

# Andrea J. Fassbender

Research Physical Scientist  
NOAA Pacific Marine Environmental Laboratory  
7600 Sand Point Way N.E., Seattle, WA 98115 USA  
[andrea.j.fassbender@noaa.gov](mailto:andrea.j.fassbender@noaa.gov) | [website](#)

## EDUCATION

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- 2010 - 2014 Ph.D. Oceanography  
University of Washington (UW), School of Oceanography, Advised by Dr. Christopher L. Sabine  
Dissertation: New approaches to study the marine carbon cycle
- 2007 - 2010 M.S. Oceanography  
UW School of Oceanography, Advised by Dr. Christopher L. Sabine
- 2007 - 2009 Graduate Certificate in Climate Science  
UW Program on Climate Change
- 2003 - 2007 B.S. Combined Honors: Chemistry and Oceanography  
University of British Columbia, Advised by Dr. Kristin Orians  
Thesis: Manganese as a tracer of bottom water renewal in Saanich Inlet, British Columbia

## APPOINTMENTS

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- 2021 - present Affiliate Assistant Professor in Chemical Oceanography, University of Washington (UW)
- 2020 - present Research Physical Scientist, NOAA Pacific Marine Environmental Laboratory (PMEL)
- 2020 - 2021 Adjunct Scientist, Monterey Bay Aquarium Research Institute
- 2018 - present Adjunct Assistant Professor in Ocean Sciences, UC Santa Cruz
- 2017 - 2020 Scientist, Monterey Bay Aquarium Research Institute
- 2014 - 2016 UCAR Postdoctoral Fellow: Postdocs Applying Climate Expertise; Host: NOAA PMEL
- 2007 - 2014 Chemical Oceanography Ph.D. Student, UW

## PUBLICATIONS (group member or \*mentee at time of work)

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### REFEREED PUBLICATIONS ([Google Scholar](#))

- Bushinsky, S.M., Z. Nachod, **A.J. Fassbender**, V. Tamsitt, Y. Takeshita, and N. Williams. Offset between profiling float and shipboard oxygen observations at depth imparts bias on float pH and derived  $p\text{CO}_2$ . **Submitted to** *Global Biogeochemical Cycles*.
- Long, J., Y. Takeshita, J.N. Plant, **\*N. Buzby**, **A.J. Fassbender**, and K.S. Johnson. Seasonal biases in fluorescence estimated chlorophyll-a derived from biogeochemical profiling floats. **Submitted to** *Communications Earth & Environment*.
- Carter, B.R., J.D. Sharp, M.I. García-Ibáñez, R.J. Woosley, M.B. Fong, M. Álvarez, L. Barbero, S.L. Clegg, R. Easley, **A.J. Fassbender**, X. Li, K.M. Schockman, Z.A. Wang. Random and systematic uncertainty in ship-based seawater carbonate chemistry observations. **In revision at** *Limnology and Oceanography*.
- \*Huang, Y.** & **A.J. Fassbender**. Biological production of distinct carbon pools drives particle export efficiency in the Southern Ocean. **Accepted at** *Geophysical Research Letters*.
- Carranza, M.M., M.C. Long, A. Di Luca, **A.J. Fassbender**, K.S. Johnson, Y. Takeshita, and N.P. Mongwe. Extratropical storms induce carbon outgassing over the Southern Ocean (2024). *Climate and Atmospheric Science*, doi: [10.1038/s41612-024-00657-7](https://doi.org/10.1038/s41612-024-00657-7).
- Carter, B.R., J.D. Sharp, A.G. Dickson, M. Álvarez, M. Fong, M.I. García-Ibáñez, R. Woosley, Y. Takeshita, L. Barbero, R. Byrne, W.J. Cai, M. Chierici, S. Clegg, R. Easley, **A.J. Fassbender**, K. Fleger, X. Li, M. Martín-Mayor, K. Schockman, and Z.A. Wang. Uncertainty sources for measurable ocean carbonate chemistry variables (2023). *Limnology and Oceanography*, doi: [10.1002/lno.12477](https://doi.org/10.1002/lno.12477).
- Fassbender, A.J.**, B.R. Carter, **\*J.D. Sharp**, **\*Y. Huang**, **\*M.C. Arroyo**, **H. Frenzel**. Amplified subsurface signals of ocean acidification (2023). *Global Biogeochemical Cycles*, doi: [10.1029/2023GB007843](https://doi.org/10.1029/2023GB007843).

