graduate Scholarship 2011/2012
- Best student poster 71<sup>st</sup> Midwest Fisheries and Wildlife Conference, Minneapolis, MN 2010
- Ontario Graduate Scholarship 2010/2011
- Clemens-Rigler Travel Award 2010
- Ontario Graduate Scholarship 2009/2010
- McMaster University Department of Biology Travel Scholarship 2008
- Undergraduate Student Regional Presentation Award, Canadian Botanical Association 2007
- Aim for the Top Scholarship 2002/03
- McMaster Honour Award 2002/03

### **Funded Research Proposals**

- [1] 2013 - Brewer Pond Restoration Project – Post Effectiveness Monitoring – with the Ottawa Chapter of Muskies Canada – requested \$9680, received \$4000 from the Hugh C. Becker Fund
- [2] 2012 - Enhancing fish habitat in Watts Creek, a tributary of the Ottawa River - \$17466 from the Great Lakes Guardian Community Fund

### **Refereed Publications**

- [1] **Midwood, J.D.**, Cairns, N.A., Stoot, L.J., Cooke, S.J., Blouin-Demers, G. Bycatch mortality can cause extirpation in four freshwater turtle species. *Aquatic Conservation: Marine and Freshwater Ecosystems* DOI:10.1002/aqc.2475.
- [2] Jepsen, N., Boutrup, T.S., **Midwood, J.D.**, & Koed, A. 2014. Fish surgery – A dirty business? Comments to a letter submitted by D. Mulcahy and C.A. Harms. (In Press: *Fisheries Research*)
- [3] **Midwood, J.D.**, Cousineau, A., Stamplecoskie, K., King, G., Suski, C.D. & Cooke, S.J. 2014. Diel patterns of baseline glucocorticoids and stress responsiveness in a teleost fish. *Canadian Journal of Zoology* 92:417-421
- [4] Brownscombe, J.W., Bower, S., Bowden, W., Nowell, L., **Midwood, J.D.**, Johnson, N., & Cooke, S.J. 2014. Canadian recreational fisheries: 35 years of biological, social, and economic dynamics from a national survey. *Fisheries* 39:251-260

- [5] Muhametsafina, A., **Midwood, J.D.**, Bliss, S., Stamplecoskie, K. & Cooke S.J. 2014. The fate of dead fish tagged with telemetry transmitters in an urban stream. *Aquatic Ecology* 48:23-33
- [6] **Midwood, J.D.**, Larsen, M.H., Boel, M., Jepsen, N., Aarestrup, K., & Cooke, S.J. 2014. Does cortisol manipulation influence outmigration behaviour, survival and growth of sea trout? A field-test of carryover effects in wild fish. *Marine Ecological Progress Series* 496:135-144
- [7] Jepsen, N., Boutrup, T.S., **Midwood, J.D.**, & Koed, A. 2013 Does the level of asepsis impact the success of surgically implanting tags in Atlantic salmon? *Fisheries Research* 147:344-348
- [8] Cooke, S.J., **Midwood, J.D.**, Thiem, J.D., Kimley, P., Lucas, M.C., Thorstad, E.B., Eiler, J., Holbrook, C., & Ebner, B.C. 2013. Tracking animals in freshwater with electronic tags: past, present and future. *Journal of Animal Biotelemetry* 1:5.
- [9] **Midwood, J.D.**, Rokitnicki-Wojcik, D., & Chow-Fraser, P. 2012. Development of an inventory of coastal wetlands for eastern Georgian Bay, Lake Huron. *ISRN Ecology* vol. 2012, Article ID 950173, 13 pages. doi:10.5402/2012/950173.
- [10] **Midwood, J.D.**, & Chow-Fraser, P. 2012. Changes in aquatic vegetation and fish communities following five years of sustained low water levels in coastal marshes of eastern Georgian Bay, Lake Huron. *Global Change Biology* 18:93-105.
- [11] **Midwood, J.D.** & Chow-Fraser, P. 2010. Mapping floating and emergent aquatic vegetation in coastal wetlands of eastern Georgian Bay, Lake Huron, Canada. *Wetlands* 30(6):1141-1152.

