

Mathieu Dever | Curriculum Vitae

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Current position

Research Scientist

RBR

Halifax, NS, Canada

2020-present

Adjunct Scientist

Woods Hole Oceanographic Institution (WHOI), Department of Physical Oceanography

Education

PhD in Physical Oceanography

Dalhousie University, Bedford Institute of Oceanography

Halifax, Canada

2011-2017

Thesis topic: *Dynamics of the Nova Scotia Current and its relationship with Atlantic Salmon migration patterns over the Scotian Shelf.*

Supervisors: Dr. David Hebert and Dr. Jinyu Sheng

MSc in Physical Oceanography and Climate

National Oceanography Centre in Southampton

Southampton, U.K.

2009-2010

Thesis topic: *How are Mode Waters Formed in the Ocean?*

Supervisors: Dr. Alberto Naveira-Garabato and Dr. Kevin Oliver

BSc Specialized, Major in Physics, minor in Chemistry

University of Ottawa

Ottawa, Canada

2006-2009

Université Paris-Sud XI

2005-2006

Experience

Professional experience

Postdoctoral Investigator

Woods Hole Oceanographic Institution, Department of Physical Oceanography

Woods Hole, MA, USA

2017-2020

Supervisors: Dr. Amala Mahadevan and Dr. David Nicholson

Physical Scientist

Bedford Institute of Oceanography, Department of Fisheries and Ocean Canada

Halifax, Canada

2014

Guest student

Institute of Marine Research (Havforskningsinstituttet)

Bergen, Norway

2013

Geophysical Institute at the University of Bergen

Teaching experience

Instructor – Marine Modelling course

Dalhousie University, 12 students

Halifax, Canada

2015, 2019

Instructor for a Marine Modelling graduate course. Included teaching and marking duties.

Teaching assistant – Marine Modelling course

Dalhousie University, 15 students

Halifax, Canada

2014

Teacher Assistant for a Marine Modelling graduate course taught by Dr. Katja Fennel.

Coordinator – MATLAB module

Woods Hole Oceanographic Institution, 8 students 2018
Dalhousie University, 10 students 2013
Creation of a series of MATLAB workshops to introduce new students to MATLAB programming and solve specific problems encountered by the students

Sea-going experience.....

R/V Neil Armstrong

Woods Hole, U.S.A.

Duration: 6 days

Nov 2019

Co-chief scientist on an interdisciplinary cruise devoted to instrument testing. Science activities include multibeam echosounder calibration, field-tests of a newly-developed XSPAR buoy, testing of the ship's active heave compensation, and field-testing of a bio-physical underway profiler. Funding provided through NSF and a WHOI competitive call for proposals.

N/O Pourquoi Pas?

Almería, Spain

Duration: 16 days

Mar 2019

Oceanographic cruise as part of the ONR-funded CALYPSO project. Participated in UCTD/EcoCTD operation (Watch lead), drifter deployments (SVPs, CODEs, and CARTHES), configuration and deployment of a towed-chain, and configuration and deployment of a WireWalker.

NRV Alliance

Almería, Spain

Duration: 9 days

May 2018

Oceanographic cruise as part of the ONR-funded CALYPSO project. Participated in UCTD operation (Watch lead), drifter deployments (SVPs, CODEs, and CARTHES), and biophysical sampling.

CCGS Hudson

Halifax, Canada

Duration: 21 days, Atlantic Zone Monitoring Program Cruise

Sep 2015

Duration: 20 days, Atlantic Zone Monitoring Program Cruise

Sep 2014

Duration: 23 days, Atlantic Zone Monitoring Program Cruise

Apr 2013

Lead data collection and logging for CTDs and lowered ADCPs.

OTN Tracker

Halifax, Canada

Duration: daily trips

2011-2013

Deployed or recovered underwater gliders. Collected of water samples at deployment/recovery site.

M/V Dominion Victory

Halifax, Canada

Duration: 2 days

Apr 2011

Deployed 70 acoustic receivers and benthic pods along the Halifax Line.

Volunteering experience.....

Reviewer for peer-reviewed publications:

Journal of Atmospheric and Oceanic Technology, Nature communications, Ocean Dynamics

Member of Postdoctoral Association

Woods Hole, U.S.A

Accountant and at-large position – WHOI

2017-2019

Panel member

Woods Hole, U.S.A

Summer Student Fellows and Partnership Education Program – WHOI

2017

Panel member for abstract review

Halifax, Canada

International Conference in Fish Telemetry (ICFT) – Dalhousie University

2015

Editor for “Current Tides”

Halifax, Canada

Dalhousie University

2012-2013

Creation of a student-written scientific magazine promoting the Oceanography department at Dalhousie University worldwide.