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- Johnson, G. C., and **A. J. Fassbender**. After Two Decades, Argo at PMEL, Looks to the Future (2023). *Oceanography*, **36**(2-3), 54–59, doi:[10.5670/oceanog.2023.223](https://doi.org/10.5670/oceanog.2023.223).
- \***Xiang, Y.**, P.D. Quay, R.E. Sonnerup, and **A.J. Fassbender**. Subtropical gyre nutrient cycling: Insights from a nutrient-ratio budget method (2023). *Geophysical Research Letters*, doi: [10.1029/2023GL103213](https://doi.org/10.1029/2023GL103213).
- Rodgers, K.B., J. Schwinger, **A.J. Fassbender**, P. Landschützer, et al. Seasonal variability of the surface ocean carbon cycle: a synthesis (2023). *Global Biogeochemical Cycles*, doi: [10.1029/2023GB007798](https://doi.org/10.1029/2023GB007798).
- \***Sharp, J.D.**, **A.J. Fassbender**, B.R. Carter, G.C. Johnson, C. Schultz, and J.P. Dunne. GOBAI-O<sub>2</sub>: temporally and spatially resolved fields of ocean interior dissolved oxygen over nearly 2 decades (2023). *Earth System Science Data*, doi: [10.5194/essd-15-4481-2023](https://doi.org/10.5194/essd-15-4481-2023).
- Neibergall, A.K., S. Traylor, \***Y. Huang**, M. Feen, M.G. Meyer, H.M. McNair, D. Nicholson, **A.J. Fassbender**, M.M. Omand, A. Marchetti, S. Menden-Deuer, W. Tang, W. Gong, P. Tortell, R. Hamme, and N. Cassar. Evaluation of new and net community production estimates by multiple ship-based and autonomous observations in the Northeast Pacific Ocean (2023). *Elementa*, doi: [10.1525/elementa.2021.00107](https://doi.org/10.1525/elementa.2021.00107).
- \***Huang, Y.**, **A.J. Fassbender**, and S.M. Bushinsky. Biogenic carbon pool production maintains the Southern Ocean carbon sink (2023). *PNAS*, doi: [10.1073/pnas.2217909120](https://doi.org/10.1073/pnas.2217909120). **Media:** [NOAA Research News](#)
- \***Arroyo, M.C.**, **A.J. Fassbender**, B.R. Carter, C.A. Edwards, J. Fiechter, \***A. Norgaard**, and R.A. Feely. Dissimilar sensitivities of ocean acidification metrics to anthropogenic carbon accumulation in the Central North Pacific Ocean and California Current System (2022). *Geophysical Research Letters*, doi: [10.1029/2022GL097835](https://doi.org/10.1029/2022GL097835)
- \***Sharp, J.D.**, **A.J. Fassbender**, B.R. Carter, P.C. Lavin, A.J. Sutton. A monthly surface pCO<sub>2</sub> product for the California Current Large Marine Ecosystem (2022). *Earth System Science Data*, doi: [10.5194/essd-14-2081-2022](https://doi.org/10.5194/essd-14-2081-2022)
- Fassbender, A.J.**, S. Sarah Schlunegger, K.B. Rodgers, and J.P. Dunne. Quantifying the role of seasonality in the marine carbon cycle feedback: An ESM2M case study (2022). *Global Biogeochemical Cycles*, doi: [10.1029/2021GB007018](https://doi.org/10.1029/2021GB007018)
- \***Huang, Y.**, **A.J. Fassbender**, \***J.S. Long**, S. Johannessen, and M. Bif. Partitioning the export of distinct biogenic carbon pools in the Northeast Pacific Ocean using a biogeochemical profiling float (2022). *Global Biogeochemical Cycles*, doi: [10.1029/2021GB007178](https://doi.org/10.1029/2021GB007178)
- Nickford, S., J.B. Palter, K. Donohue, **A.J. Fassbender**, A.R. Gray, \***J.S. Long**, A.J. Sutton, N.R. Bates, and Y. Takeshita. Autonomous wintertime observations of air-sea exchange in the Gulf Stream reveal a perfect storm for ocean CO<sub>2</sub> uptake (2022). *Geophysical Research Letters*, doi: [10.1029/2021GL096805](https://doi.org/10.1029/2021GL096805)
- Roemmich, D., L. Talley, N. Zilberman, E. Osborne, K.S. Johnson, L. Barbero, H.C. Bittig, N. Briggs, **A.J. Fassbender**, G.C. Johnson, B.A. King, E. McDonagh, S. Purkey, S. Riser, T. Suga, Y. Takeshita, V. Thierry, and S. Wijffels. The technological, scientific, and sociological revolution of global subsurface ocean observing. Pp. 2–8 in *Frontiers in Ocean Observing: Documenting Ecosystems, Understanding Environmental Changes, Forecasting Hazards*. E.S. Kappel, S.K. Juniper, S. Seeyave, E. Smith, and M. Visbeck, eds (2021), A Supplement to *Oceanography* 34(4), doi: [10.5670/oceanog.2021.supplement.02-02](https://doi.org/10.5670/oceanog.2021.supplement.02-02).
- Carter, B.R., H. Bittig, **A.J. Fassbender**, \***J.D. Sharp**, Y. Takeshita, Y. Xu, M. Alvarez, R. Wanninkhof, R. Feely, and L. Barbero. New and Updated Global Empirical Seawater Property Estimation Routines (2021). *Earth System Science Data*, doi: [10.1002/lom3.10461](https://doi.org/10.1002/lom3.10461).
- \***Long, J.S.**, **A.J. Fassbender**, and M.L. Estapa. Depth-resolved net primary production in the Northeast Pacific Ocean: A comparison of satellite and profiling float estimates in the context of two marine heatwaves (2021). *Geophysical Research Letters*, doi: [10.1029/2021GL093462](https://doi.org/10.1029/2021GL093462).
- Siegel, D.A. et al. An operational overview of the EXport Processes in the Ocean from RemoTe Sensing (EXPORTS) Northeast Pacific field deployment (2021). *Elementa*, doi: [10.1525/elementa.2020.00107](https://doi.org/10.1525/elementa.2020.00107).
- Fassbender A.J.**, J.C. Orr, and A.G. Dickson. Technical note: Interpreting pH changes (2021). *Biogeosciences*, doi: [10.5194/bg-18-1407-2021](https://doi.org/10.5194/bg-18-1407-2021). **Media:** [EGU Blogs: Biogeosciences](#) & [OCB Science Highlight](#)

