

# HENRY CAMERON HOLM, Ph.D.

## Curriculum Vitae

New York, NY — hholm@ldeo.columbia.edu — (617) 281-6498 — henryholm.com

### EDUCATION

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#### Doctor of Philosophy

Year of completion: December 2023

MIT-WHOI Joint Program in Oceanography

MIT Dept. of Earth, Atmospheric, and Planetary Sciences, WHOI Dept. of Marine Chemistry and Geochemistry

Advisor: Dr. Benjamin A. S. Van Mooy

#### Bachelor of Arts

Year of completion: May 2016

Colorado College, Colorado Springs, CO

Major: Molecular and Cellular Biology

### PROFESSIONAL EXPERIENCE

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#### Postdoctoral Research Scientist

February 2024-Present

Lamont-Doherty Earth Observatory at Columbia University

Division of Biology & Paleo Environment

#### Guest Investigator

May 2017 - June 2018

Lab of Dr. Benjamin Van Mooy at Woods Hole Oceanographic Institution

Dept. of Marine Chemistry and Geochemistry

#### Guest Investigator

October 2016 - May 2017

Lab of Dr. Amy Apprill at Woods Hole Oceanographic Institution

Dept. of Marine Chemistry and Geochemistry

#### Lab Research Intern

July 2016

Lumio Health, Inc.

Allston, MA

### PUBLICATIONS

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#### Refereed Journal Articles

5. **H. C. Holm**, H. F. Fredricks, S. M. Bent, D. P. Lowenstein, K. R. Schrage, B. A. S. Van Mooy, *Lipid composition, caloric content, and novel oxidation products from microbial communities within seasonal pack ice cores*. *Geochimica et Cosmochimica Acta*. 368, 12-23 (2024).
4. **H. C. Holm**, H. F. Fredricks, S. M. Bent, D. P. Lowenstein, J. E. Ossolinski, K. W. Becker, W. M. Johnson, K. Schrage, B. A. S. V. Mooy, *Global ocean lipidomes show a universal relationship between temperature and lipid unsaturation*. *Science*. 376, 1487-1491 (2022).
3. A. Apprill, **H. Holm**, A. Santoro, C. Becker, M. Neave, K. Huguen, A. Richards Donà, G. Aeby, T. Work, L. Weber, S. McNally, *Microbial ecology of coral-dominated reefs in the Federated States of Micronesia*. *Aquat. Microb. Ecol.* 86, 115-136 (2021).
2. R. A. Glabonjat, G. Raber, **H. C. Holm**, B. A. S. Van Mooy, K. A. Francesconi, *Arsenolipids in Plankton from High- and Low-Nutrient Oceanic Waters Along a Transect in the North Atlantic*. *Environ. Sci. Technol.* 55, 5515-5524 (2021)
1. C. A. Miller, **H. C. Holm**, L. Horstmann, J. C. George, H. F. Fredricks, B. A. S. Van Mooy, A. Apprill, *Coordinated transformation of the gut microbiome and lipidome of bowhead whales provides novel insights*

*into digestion*. ISME J. 14, 688–701 (2020)

## OCEANOGRAPHIC CRUISE AND FIELD WORK PARTICIPATIONS

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LMG2301 - West Antarctic Peninsula; Southern Ocean. 2023. R/V Laurence M. Gould

EN667 - Gulf of Maine; North Atlantic. 2021. R/V Endeavor

SG2105 - North Atlantic. 2021. R/V Sarmiento de Gamboa

LMG1810 - West Antarctic Peninsula; Southern Ocean. 2018. R/V Laurence M. Gould

AR30-3 - Irminger Sea; North Atlantic. 2018. R/V Neil Armstrong

AE1812 - Sargasso Sea; North Atlantic. 2018. R/V Atlantic Explorer

Whale Microbiome Sampling - Cape Cod Bay. Spring 2017. R/V Rosita

## AWARDS AND HONORS

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### **NSF Antarctic Service Medal**

Year: 2018

National Science Foundation

Alexandria, Virginia

## GRANTS AND FELLOWSHIPS

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### **Lamont-Doherty Earth Observatory Postdoctoral Fellowship**

Year: 2023

Columbia University

New York, NY

Dollar Amount [\$139,500]

## INVITED TALKS

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### **Global ocean lipidome reveals compositional controls of temperature, depth, and inorganic nutrients.**

Date: August 3rd, 2022

Gordon Research Conference - Organic Geochemistry. Holderness, NH.

### **The effects of temperature and depth on ocean planktonic glycerolipids.**

Date: July 12th, 2022

International Symposium of Plant Lipids. Grenoble, France.