Funding

Research grants and fellowships

- Field testing of a newly-developed underway profiler: the EcoCTD** **WHOI**
Woods Hole Oceanographic Institution Internal call, Principal Investigator 2019
Co-PI for funded sea-time on board the RV Armstrong.
- On the effects of patchiness on size-differentiated export of particulate organic matter at submeso-scales.** **Dalhousie University**
Halifax, Canada
Ocean Frontier Institute (OFI), Principal Investigator 2019
4 months as Principal Investigator under a visiting scientist status (\$12,000 US)
- Coherent Lagrangian Pathways from the Surface Ocean to Interior (CALYPSO)** **WHOI**
Office of Naval Research (ONR), co-investigator 2018-2022
Two-year support (6 months/year) as a postdoctoral investigator.
- National Aeronautics and Space Administration (NASA)** **WHOI**
Project: EXPORT Processes in the Ocean from Remote Sensing (EXPORTS), co-investigator 2017-2019
Two-year support as a postdoctoral investigator.
- Natural Sciences and Engineering Research Council of Canada (NSERC)** **Dalhousie University**
Project: Ocean Tracking Network (OTN) 2011-2017
Six-year support as a PhD student.

Awards and scholarships

- Travel Grant to BIARRITZ workshop** **Southampton, U.K.**
Ocean Carbon & Biogeochemistry (OCB) 2019
Travel grant to attend *Bridging International Activity and Related Research into the Twilight Zone* (BIARRITZ, \$3,000 US). Respectfully declined.
- Prediction and Observation of the Marine Environment Travel Grant** **Bergen, Norway**
Institute of Marine Research and University of Bergen 2013
Competitive travel grant for a 6-month exchange with the Institute of Marine Research in Bergen, Norway (\$9,000 US)

Inventions

- Biophysical Oceanographic Sensor System (EcoCTD)** **Patent pending**
Provisional Patent number 62/886,605 2019

Softwares, languages, and tools

Computational skills

Intermediate: HTML, CSS, Photoshop, Fortran, SQL, Python, High-performance computer cluster

Advanced: Matlab, Latex, Git, Linux

Languages

French: Native

English: Fluent

Test Of English as a Foreign Language (TOEFL), 108 / 120, 2008
International English Language Testing System (IELTS), 8.5 / 9, 2014

Spanish: Basic: speaking and writing, Intermediate: reading

Peer-reviewed publications

2022.....

Dever M., Nicholson D., Omand M.M., Mahadevan A. (accepted). Static and dynamic performance of the RBRargo³ CTD. *Journal of Atmospheric and Oceanic Technology*

2021.....

Dever M., Nicholson D., Omand M.M., Mahadevan A. (2021). Size-differentiated Export Flux in Different Dynamical Regimes in the Ocean. *Global Biogeochemical Cycles*

DOI: 0.1029/2020GB006764

2020.....

Nezlin, N.P., **Dever M.**, Halverson M., Leconte J-M, Maze G., Richards C., Shkvorets I., Zhang R., and Johnson, G (2020). Accuracy and long-term stability assessment of inductive conductivity cell measurements on Argo floats. *Journal of Atmospheric and Oceanic Technology*

DOI: 10.1175/JTECH-D-20-0058.1

Dever M., Freilich M., Farrar T., Hodges B., Lanagan T., Baron A, and Mahadevan A. (2020). EcoCTD for profiling oceanic physical-biological properties from an underway ship. *Journal of Atmospheric and Oceanic Technology*

DOI: 10.1175/JTECH-D-19-0145.1

2018.....

Dever M., Skagseth Ø., Drinkwater K. and Hebert D. (2018). Frontal dynamics of a buoyant coastal current: quantifying buoyancy, winds and isopycnal tilting influence on the Nova Scotia Current. *Journal of Geophysical Research: Oceans*.

DOI: 10.1029/2017JC013338

2017.....

Ross T., Craig S., Comeau A., Davis R., **Dever M.** and Beck M., (2017). Blooms and subsurface phytoplankton layers on the Scotian Shelf: Insights from profiling gliders. *Journal of Marine Systems*.

DOI: 10.1016/j.jmarsys.2017.03.007

2016.....

Dever M., Hebert D., Greenan B.J., Sheng J. and Smith P.C. (2016) Hydrography and coastal circulation along the Halifax Line and the connections with the Gulf of St Lawrence. *Atmosphere-Ocean*.

DOI: 10.1080/07055900.2016.1189397

Shan S, Sheng J, Ohashi K, **Dever M.** (2016) Assessing the performance of a multi-nested ocean circulation model using satellite remote sensing and in-situ observations. *Satellite Oceanography and Meteorology*.