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- \*Haskell W.Z., A.J. Fassbender, \*J.S. Long,** and J.N. Plant. Annual net community production of particulate and dissolved organic carbon from a decade of biogeochemical profiling float observations in the Northeast Pacific (2020). *Global Biogeochemical Cycles*, doi: [10.1029/2020GB006599](https://doi.org/10.1029/2020GB006599). **Media:** [OCB Science Highlight](#)
- Rodgers, K.B., S. Schlunegger, R.D. Slater, M. Ishii, T.L. Frölicher, K. Toyama, Y. Plancherel, O. Aumont, and **A.J. Fassbender**. Re-emergence of anthropogenic carbon into the ocean's mixed layer strongly amplifies transient climate sensitivity (2020). *Geophysical Research Letters*, doi: [10.1029/2020GL089275](https://doi.org/10.1029/2020GL089275).
- Johnson, K.S., M.F. Bif, S.M. Bushinsky, **A.J. Fassbender**, and Y. Takeshita. Biogeochemical Argo [in "State of the Climate in 2019"] (2020). *Bull. Amer. Meteor. Soc.*, 101 (8), S39–S41, doi: <https://doi.org/10.1175/BAMS-D-20-0105.1>.
- Cai, W.J. **et al.** Controls on surface water carbonate chemistry along North American ocean margins (2020). *Nature Communications*, doi: [10.1038/s41467-020-16530-z](https://doi.org/10.1038/s41467-020-16530-z). **Media:** [UDaily article](#)
- Sulpis, O., Dofour, C.O., Trossman, D.S., **Fassbender, A.J.**, Arbic, B.K., Boudreau, B.P., Dunne, J.P., and A. Mucci. Decreasing bottom-current speeds and seafloor CaCO<sub>3</sub> dissolution under a business-as-usual scenario (2019). *Global Biogeochemical Cycles*, doi: [10.1029/2019GB006230](https://doi.org/10.1029/2019GB006230).
- Todd, R. E., Chavez, F. P., Clayton, S., **et al.**, Global perspectives on observing ocean boundary current systems (2019). *Frontiers in Marine Science*, doi: [10.3389/fmars.2019.00423](https://doi.org/10.3389/fmars.2019.00423).
- Carter, B.R., Williams, N.L., Evans, W., **Fassbender, A.J.**, Barbero, L., Hauri, C., Feely, R.A., and A.J. Sutton. Time-of-emergence as a metric for prioritizing between climate observation quality, frequency, and duration (2019). *Geophysical Research Letters*, doi: [10.1029/2018GL080773](https://doi.org/10.1029/2018GL080773).
- Fassbender, A.J.**, Rodgers, K.B., Palevsky, H.I., and C.L. Sabine (2018). Seasonal asymmetry in the evolution of surface ocean pCO<sub>2</sub> and pH thermodynamic drivers and the influence on sea-air CO<sub>2</sub> flux. *Global Biogeochemical Cycles*, doi: [10.1029/2017GB005855](https://doi.org/10.1029/2017GB005855). **Media:** [Comment by Ryan J. Woosley](#)
- Fassbender, A.J.**, Alin, S.R., Feely, R.A., Sutton, A.J., Newton, J.A., Krembs, C., Bos, J., Keyzers, M., Devol, A., Ruef, W., and G. Pelletier (2018). Seasonal carbonate chemistry variability in marine surface waters of the US Pacific Northwest. *Earth System Science Data*, doi: [10.5194/essd-10-1367-2018](https://doi.org/10.5194/essd-10-1367-2018). **Media:** [PMEL Monthly Feature Publication](#)
- Feely, R.A., Okazaki, R.R., Cai, W.-J., Bednaršek, N., Alin, S.R., Byrne, R.H., and **A.J. Fassbender** (2017). The combined effects of acidification and hypoxia on pH and aragonite saturation in the coastal waters of the California Current Ecosystem and the northern Gulf of Mexico. *Continental Shelf Research*, doi: [10.1016/j.csr.2017.11.002](https://doi.org/10.1016/j.csr.2017.11.002).
- Fassbender, A.J.**, Palevsky, H.I., Martz, T.R., Ingalls, A.E., Gledhill, M., Fawcett, S.E., Brandes, J.A., Aluwihare, L.I., and the participants of COME ABOARD and DISCO XXV (2017). Perspectives on Chemical Oceanography in the 21<sup>st</sup> century: Participants of the COME ABOARD Meeting examine aspects of the field in the context of 40 years of DISCO. *Marine Chemistry*, doi: [10.1016/j.marchem.2017.09.002](https://doi.org/10.1016/j.marchem.2017.09.002).
- Fassbender, A.J.**, Sabine, C.L., and H.I. Palevsky (2017). Nonuniform ocean acidification and attenuation of the ocean carbon sink. *Geophysical Research Letters*, doi: [10.1002/2017GL074389](https://doi.org/10.1002/2017GL074389).
- Fassbender, A.J.**, Sabine, C.L., Cronin, M.F., and A.J. Sutton (2017). Mixed layer carbon cycling at the Kuroshio Extension Observatory. *Global Biogeochemical Cycles*, doi: [10.1002/2016GB005547](https://doi.org/10.1002/2016GB005547). **Media:** [OCB & US CLIVAR Research Highlights](#)
- Fassbender, A.J.**, Alin, S.R., Feely, R.A., Sutton, A.J., Newton, J.A., and R.H. Byrne (2017). Estimating total alkalinity in the Washington State coastal zone: Complexities and surprising utility for ocean acidification research. *Estuaries and Coasts*, doi: [10.1007/s12237-016-0168-z](https://doi.org/10.1007/s12237-016-0168-z).
- Newsom, E.R., **Fassbender, A.J.**, Maloney, A.E., and S.M. Bushinsky (2016). Increasing the usability of climate science in political decision-making. *Elementa: Science of the Anthropocene*, doi: [10.12952/journal.elementa.000127](https://doi.org/10.12952/journal.elementa.000127). **Media:** [UW Today](#)
- Fassbender, A.J.**, Sabine, C.L., and K.M. Feifel (2016). Consideration of coastal carbonate chemistry in understanding biological calcification. *Geophysical Research Letters*, 43(9), 4467–4476, doi: [10.1002/2016GL068860](https://doi.org/10.1002/2016GL068860). **Media:** [Nature Climate Change Research Highlight](#)