#### **Non-Refereed Publications**

- [1] **Midwood, J.D.** & Cooke, S.J. 2014 Effectiveness monitoring of aquatic habitat rehabilitation projects. Interim Report. Submitted to Toronto Region Conservation Authority
- [2] Cvetkovic, M. & **Midwood, J.D.** 2014 Developing a site disturbance gradient and coastal wetland indices of biotic integrity for the St. Marys River AOC. Final Report. Submitted to the Canadian Wildlife Service.
- [3] **Midwood, J.D.**, & Cooke, S.J. 2013 Watts Creek aquatic resource site analysis, mitigation and monitoring plan. Final Report. Submitted to the National Capital Commission.
- [4] Cvetkovic, M., & **Midwood, J.D.** 2013 Data precision and spatial autocorrelation analysis for ecological datasets from lower Great Lakes coastal wetlands: Vegetation at discrete elevations and Ecosystem Indicators. Final Report. Submitted to the Canadian Wildlife Service.
- [5] **Midwood, J.D.**, Cairns, N.A., Stoot, L.J., Cooke, S.J., Blouin-Demers, G. 2013. Modelling the long-term effects of a small-scale freshwater fyke-net fishery on turtle populations relative to various bycatch reduction strategies. Project summary for the Species at Risk Research Fund for Ontario, Ontario Ministry of Natural Resources.
- [6] **Midwood, J.D.**, Bliss, S., Cooke, S.J. 2012. Watts Creek fish community and habitat survey – Interim project update for the National Capital Commission.
- [7] **Midwood, J.D.** & Chow-Fraser, P. 2011. Surveying Aquatic Vegetation in Coastal Wetlands of eastern Georgian Bay.
- [8] Chow-Fraser, P., Cvetkovic, M., **Midwood, J.D.**, and Christensen, R.J. December. 2011. Preliminary assessment of aquatic habitat and biota in Red Bay, Bruce County, Ontario. Final Report. Submitted to Ontario Municipal Board.
- [9] **Midwood, J.D.**, & Chow-Fraser, P. 2011. Response of the fish community to sustained low water-levels in coastal wetlands of northern Georgian Bay and the North Channel. Technical Report Submitted to Ontario Ministry of Natural Resources.

- [10] **Midwood, J.D.**, Fracz, A., & Chow-Fraser, P. 2010. Amount of aquatic vegetation in coastal wetlands of eastern Georgian Bay that would become transformed for any given water level between 163 and 176 m (asl). Performance indicator report submitted to the Environmental Technical Work Group of the Upper Great Lakes Study.
- [11] Chow-Fraser, P. & **Midwood, J.D.** 2010. Areal cover of emergent and submersed aquatic vegetation in Goulais Bay, Lake Superior. Performance indicator report submitted to the Environmental Technical Work Group of the Upper Great Lakes Study.
- [12] Chow-Fraser, P. & **Midwood, J.D.** 2010. Areal cover of emergent and submersed aquatic vegetation in Batchawana Bay, Lake Superior between water levels 177.0 to 185.5 (m asl). Performance indicator report submitted to the Environmental Technical Work Group of the Upper Great Lakes Study.
- [13] **Midwood, J.D.**, Rokitnicki-Wojcik, D., Cimaroli, K., & Chow-Fraser, P. 2010. Development of an inventory of coastal wetlands for eastern and northern Georgian Bay, Lake Huron. Technical Report Submitted to the Georgian Bay Forever.
- [14] **Midwood, J.D.**, & Chow-Fraser, P. 2010. Water-level induced changes in fish communities in coastal wetlands of eastern Georgian Bay. Technical Report Submitted to Ontario Ministry of Natural Resources.
- [15] Chow-Fraser, P., Croft, M.V. & **Midwood, J.D.** 2008. Volunteer Aquatic Plant Survey Guide

#### **Publications in Submission**

- [1] **Midwood, J.D.**, & Chow-Fraser, P. Differential use of wetland habitat by resident and migratory fishes in coastal marshes. (In submission to "*Wetlands*")
- [2] Crawford, C., **Midwood, J.D.**, Bliss, S., Belanger, C., & Cooke, S.J. Experimental displacement of longnose dace (*Rhinichthys cataractae*) reveals rapid fish avoidance of a stormwater drain in an urban watershed. (In submission to "*Aquatic Ecology*")
- [3] King, G.D., Chapman, J.M., **Midwood, J.M.**, Cooke, S.J., & Suski, C.D., Watershed-scale land use activities influence the physiological condition of stream fish. (In submission to "*Physiological and Biochemical Zoology*")
- [4] Bliss, S.M., **Midwood, J.D.**, Stamplecoskie, K., Cooke, S.J. Seasonal movement of small-bodied fishes in a north temperate urban watershed demonstrate connectivity between a stream and stormwater drain. (In submission to "*Hydrobiologia*")
- [5] **Midwood, J.D.**, Larsen, M.H., Boel, M., Aarestrup, K., & Cooke, S.J. Winter carryover effects in semi-anadromous brown trout (*Salmo trutta*). (In submission to "*Ecology*")

