Associate Scientist: Bermuda Institute of Ocean Sciences

Assistant Professor: School of Ocean Futures, Arizona State University

17 Biological Station, St. George’s, GE 01, Bermuda
(441) 297-1880 x131, amy.maas@asu.edu

**CURRENT APPOINTMENTS**

**Bermuda Institute of Ocean Sciences, Arizona State University**

Assistant Professor, School of Ocean Futures Aug 2022-present

**University of Connecticut** May 2013-present

Assistant Research Scientist

 Marine Science and Technology Center

**PREVIOUS APPOINTMENTS**

**Bermuda Institute of Ocean Sciences**

 Associate Scientist April 2020-Aug 2022

Assistant Scientist January 2015-March 2020

**Woods Hole Oceanographic Institution**

 Postdoctoral Scholar/Investigator August 2011-December 2014

 Guest Investigator 2015-2022

 Biology Department with Dr. Gareth Lawson and Dr. Ann Tarrant

**EDUCATION**

 **University of Rhode Island**  August 2006-August 2011 Biological Sciences: Ph.D completed in August 2011 with Dr. Brad Seibel

 "Ecological physiology of pteropods in relation to climate change"

**Hiram College, Ohio** August 2002-May 2006

 B.A. Biology with Honors Magna Cum Laude, Alpha Society, Phi Beta Kappa

**RESEARCH GRANTS (Awarded and Pending only)**

K. Stamieszkin, **A.E. Maas**, L. Blanco-Bercial, C. Mitchell, D. Steinberg. “Sea Surface Proxies for Zooplankton Contribution to the Gravitational Pump, Migrant Pump, and Particle Attenuation” (NOI submitted) NASA: EXPORTS-II

A. Burd, D. Stramski, D. Steinberg, **A.E. Maas.** “Quantifying pathways of export and attenuation: integrating EXPORTS data with mechanistic models and remote sensing data.” (NOI submitted) NASA: EXPORTS-II

C. Petrik, L. Resplandy, J. Luo, C. Stock, D. Steinberg, **A.E. Maas.** “Mechanistically modeling the contributions of vertically migrating zooplankton and fishes on the ocean biological pump” (NOI submitted) NASA: EXPORTS-II

M. Green et al. “Southwest Regional Carbon Dioxide Removal Testbed Facility (SeRDiFy)” (Pending) DOE: FECM - $4,999,999.

K. Hyde, G. Saba, **A.E. Maas**, C. Melrose, S. Meseck. “Ocean Acidification Synthesis and Reporting” (Pending) NOAA - $129,859 ($20,430 BIOS portion).

K. Stamieszkin. N. Record, L. Blanco-Bercial, **A.E. Maas**, K. Lackner, S. Arcusa, J. Flory, D. Bianchi. “Quantifying zooplankton-mediated carbon export pathways for mCDR” (February 2024) ARPA-E; SEA CO2 - $627,484 ASU share.

**A.E. Maas**, L. Blanco-Bercial, R. Johnson. “Quality plankton community and flux calculations for PACE validation of derived data products in the broader context of Tudor Hill AERONET measurements and BATS datasets” (January 2024) NASA A.30 (PACE Validation) - $619,954

**A.E. Maas.** “Collaborative Research: Understanding environmental and ecological controls on carbon export and flux attenuation near Bermuda” (2318941, April 2024) NSF Chem/Bio OCE - $210,196.

L. Blanco-Bercial, **A.E. Maas** and R. Johnson. “Semi‐automated quantification of the nano‐ and microplankton in the marine environment” (April 2023) BIOS Cawthorn award - $188,846

**A.E. Maas**, K. Noyes. “Collaborative Research: Metabolic habitat barriers imposed on tropical diel vertical migrators” (2127299, August 2021) NSF Bio OCE - $297,690.

**A.E. Maas**, L. Blanco-Bercial, K. Noyes. “Collaborative Proposal: An autonomous profiling vehicle for concurrent acoustic, visual and environmental measurements in the mesopelagic ocean” (2123560, August 2021) NSF OTIC - $185,553.

C. Melrose, L. Barbero, D. Pierrot, P. Fratantoni, H. Walsh, **A.E. Maas**, G. Saba. “Measurement and Synthesis of Water Column Carbonate Chemistry, Nutrients, and Biological Indicators of Ocean Acidification on the Northeast Fisheries Science Center’s Ecosystems Monitoring (EcoMon) Cruises” (January 2021) NOAA - $75,000 (BIOS part).

L. Blanco-Bercial, **A.E. Maas**, K. Noyes. “Collaborative Research: Zooplankton mediation of particle formation in the Sargasso Sea” (2023372, June 2020) NSF Bio OCE - $407,159.

L. Blanco-Bercial, **A.E. Maas**, K. Noyes, and D. Kinkade. “Quantifying the Drivers of Midwater Zooplankton Community Structure” (1948162, March 2020) NSF Bio OCE - $550,795.

**A.E. Maas** and L. Blanco-Bercial. “Collaborative Research: Diel physiological rhythms in a tropical oceanic copepod” (1829318, July 2018) NSF Biological OCE - $535,000.

D. Steinberg and **A.E. Maas.** “Zooplankton-Mediated Export Pathways: Quantifying Fecal Pellet Export and Active Transport by Diel and Ontogenetic Vertical Migration in the North Pacific and Atlantic Oceans” (80NSSC17K0654, July 2017) NASA EXPORTS Proposal - $259,018 BIOS subaward.

 SUPPLEMENT (Sept 2020) - $38,100 BIOS subaward.

**A.E. Maas**, D. Murphy and S. Newton. “Swimming in Sea-Butterflies: Physics, Physiology, Ecology and Inspiration” (April 2017) National Academies Keck Futures Initiative - $75,000.

**A.E. Maas,** P.A. Barnes, R. Parsons Biggs. “Environmental Change Research Facility at BIOS” (1624380, Aug 2016) NSF FSML - $337,965.

G.L. Lawson, **A.E. Maas,** A.M. Tarrant “Ocean Acidification: Seasonal and ontogenetic effects of acidification on pteropods in the Gulf of Maine” (1316040, Aug 2013) NSF Ocean Acidification– $492,720. \*During the transition to BIOS, Maas was removed as a Co-PI to allow for a subaward to be allocated to her new institution (March 2015).

Z. Wang, G.L. Lawson, and **A.E. Maas**. “Acidification of the Coastal Ocean: Are Deep Waters of the Gulf of Maine already Corrosive to Pteropods?” (June 2012) Coastal Ocean

 Institute – $74,928

A.M. Tarrant, **A.E. Maas**, G.L. Lawson “Impacts of ocean acidification on pteropod physiology” (September 2011) Access to the Sea – $35,000

**FUNDED COLLABORATIONS (Awarded and Pending only)**

C. Robinson and I. Seguro Requejo “The abiotic and biotic factors determining microbial respiration, a key process in ocean carbon storage (MicroRESPIRE)” (August 2022) NERC - £196,848 (**Maas** is a named project partner)

S-D. Ayata “Trait biogeography and functional diversity of marine mesozooplankton from high throughput data (imaging, omics), machine learning and numerical modelling” (July 2022) French ANR, AAPG 2022 – Total award 678 k€ (**Maas** is a named project partner)

T. Chalk “ForCry: Analysing frozen Foraminifera by Cryostage LA-ICPMS: Neogene CO2, patterns, cycles, and climate sensitivity.” (December 2021) European Research Council Starting Grant (**Maas** is a named project partner)

W. Curry “BIOS-SCOPE II- A Collaborative Program for the Study of Microbial Oceanography in the North Atlantic Subtropical Gyre” (November 2020) Simons Foundation International – Total award $11,059,628, BIOS share $3,869,592 BIOS part (**Maas** is an investigator on the project with 15 months of support over 5 years)

D. Murphy “Aerial and Aquatic Flapping Flight at Low Reynolds Numbers” (2019) NSF Career (**Maas** is a named project collaborator with technician time on the grant).