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- Fassbender, A.J.**, Sabine, C.L., and M.F. Cronin (2016). Net community production and calcification from seven years of NOAA Station Papa Mooring measurements. *Global Biogeochemical Cycles*. doi: [10.1002/2015GB005205](https://doi.org/10.1002/2015GB005205). **Media:** [Eos Research Spotlight](#)
- Fassbender, A.J.**, Sabine, C.L., Lawrence-Slavas, N., De Carlo, E.H., Meinig, C. and S. Maenner Jones (2015). Robust sensor for extended autonomous measurements of surface ocean dissolved inorganic carbon. *Environmental Science & Technology*, doi: [10.1021/es5047183](https://doi.org/10.1021/es5047183).
- Pfeil, B., Olsen, A., Bakker, D. C. E., Hankin, S., Koyuk, H., Kozyr, A., Malczyk, J., Manke, A., Metzl, N., Sabine, C. L., **et al.** (2013). A uniform, quality controlled Surface Ocean CO<sub>2</sub> Atlas (SOCAT). *Earth System Science Data*, doi: [10.5194/essd-5-125-2013](https://doi.org/10.5194/essd-5-125-2013).
- Sabine, C. L., Hankin, S., Koyuk, H., Bakker, D. C. E., Pfeil, B., Olsen, A., Metzl, N., Kozyr, A., **Fassbender, A.J.**, et al. (2013). Surface Ocean CO<sub>2</sub> Atlas (SOCAT) gridded data products. *Earth System Science Data*, doi: [10.5194/essd-5-145-2013](https://doi.org/10.5194/essd-5-145-2013).
- Fassbender, A.J.**, Sabine C.L., Feely, R.A., Langdon, C., and C.W. Mordy (2011). Inorganic carbon dynamics during northern California coastal upwelling. *Continental Shelf Research*, doi: [10.1016/j.csr.2011.04.006](https://doi.org/10.1016/j.csr.2011.04.006).