DOI: 10.18063/SOM.2016.01.004

Other publications

Magazines.....

The living, breathing ocean: can "ocean elevators" carry excess carbon to the deep in Oceanus Magazine, 2018.

Getting to the Bottom of a Surface Current: Investigating the dynamics of the Nova Scotia Current in Current Tides, volume 2, 2015.

Published reports

A. Mahadevan, E. D'Asaro, [...], **M. Dever**, [...], and N. Zarokanellos (2020). CALYPSO 2019 Cruise Report: Field Campaign in the Mediterranean. *Woods Hole Oceanographic Institution Technical Report*. WHOI-2020-02.

DOI: 10.1575/1912/25266

Dever, M., Freilich, M., Hodges, B., Farrar, T., Lanagan, T., and Mahadevan, A. (2019). UCTD and EcoCTD Observations from the CALYPSO Pilot Experiment (2018): Cruise and Data Report. *Woods Hole Oceanographic Institution Technical Report*. WHOI-2019-01.

DOI: 10.1575/1912/23637

Hebert, D., Pettipas, R., Brickman, D., and **Dever, M.** (2018). Meteorological, Sea Ice and Physical Oceanographic Conditions on the Scotian Shelf and in the Gulf of Maine during 2016. *DFO Can. Sci. Advis. Sec. Res. Doc.* 2018/016. v + 53 p.

Buesseler, K., Adams, A., Bellingham, J.G., **Dever, M.**, Edgcomb, V.P., Estapa, M.L., Frank, A., Gallagher, S.M., Govindarajan, A.F., Horner, T.J., Hunter, J., Jakuba, M.V., Kapit, J., Katija, K., Lawson, G.L., Lu, Y., Mahadevan, A., Nicholson, D.P., Omand, M.M., Palevsky, H.I., Rauch, C., Sosik, H.M., Ulmer, K.M., Wurgaft, E., Yoerger, D.R., (2017) Pump it Up workshop report

DOI: 10.1575/1912/9328

Hebert, D., Pettipas, R., Brickman, D., and **Dever, M.** (2016). Meteorological, Sea Ice and Physical Oceanographic Conditions on the Scotian Shelf and in the Gulf of Maine during 2015. *DFO Can. Sci. Advis. Sec. Res. Doc.* 2016/083. v + 49 p.

Hebert, D., Pettipas, R., Brickman, D., and **Dever, M.** (2015). Meteorological, Sea Ice and Physical Oceanographic Conditions on the Scotian Shelf and in the Gulf of Maine during 2014. *DFO Can. Sci. Advis. Sec. Res. Doc.* 2015/040. v + 49 p.

Hebert, D., Pettipas, R., Brickman, D., and **Dever, M.** (2014). Meteorological, Sea Ice and Physical Oceanographic Conditions on the Scotian Shelf and in the Gulf of Maine during 2013. *DFO Can. Sci. Advis. Sec. Res. Doc.* 2014/070. v + 40 p.

Hebert, D., Pettipas, R., Brickman, D., and **Dever, M.** (2013). Meteorological, Sea Ice and Physical Oceanographic Conditions on the Scotian Shelf and in the Gulf of Maine during 2012. *DFO Can. Sci. Advis. Sec. Res. Doc.* 2013/058. v + 46 p.

Presentations

Invited Talks

Dever M., Nicholson D., and Mahadevan A. (2019, November).

Size-differentiated export in different dynamical regimes of the ocean.

Invited speaker at the Massachusetts Institute of Technology (MIT), Cambridge, U.S.A.

Dever M., Nicholson D., Omand M.M., and Mahadevan A. (2018, February).

Size-differentiated export of particulate organic matter at meso and submesoscales.

Invited speaker at the University of Rhode Island, Providence, U.S.A.

Dever M., Hebert D., Sheng J., Mahadevan A., and Nicholson D. (2017, October).

Frontal dynamics and biological implications at meso and submesoscales.

Invited speaker at the University of Massachusetts, Dartmouth, U.S.A.

Dever M., Hebert D. and Sheng J. (2016, December).

Investigating the dynamics of a buoyant coastal current using observations and a simple conceptual model.

Invited speaker at Woods Hole Oceanographic Institution, Woods Hole, U.S.A.

Dever M., Hebert D., Greenan B. and Sheng J. (2016, April).

Getting to the bottom of surface currents: Investigating the dynamics of a coastally-trapped, buoyancy-driven current.

Invited speaker at the National Oceanography Centre in Southampton, Southampton, UK.

Dever M., Kocik J., Hebert D., Zydlewski J., Hawkes J., Stich D. and Greenan B. (2015, December, January and February).