#### **Oral Presentations**

- [1] **Midwood, J.D.**, Veilleux, M., Lapointe, N.W.R., Portiss, R., Sciscone, T., Wells, M.G., Doka, S. & Cooke, S.J. Winter biology of northern pike in a large urban embayment. International Association of Great Lakes Research, Hamilton, ON, May 2014.
- [2] Portiss, R., Rous, A., **Midwood, J.D.**, Veilleux, M., Lapointe, N.W.R., Sciscone, T., Wells, M., Doka, S. & Cooke, S.J. Multispecies use of restored fish habitat in Toronto Harbour. International Association of Great Lakes Research, Hamilton, ON, May 2014.
- [3] Hlevca, B., Wells, M.G., Cooke, S.J., Veilleux, M. & **Midwood, J.D.** Water temperature variability in Toronto waterfront embayments. International Association of Great Lakes Research, Hamilton, ON, May 2014.

- [4] Cruz-Font, L., Veilleux, M., Hlevca, B., **Midwood, J.D.**, Wells, M.G., Cooke, S.J. & Doka, S.E. Fish movements in Toronto Harbour associated to upwelling events. International Association of Great Lakes Research, Hamilton, ON, May 2014.
- [5] Veilleux, M., Lapointe, N.W.R., **Midwood, J.D.**, Doka, S. & Cooke, S.J. Spatial ecology of fish within Toronto Harbour in response to habitat restoration. Great Lakes Acoustic Telemetry Observing System Meeting, Ann Arbor, MI, March 2014.
- [6] **Midwood, J.D.**, Veilleux, M., Rous, A., Lapointe, N.W.R., Portiss, R., Doka, S.E., Wells, M. & Cooke, S.J. Fish acoustic tagging in Toronto Harbour. Invited Lecture. Great Lakes Area of Concern Remedial Action Plan Implementation Strategy Workshop. Burlington, ON, February 2014.
- [7] **Midwood, J.D.**, Veilleux, M., Rous, A. & Cooke, S.J. Multi-species telemetry in the Toronto area of concern. Aquatic Habitat Toronto, Toronto, ON, February 2014.
- [8] Bliss, S., **Midwood, J.D.\***, Stamplecoskie, K., & Cooke, S.J. Seasonal variation in stream fish movements and assemblage structure in an urban system. Stream Monitoring, Assessment & Research Team Eastern Region Fall Meeting, Ottawa, ON, October 2013
- [9] **Midwood, J.D.**, Veilleux, M., Cooke, S.J. Acoustic telemetry update with a focus on pike. Aquatic Habitat Toronto, Toronto, ON, October 2013.
- [10] **Midwood, J.D.**, Veilleux, M., Lapointe, N.W.R., Doka, S.E., Wells, M & Cooke, S.J. Spatio-temporal patterns of adult northern pike in an urban embayment. American Fisheries Society, Little Rock, AR, September 2013.
- [11] Biberhofer, C., **Midwood, J.D.**, & Chow-Fraser, P. Are we losing northern pike habitat in Georgian Bay, Lake Huron. American Fisheries Society, Little Rock, AR, September 2013.
- [12] Bliss, S., **Midwood, J.D.**, Stamplecoskie, K., & Cooke, S.J. Watts Creek restoration: status update and future plans, Stream Monitoring, Assessment & Research Team Eastern Region Fall Meeting, Ottawa, ON, March 2013
- [13] Brownscombe, J.W., Bowden, W., Bower, S., Nowell, L., **Midwood, J.D.**, Cooke, S.J., & Johnson, N. Canadian recreational fisheries surveys: 35-years of biological, social, and economic data. American Fisheries Society – Ontario Chapter, Orillia, ON, February 2013.
- [14] **Midwood, J.D.**, Hage Larsen, M., Jepsen, N., Aarestrup, K. & Cooke, S.J. Influence of experimental cortisol manipulation on outmigration behaviour, survival and growth of sea trout smolts. Canadian Conference for Freshwater Fisheries Research, Windsor, ON, January 2013.
- [15] Brownscombe, J.W., Bowden, W., Bower, S., Nowell, L., **Midwood, J.D.**, Cooke, S.J., & Johnson, N. Canadian recreational fisheries surveys: 35-years of biological, social, and economic data. Canadian Conference for Freshwater Fisheries Research, Windsor, ON, January 2013.
- [16] **Midwood, J.D.**, Katic, E., Bliss, S. & Cooke, S.J. Collaborative monitoring in Watts Creek. Stream Monitoring, Assessment & Research Team Eastern Region Fall Meeting, Ottawa, ON, November 2012.
- [17] **Midwood, J.D.** & Chow-Fraser, P. Movement of northern pike (*Esox lucius*) among coastal marshes of eastern Georgian Bay, Lake Huron. International Association for Great Lakes Research Conference, Cornwall, ON, May 2012.
- [18] Cvetkovic, M.\*, **Midwood, J.D.**, & Chow-Fraser, P. Investigating the factors influencing fish community composition and population in coastal wetlands of eastern Georgian Bay. International Association for Great Lakes Research Conference, Cornwall, ON, May 2012.
- [19] **Midwood, J.D.**, Biberhofer, C, & Chow-Fraser, P. Movement and thermal habitat selection of northern pike (*Esox lucius*) in Tadenac Bay, Lake Huron. Sierra Club - Ontario Chapter Annual Meeting, Toronto, ON, March 2012.