## NON-REFERREED PUBLICATIONS & REPORTS

- IOCCG Protocol Series (2022). Aquatic Primary Productivity Field Protocols for Satellite Validation and Model Synthesis. Balch, W.M., \***Carranza, M.**, Cetinić, I., Chaves, J.E., Duhamel, S., **Fassbender, A. J.**, Fernandez-Carrera, A., Ferrón, S., García-Martín, E., Goes, J., Gomes, H., Gundersen, K., Halsey, K., Hirawake, T., Isada, T., Juranek, L., Kulk, G., Langdon, C., Letelier, R., López-Sandoval, D., Mannino, A., Marra, J.F., Neale, P., Nicholson, D., Silsbe, G., Stanley, R.H., Vandermeulen, R.A. IOCCG Ocean Optics and Biogeochemistry Protocols for Satellite Ocean Colour Sensor Validation, Volume 7.0, edited by R.A. Vandermeulen, J. E. Chaves, IOCCG, Dartmouth, NS, Canada. Doi: [10.25607/OBP-1835](https://doi.org/10.25607/OBP-1835). **Related Eos Article:** <https://eos.org/science-updates/carbon-in-carbon-out-balancing-the-oceans-books>
- Schofield, O., **A.J. Fassbender**, M. Hood, K. Hill, and K. Johnson (2022), A global ocean biogeochemical observatory becomes a reality, *Eos*, 103, doi: [10.1029/2022EO220149](https://doi.org/10.1029/2022EO220149).
- Fassbender A.J.**, Bourbonnais A., Clayton S., Gaube P., Omand M., Franks P.J.S., Altabet M.A., and D.J. McGillicuddy Jr., (2018), Interpreting mosaics of ocean biogeochemistry, *Eos*, 99, doi: [10.1029/2018EO109707](https://doi.org/10.1029/2018EO109707).
- Fassbender, A.J.**, J.B. Palter, M.C. Long, T. Ito, S.P. Bishop, and M.F. Cronin, 2018: Ocean Carbon Hot Spots. A Joint US CLIVAR and OCB Workshop Report, 2018-3, 34pp., doi:[10.5065/D6Z036ZS](https://doi.org/10.5065/D6Z036ZS).
- Rodgers, K.B., Zhai, P., Iudicone, D., Aumont, O., Carter, B., **Fassbender, A.J.**, Griffies, S.M., Plancherel, Y., Resplandy, L., Slater, R.D., and K. Toyama. “Western boundary currents as conduits for the ejection of anthropogenic carbon from the thermocline”. Joint [US CLIVAR Variations](#) & [OCB News](#) edition entitled *Frontiers in western boundary current research*. November 2017.
- Zhang, D., Cronin, M.F., Lin, X., Inoue, R., **Fassbender, A.J.**, Bishop, S.P., and A.J., Sutton. “Observing air-sea interaction in the western boundary currents and their extension regions: Considerations for OceanObs 2019”. Joint [US CLIVAR Variations](#) & [OCB News](#) edition entitled *Frontiers in western boundary current research*. November 2017.
- Qiu, B., Oka, E., Bishop, S.P., Chen, S., and **A.J. Fassbender**. “Decadal variability of the Kuroshio Extension system and its impact on subtropical mode water formation”. Joint [US CLIVAR Variations](#) & [OCB News](#) edition entitled *Frontiers in western boundary current research*. November 2017.
- Fassbender, A.J.** and C.L. Sabine. "Observing changes in the surface ocean carbon inventory, autonomously". *IMBER Update Newsletter*. June 2015. <http://www.imber.info/News/Newsletters/Issue-n-28-June-2015>

## SOFTWARE & DATA PRODUCTS (group member or \*mentee at time of work)

---

- Fassbender, A.J.** (2024). Near-global, upper 2000 m estimates of preindustrial and year 2002 ocean pH, aragonite saturation state, carbon dioxide partial pressure, hydrogen ion concentration, and Revelle factor values, and their total changes caused by anthropogenic carbon accumulation in addition to the component of the changes

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induced by carbonate system nonlinearities (NCEI Accession 0290073). NOAA National Centers for Environmental Information. Dataset. <https://doi.org/10.25921/rdtr-9t74>.

**Sharp, J.D., Fassbender, A.J.,** Carter, B.R., Johnson, G.C., Schultz, C., Dunne, J.P. (2022). GOBAI-O<sub>2</sub>: A Global Gridded Monthly Dataset of Ocean Interior Dissolved Oxygen Concentrations Based on Shipboard and Autonomous Observations (NCEI Accession 0259304). v1.0. NOAA National Centers for Environmental Information. Dataset. <https://doi.org/10.25921/z72m-yz67>.

**H. Frenzel, \*J. Sharp, A.J. Fassbender, \*N. Buzby,** 2022. OneArgo-Mat: A MATLAB toolbox for accessing and visualizing Argo data. Zenodo. <https://doi.org/10.5281/zenodo.6588041>

×**H. Frenzel, ×\*J. Sharp, A.J. Fassbender, \*N. Buzby,** J. Plant, T. Maurer, Y. Takeshita, D. Nicholson, A. Gray, 2021. BGC-Argo-Mat: A MATLAB toolbox for accessing and visualizing Biogeochemical Argo data. Zenodo. <https://doi.org/10.5281/zenodo.4971318>. \*These authors contributed equally to code development.

**A.J. Fassbender,** S.R. Alin, R.A. Feely, A.J. Sutton, J.A. Newton, C. Krembs, J. Bos, M. Keyzers, A. Devol, W. Ruef, & G. Pelletier. (2018). Seasonal Carbonate Chemistry Variability in Marine Surface Waters of the Pacific Northwest. Data Archive. (1.0) Dataset. Zenodo. <https://doi.org/10.5281/zenodo.1184657>,