## CONFERENCE ACTIVITY

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### *Presentations*

### **Global ocean lipidome reveals a universal relationship between temperature and lipid unsaturation.**

**H. Holm**, Helen F Fredricks, Margaret Estapa, Colleen Durkin, Benjamin AS Van Mooy

Date: February 22th, 2024

2024 AGU Ocean Sciences Meeting. New Orleans, LA.

### **Global ocean lipidome reveals a universal relationship between temperature and lipid unsaturation.**

**H. Holm**, H.F. Fredricks, S.M. Bent, D.P. Lowenstein, J.E. Ossolinski, K.W. Becker, W.M. Johnson, K. Schrage, B.A.S. Van Mooy.

Date: February 28th, 2022  
2022 AGU Ocean Sciences Meeting, Virtual Meeting.

### ***Posters***

#### **Lipidomics of suspended and sinking POC during EXPORTS North Pacific.**

B.A.S. Van Mooy and **H. Holm**

Date: 2019

EXPORTS PI Meeting. Williamsburg, VA.

### ***Presentations by Coauthors***

#### **Floating fats from phytoplankton affect the fate of carbon.**

B.A.S. Van Mooy, S.M. Bent, K.D. Bidle, H.F. Fredricks, **H. Holm**, Z. Girard, J.W. Krause, D.P. Lowenstein, M. Prakash, A.V. Subhas, K. Thamatrakoln

Date: February 19th, 2024

2024 AGU Ocean Sciences Meeting. New Orleans, LA.

#### **Microbial lipid stoichiometry and biomarkers reflect geochemical gradients and community structure across the North and South Atlantic.**

D.P. Lowenstein, H.F. Fredricks, **H.C. Holm**, B.A.S. Van Mooy

Date: February 22th, 2024

2024 AGU Ocean Sciences Meeting. New Orleans, LA.

#### **Untargeted Lipidomic Study Reveals Temperature-Dependent Composition of Organic Compounds in the World's Oceans.**

W. Liu, **H. Holm**, J. Lipp, B.A.S. Van Mooy, K. Hinrichs

Date: September 10th, 2023

IMOG 2023. Montpellier, France.

#### **Microbes, lipids, and digesta: biogeography of the gut microbiome and lipidome of bowhead whales *Balaena mysticetus*.**

C.A. Miller, Horstmann-Dehn, J.C. George, **H. Holm**, H.F. Fredricks, B.A.S. Van Mooy, A. Apprill.

Date: October 23 – 27, 2017.

Society for Marine Mammalogy. Halifax, Nova Scotia, Canada.

### **CAMPUS TALKS**

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#### **Using high-resolution lipidomics to reveal ocean microbe adaptations and organic matter fate in the surface ocean.**

Date: April 1st, 2024

BPE Seminar, Lamont-Doherty Earth Observatory. Palisades, NY.

#### **Glycerolipid diversity and dynamics in the global ocean**

Date: July 26, 2022

MCG Seminar, Department of Marine Chemistry and Geochemistry, WHOI. Woods Hole, MA.

### **MENTORSHIP and SUPERVISION**

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#### **Joint Program Student Mentor**

For Sabrina Elkassas, 2020-2022

#### **Application Mentor**

WHOI JP-ASK program for multiple applicants, 2021-2023.

#### **Graduate Mentorship and Training of Undergraduates**

WHOI: Kelsey Perry (2019), Merissa Small (2019), Lisa Coe (2019), Noa Shevchuk (2022), Mackenzie Curtice (2022).

## SERVICE TO PROFESSION

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### **Participant** - OCB Scoping Workshop

*"Laying the foundation for a potential future BioGeoSCAPES program."*

Year: 2021

Woods Hole Oceanographic

### **Core Student Committee** - WHOI MCG Department Candidate Search

Year: 2020

Woods Hole Oceanographic

### **Manuscript Reviewer**

Journals: *Marine Chemistry*, *Geochimica et Cosmochimica Acta*

## PROFESSIONAL SKILLS

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### **Programming**

- Maintainer for **LOBSTAHS** package with Van Mooy Lab.
- Highly experienced in **R language** including development of packages and **R shiny** apps.
- Highly experienced with mass spectral specific programing including the packages **XCMS** and **CAMERA**.
- Some experience with **Matlab**, **Python**, **HTML**, and **LaTeX**.
- See [github.com/hholm](https://github.com/hholm) for public software contributions.

## PROFESSIONAL MEMBERSHIPS

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### **Association for the Sciences of Limnology and Oceanography**

Member since 2022

### **American Association for the Advancement of Science**

Member since 2022