- [20] **Midwood, J.D.** & Chow-Fraser Assessing change in fish habitat and communities in coastal wetlands of eastern Georgian Bay. Invited Lecture – Technical University of Denmark – Freshwater Institute, Silkeborg, Denmark, March 2012.
- [21] **Midwood, J.D.**, Leblanc, J.P., & Chow-Fraser Pike and musky movement in Lake Huron, Ontario Ministry of Natural Resources – Lake Huron Annual Meeting, Owen Sound, ON, November 2011.
- [22] **Midwood, J.D.** & Chow-Fraser Use of fish habitat in wetland complexes of eastern Georgian Bay, Ontario Ministry of Natural Resources – Natural Heritage Forum, Killbear Provincial Park, ON, September 2011.
- [23] **Midwood, J.D.** & Chow-Fraser, P. Influence of environmental factors on fish community composition in coastal wetlands of eastern Georgian Bay. American Fisheries Society – Ontario Chapter, Orillia, ON, March 2011.
- [24] **Midwood, J.D.** & Chow-Fraser, P. Fish utilization of small, hydrologically connected coastal marshes of eastern Georgian Bay, Lake Huron. Canadian Conference for Freshwater Fisheries Research, Toronto, ON, January 2011.
- [25] **Midwood, J.D.** & Chow-Fraser, P. Factors affecting migratory behaviour of fish among coastal wetland habitats of eastern Georgian Bay, Lake Huron. 71<sup>st</sup> Midwest Fish and Wildlife Conference, Minneapolis, MN, December 2010.
- [26] **Midwood, J.D.** & Chow-Fraser, P. Movement of fish in small, hydrologically connected coastal marshes of eastern Georgian Bay. Ontario Ministry of Natural Resources Lake Huron Annual Meeting, Owen Sound, ON, November 2010.
- [27] **Midwood, J.D.**, Fracz, A., Hurley, T., & Chow-Fraser, P. Impacts of water level on coastal wetland habitat. Eastern Georgian Bay Stewardship Council – Lake Stewardship, Parry Sound, ON, July 2010.
- [28] **Midwood, J.D.** & Chow-Fraser, P. Changes in fish habitat and community composition in response to low water levels in eastern Georgian Bay coastal marshes. International Association for Great Lakes Research Conference, Toronto, ON, May 2010.
- [29] **Midwood, J.D.**, Rokitnicki-Wojcik, D., De Catanzaro, R., Cvetkovic, M. & Chow-Fraser, P. Coastal wetlands of the Georgian Bay Biosphere Reserve. Invited Lecture. UNESCO Georgian Bay Biosphere Reserve “Life in the Biosphere” Workshop, Parry Sound, ON, February 2010.
- [30] **Midwood, J.D.** & Chow-Fraser, P. Changes in fish community composition and habitat structure in response to declining water levels. Canadian Conference for Freshwater Fisheries Research. Winnipeg, MB, January, 2010.
- [31] **Midwood, J.D.** & Chow-Fraser, P. Use of satellite imagery and an automated classification method to assess changes to fish habitat in coastal wetlands of eastern Georgian Bay. Canadian Conference for Freshwater Fisheries Research. Winnipeg, MB, January, 2010.
- [32] **Midwood, J.D.**, Hurley, T. & Chow-Fraser, P. Response of fish community to changes in wetland habitat resulting from water-level fluctuations in eastern Georgian Bay. Invited Lecture. Ontario Ministry of Natural Resources Workshop, Owen Sound, ON, January 2010.
- [33] Wei, A., **Midwood, J.D.**, Rokitnicki-Wojcik, D. & Chow-Fraser, P. Development of a water-level-change response curve for aquatic plants in coastal wetlands of eastern Georgian Bay. Invited Lecture. Ontario Ministry of Natural Resources Workshop, Owen Sound, ON, January 2010.
- [34] **Midwood, J.D.**, Rokitnicki-Wojcik, D. & Chow-Fraser, P. Changes in wetland vegetation following six years of sustained low water levels in eastern Georgian Bay (2002-2008) Invited Lecture. Ontario Ministry of Natural Resources Workshop, Owen Sound, ON, January 2010.