Linkage Between Coastal Conditions, Detection Patterns and Migratory Behavior of Atlantic Salmon Smolts (Salmo salar) Along the Halifax Line.

Invited speaker at the University of Maine (Orono, ME, U.S.A.), at the Bedford Institute of Oceanography (Dartmouth, Canada) and in the biology Department at Dalhousie University (Halifax, Canada).

Seminar Series.....

Bedford Institute of Oceanography

2019, Dartmouth, NS, Canada

What the flux? On the connectivity between upper ocean and the interior at submesoscales.

Dever M., Nicholson R. and Mahadevan A.

Dalhousie University

2019, Halifax, NS, Canada

What the flux? On the connectivity between upper ocean and the interior at submesoscales.

Dever M., Nicholson R. and Mahadevan A.

Dalhousie University

2017, Halifax, NS, Canada

Physical Dynamics and Biological Impacts of the Nova Scotia Current using Observations, Theory, and Modeling.

Dever M., Hebert D. and Sheng J.

Physical Oceanography and Meteorology Seminar Series at Dalhousie University

2014, Halifax, NS, Canada.

Improved method to characterize coastally-trapped, buoyancy-driven currents: A comparison between the Norwegian Coastal Current and the Nova Scotia Current.

Dever M., Drinkwater K., Skagseth Ø., Sundby S. and Hebert D.

Geophysical Institute at the University in Bergen

2013, Bergen, Norway

Improved method to characterize coastally-trapped, buoyancy-driven currents: A comparison between the Norwegian Coastal Current and the Nova Scotia Current.

Dever M., Drinkwater K., Skagseth Ø., Sundby S. and Hebert D.

Institute of Marine Research

2013, Bergen, Norway

Getting to the bottom of surface currents using both Canadian and Norwegian coastal currents.

Dever M., Drinkwater K., Skagseth Ø., Sundby S. and Hebert D.

Physical Oceanography and Meteorology Seminar Series at Dalhousie University

2013, Halifax, NS, Canada

On Buoyancy-Driven, Coastally-Trapped Currents: Theory, scientific questions and proposed approach.

Dever M., Hebert D., Greenan B. and Sheng J.

Conferences.....

Ocean Sciences meeting

2020, San Diego, CA, U.S.A.

Bio-physical Evidence of Subduction at Submeso-scales.

Dever M., Freilich M., Shcherbina A., Falcieri F., and Mahadevan A.

A fast biophysical towed profiler: the ecoCTD

Dever M. and Mahadevan A.

Gordon Research conference on Mixing

2018, Andover, NH, U.S.A.

Vertical mixing of organic material at meso- and submeso-scales.

Dever M., Nicholson D., Omand M.M., and Mahadevan A.

Ocean Sciences meeting

2018, Portland, OR, U.S.A.

Size-differentiated export of particulate organic matter at meso and submesoscales.

Dever M., Nicholson D., Omand M.M., and Mahadevan A.

Ocean Carbon & Biogeochemistry Workshop

2017, Woods Hole, MA, U.S.A.

Interactions between submesoscale dynamics and sinking particles: a pre-EXPORTS study.

Dever M., Mahadevan A., Nicholson D. and Omand M.M.

DOI: doi.org/10.13140/RG.2.2.25617.02409

Ocean Sciences meeting

2016, New Orleans, LA, U.S.A.

Characterization of the Nova Scotia coastally-trapped Current and monitoring of the associated density front using underwater gliders.

Dever M., Hebert D., Greenan B. and Sheng J.

Linkage Between Coastal Conditions, Detection Patterns and Migratory Behavior of Atlantic Salmon Smolts (Salmo salar) Along the Halifax Line.

Dever M., Kocik J., Hebert D., Zydlewski J., Hawkes J., Stich D. and Greenan B.

https://agu.confex.com/agu/os16/mediafile/Handout/Paper90538/OSM_21022016.pdf

The physical context of seasonal and inter-annual variability in phytoplankton across the Scotian Shelf: Insights from profiling gliders.

Ross T., Craig S., **Dever M.**, Beck M., Comeau A. and Davis R.

American Fisheries Society annual meeting

2014, Quebec, PQ, Canada

Linkage between coastal conditions and migration of Atlantic Salmon smolts along the Halifax Line.

Dever M., Kocik J., Zydlewski J., Hebert D., and Greenan B.

Ocean Sciences meeting

2014, Honolulu, HI, U.S.A. *Improved method to characterize coastally-trapped, buoyancy-driven currents: A comparison between the Norwegian Coastal Current and the Nova Scotia Current.*

Dever M., Drinkwater K., Skagseth Ø., Sundby S. and Hebert D.