## GRANTS

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### RESEARCH

- 2024 Co-Lead PIs: J.D. Sharp (CICOES) and **A.J. Fassbender** (PMEL); Co-PI: Brendan Carter (CICOES). Advancing understanding of ocean variability and change in support of NOAA's Climate Ecosystems Fisheries Initiative. NOAA CPO/CVP, \$467,567. Sept. 2024 – Aug. 2027.
- 2024 Co-Lead PIs: **A.J. Fassbender** (PMEL) and J.D. Sharp (CICOES). Argo-Based Data Product Development in Support of the NOAA National Marine Fisheries Service Essential Data Acquisition Strategic Initiative Supported by the Inflation Reduction Act. NOAA NMFS, \$1,396,525. July 2024 – June 2027.
- 2024 **A.J. Fassbender** (Lead PI, PMEL). Biogeochemical Argo Pilot Array Expansion Supported by the Inflation Reduction Act. NOAA GOMO, \$321,500. Oct. 2023 – Sept. 2024.
- 2024 **A.J. Fassbender** (Lead PI, PMEL). Biogeochemical Argo FY23. NOAA PMEL, \$884,598. Oct. 2023 – Sept. 2024.
- 2023 **A.J. Fassbender** (Lead PI, PMEL). Biogeochemical Argo FY23. NOAA PMEL, \$762,372. Oct. 2022 – Sept. 2023.
- 2023 **A.J. Fassbender** (Lead PI, PMEL). Biogeochemical Argo FY23. NOAA GOMO, \$212,055. Oct. 2022 – Sept. 2023.
- 2022 **A.J. Fassbender** (Lead PI, PMEL). Biogeochemical Argo FY22. NOAA PMEL, \$750,000. Oct. 2021 – Sept. 2022.
- 2021 B.R. Carter (Lead PI, CICOES); Co-PIs: R.A. Feely and **A.J. Fassbender** (PMEL). Global Open Ocean Data-Products for Biogeochemical Argo Research. NOAA CPO, \$368,536. Sept. 2021 – Aug. 2024.
- 2021 S.M. Bushinsky (Lead PI, UH); Co-PIs: N.L. Williams (USF); **A.J. Fassbender** (PMEL). Biogeochemical Argo synthesis products of oxygen, nitrate, and pH for increased community utilization of autonomous profiling observations. NOAA CPO, \$444,216 (\$8,710, PMEL portion). Sept. 2021 – Aug. 2024.

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- 2021 K.S. Johnson (Lead PI, MBARI); Co-PIs: S. Riser (UW); L. Talley (Scripps); S. Wijffels (WHOI); J. Sarmiento (Princeton). Operational support for the Global Ocean Biogeochemistry (GO-BGC) Array. NSF-OCE, \$12,166,219. May 2021 – April. 2026. **A.J. Fassbender** is Senior Personnel.
- 2021 **A.J. Fassbender** (Lead PI, PMEL). Biogeochemical Argo FY21. NOAA PMEL, \$703,712. Oct. 2020 – Sept. 2021.
- 2020 K.S. Johnson (Lead PI, MBARI); Co-PIs: S. Riser (UW); L. Talley (Scripps); S. Wijffels (WHOI); J. Sarmiento (Princeton). [Mid-scale RI-2 Consortium: Biogeochemical-Argo: A global robotic network to observe changing ocean chemistry and biology](#). NSF-OCE-1946578, \$52,942,749. Nov. 2020 – Oct. 2025. **A.J. Fassbender** is Senior Personnel.
- 2020 **A.J. Fassbender** (Lead PI\*, MBARI<sup>+</sup>), K.S. Johnson (MBARI), D. Nicholson (WHOI), M. Estapa (UMaine), I. Cetinic (UMaine). [Collaborative Research: Multi-Platform Approach to Evaluate Spring Bloom Timing and Carbon Export Processes in the North Atlantic Ocean](#). NSF-OCE-2023274, \$995,934 (\$472,642 MBARI portion), Aug. 2020 – July 2023.  
<sup>+</sup>Grant transferred to UW in 2021  
<sup>\*</sup>PI status was transferred to K.S. Johnson (MBARI) when Fassbender transitioned to NOAA PMEL and then to A.R. Gray (UW) when the grant was moved to UW.
- 2019 C. Edwards (Lead PI, UCSC), UCSC Co-PIs: J. Fiechter, K. Kroeker, A. Moore, and MBARI Co-PIs: **A.J. Fassbender**, and H. Ruhl. [An observing system optimization study for ocean acidification along the central and northern California coast](#). NOAA, \$769,999 (\$155,461 MBARI portion), Sept. 2019 – Aug. 2021.
- 2018 J. Palter (Lead PI, URI), A. Gray (UW), and Collaborators: S.P. Bishop (NCSU), S. Bushinsky (Princeton), K. Donohue (URI), **A.J. Fassbender** (MBARI), A.J. Sutton (PMEL), and R. Weller (WHOI). [Exchange of heat and carbon in the Gulf Stream and mode water formation region: Proof of concept for a Western Boundary Current observing system](#). 2018 Saildrone Award, \$1,000,000 in Saildrone time, Jan. 1 – 31, 2019.
- 2018 A.J. Sutton (Lead PI, PMEL), M. Casari (Co-PI, PMEL), N. Lawrence-Slavas (Co-PI, PMEL), S. Chu (Co-PI, PMEL), C. Meinig (Co-PI, PMEL), **A.J. Fassbender** (Co-PI, MBARI), and C.L. Sabine (Co-PI, UH Mānoa). [Air-sea CO<sub>2</sub> and dissolved inorganic carbon system for autonomous moored and surface vehicle applications](#). NOPP, \$715,000 (\$43,743 MBARI portion), Oct. 2018 – Sept. 2020.
- 2018 **A.J. Fassbender** (PI\*, MBARI<sup>+</sup>). [Constraining upper-ocean carbon export with biogeochemical profiling floats](#). NSF-OCE-1756932, \$683,207, Mar. 2018 – Feb. 2021.  
<sup>+</sup>Grant transferred to UCSC in 2019  
<sup>\*</sup>PI status was transferred to P.J. Lam when Fassbender transitioned to NOAA PMEL.