- [35] Rokitnicki-Wojcik, D., **Midwood, J.D.**, Cimarolli, K., Wei, A. & Chow-Fraser, P. Development of an inventory of coastal wetlands for eastern Georgian Bay, Lake Huron. Invited Lecture. Ontario Ministry of Natural Resources Workshop, Owen Sound, ON, January 2010.
- [36] **Midwood, J.D.**, Rokitnicki-Wojcik, D. & Chow-Fraser, P. Changes to habitat and community structure of Great Lakes fishes in response to sustained low water levels in Georgian Bay. Georgian Bay Forever (GBF) Annual Meeting. Toronto, ON, November 2009.
- [37] **Midwood, J.D.** & Chow-Fraser, P. Classification of aquatic vegetation in freshwater coastal wetlands using IKONOS satellite imagery and eCognition software. 8<sup>th</sup> Intecol – International Wetlands Conference, Cuiaba, Brazil, July 2008.
- [38] **Midwood, J.D.** & Chow-Fraser, P. Conceptual model for predicting submerged aquatic macrophyte presence in freshwater coastal wetlands. 8<sup>th</sup> Intecol – International Wetlands Conference, Cuiaba, Brazil, July 2008.
- [39] **Midwood, J.D.**, Croft, M.V. & Chow-Fraser, P. Use of volunteer-based aquatic plant survey to monitor coastal wetlands of eastern Georgian Bay, Ontario, Canada. 8<sup>th</sup> Intecol – International Wetlands Conference, Cuiaba, Brazil, July 2008.
- [40] **Midwood, J.D.** & Chow-Fraser, P. Automated approach using Definiens Developer 7.0 for classification of aquatic vegetation in the coastal wetlands of Georgian Bay. International Association for Great Lakes Research Conference Conference, Peterborough, ON, May 2008.
- [41] Chow-Fraser, P., Rokitnicki-Wojcik, D. & **Midwood, J.D.** Mapping wetland vegetation in coastal wetlands of Georgian Bay. Ministry of Natural Resources Southern Geospatial Workshop, Niagara Falls, ON, March 2008
- [42] **Midwood, J.D.** & Rokitnicki-Wojcik, D., Chow-Fraser, P. Mapping wetland vegetation in coastal wetlands of Georgian Bay: can we track changes using remote sensing techniques? Canadian Association of Water Quality, Burlington, ON, February 2008.
- [43] Rokitnicki-Wojcik, D. & **Midwood, J.D.** Landscape level approach to wetland conservation: use of remote sensing for habitat identification. McMaster University Biology Graduate Student Symposium, Hamilton, ON, December 2007.
- [44] **Midwood, J.D.**, Wei, A. & Chow-Fraser, P. McMaster University, Use of IKONOS satellite images to map aquatic plant communities in Georgian Bay Coastal Wetlands. International Association for Great Lakes Research Conference, State College, PA, May 2007.