D. Lunt et al. “SWEET: Super-Warm Early Eocene Temperatures and climate: understanding the response of the Earth to high CO2 through integrated modelling and data” (October 2017) NERC - £1,109,719 (**Maas** is a named project partner)

W. Curry “Equipment for Sampling Microbes and Larger Plankton in Support of BIOS-SCOPE” (November 2016) Simons Foundation International - $193,727 (**Maas** shares responsibility for new MOCNESS and ZooScan with Dr. Blanco Bercial)

W. Curry “BIOS-SCOPE: A collaborative program for the study of microbial oceanography in the North Atlantic Subtropical Gyre” (November 2015) Simons Foundation International - Total award $ 5,976,827, BIOS share $ 2,473,439 BIOS part (**Maas** was an investigator on the project with 15 months of support over 5 years)

**FELLOWSHIPS AND AWARDS**

Recipient of the 2021 Robert H. Goddard Honor Team Awards for EXPORTS Project Science Team

Accepted to NAKFI Conference: Discovering the Deep Blue Sea 2016

Accepted to DISCCRS 2013

Future Oceans “Evolving Ocean” Postdoctoral Fellowship (declined 2013-2016)

Accepted to Eco-DAS X 2012

Travel Award to the Third International Symposium on the Ocean in a High CO2 World 2012

Participant in the ICES/PICES “Oceans of Change” Conference 2012

Woods Hole Postdoctoral Scholarship 2011

UNOLS Chief Scientist Training Cruise 2011

URI Biology Department Grant 2011

URI Deans Grant 2011

Rhode Island Graduate Student Research Grant 2008, 2009, 2010

EPSCoR Fellowship (Stipend, Fees, Tuition for Fall, Spring, and Summer ‘08-’09)

**PUBLICATIONS**

(# represents student author, \* represents equal authorship)

45. **A.E. Maas**, G.L. Lawson, A.J Bergan, Z.A. Wang, A.M. Tarrant. (in press) “Sea butterflies in a pickle: Seasonal sensitivity of *Limacina retroversa* to ocean acidification in the Gulf of Maine”. Conservation Physiology. Doi: 10.1093/conphys/coae040.

44. C. Karthäuser, P.D. Fucile, **A.E. Maas**, L. Blanco-Bercial, H. Gossner, D.P. Lowenstein, Y.J. Niimi, B.A.S. Van Mooy, J.M. Bernhard, K.O. Buesseler, S.M. Sievert. (2024) “The RotoBOD - quantifying oxygen consumption by suspended particles and organisms”. Environmental Science and Technology. 58(20): 8760–8770. DOI: 10.1021/acs.est.4c03186

43. E. Timmins-Schiffman, **A.E. Maas**, R. Khanna, L. Blanco-Bercial, E. Huang, B. Nunn. (2024) “Removal of exogenous stimuli reveals a canalization of circadian physiology in a vertically migrating copepod”. Journal of Proteome Research. 23(6), 2112-2123. Doi: 10.1021/acs.jproteome.4c00086

42. **A.E. Maas**, E. Timmins-Schiffman, A.M. Tarrant, B. Nunn, J. Park, L. Blanco-Bercial. (2024) “Diel metabolic patterns revealed by in situ transcriptome and proteome in a vertically migratory copepod”. Molecular Ecology. 33(6): e17284. Doi: 10.1111/mec.17284

41. R. Kiko, D. Bianchi, H. Hauss, M. Iversen, **A.E. Maas**. (2023) “Editorial: Zooplankton and Nekton: Gatekeepers of the Biological Pump - Volume 2”. Frontiers in Marine Science. Doi: 10.3389/fmars.2023.1298590

40. C. H. Shea#, Wojtal, P.J. #, Close, H.G., Stamieszkin, K., Cope, J.S., Steinberg, D.K., **Maas, A.E.,** Wallsgrove, N. # and Popp, B.N. (2023). “Small particles and heterotrophic protists support the mesopelagic zooplankton food web in the subarctic northeast Pacific Ocean”. Limnology and Oceanography. 68(8): 1949-1963. Doi: 10.1002/lno.12397

39. D.K. Steinberg, K. Stamieszkin, **A.E. Maas**,C.A. Durkin, U. Passow, M.L. Estapa, M.M. Omand, A.M.P. McDonnell, L. Karp-Boss, M. Galbraith, D.A. Siegel. (2023) “The outsized role of salps in carbon export in the subarctic Northeast Pacific Ocean during summer.” Global Biogeochemical Cycles. e2022GB007523. Doi: 10.1029/2022GB007523

38. N. Villiot#, **A.E. Maas**, A.J. Poulton, and L. Blanco-Bercial. (2023)Nutrients modulate taxonomic diversity and trophic strategies of small eukaryotes in oligotrophic oceans. FEMS Microbes. Doi: 10.1093/femsmc/xtac029

37. A.M. Tarrant, N. McNamara-Bordewick#, L. Blanco-Bercial, A. Miccoli, **A.E. Maas**. (2021). “Diel metabolic patterns in a migratory oceanic copepod.” Journal of Experimental Marine Biology and Ecology. 545. Doi: 10.1016/j.jembe.2021.151643

36. A. Herrera-Amaya#, E.K. Seber#, D.W. Murphy, W.L. Patry, T.S. Knowles, M.M. Bubel, **A.E. Maas**, and M.L. Byron (2021). “Spatiotemporal asymmetry in metachronal rowing at intermediate Reynolds numbers.” Integrative and Comparative Biology. Doi: 10.1093/icb/icab179

35. D.A. Siegel et al (2021). “An operational overview of the EXport Processes in the Ocean from RemoTe Sensing (EXPORTS) Northeast Pacific field deployment.” Elementa: Science of the Anthropocene. 9(1): 00107. Doi: 10.1525/elementa.2020.00107

34. K. Stamieszkin,D.K. Steinberg, **A.E. Maas.** (2021). “Fecal pellet production by mesozooplankton in the subarctic Northeast Pacific Ocean” Limnology and Oceanography. 66(7): 2585-2597. Doi: 10.1002/lno.11774

33. S. Doherty#, **A.E. Maas,** D.K. Steinberg, B.N. Popp, H.G. Close. (2021). “Distinguishing zooplankton fecal pellets as a component of the biological pump using compound-specific isotope analysis of amino acids.” Limnology and Oceanography. 66(7): 2827-2841. Doi: 10.1002/lno.11793

32. **A.E. Maas**, H. Gossner, MJ Smith, L. Blanco-Bercial. (2021). “Use of Optical Imaging Datasets to Assess Biogeochemical Contributions of the Mesozooplankton.” Journal of Plankton Research. 43(3): 475-491. Doi: 10.1093/plankt/fbab037

31. **A.E. Maas**, A. Miccoli, K.S. Stamieszkin, C.A. Carlson, D.K. Steinberg. (2021) “Allometry and the Calculation of Zooplankton Metabolism in the subarctic Northeast Pacific Ocean.” Journal of Plankton Research. 43(3): 413-427. Doi: 10.1093/plankt/fbab026

30. **A.E. Maas**, S. Liu, L. Bolanos, B. Widner, R. Parsons, C. Carlson, E. Kujawinski, L. Blanco-Bercial. (2020). “Migratory Zooplankton Excreta and its Influences on Prokaryotic Communities.” Frontiers in Marine Science”. 7. Doi: 10.3389/fmars.2020.573268

29. K.T.C.A. Peijnenburg, A.W. Janssen, D.Wall-Palmer, E. Goetze, A.K. Burridge, **A.E. Maas**, J. Todd, F. Marlétaz. (2020). “The origin and diversification of pteropods precede past perturbations in the Earth's carbon cycle” PNAS. Doi: 10.1073/pnas.1920918117

28. F. Karakas#, J. Wingate#, L. Blanco-Bercial, **A.E. Maas,** D.W. Murphy. (2020) “Swimming and Sinking Behavior of Warm Water Pelagic Snails” Frontiers in Marine Science. 7: 749. Doi: 10.3389/fmars.2020.556239

27. R. Kiko, D. Bianchi, C. Grenz, H. Hauss, M. Iversen, S. Kumar, **A.E. Maas**, C. Robinson. (2020) “Editorial: Zooplankton and Nekton: Gatekeepers of the Biological Pump” Frontiers in Marine Science. 7. Doi: 10.3389/fmars.2020.00545

26. F. Karakas#, **A.E. Maas**, D.W. Murphy. (2020). “A Novel Cylindrical Clap-and-Fling Mechanism Used by Sea Butterflies” JEB. 223(15). Doi: 10.1242/jeb.221499

25. P.S. Thibodeau#, D.K. Steinberg, **A.E. Maas.** (2020). “Effects of temperature and food concentration on pteropod metabolism along the Western Antarctic Peninsula” JEMBE. 530-531: 151412. Doi: 10.1016/j.jembe.2020.151412

24. **A.E. Maas**, Z.A. Wang, A.M. Tarrant and G.L. Lawson. (2020). “Seasonal variation in physiology and shell condition of the pteropod *Limacina retroversa* in the Gulf of Maine relative to life cycle and carbonate chemistry.” Progress in Oceanography. 186: 102371. Doi: 10.1016/j.pocean.2020.102371