## COMMUNITY BUILDING

- 2021 M. Tenriero (Lead PI, CICESE); Co-PIs: E. Pallas, S. Estrada-Allis, J. Sheinbaum (CICESE), **A.J. Fassbender** (PMEL), E. Osborne (AOML), M. Hernandez Ayon (UABC). 2021 [Seatrec FIND Project to study Gulf of Mexico ocean circulation and its impact on weather and hurricanes](#).
- 2020 K.S. Johnson, R. Hotinski, **A.J. Fassbender**, S. Riser, L. Talley, and S. Wijffels. [Building a Community of Biogeochemical Float Data Users](#). OCB and US CLIVAR will assist with community advertng and workshop implementation. No funding was requested. Planned for June 2021.
- 2019 C. Brendan, M. Álvarez, A. Dickson, Y. Takeshita, N. Williams, A. Murata, L. Barbero, R. Byrne, **A.J. Fassbender**, M. Chierici, W.J. Cai, R. Woosley, and R. Easley. [Ocean Carbonate System Intercomparison Forum](#). OCB: \$29,500. Working Group 2019-2020. This effort has extended to present (Feb. 2023).

# Andrea J. Fassbender

2016/2017 **A.J. Fassbender** and S.P. Bishop. [Ocean Carbon Hot Spots Workshop](#). OCB: \$25,404. U.S. CLIVAR: \$25,000. Held Sept. 2017.

## HONORS, AWARDS, & SERVICE APPOINTMENTS\*

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- 2024 U.S. Subject Matter Expert for the [G7 Future of the Seas and Oceans Initiative](#) activity to increase awareness of OneArgo and its impact on the ocean-climate-biodiversity nexus\*
- 2024 [Biogeochemical Argo Mission Team\\*](#)
- 2022 NOAA Administrator's award: *For outstanding advances in U.S. Ocean observing and processing of biogeochemical Argo float data, leading to a new era of global oceanography.*
- 2020 [ICES/PICES Working Group on Negative Carbon Emissions in the Ocean\\*](#)
- 2020 Chinese-American Kavli Frontiers of Science symposium, invited speaker – *cancelled, Covid-19*
- 2019 [US CLIVAR Early Career Scientist Leadership Award](#)
- 2019 Jupiter Research Foundation [REACT Program](#) Scientific Advisory Board\*
- 2018 [AGU 2017 Editor's Citation for Excellence in Refereeing - JGR-Oceans](#)
- 2017 PMEL Outstanding Scientific Publication Nomination: doi: [10.1002/2015GB005205](#)
- 2017 OCB Scientific Steering Committee Early Career Member, nominated and elected\*
- 2017 Invited Co-Guest Editor of joint [U.S. CLIVAR Variations & OCB News Edition\\*](#)
- 2017 Climate Impact on Ocean Systems Workshop (Stanford), invited participant
- 2017 ALPS II (Scripps), invited participant
- 2016 COME ABOARD Meeting (Honolulu, HI), invited participant and meeting Chair\*
- 2014 Dissertations in Chemical Oceanography (DISCO) XXIV (Kauai, HI), invited participant
- 2014 Student Oral Presentation Award (Bergen, Norway), IMBER Open Science Conference
- 2012 - 2014 NSF IGERT Program on Ocean Change Fellowship
- 2008 - 2009 UW Program on Climate Change Fellowship
- 2007 - 2008 UW Graduate School Top Scholar Award

## INVITED TALKS (2018 - PRESENT)

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- “Observations and Tools for Studying Ocean Biogeochemistry from the Surface to the Deep.” Joint US CLIVAR-OCB Workshop on Pathways Connecting Climate Changes to the Deep Ocean: Tracing Physical, Biogeochemical, and Ecological Signals from Surface to Deep Sea. April 23-25, **2024**.
- “Inequity in the deep: Amplified subsurface signals of ocean acidification.” 2023 Global Ocean Acidification Observing Network's Ocean Acidification Week. Virtual. November 1, **2023**.
- “Emerging topics in carbon cycle variability, interactions, and solution spaces.” 2023 US CLIVAR Summit. Seattle, WA. August 2, **2023**.
- “In too deep: The ocean's amplified response to carbon accumulation at depth.” University of Washington [Banse Seminar Series](#). Seattle, WA. November 9, **2022**.
- “Observing and interpreting changes in ocean biogeochemistry.” University of Washington, Program on Climate Change 20<sup>th</sup> Anniversary Seminar. Seattle, WA. September 15, **2021**.
- “How will 21<sup>st</sup> Century Technology Change the way we Observe the Marine Carbon Cycle?” University of Rhode Island, Vetlesen Distinguished Lecture Series. Narragansett, RI. January 29, **2020**.