## **Posters**

- [1] **Midwood, J.D.**, Chapman, J., Cvetkovic, C., King, G., Ward, T., Cooke, S.J., & Suski, C.D. Diel variability in fish assemblage in coastal wetlands and tributaries of the St. Lawrence River area of concern. Great Lakes Wetland Day, Toronto, ON, February 2014.
- [2] Ward, T., Chapman, J., Cvetkovic, M., King, G., **Midwood, J.D.**, Cooke, S.J., & Suski, C.D. Evaluating individual health metrics of pumpkinseed as a proxy for restoration success in coastal wetlands of the St. Lawrence River. Great Lakes Wetland Day, Toronto, ON, February 2014.
- [3] Muhametsafina, A., **Midwood, J.D.**, Bliss, S., Stamplecoskie, K., & Cooke, S.J. The fate of dead fish in an urban stream: insights for tracking studies and fish kill investigations. American Fisheries Society – Ontario Chapter, Orillia, ON, February 2013.
- [4] Bliss, S., **Midwood, J.D.**, Stamplecoskie, K., & Cooke, S.J. Monitoring resident fish movements in an urban stream and municipal drain using PIT telemetry. Canadian Conference for Freshwater Fisheries Research, Windsor, ON, January 2013.

- [5] Muhametsafina, A., **Midwood, J.D.**, Bliss, S., Stamplecoskie, K., & Cooke, S.J. The fate of dead fish in an urban stream: insights for tracking studies and fish kill investigations. Canadian Conference for Freshwater Fisheries Research, Windsor, ON, January 2013.
- [6] **Midwood, J.D.** & Chow-Fraser, P\*. Differential use of wetland habitat by small-fishes and a large predator in coastal marshes of eastern Georgian Bay, Lake Huron. Intecol – International Wetlands Conference, Orlando, FL, June 2012.
- [7] **Midwood, J.D.**, Rokitnicki-Wojcik, D., & Chow-Fraser, P\*. Increasing coastal wetland fish habitat protection under the Ontario Wetland Evaluation System. Intecol – International Wetlands Conference, Orlando, FL, June 2012.
- [8] **Midwood, J.D.**, Rokitnicki-Wojcik, D., & Chow-Fraser, P. Increasing coastal wetland fish habitat protection under the Ontario Wetland Evaluation System. Ontario Wetlands Conference, Toronto, ON, February 2012.
- [9] Biberhofer, C., **Midwood, J.D.**, & Chow-Fraser, P. Movement and thermal habitat selection of northern pike (*Esox lucius*) in Tadenac Bay, Lake Huron. Ontario Wetlands Conference, Toronto, ON, February 2012.
- [10] **Midwood, J.D.** & Chow-Fraser, P. Use of Satellite Imagery to Assess Changes to Fish Habitat in Coastal Wetlands of Eastern Georgian Bay, Lake Huron. 71<sup>st</sup> Midwest Fisheries and Wildlife Conference, Minneapolis, MN, December 2010.
- [11] **Midwood, J.D.** & Chow-Fraser, P. Use of satellite imagery and an automated classification method to assess changes to fish habitat in coastal wetlands of eastern Georgian Bay. A.D. Latonnell Conservation Symposium, Alliston, ON, November 2009.
- [12] **Midwood, J.D.**, Wei, A., Chow-Fraser, P. Comparison of remote sensing approaches to map aquatic vegetation for an inventory of the coastal wetlands of eastern Georgian Bay. A.D. Latonnell Conservation Symposium, Alliston, ON, November 2007.

## **Mentoring**

### **M.Sc.**

- [1] M.Sc. Student # 5, The thermal ecology of adult walleye (*Sander vitreus*) in Lake Erie and Lake Huron, Carleton University, Ongoing (expected completion 2015)
- [2] M.Sc. Student # 4, Proposed title: Influence of stream condition of physiological condition of central mudminnow, Carleton University, Ongoing (expected completion 2015)
- [3] M.Sc. Student # 3, Spatial ecology of fish in Toronto Harbour relative to season and habitat restoration, Carleton University, Ongoing (expected completion 2014)
- [4] M.Sc. Student # 2, Seasonal variation of movement and community composition of small stream fish in an urban environment, Carleton University, 2014
- [5] M.Sc. Student # 1, The consequences of retained lures in free swimming fish: physiological, behavioural and fitness perspectives, Carleton University, 2013.