23. N. Bednaršek, R. Feely, E. Howes, B. Hunt, F. Kessouri, P. León, S. Lischka, **A.E. Maas**, K. McLaughlin, N.P. Nezlin, M. Sutula, and S.B. Weisberg. (2019). “Systematic Review and Meta-Analysis Toward Synthesis of Thresholds of Ocean Acidification Impacts on Calcifying Pteropods and Interactions With Warming.”  Frontiers in Marine Science. Doi: 10.3389/fmars.2019.00227

22. F. Karakas#, D. D’Oliveira#, **A.E. Maas**, D.W. Murphy. (2018). “Using a Shell as a Wing: Pairing of Dissimilar Appendages in Atlantiid Heteropod Swimming”. Journal of Experimental Biology. 221(23) Doi: 10.1242/jeb.192062

21. J.E. Burke#, W. Renema, M.J. Henehan, L.E. Elder, C.V. Davis, **A.E. Maas**, G.L. Foster, R.Schiebel, P.M. Hull. (2018) “Factors influencing porosity in planktonic foraminifera.” Biogeosciences. Doi: 10.5194/bg-2018-222

20. **A.E. Maas**, L. Blanco-Bercial, A. Lo#, A.M. Tarrant, and E. Timmins-Schiffman. (2018b) “Variations in copepod proteome and respiration rate in association with diel vertical migration and circadian cycle.” The Biological Bulletin. 235: 30-42. Doi.org/10.1086/699219

19. L. Blanco Bercial\* and **A.E. Maas\*** (2018). “A transcriptomic resource for evaluating temperature differences in the gene expression of the northern krill *Meganyctiphanes norvegica*”. Molecular Genomics. 38: 25-32. Doi: 10.1016/j.margen.2017.05.013

18. **A.E. Maas**, G.L. Lawson, A.J. Bergan# and A.M. Tarrant. (2018a). “Exposure to CO2 influences metabolism, calcification, and gene expression of the thecosome pteropod *Limacina retroversa*”. Journal of Experimental Biology. 221 (3). Doi: 10.1242/jeb.164400

17. A.J. Bergan#, G.L. Lawson, **A.E. Maas** and Z.A. Wang.(2017). “The effect of elevated carbon dioxide on the sinking and swimming of the shelled pteropod *Limacina retroversa*”. ICES Journal of Marine Science. 74: 1893-1905. Doi:10.1093/icesjms/fsx008

16. C. Manno et al. (2017) “Shelled pteropods in peril: Assessing vulnerability in a high CO2 ocean”. Earth-Science Reviews. 169: 132-145. Doi: 10.1016/j.earscirev.2017.04.005

15. A.A. Thabet#\*, **A.E. Maas**\*, S.A. Saber, and A.M. Tarrant. (2017). “Assembly of a reference transcriptome for the gymnosome pteropod *Clione limacina* and profiling responses to short-term CO2 exposure”. Marine Genomics. 34: 39-45. Doi:10.1016/j.margen.2017.03.003

14. P.G. Batta-Lona#, **A.E. Maas**, R.J. O’Neill, P.H. Wiebe, A. Bucklin. (2017). “Transcriptomic profiles of spring and summer populations of the Southern Ocean salp, *Salpa thompsoni*, in the Western Antarctic Peninsula region”. Polar Biology. 40 (6): 1261-1276.

13. Z.A. Wang, G.L. Lawson, C. Pilskaln, **A.E. Maas.** (2017). Seasonal controls of aragonite saturation states and impacts on pteropod abundance in the Gulf of Maine”. AGU Oceans. 122 (1): 372-389.

12. **A.E. Maas,** Z. A. Wang and G.L. Lawson. (2016b). “The metabolic response of thecosome pteropods from the North Atlantic and North Pacific Oceans to high CO2 and low O2”. Biogeosciences. 13: 6191-6210.

11. **A.E. Maas**, I.T. Jones#, A.M. Reitzel and A.M. Tarrant. (2016a). “Daily cycle in oxygen consumption by the sea anemone *Nematostella vectensis* Stephenson”. Biology Open.  doi: 10.1242/bio.013474

10. A.A. Thabet#\*, **A.E. Maas**\*, G.L. Lawson, and A.M. Tarrant. (2015). “Life cycle and early development of the thecosomatous pteropod *Limacina retroversa* in the Gulf of Maine, including the effect of elevated CO2 levels”. Marine Biology. 162 (11): 2235-2249.

9. **A.E. Maas**, G.L. Lawson and A.M. Tarrant. (2015). “Transcriptome-wide response of the thecosome pteropod *Clio pyramidata* to short-term CO2 exposure”. Comparative Physiology and Biochemistry Part D 16:1-9.

8. **A.E. Maas**,S. Fraser#, D.M. Outram, B.A. Seibel, K.F. Wishner. (2014). “Fine scale vertical distribution of macroplankton and micronekton in the Eastern Tropical North Pacific in association with an oxygen minimum zone”. Journal of Plankton Research 36 (6): 1557-1575.

7. Howes, E.L., N. Bednarsek, J. Büdenbender, S. Comeau, A. Doubleday, S. M. Gallager, R. Hopcroft, S. Lischka, **A. E. Maas**, J. Bijma, J.P. Gattuso (2014). “Sink and swim, a status review of pteropod culture techniques”. Journal of Plankton Research 36(2): 299-315.

6. **A.E. Maas,** L. Blanco-Bercial, G.L. Lawson. (2013). “Reexamination of the species assignment of Diacavolinia pteropods using DNA barcoding”. PLoS ONE 8(1): e53889.

5. **A.E. Maas**, K.F. Wishner, B.A. Seibel. (2012c). “Metabolic suppression in thecosomatous pteropods as an effect of low temperature and hypoxia in the Eastern Tropical North Pacific”. Marine Biology 159(9): 1955-1967.

4. **A.E. Maas,** K.F. Wishner, B.A. Seibel. (2012b). “The metabolic response of pteropods to ocean acidification reflects natural CO2-exposure in oxygen minimum zones”. Biogeosciences 9: 747-757.

3. **A.E. Maas**, B.A. Seibel, P.J. Walsh (2012a). “Effects of elevated ammonia concentrations on survival, metabolic rates and glutamine synthetase activity in the Antarctic pteropod Mollusc *Clione limacina antarctica*”. Polar Biology 35: 1123-1128.

2. B.A. Seibel, **A.E. Maas**, H. Dierseen. (2012). “Energetic plasticity underlies a variable response to ocean acidification in the pteropod, *Limacina helicina antarctica*”. PLoS ONE 7(4): e30464.

1. **A.E. Maas**, L.E. Elder, H. Dierssen, B.A. Seibel. (2011). “Metabolic response of Antarctic pteropods (Mollusca: Gastropoda) to food deprivation and regional productivity.” Marine Ecology Progress Series 441:129-139.

**MANUSCRIPTS (available upon request)**

D.A. Siegel, A.B. Burd, M. Estapa, E. Fields, L. Johnson, E. Romanelli, M.A. Brzezinski, K.O. Buesseler, S. Clevenger, I. Cetinić, L. Drago, C. Durkin, R. Kiko, S.J. Kramer, **A.E. Maas**, M. Omand, U. Passow, D.K. Steinberg (in review.) “Dynamics of Aggregates and Sinking Carbon Fluxes in a Turbulent Ocean”. Science Advances

H. McMonagle#, J.K. Llopiz, **A.E. Maas**, D.K. Steinberg, A.F. Govindarajan, R. Hilborn. T.E. Essington. (in review)“The contribution of mesopelagic fishes to the biological carbon pump in the Northeast Atlantic Ocean”. ICES

B. M. Stephens, M. Roca-Marti, **A.E. Maas**, V.J. Amaral, S. Clevenger, S. Traylor, C.R. Benitez-Nelson, K.O. Buesseler, C.A. Carlson, N. Cassar, M. Estapa, A.J. Fassbender, Y. Huang, P.J. Lam, O. Marchal, S. Menden-Deuer, N. Paul, A.E. Santoro, D.A. Siegel, D.P. Nicholson. (in prep). “An upper mesopelagic zone carbon budget for the subarctic North Pacific”. Biogosciences.