# Andrea J. Fassbender

“How do natural and anthropogenic carbon pool interactions alter ocean carbon uptake.” Scripps Institution of Oceanography, Geoscience/Marine Chemistry & Geochemistry Seminar. San Diego, CA. December 2, **2019**.

“Interactions between natural and anthropogenic carbon pools alter annual ocean carbon uptake through seasonal processes.” Lawrence Livermore National Lab, Climate Science Seminar. Livermore, CA. August 21, **2019**.

“Sensitivity of the ocean carbon sink to natural and anthropogenic carbon cycle interactions.” UC Santa Barbara Interdepartmental Graduate Program in Marine Science Seminar. Santa Barbara, CA. April 23, **2019**.

“Sensitivity of the ocean carbon sink to natural and anthropogenic carbon cycle interactions.” OCB Ocean Carbon Uptake in CMIP6 Models Synthesis and Intercomparison Workshop. Washington, DC. December 9, **2018**.

“Chemical feedbacks in the climate system: A modified marine carbon cycle under business-as-usual carbon dioxide emissions.” University of Montana Chemistry Department Seminar. Missoula, MT., October 22, **2018**.

**2018** Goldschmidt Invited Speaker for the session *Carbon Storage in the Ocean now and over Time (071)*. Declined for scheduling reasons.

“Natural and Anthropogenic Carbon Cycle Interactions.” Moss Landing Marine Laboratories Seminar Series. Moss Landing, CA., April 12, **2018**.

## SERVICE ACTIVITIES

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### COMMUNITY EVENTS

Feb. 19-23, 2024 Co-Chair of the Ocean Sciences Session: *Establishing the Scientific Basis for Marine Carbon Dioxide Removal*. New Orleans, LA.

May 15-19, 2023 Co-Organizer of [Exploring Ocean Iron Solutions \(ExOIS\)](#) Session: *mCDR MRV*

Jan. 2023 Co-Organizer of XMAS-VI Session: [Monitoring Ocean Health and Studying the Biological Carbon Pump with the Global Biogeochemical-Argo \(BGC-Argo\) Array](#)

June 2022 Co-Organizer of NOAA Fisheries-BGC-Argo Workshop

June 2021 Co-Chair of the joint sponsored U.S. CLIVAR & OCB [GO-BGC Scientific Workshop: Building a Community of Biogeochemistry Float Data Users](#). Virtual.

May 2021 Co-Chair of [The Global Biogeochemical Argo Fleet: Knowledge to Action](#), a G7 Future of the Seas and Oceans Initiative event led by the U.S. NSF, NOAA, and NASA.

Feb. 16 - 21, 2020 Co-Chair of the Ocean Sciences Session: *Seasonal Cycles of Ocean Biogeochemistry and Ecosystems Under a Changing Climate*. San Diego, CA.

June. 24 - 27, 2019 Co-Chair of the [OCB Summer Workshop](#) Session on *Calcification and the Carbon Cycle*. Woods Hole, MA.

Feb. 12 - 16, 2018 Co-Chair of the Ocean Sciences Session: *Spatial and Temporal Variability of Seawater Chemistry in Coastal Ecosystems in the Context of Global Change*. Portland, OR.

Sept. 25 - 26, 2017 Co-Chair of the joint sponsored U.S. CLIVAR & OCB [Ocean Carbon Hot Spots Workshop](#) held at the Monterey Bay Aquarium Research Institute. Moss Landing, CA.

June 26 - 29, 2017 Co-Chair of the [OCB Summer Workshop](#) Session on *Physical-Biological-Biogeochemical Interactions*. Woods Hole, MA.

Oct. 14 - 16, 2016 Chair of the [Chemical Oceanography MEeting: A BOttom-up Approach to Research Directions \(COME ABOARD\) Meeting](#) held at UH Mānoa. Honolulu, HI.

2012 - 2013 Co-Organizer of the IGERT Program on Ocean Change Winter Seminar Series. UW.

2009 - 2010 Science Program Co-Organizer of the 4<sup>th</sup> Annual Graduate Climate Conference. Pack Forest, WA.

## REFEREE



# Andrea J. Fassbender

Journal Reviews	Environmental Science & Technology, Limnology and Oceanography, Deep Sea Research Part I, Marine Chemistry, Global Biogeochemical Cycles, Estuaries and Coasts, Journal of Geophysical Research Oceans, Geophysical Research Letters, Oceanography, AGU Books, Frontiers in Marine Science, AGU Advances, Scientific Reports, Earth System Science Data, Biogeosciences, Science Advances, Nature Communications Earth & Environment, Nature, Nature Climate Change
Proposal Reviews	Sea Grant, NOAA OAP, NSF-Physical Oceanography, NSF-Chemical Oceanography, NSF-OTIC, Schmidt Ocean Institute
2018 - 2019	Guest Associate Editor for <i>Frontiers in Marine Science</i> Coastal Ocean Processes topic on <a href="#"><u><i>Spatial and Temporal Variability of Seawater Chemistry in Coastal Ecosystems in the Context of Global Change.</i></u></a>
2018	Co-Guest Editor for Joint U.S. CLIVAR Variations & OCB News Edition on <a href="#"><u><i>Frontiers in Western Boundary Current Research.</i></u></a>