### **B.Sc.**

- [1] B.Sc. Student # 9, Influence of fish size on overwinter mortality and condition of largemouth bass following exogenous cortisol manipulation, Carleton University 2014
- [2] B.Sc. Student # 8, Evaluating the success of artificially enhanced coastal wetlands of the St. Lawrence River using individual health metrics of Pumpkinseed (*Lepomis gibbosus*), Carleton University, 2014
- [3] B.Sc. Student # 7, Movement and reach-scale habitat use of small stream fish following displacement using passive integrated transponder technology, Carleton University, 2014
- [4] B.Sc. Student # 6, The fate of dead fishes in an urban stream: insights for tracking studies and fish kill investigations, Carleton University, 2013

- [5] B.Sc. Student # 5, Diel patterns of glucocorticoid stress responsiveness in a teleost fish, Carleton University, 2013
- [6] B.Sc. Student # 4, Thermal habitat utilization of northern pike (*Esox lucius*) in Tadenac Bay, Lake Huron, McMaster University, 2012
- [7] B.Sc. Student # 3, Evaluating long-term effects of changing water levels on different shoreline habitat of Goulais Bay, McMaster University, 2012
- [8] B.Sc. Student # 2, Use of depth to model presence of aquatic macrophytes in Georgian Bay coastal wetlands, McMaster University, 2010
- [9] B.Sc. Student # 1, Use of satellite imagery to predict vulnerability of protect coastal wetlands to hydrological isolation in response to declining water level in eastern Georgian Bay, McMaster University, 2010

### **Work Experience**

- Post-Doctoral Fellow – Carleton University – 2012-present
- Co-Owner/Co-President – Freshwater Inquiry Network (FIN) – 2012-present
- Graduate Student – McMaster University – 2007-2012
- Research Assistant – McMaster University – 2006
- GIS Technician – McMaster University – 2005-2006
- Research Assistant – Frontenac Arch Biosphere Reserve – 2005

### **Research Skills**

- Field procedures for collection of both water and sediment samples
- In lab analysis of sediment, including: total phosphorus, total ammonia nitrogen, and organic content
- Analysis of common water quality variables: total phosphorus, soluble reactive phosphorus, total nitrogen, total ammonia nitrogen, total nitrite nitrogen, total suspended solids, inorganic suspended solids, dissolved oxygen (Winkler method), and chlorophyll a
- Field procedures for sampling fish community including seine netting, fyke netting, boat and backpack electrofishing.
- Identification of common nearshore fish species in the Great Lakes region
- Proficient with use of visible implant elastomer for fish mark-recapture studies
- Collection and identification of aquatic macrophytes in the Great Lakes region
- Taught macrophyte identification course to volunteers in eastern Georgian Bay as part of the adopt-a-wetland program
- Identification of turtle species in the Great Lakes region
- Familiar with methods for sampling marsh birds, call broadcast techniques

### **Teaching Experience**

- Instructor, Carleton University, Environmental Science and Management 2013
- Co-Instructor, Carleton University, Advances in Applied Ecology (Graduate Course) 2012
- Co-Instructor, Carleton University, Environmental Science and Management 2012
- Teaching Assistant, McMaster University, Ecology of Inland Waters 2012
- Instructor, Georgian Bay Forever, Volunteer - Train the Trainer Program 2011
- Instructor, Georgian Bay Forever, Volunteer Aquatic Plant Surveys 2011
- Teaching Assistant, McMaster University, Biodiversity Inquiry I 2011
- Teaching Assistant, McMaster University, Biodiversity Inquiry I 2011
- Instructor, Georgian Bay Forever, Volunteer Aquatic Plant Surveys 2010
- Teaching Assistant, McMaster University, Biodiversity Inquiry II 2010



- Teaching Assistant, McMaster University, Ecology of Inland Waters 2010
- Instructor, Georgian Bay Forever, Volunteer Aquatic Plant Surveys 2009
- Teaching Assistant, McMaster University, Biodiversity Inquiry II 2009
- Teaching Assistant, McMaster University, Biodiversity Inquiry I 2009
- Teaching Assistant, McMaster University, Biodiversity Inquiry II 2008
- Teaching Assistant, McMaster University, Ecology of Inland Waters 2008
- Teaching Assistant, McMaster University, Introduction to Ecology 2007
- Teaching Assistant, McMaster University, Introduction to Ecology 2006