H. McNair, M. Meyer#, S. Lerch, **A. E. Maas**, B. Stephens, J. Fox, K. N. Buck, S. M. Burns, I. Cetinic, M. Cohn#, C. Durkin, S. Gifford, W. Gong, J. R. Graff, E. L. Jones#, A. E. Santoro, C. H. Shea#, K. Stamieszkin, D. K. Steinberg, A. Marchetti, C. A. Carlson, S. Menden-Deuer, M. A. Brzezinski, D. A. Siegel, T. Rynearson. (in revison) “A quantitative analysis of the food web in the Subarctic Pacific demonstrates dynamics of a regenerative system with low export potential”.

T.G. Schwemmer#, N. Volkenborn, **A.E. Maas**, B. Chen, J.A. Nye. (in prep.) “Metabolic response of the coastal fish *Menidia menidia* reared in elevated CO2 to progressive hypoxia’. Journal of Experimental Marine Biology and Ecology.

N. Germolus#, **A.E. Maas**, K. Longnecker, M.C. Kido Soule, E.B. Kujawinski (in prep.) “The metabolite excretion rates of four migratory zooplankton”. Progress in Oceanography

J.E. Burke#, L.E. Elder, **A.E. Maas**, D.E. Gaskell#, E.G. Clark, A.Y. Hsiang, G.L Foster, P.M. Hull. (in revision) “Low Allometric Scaling of Respiration Rates May Explain Gigantism in Pelagic Protists”. Limnology and Oceanography.

**PRESENTATIONS AT SCIENTIFIC MEETINGS**

(# represents student author, \* represents presenting author if other than first author)

S. Pfirman, S. Neuer, R. Martin, K. Kamelamela, **A.E. Maas,** A. Peters, N. Bates. Poster Presentation: “Ocean Futures: A New Paradigm and Teaching in the Age of Ocean Change”. (April 2024) EGU – Vienna, Austria.

S. Neuer, A. Pfirman, R. Martin, K. Kamelamela, **A.E. Maas**, N. Bates. Oral Presentation: “Ocean Futures: A New Paradigm and Teaching in the Age of Ocean Change”. (April 2024) EGU – Vienna, Austria.

D. Nicholson, B. Stephens, S. Traylor#, M. Roca Martíi, V. Amaral#, K. Buesseler, S. Clevenger#, Eric D’Asaro, Y. Huang, C. M. Lee, **A.E. Maas** and the EXPORTS Team. Oral Presentation: “How well can we quantify the biological carbon pump? Lessons from the EXPORTS field campaigns”. (February 2024) Ocean Sciences – New Orleans, LA.

J. Graff and **A.E. Maas.** Poster Presentation: “Depth specific grazing by mesozooplankton revealed through photophysiology of intact phytoplankton trapped within fecal pellets.” (February 2024) Ocean Sciences – New Orleans, LA.

**A.E. Maas,** S. Docekal#\*, H. Gossner, L. Blanco-Bercial**.** Poster Presentation: “Variations in zooplankton respiration rate among seasons and ocean basins.” (February 2024) Ocean Sciences – New Orleans, LA.

H. Gossner, J. Muhammad#, M. Smith and **A.E. Maas.** Poster Presentation: “Relationship between zooplankton biomass and biovolume by taxa and region”. (February 2024) Ocean Sciences – New Orleans, LA.

R. B. Rodriguez Perez#, H.M. Gossner, **A.E. Maas**, L. Blanco-Bercial. Poster Presentation: “Disparity in the Eco-Evolutionary constraints in the main copepod orders.” (February 2024) Ocean Sciences – New Orleans, LA.

A.E. Brenner#, Y. Niimi#, R. Rao, L. Blanco-Bercial, **A.E. Maas**, S. Neuer. Oral Presentation: Analysis of sinking particulate matter points to an active community of resident zooplankton in the Sargasso Sea.” (February 2024) Ocean Sciences – New Orleans, LA.

Y. Niimi#, **A.E. Maas**, F.E. Goetz, K. Osborn, S. Neuer, L. Blanco-Bercial. Oral Presentation: “Integrating microCT-scanning and DNA barcoding to define the taxonomy of Euphausiids in the Sargasso Sea: Implications for zooplankton's biogeochemical role in the ocean.” (February 2024) Ocean Sciences – New Orleans, LA.

A. Aldaddi#, E. Williams#, F. Karakas, **A.E. Maas**, D.W. Murphy. Poster Presentation: “Sea Angel Swimming at Intermediate Reynolds Numbers”. (November 2023) APS Division of Fluid Dynamics – Washington D.C.

L. Trueblood, **A.E. Maas**, L. Blanco-Bercial. Poster Presentation: “Tale of Two Seas: Effect of Temperature and Hypoxia on the Metabolic Rates of Salpa fusiformis from the Pacific and Atlantic Oceans”. (October 2023)

H. McMonagle#, J.K. Llopiz, **A.E. Maas**, D.K. Steinberg, A.F. Govindarajan, R. Hilborn and T.E. Essington. Poster Presentation: “High uncertainty in estimates of fish-mediated carbon transport into the ocean’s twilight zone”. (September 2023) Biodiversity, Ecology, and the Biological Carbon Pump in the Ocean Twilight Zone – Woods Hole, MA.

D.K. Steinberg, **A.E. Maas**, K.S. Stamieszkin, J. Cope, H. Gossner. Oral Presentation: “Comparing mesozooplankton community structure & diel vertical migration in the subarctic Northeast Pacific & Atlantic Oceans”. (September 2023) Biodiversity, Ecology, and the Biological Carbon Pump in the Ocean Twilight Zone – Woods Hole, MA.

C. Karthäuser, P. Fucile, **A.E. Maas**, L. Blanco-Bercial, Y. Niimi, E. Ceballos, S. Sievert, K. Buesseler. Oral Presentation: “Linking individual particle properties and remineralization rates with large-scale carbon fluxes.” (June 2023) ASLO – Mallorca, Spain.

Y. Niimi#, L. Blanco-Bercial, **A.E. Maas**, A. Brenner#, S. Neuer. Poster Presentation: “Contributions of Key Zooplankton Taxa to the export production in the Sargasso Sea”. (June 2023) ASLO – Mallorca, Spain.

H. McMonagle, J.K. Llopiz, R.Hilborn, T.E. Essington, **A.E. Maas**. Poster Presentation: “High uncertainty in fish-mediated carbon transport into the ocean’s twilight zone”. (April 2023) ICES/PICES, ECCWO5 – Bergan, Norway.

**A.E. Maas,** L. Blanco-Bercial, B. Nunn, E. Timmins-Schiffman, A.M. Tarrant. Oral Presentation: “Diel patterns in transcriptome and proteome from a wild caught migratory copepod”. (Feb 2022) Ocean Sciences – Virtual.

D.K. Steinberg, **A.E. Maas**, K.N. Sharpe#, K.S. Stamieszkin. Oral Presentation: “Large, gelatinous pteropods (pelagic snails) as agents of export in the subarctic northeast Atlantic Ocean”. (Feb 2022) Ocean Sciences – Virtual.

K.S. Stamieszkin, **A.E. Maas**, D.K. Steinberg, H. Gossner, J.S. Cope, C.A. Carlson. Oral Presentation: “A comparison of zooplankton active carbon flux between the North Atlantic and North Pacific Oceans during the EXPORTS project”. (Feb 2022) Ocean Sciences – virtual.

M. Perhirin#, J. Godfrey#, H. Gossner, **A.E. Maas**, R. Johns, S.-D. Ayata, L. Blanco-Bercial. Oral Presentation: “Impact of copepod diversity on carbon export using imaging and environmental data”. (Feb 2022) Ocean Sciences – Virtual.

H. Gossner, **A.E. Maas**, R.B. Rodriguez-Perez#, K. Yongblah, L. Blanco-Bercial. Oral Presentation: “Latitudinal and vertical gradients in zooplankton size class and diversity”. (Feb 2022) Ocean Sciences – Virtual.

Y. Niimi#, L. Blanco-Bercial, **A.E. Maas**, N. Mercado Salas, S. Köhnk, S. Neuer. Oral Presentation: “Merging integrative taxonomy and the biogeochemical contributions of the Euphausiids in the Sargasso Sea”. (Feb 2022) Ocean Sciences – Virtual.

J. Goss#, J. Godfrey#, H. Gossner, **A.E. Maas**, L. Blanco-Bercial. Oral Presentation: “Zooplankton and Image Classification at an extremely diverse location”. (Feb 2022) Ocean Sciences – Virtual.

S. Liu, K. Longnecker, E. Kujawinski, K. Vergin, L.M. Bolaños, S.Giovannoni, K. Opalk, E. Halewood, R. Parsons, **A.E. Maas**, H. Gossner, L. Blanco-Bercial, R. Curry, R. Johnson, C.A. Carlson. Oral Presentation: “Diel variability of DOM composition, microbial activity and specific microbial lineages in the northwestern Sargasso Sea”. (June 2021) ASLO – Virtual.

F. Karakas#, **A.E. Maas**, D.W. Murphy. Oral Presentation: “Shell Shape and Size Defines the Swimming and Sinking Characteristics of Pelagic Snails” (January 2021) SICB – Virtual.

D.W. Murphy#, F. Karakas#, A.E. Maas. Oral Presentation: "Swimming of a Subtropical Soft-bodied Sea Angel at Intermediate Reynolds Number”. (November 2020) APS Division of Fluid Dynamics – Virtual.

F. Karakas#, D.W. Murphy, **A.E. Maas**. Oral Presentation: "Geometric and Dynamic Scaling of Marine Snail Swimming”. (November 2020) APS Division of Fluid Dynamics – Virtual.

J.E. Burke#, L.E. Elder, **A.E. Maas**, D.E. Gaskell, E.G. Clark, A.Y. Hsiang, G.L Foster, P.M. Hull. ePresentation “Can Low Allometric Scaling of Respiration Rates Explain Gigantism in Pelagic Protists?” (October 2020) Geological Society of America – Virtual.

S. Doherty#, **A.E. Maas,** D.K. Steinberg, B.N. Popp, H.G. Close. Poster Presentation: “Estimating the Contribution of Zooplankton Fecal Pellets to Marine Suspended Particle Pools” (February 2020) Ocean Sciences – San Diego, CA.

K.S. Stamieszkin, D.K. Steinberg, **A.E. Maas** Oral Presentation: “The role of mesozooplankton community structure in fecal pellet carbon production in the subarctic northeast Pacific Ocean” (February 2020) Ocean Sciences – San Diego, CA.

I.A. Milton#, **A.E. Maas**, L. Blanco-Bercial, A.M. Tarrant. Poster Presentation: “The effects of feeding activity on the bioenergetics of a pelagic calanoid copepod, *Pleuromamma xiphias”.* (February 2020) Ocean Sciences – San Diego, CA.

D.K. Steinberg, K.S. Stamieszkin, **A.E. Maas**, C.A. Durkin, U. Passow, M.L. Estapa, K.O. Buesseler, M.M. Omand Oral Presentation: “Salp-mediated export processes in the northeast subarctic Pacific Ocean” (February 2020) Ocean Sciences – San Diego, CA.

C.H. Shea#, V. Evrard, N. Wallsgrove, T. Allen, J. Cope, D.K. Steinberg, **A.E. Maas**, K. Stamieszkin, H.G. Close, B.N. Popp. Oral Presentation: “Northeast Pacific mesopelagic zooplankton feed increasingly on small (0.3-53 µm) particles with depth” (February 2020) Ocean Sciences – San Diego, CA.

P.S. Thibodeau#, D.K. Steinberg, **A.E. Maas.** Oral Presentation: **“**Effects of warming on the ecology and physiology of the Southern Ocean pteropod, *Limacina helicina antarctica*” (February 2020) Ocean Sciences – San Diego, CA.

J. Wingate#, F. Karakas#, D.W. Murphy, **A.E. Maas.** Poster Presentation: “Swimming kinematics in “sea butterflies” - Using image tracking software to characterize the 3D swimming of pteropods” (February 2020) Ocean Sciences – San Diego, CA.

H. Gossner, L. Blanco-Bercial, **A.E. Maas.** Poster Presentation: “Allometric estimates of midwater zooplankton metabolism and vertical flux from image data” (February 2020) Ocean Sciences – San Diego, CA.

K. Peijnenburg, A. Jannsssen, D. Wall-Palmer, E. Goetze, A.K. Burridge, **A.E. Maas**, J.A. Todd and F. Marletaz Oral Presentation: “Early Cretaceous Origin of Pteropods Suggests Their Resilience to Ocean Acidification” (February 2020) Ocean Sciences – San Diego, CA.

**A.E. Maas**, L. Blanco-Bercial, A.M. Tarrant eLightening Presentation: “Biogeochemical implications of diel changes in migratory copepod physiology” (February 2020) Ocean Sciences – San Diego, CA.

N. McNamara-Bordewick#, **A.E. Maas**, L. Blanco-Bercial, A.M. Tarrant. Poster Presentation: “Metabolic Enzyme Activity over a Daily Cycle in Vertically Migrating Copepods” (January 2020) SICB – Austin, TX.

S. Doherty#, **A.E. Maas,** D.K. Steinberg, B.N. Popp, H.G. Close. eLightening Presentation: “Compound-Specific Isotope Analysis of Zooplankton Fecal Pellets: Insights into Dietary and Trophic Processes and Characterization of Fecal Pellets as Organic Matter End-Member” (December 2019) AGU – San Francisco, CA.

F. Karakas#, **A.E. Maas**, D.W. Murphy. Oral Presentation: “A Novel Cylindrical Clap-and-Fling Maneuver by Swimming Marine Snails” (November 2019) APS Division of Fluid Dynamics – Seattle, WA.

K. Stamieszkin, P. Brun, **A.E. Maas**, D.K. Steinberg. Poster Presentation: “Using allometry to model copepod-mediated carbon flux – how well do we estimate key rates and variables?” (August 2019) Trait-Based Approaches to Ocean Life – Buckinghamshire, UK.

H.G. Close, S. Doherty#, **A.E. Maas**, C. Carlson. Oral Presentation: “Dynamics of particulate organic composition, microbial community, and zooplankton contributions in an oligotrophic water column”. (August 2019) Goldschmidt Meeting – Barcelona, Spain.

D.K. Steinberg, K. Stamieszkin, **A.E. Maas.** Oral Presentation: “Active flux by diel & seasonal vertical migration: Some thoughts to ‘prime the pump’”. (June 2019) BIARRITZ – Southampton, U.K.

**A.E. Maas**, A. Miccoli, K. Stamieszkin, J. Cope, D.K. Steinberg. Poster Presentation: “Zooplankton Metabolism, Active Flux, and Contribution to AOU in the N.E. Pacific Ocean”. (June 2019) OCB Summer Meeting – Woods Hole, MA.

B.N. Cruz#, S. Neuer\*, L. Cunningham#, R. Parsons, L. Blanco-Bercial and **A.E. Maas.** Poster Presentation: “Investigating Zooplankton Mediation of Sinking Particle Flux in the Sargasso Sea”. (June 2019) OCB Summer Meeting – Woods Hole, MA.

D.K. Steinberg,K. Stamieszkin, **A.E. Maas**, J. Cope. “Mesozooplankton community structure and diel vertical migration in the subarctic N.E. Pacific Ocean, Station P”. (June 2019) OCB Summer Meeting – Woods Hole, MA.

P.S. Thibodeau, D.K. Steinberg, **A.E. Maas.** Poster Presentation: “Environmental controls on pteropod metabolism along the Western Antarctic Peninsula”. (June 2019) OCB Summer Meeting – Woods Hole, MA.

**A.E. Maas.** Oral Presentation: “Allometric Scaling”. (June 2019) OCB Summer Meeting – Woods Hole, MA.

J.E. Burke#, W. Renema, M.J. Henehan, L.E. Elder, C.V. Davis, **A.E. Maas**, G.L. Foster, R. Shiebel, P.M. Hull. Oral Presentation: “Correlates and Paleoecological Significance of Porosity of Planktonic Foraminifera”. (March 2019)  Northeast Geobiology Conference – Amherst MA.

**A.E. Maas**, J. Cope, A. Miccoli, K. Stamieszkin, D.K. Steinberg. Poster Presentation: “Characterization of Zooplankton Active Flux in the N.E. Pacific Ocean”. (February 2019) ASLO – San Juan, Puerto Rico.

D.W. Murphy, F. Karakas#, **A.E. Maas**. Poster Presentation: "Swimming of a pteropod with a conical shell”. (January 2019) Microscale Ocean Biophysics – Whistler, Canada.

F. Karakas#, **A.E. Maas**, D.W. Murphy. Poster Presentation: "Low Reynolds number swimming of sea butterflies with differently shaped shells”. (January 2019) Microscale Ocean Biophysics – Whistler, Canada.

F. Karakas#, **A.E. Maas**, D.W. Murphy. Oral Presentation: "Sea butterfly swimming: the effect of shell shape on pteropod kinematics and hydrodynamics”. (January 2019) SICB – Tampa, FL.