### **Teaching Activities (invited lectures)**

- [1] **Midwood, J.D.** Fish habitat and community dynamics in coastal wetlands of eastern Georgian Bay. McMaster University Guest Lecture – Biology 4YY3 – Ecology and Management of Coastal Waters. Hamilton, ON, March 2012.
- [2] **Midwood, J.D.** & Chow-Fraser Coastal wetlands research in Georgian Bay. Invited Lecture – University of Waterloo – Biosphere reserves as complex systems. Parry Sound, ON, February 2012.
- [3] **Midwood, J.D.** Understanding movements of northern pike (*Esox lucius*) among coastal wetlands of eastern Georgian Bay using radio-tracking. McMaster University Guest Lecture – Biology 2F03 – Introduction to Ecology. Hamilton, ON, October 2011.
- [4] **Midwood, J.D.** Understanding movements of northern pike (*Esox lucius*) among coastal wetlands of eastern Georgian Bay using radio-tracking. McMaster University Guest Lecture – Biology 2F03 – Introduction to Ecology. Hamilton, ON, July 2011.
- [5] **Midwood, J.D.** Volunteer monitoring in eastern Georgian Bay. Georgian Bay Forever – Train the Trainer Program, Honey Harbour, ON, July 2011.
- [6] **Midwood, J.D.** Use of Georgian Bay coastal wetlands as fish habitat and effects of low water levels. McMaster University Guest Lecture – Biology 2F03 – Introduction to Ecology. Hamilton, ON, November 2010.
- [7] **Midwood, J.D.** Remote sensing of aquatic ecosystems. McMaster University Guest Lecture – Biology 3G03 – Biodiversity Inquiry II. Hamilton, ON, November 2009.
- [8] **Midwood, J.D.** Changing habitat and fish community in response to sustained low water levels in Georgian Bay. McMaster University Guest Lecture – Biology 2F03 – Introduction to Ecology. Hamilton, ON, November 2009.
- [9] **Midwood, J.D.** Remote Sensing. McMaster University Guest Lecture – Biology 4Y03 – Ecology of Inland Waters. Hamilton, ON, March 2008.

**Developed unit on QGIS for 4<sup>th</sup> year course.**

### **Scholarly Activities**

- Organizing committee for 2014 Muskellunge workshop at Carleton University (2014)
- Volunteer for workshop on Freshwater Aquatic Ecology for the Canadian Association of Laboratory Animal Science (June 14<sup>th</sup>, 2014)
- Eastern Region Representative for the Ontario Chapter of the American Fisheries Society (2013)
- Co-Chair of Stream Monitoring and Research Team Eastern Region (SMARTER; 2013-2014)
- Canadian Aquatic Resource Sections Proxy for American Fisheries Society Board Meeting (2013)
- Grant Referee – Lake Champlain Sea Grant Program (2013)

- Professional Courses: Teaching Philosophies as Frameworks for Course Preparation – Carleton University, January 2013.
- Journal Referee – Journal of Environmental Management (2011), Wetlands (2011, 2012), International Journal of Digital Earth (2011), Marine Ecology Progress Series (2013), Endangered Species Research (2013), Journal of Vegetation Science (2013), Transactions of the American Fisheries Society (2, 2013), North American Journal of Fisheries Management (2013)
- 2009-present, Member, Society of Wetland Scientists
- 2009-present, Member, American Fisheries Society
- 2008-2009, Co-President, McMaster Biology Graduate Students Society

### **Skills & Qualifications**

- Completed small engine repair course through Ottawa-Carleton District School Board
- Completed R Statistics course for fisheries professionals (Michigan State University) – January 2014
- Certified boat electrofishing level 1 – Valid until May 2014
- Certified for backpack electrofishing – Valid until May 2014
- Emergency First Aid and CPR – Valid until May 2014
- Ontario boating licence
- Certified NAUI SCUBA diver
- Extensive knowledge GIS software including ArcView 3.2, ArcMap 9.2, and QGIS
- Extensive knowledge of ENVI 4.0 and Definiens Developer 7.0, both Satellite Image interpretation programs
- Extensive knowledge of JMP 9.0 statistical program

### **References**

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