F. Karakas#, D. D’Oliveira#, **A.E. Maas**, D.W. Murphy. Oral Presentation: “Using a shell as a wing: fluid dynamics and kinematics of atlantiid heteropod swimming.” (November 2018) APS Division of Fluid Dynamics – Atlanta, GA.

**A.E. Maas**, L. Blanco-Bercial, A. Tarrant, E. Timmins-Schiffmann. Poster Presentation: “Circadian Physiology in Zooplankton”. (June 2018) OCB Summer Meeting – Woods Hole, MA.

F. Karakas#, **A.E. Maas**, D.W. Murphy Oral Presentation: "Swimming of an atlantid heteropod”. (June 2018) ASLO Summer Meeting – Victoria, B.C., Canada.

**A.E. Maas**, C. Carlson, E. Kujawinski, S. Liu, R. Parsons, B. Widner. Oral Presentation: “Dissolved Organic Matter Composition Of Migratory Zooplankton Excreta And Its Influences On Prokaryotic Communities”. (February 2018) Ocean Sciences – Portland, OR.

D.W. Murphy, F. Karakas#, **A.E. Maas**. Oral Presentation: “A Comparison of the Swimming of Two Warm Water Pteropod Species with Dissimilar Shell Shapes and Sizes”. (February 2018) Ocean Sciences – Portland, OR.

LM. Stewart#, **A.E. Maas**, L. Blanco-Bercial. Poster Presentation: “Beyond Biodiversity: Metabarcoding As A Tool Of Ecological Exploration”. (February 2018) Ocean Sciences – Portland, OR.

D.W. Murphy, **A.E. Maas**, F. Karakas#. Oral Presentation: “Swimming of a Tiny Subtropical Sea Butterfly with Coiled Shell”. (November 2017) APS Division of Fluid Dynamics – Denver, C.O.

F. Karakas#, **A.E. Maas**, D.W. Murphy. Poster Presentation: “Swimming of a Sea Butterfly with an Elongated Shell”. (November 2017) APS Division of Fluid Dynamics – Denver, C.O.

**A.E. Maas**. Poster Presentation: “What is the role of zooplankton on the midwater ecology in the Sargasso? Using new technologies and collaborations to answer old questions”.(November 2016) NAKFI: Deep Blue Sea – Irvine, C.A.

**A.E. Maas**, A.M. Tarrant, A.J. Bergan#, Z.A. Wang and G.L. Lawson. Oral Presentation: “The Response of the Thecosomatous Pteropod *Limacina retroversa* to CO2 in the Gulf of Maine: Seasonality and Sensitivity”.(May 2016) ICES Zooplankton Production Symposium – Bergen, Norway.

A.J. Bergan#, **A.E. Maas**, G.L. Lawson. Poster Presentation: “Effects of increased CO2 on the shell condition, swimming, and sinking of the thecosomatous pteropod *Limacina retroversa*”. (May 2016) ICES Zooplankton Production Symposium – Bergen, Norway.

**A.E. Maas**, A.M. Tarrant, A.J. Bergan#, Z.A. Wang and G.L. Lawson. Poster Presentation: “Seasonality and the Response of the Thecosome Pteropod *Limacina retroversa* to CO2 in the Gulf of Maine”.(February 2016) Ocean Sciences – New Orleans, LA.

G.L. Lawson, A.E. Maas, Z.A. Wang, A.J. Bergan#, P.H. Wiebe, L. Blanco-Bercial, A.C. Lavery, and N.J. Copley. Oral Presentation: “Pteropod ecology and physiology in relation to natural variability in carbonate chemistry.” (February 2016) Ocean Sciences – New Orleans, LA.

A.J. Bergan#, **A.E. Maas**, G.L. Lawson. Poster Presentation: “The effect of enhanced carbon dioxide on the sinking and swimming of the shelled pteropod *Limacina retroversa*”. (February 2016) Ocean Sciences – New Orleans, LA.

E. Maness#, M.H. Conte, J.C. Weber, and **A.E. Maas**. Oral Presentation: “Seasonality and inter-annual variation in pteropod flux in the Sargasso Sea.” (August 2015) MBL Undergraduate Research Symposium – Woods Hole, MA.

G.L. Lawson, **A.E. Maas**, A.M. Tarrant, A.J. Bergan#, A.A. Thabet#, L. Blanco-Bercial, P.H. Wiebe, A.C. Lavery, and Z.A. Wang. Oral Presentation: “Field and laboratory studies of pteropod ecology and physiology in relation to natural variability in carbonate chemistry” (June 2015) Ocean Acidification Principle Investigators meeting – Woods Hole, MA.

A.J. Bergan#, **A.E. Maas**, and G.L. Lawson Poster Presentation: “The Impact of Increased CO2 on the Sinking and Swimming of *Limacina retroversa* Pteropods” (June 2015) Ocean Acidification Principle Investigators meeting – Woods Hole, MA.

**A.E. Maas**, A.M. Tarrant\*, A.J. Bergan#, A.A. Thabet#, Z.A. Wang and G.L. Lawson. Poster Presentation: “Exploring the seasonal response of the thecosome pteropod *Limacina retroversa* to CO2 in the Gulf of Maine” (June 2015) Ocean Acidification Principle Investigators meeting – Woods Hole, MA.

**A.E. Maas**, A.M. Tarrant, A.J. Bergan#, A.A. Thabet#, Z.A. Wang and G.L. Lawson\*. Poster Presentation: “Exploring the seasonal response of the thecosome pteropod *Limacina retroversa* to CO2 in the Gulf of Maine” (June 2015) Response of Pteropods to Ocean Acidification and Climate Change Workshop – Cambridge, England.

**A.E. Maas**, A.M. Tarrant, A.A. Thabet#, A.J. Bergan#, and G.L. Lawson. Oral Presentation: “An integrative assessment of seasonality in the response of the thecosome pteropod *Limacina retroversa* to CO2” (Feb. 2015) American Society for Limnology and Oceanography – Grenada, Spain.

**A.E. Maas**, A.J. Bergan#, G.L. Lawson, and A.M. Tarrant. Oral Presentation: “Response of the thecosome pteropod *Limacina retroversa* to CO2 on seasonal time scales” (Jan. 2015) The Society for Integrative and Comparative Biology – West Palm Beach, FL.

A.A. Thabet#, **A.E. Maas**\*, P. Alatalo, S.A. Saber, G.L. Lawson, and A.M. Tarrant. Poster Presentation: “Development of the thecosome pteropod *Limacina retroversa*”(Jan. 2015) The Society for Integrative and Comparative Biology – West Palm Beach, FL.

I.T. Jones#, **A.E. Maas**, and A.M. Tarrant Poster Presentation: “A circadian metabolic rhythm in the cnidarian *Nematostella vectensis*”. (Jan. 2015) The Society for Integrative and Comparative Biology – West Palm Beach, FL.

A.M. Tarrant and **A.E. Maas**. Poster Presentation: “Daily cycles in oxygen consumption in *Nematostella vectensis*” (Dec. 2013) The International Conference on Coelenterate Biology - Eilat, Israel.

**A.E. Maas**, G.L. Lawson, Z.A. Wang and A.M. Tarrant. Poster Presentation: “‘RNA-seq’ing the effects of CO2 on sea butterflies: Physiology and gene-expression studies of thecosome pteropods” (Sept. 2013) Ocean Acidification Principle Investigators meeting – Washington, D.C.

**A.E. Maas** and G.L. Lawson. Oral Presentation: “The synergistic effect of low O2 and high CO2 on the physiology of thecosome pteropods in the Atlantic and Pacific” (Feb. 2013) Aquatic Sciences – New Orleans, LA.

**A.E. Maas**. Oral Presentation: “Impact of ocean basin on pteropod exposure and response to high CO2 and low O2” (Oct. 2012) WHOI Postoctoral Symposium – Woods Hole, MA.

**A.E. Maas**. Oral Presentation: “Evolution of biomineralization in pelagic life stages of gastropods” (Oct. 2012) Future Ocean 2012 selection symposium – Kiel, Germany.

**A.E. Maas**, Z. Wang, G.L. Lawson. Oral Presentation: “Impact of ocean basin on pteropod exposure and response to high CO2 and low O2” (Sept. 2012) Third International Symposium on the Ocean in a High CO2 World – Monterey, CA.

**A.E. Maas**, G.L. Lawson, A.M. Tarrant. Poster: “Exploring the gene expression and physiological response of pteropods to high CO2 and its synergistic interaction with low O2” (July 2012) OCB summer workshop – Woods Hole, MA.

**A.E. Maas,** K.F. Wishner, B.A. Seibel. Poster: **“**Metabolic suppression of pteropods in an oxygen minimum zone – implications for the biological pump” (April 2012) ICES-PICES Early Career Oceans of Change Conference – Mallorca, Spain.

**A.E. Maas**, K.F. Wishner, B.A. Seibel. Poster: “Distribution and physiology of thecosome pteropods in the eastern tropical Pacific: A natural experiment in CO2 exposure” (Feb. 2012) Ocean Sciences – Salt Lake City, UT.

**A.E. Maas**. Oral Presentation: “The ecophysiology of sea butterflies: Understanding how environment impacts the distribution and metabolism of pteropods” (Jan. 2012) WHOI Biology Department Seminar Series – Woods Hole, MA.

**A.E. Maas**, L.E. Elder, H. Dierssen, B.A. Seibel. Poster: “The metabolic response of Antarctic pteropods (Gastropoda: Mollusca) to food availability” (March 2011) International Zooplankton Production Symposium – Pucon, Chile.

**A.E. Maas**, K.F. Wishner, B.A. Seibel. Oral Presentation: “Pteropod physiology and distribution in the oxygen minimum zone of the eastern tropical Pacific” (Jan. 2010) Ocean Sciences - Portland, OR.

**A.E. Maas**, L.E. Elder, V.F. Fabry, B.A. Seibel. Poster: “The ecological importance of pteropod physiology” (Jan. 2008) Ocean Sciences - Orlando, FL.

**A.E. Maas** and B.A. Seibel\*. Poster: “Pteropods: The Animals Behind the Aragonite” (Oct. 2007) Ocean Acidification Research Workshop - La Jolla, CA.

**A.E. Maas**, S.I. Madar. Poster: “Significance of body proportions in the transition to dorsoventral undulatory modes of swimming in archaeocete whales” (May 2005) Evolution of Aquatic Tetrapods Conference - Akron, OH.

**INVITED LECTURES AND SEMINARS**

“Biological and biogeochemical pathways of carbon into the deep sea: Lessons from the EXPORTS field campaigns” (April 2024) US CLIVAR/OCB Pathways Connecting Climate Changes to the Deep Ocean Webinar Series (virtual).

“Impacts of Ocean Acidification on Marine Pteropods” (September 2023) Ocean Conservation Club, ASU – Tempe, AZ (virtual).

“Zooplankton and carbon” (Nov 2022) La Sierra University – Riverside, CA (virtual).

“The Zooplankton Physiology that Drives the Biological Pump” (June 2022) GEOMAR – Kiel, Germany (virtual).

“Pteropods as Bioindicators of Climate Change Along the Eastern Seaboard” (May 2022) MACAN/NECAN/SOCAN joint webinar (virtual).

“The Ecophysiology of Sea Butterflies: What can pteropods tell us about OA in the Gulf of Maine?” (February 2022) University of Vermont - Burlington, Vermont (virtual).

“Pteropods as Bioindicators of Climate Change in New England Waters.” (February 2022) Darwin Festival, Salem State University – Salem, Massachusetts (virtual).

“Embedding zooplankton physiology into our understanding of the Biological Pump.” (March 2019) University of South Florida – St. Petersburg, Florida.

“Zooplankton physiology: Driving the Biological Pump.” (September 2018) Johns Hopkins University – Baltimore, Maryland.

“CO2 seasonality in the Gulf of Maine and its influence on the thecosomatous pteropod *Limacina retroversa*.” (December 2016) Alfred-Wegener-Insitut – Bremerhaven, Germany.

“A Physiologist’s Interest in Biodiversity: Of Pteropods, Flux and Climate Change.” (December 2016) German Center for Marine Biodiversity (DZMB), Senckenberg – Wilhemshaven, Germany.

“An integrative assessment of the biological consequences of CO2 seasonality in the Gulf of Maine for the thecosomatous pteropod *Limacina retroversa*.” (March 2016) Laboratoire d'Océanographie de Villefranche – Villefranche-sur-Mer, France.

“Biological consequences of CO2 seasonality in the Gulf of Maine using an integrative assessment of thecosome pteropod response” (February 2015) MBL Ecosystems Center Seminar Series– Woods Hole, MA.

“Biological consequences of CO2 seasonality in the Gulf of Maine using an integrative assessment of thecosome pteropod response” (February 2015) Bermuda Institute of Ocean Sciences Seminar Series – St. George’s, Bermuda.

“Increasing the complexity in our understanding of the effect of ocean acidification on thecosome pteropods” (December 2014) WHOI Biology Department – Woods Hole, MA.

“The Ecophysiology of Sea Butterflies (Pteropoda): Exploring how CO2 impacts the distribution and physiology of planktonic calcifiers" (March 2014) Department of Marine Sciences, Avery Point, University of Connecticut, – Groton, CT.

“The Sea Butterfly Effect: Using the distribution and physiology of pteropods to make predictions about the effects of global climate change” (Oct. 2012) SMAST, University of Massachusetts – Dartmouth, MA.

“The Sea Butterfly Effect: Using the comparative physiology of pteropods to make predictions about the effects of climate change” (Mar. 2012) Graduate School of Oceanography, University of Rhode Island – Narragansett, RI.

“Environmental physiological adaptation of pteropods: implications for climate change” (Feb. 2012) Evergreen State College – Olympia, WA.

“The Ecophysiology of Sea Butterflies: Understanding how climate change impacts the distribution and function of pteropods” (Jan. 2012) WHOI Biology Department – Woods Hole, MA.

**FIELD EXPERIENCE**

R/V *Sally Ride*, **Gulf of California, Mexico**. 2024

RRS *James Cook*, **Porcupine Abyssal Plain**. 2021

R/V *Atlantic Explorer*, **Bermuda**. 2016, 2018 (x2), 2019 (x2), 2021(x2)

R/V *Tioga*, **Gulf of Maine, Massachusetts**. 2011, 2013 (x3), 2014 (x5)

R/V *New Horizon*, **Northeast Pacific**. 2012

R/V *Wecoma*, **Newport, Oregon**. 2011 (UNOLS Chief Scientist Training Cruise)

R/V *Oceanus*, **Northwest Atlantic**. 2011

R/V *Knorr*, **Eastern Tropical North Pacific**. 2008

R/V *Seward Johnson*, **Eastern Tropical North Pacific**. 2007

R/V *New Horizon*, **Gulf of California, Mexico**. 2007

Expedition B-069**, Antarctica**. 2007, 2008

**TRADITIONAL TEACHING EXPERIENCE**

August-March 2024 Arizona State University

**Professor** Marine Plankton (400/500) Ocean Futures (100) and Animal Physiology (300)

Adapted and co-taught a graduate/upper division graduate synchronous course (5 students, detailing modern approaches to understanding marine plankton. Developed and taught the introductory course for the School of Ocean Futures (13 students), meeting DEI and sustainability objectives, securing the sustainability gold certification, and designing for both synch and asynch delivery. Taught an existing asynchronous online Animal Physiology course (320 students).

July 2019 Bermuda Institute of Ocean Sciences

**Professor**  Marine Plankton Ecology (3 week course)

Co-created and taught a 3 credit equivalent short course (35 h/week) with lectures, labs, and field trips detailing modern approaches and understanding of the distribution, ecology, physiology and taxonomy of marine plankton (virus to mesozooplankton).

January 2015 – present Bermuda Institute of Ocean Sciences

**Lecturer**  Visiting high school and undergraduate groups

Teach a number of lectures on ocean acidification, plankton, and my own research to various visiting groups and courses (~ 6 lectures per year).

January 2011 – May 2011 University of Rhode Island

**Adjunct Professor**  WMS 220 (Women & Natural Science)

 Designed and implemented a course syllabus which integrated guest speakers, University wide programs, textbooks, scientific articles, popular culture articles and in-class discussions to engage students in active multi-disciplinary learning (24 students, 3-credits)

September 2009 – May 2011 University of Rhode Island

**Teaching Coordinator/Assistant** BIO 120 (Anatomy)

 Created an online course resource (Sakai site), extensively revised a laboratory manual, and delivered guest lectures for a course of ~350 students. Coordinated and supervised seven teaching assistants. Created, delivered and graded weekly quizzes, projects, midterms and final lab practicals for four 3-hour lab sections with introductory lecture and small-group interactions.

September, 2006 – December, 2006 University of Rhode Island

**Teaching Assistant** BIO 365 (Marine Biology)

Conducted three two-hour labs a week including introductory lecture, explanation of procedure, and supervision to ensure comprehension and safety. Graded exercises, weekly formal lab reports, assisted in test grading and independently led 4 field trips to local sites.

January 2003-May 2004 Hiram College

**Teaching Assistant**BIO 142 (Botany)

 Assisted in the conduction of laboratory section by answering questions, participation in demonstrations, lab setup and cleanup, quiz and lab report grading.

**MENTORSHIP AND ADVISING (**\*denotes co-authorship, #presentations at conferences, ^URM**)**

**Masters students**

 Rocio Rodriguez Perez^ (Vrije University, Co-mentor) 2022-2023

**Ph.D. students**

 Sem Docekal (ELS) 2023-present

 Rocio Rodriguez Perez^ (ELS, Blanco-Bercial, Co-mentor) 2023-present

 Andrea Brenner (ELS) 2024-present

**Postdocs**

 Karen Stamieszkin EXPORTS project (Co-advisor) 2018-2021

 Daniel Clements ARPA-E project (Co-advisor) 2024-present

 Shun Mao NSF Modeling project (Co-advisor) 2024-present

**Masters committees**

Alice Sansonetti (ASU, advisor Leah Gerber) 2022-2023

**Ph.D. committees**

Patricia Thibodeau\*# (VIMS, advisor Deb Steinberg) 2016-2019

Ferhat Karakas\*# (USF, advisor David Murphy) 2017-2020

Shannon Doherty\*# (U. Miami, advisor Hilary Close) 2019-2021

Teresa Schwemmer (Stony Brook, advisor Janet Nye) 2019-2023

Yuuki Niimi (ASU, advisor Susanne Neuer) 2021-present

Andrea Brenner (ASU, advisor Susanne Neuer) 2022-2023

Alice Sansonetti (ASU, advisor Leah Gerber, Hinsby Cadillo) 2023-present

Patrick Duffy (SIO, advisor Adam Greer) 2023-present

Helena McMonagle (UW, advisors Tim Essington, Ray Hilborn) 2023-present

Abdullah Aldaddi (USF, advisor David Murphy) 2024-present

**Undergraduate research**

Ian Jones\*# (REU, WHOI, Co-mentor) summer 2014

Kelvin Santana-Rodriguez^ (REU, BIOS, Co-mentor) fall 2015

Jennifer Tuomisto (REU, BIOS, Co-mentor) fall 2015

Elijah Rodda (REU, BIOS, Co-mentor) fall 2016

Jordan Wingate\*#^ (REU, BIOS) fall 2017

Harvey Castillo^ (REU, BIOS) fall 2018

Gaile Greene (REU, BIOS) fall 2020

 Maisie Smith\* BIOS intern fall 2020

 Jessica Godfrey# Bermuda Program Intern summer 2020

 Jihad Muhammad^ Bermuda Program Intern 2022-2023

 Serena Aguilar^ (REU, BIOS, Co-mentor) fall 2023

Austin Dunham  (REU, BIOS, Co-mentor) fall 2023

Morgan Hernandez^ (REU, BIOS, Co-mentor) fall 2023

Viktor Meszaros SOLUR student, ASU spring 2024

**High School Mentoring**

Luke Stewart# BIOS intern summer 2017-19

Marcus Rewan^ Bermuda Program Intern spring 2019

 Gloria Simons^ Bermuda Program Intern summer 2020

 Anne-Camille Haziza Bermuda Program Intern summer 2024

**Visiting graduate students**

Rachel Shuttleworth (Southampton, Sponsor) fall 2017

Daniel Gaskell\* (Yale, Sponsor) fall 2017

Janet Burke\*# (Yale, Sponsor) fall 2017

Bianca Cruz#^ (ASU, Sponsor) 2018-2019

Naomi Villot\*# (Heriot-Watt U., Co-Sponsor) fall 2020

Joanna Tavares^ (UCI, Sponsor) fall 2021

Noah Germolus (WHOI, Sponsor) summer 2023

**SCIENCE COMMUNICATION EXPERIENCE**

Collaborator on “In Dark Seas: Swimming with Sea Butterflies” an art exhibition in the Bermuda National Gallery: <https://bng.bm/exhibition/in-dark-seas/>

Worked with StoriesXFutures on an outreach project as part of 2020 World oceans day (Tiny Plankton & Ocean Innovation with Dr. Amy Maas: <https://youtu.be/xxCS9QrMfdc> )

Collaborated with filmmakers (Alexa Elliot and Liz Smith – Changing Seas:(<http://www.changingseas.tv/>, Kanessa Dunkin: <https://seagrant.soest.hawaii.edu/exports-5-atlantic/> , the Water Brothers: <http://thewaterbrothers.ca/acid-ocean> ) and journalists (Tony Bartelme: <http://data.postandcourier.com/saga/plankton/longread> ) to communicate the importance of plankton and the influence of climate change on the marine system.

Science Fellow of the National Network for Ocean and Climate Change Interpretation program (NNOCCI: 2013) which seeks to improve the communication of informal science education programs and to strengthen and clarify the messages delivered to the public about oceans and global change. Ongoing participation includes giving webinars about OA (2015).

Presented a webinar for the National Ocean Sciences Bowl entitled “Peril of the sea butterfly Pteropods - A case study on the biology of ocean acidification” whose purpose was to train coaches of the 2014 NOSB in the topic of Ocean Acidification

Visiting Scientist at the UConn Avery Point OMICS PDI project (2012, 2013) a teacher training workshop and invited speaker and participant in the UConn Avery Point Marine Sciences ECE (Early College Experience) high school teacher workshop (2013) to develop the Oceanography curriculum.

Volunteer scientist in high school student art and science outreach at WHOI (2012) which resulted in the creation of plankton inspired ceramics projects, and invited plankton expert for the WHOI GLOBE workshop (2012) which introduces teachers (K-12) to a coastal water sampling program, as part of the Global Learning and Observations to Benefit the Environment (GLOBE) Program

Participant in the October 2011 MIT "Telling Your Story" teacher/scientist training workshop which fosters collaborations between scientists and K-12 teachers.

Outreach speaker for the Roger Williams Zoo, Providence RI, teaching science interpreters about “Extreme Ocean Environments”

Invited lectures for URI 101 Class - Kingston, RI “Life as a graduate student in Marine Biology”

**UNIVERSITY SERVICE**

BIOS Director search committee (2023-present)

(co-)Chair of the BIOS safety committee (2020-present)

Faculty representative for the BIOS Diversity, Equity and Inclusivity committee (2021-2022)

Member-at-large for the WHOI Postdoctoral Association (2012-2013)

Involved in URI’s ADVANCE grant program, and Women In Science initiative (2006-2011)

Graduate Student Governance at URI (AAUP; 3 member, 1 VP, 2 P) (2006-2011)

**NATIONAL AND INTERNATIONAL SERVICE**

Contributing Editor for Environment Magazine (June 2024 – present).

Associate Editor for Global Biogeochemical Cycles (October 2021- present)

Guest Associate Editor for Frontiers in Marine Science “Zooplankton and Nekton: Gatekeepers of the Biological Pump” volumes I and II (2019-2023)

Panel reviewer for NOAA (2018; 2022), NSF (2019), and NASA (2023)

Reviewer for various journals, NOAA and the National Science Foundation

Organizing Committee for the 5th Trait-Based Approaches to Ocean Life meeting (Jan 2022)

Member of the Ocean Carbon and Biogeochemistry Scientific Steering Committee (2018-2020), organizer for two 2020 seminars, including the 2-h EXPORTS seminar and organizer for the summer 2021 virtual session “Optical biogeochemistry: Above and below the waterline”

Member of ICES WGIMT (2012-present)

Organizer for the 4th U.S. Ocean Acidification Principle Investigators Meeting (Feb 2018)

Session co-chair at ASLO/ OSM: “Zooplankton mediated processes – A crossroads for ocean carbon” (2024), “Zooplankton and Nekton: Gatekeepers of the Biological Pump” and “Multiple stressors and multiple disciplines: Understanding the consequences of global ocean change for marine species” (2018) “Expanding the spatial and temporal scales of marine animal response to global change” (2016), “Zooplankton responses to environmental stressors: From individual responses to larger scale implications” (2013)

Coordinator and Science Chair of the 2008 URI Interdisciplinary Graduate Conference

Participation in the NSF EarthCube Ocean Ecosystems Workshop (2013)