

Andrea J. Fassbender

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EDUCATION

Ph.D. Oceanography, Dec. 2014

University of Washington, School of Oceanography, Advised by Dr. Christopher L. Sabine
Dissertation: New approaches to study the marine carbon cycle

M.S. Oceanography, Feb. 2010

University of Washington, School of Oceanography, Advised by Dr. Christopher L. Sabine

Graduate Certificate in Climate Science, June 2009

University of Washington, Program on Climate Change

B.S. Combined Honors: Chemistry and Oceanography, June 2007

University of British Columbia, Advised by Dr. Kristin Orians

Thesis: Manganese as a tracer of bottom water renewal in Saanich Inlet, British Columbia

FELLOWSHIPS & HONORS

***Co-Guest Editor** of joint U.S. CLIVAR Variations & OCB News edition, Invited Guest Editor, October 2017

Climate Impact on Ocean Systems Workshop, Invited Participant, Stanford, May 2017

ALPS II, Invited Participant, Scripps, February 2017

COME ABOARD Meeting, Invited Participant and Chair, Honolulu, October 2016

UCAR Postdoctoral Fellow, Postdocs Applying Climate Expertise, Host: NOAA PMEL, 2014 - 2016

Dissertations in Chemical Oceanography (DISCO) XXIV, Invited Participant, Kauai, October 2014

Student Oral Presentation Award, IMBER Conference, Norway, June 2014

NSF IGERT Program on Ocean Change Fellowship, 2012 – 2014

University of Washington Program on Climate Change Fellowship, 2008 – 2009

University of Washington Graduate School Top Scholar Award, 2007 – 2008

*forthcoming activity

PUBLICATIONS

REFEREED

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 21st 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). Non-Uniform 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).

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).
- 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).
- 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).
- 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 CO₂ 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 CO₂ 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).

ARTICLES & MEDIA

- Fassbender, A.J.**, Sabine, C.L., Cronin, M.F., and A.J. Sutton. "Biophysical drivers of vigorous carbon cycling near the Kuroshio Extension". *Ocean Carbon and Biogeochemistry & US CLIVAR Research Highlights*. April 2017.
- Tynan, Eithne. (2016), Coastal carbon dynamics: Influence on calcification, *Nature Clim. Change: Research Highlights*, 6, 541, doi: [10.1038/nclimate3049](https://doi.org/10.1038/nclimate3049). Published on 25 May 2016.
- Zastrow, Mark. (2016), Moored ocean buoy tracks marine carbon cycle variations, *Eos*, 97, doi: [10.1029/2016EO047783](https://doi.org/10.1029/2016EO047783).
- 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>
- Hickey, Hannah. "Citizen scientists: UW students help state legislator with climate policy". *UW Today*. University of Washington, 27 March 2014. <http://www.washington.edu/news/2014/03/27/citizen-scientists-uw-students-help-state-legislator-with-climate-policy/>

SELECT PRESENTATIONS

- Fassbender, A.J.**, C.L. Sabine, and H.I. Palevsky "Non-Uniform Ocean Acidification and Attenuation of the Ocean Carbon Sink". Chemical Oceanography Gordon Conference. **Poster**. New London, New Hampshire. July 24-28, 2017.
- Fassbender, A.J.**, C.L. Sabine, and H.I. Palevsky "Non-Uniform Ocean Acidification and Attenuation of the Ocean Carbon Sink". Ocean Carbon and Biogeochemistry Summer Workshop. **Poster**. Woods Hole, Massachusetts. June 26-29, 2017.
- Fassbender, A.J.** "Drivers and sensitivities of ocean carbon uptake." UC Santa Cruz Spring Seminar Series. **Invited presentation**. Santa Cruz, California. June 2, 2017.
- Bishop S.P., **A.J. Fassbender**, M.F. Cronin, D. Zhang, R. Inoue, C. Osburn, E. Oka, B. Qiu, X. Lin, and I. Cerovecki. "Carbon Hot Spot: a field program to understand bio-physical drivers of carbon sequestration in western boundary current regions". Ocean Carbon and Biogeochemistry Summer Workshop. **Poster and community sharing presentation**. Woods Hole, Massachusetts. July 26, 2016.

- Fassbender, A.J.**, Alin, S.R., Krembs, C., Sutton, A.J., Feely, R.A., Newton, J., and J. Mickett. “Mapping the Present to Recognize the Future: The Magnitude and Frequency of pH and Ω_{Ar} Variability in Washington State.” Salish Sea Ecosystem Conference. **Presentation**. April 15, **2016**.
- Fassbender, A.J.** and S.R. Alin. “Estimating total alkalinity in the coastal zone: considerations, complexities, and the surprising utility for ocean acidification research.” Washington State Department of Ecology. **Invited presentation**. Olympia, Washington. December 15, **2015**.
- Fassbender, A.J.** “New approaches to study the marine carbon cycle.” Monterey Bay Aquarium Research Institute. **Invited presentation**. Moss Landing, California. October 21, **2015**.
- Fassbender, A.J.**, Sabine, C.L. and M.F. Cronin. “Drivers of air-sea carbon dioxide exchange in the North Pacific Ocean.” Gordon Research Seminar. **Presentation**. Holderness, New Hampshire. July 25-26, **2015**.
- Fassbender, A.J.** “Emerging Technologies at the NOAA Pacific Marine Environmental Laboratory.” IOCCP Biogeochemical Sensors Summer Course. **Invited presentation**. Kristineberg, Sweden. June 29, **2015**.
- Fassbender, A.J.** “New approaches to study the marine carbon cycle using autonomous sensors.” Dissertations Symposium in Chemical Oceanography XXIV. **Presentation**. Līhu‘e, HI. October 6, **2014**.
- Fassbender, A.J.**, Sabine, C.L., Meinig, C., and N. Slavas. “Autonomous ocean carbon monitoring with a moored DIC sensor.” IMBER Future Oceans Conference. **Presentation**. Bergen, Norway. June 23-27, **2014**.
- Fassbender, A.J.**, Sabine, C.L., Meinig, C., and N. Slavas. “Autonomous ocean carbon monitoring with a moored DIC sensor.” Ocean Sciences Meeting. **Presentation**. Honolulu, HI. Feb. 24-28, **2014**.
- Fassbender, A.J.**, Bushinsky, S.M., Maloney, A., and E. Newsom. “Understanding the use of science in Washington State climate legislation.” Ocean Sciences Meeting. **Presentation**. Honolulu, HI. Feb. 24-28, **2014**.
- Fassbender, A.J.** “Inorganic carbon dynamics during northern California coastal upwelling.” American Geophysical Union Fall Meeting. **Presentation**. San Francisco, CA. Dec. 15, **2010**.

SERVICE ACTIVITIES

COMMUNITY EVENTS

- *Co-Chair of 2018 Ocean Sciences Session: *Spatial and Temporal Variability of Seawater Chemistry in Coastal Ecosystems in the Context of Global Change*. Portland, OR. February 12-16, 2018.
- *Co-Chair of the joint sponsored U.S. CLIVAR & OCB [Ocean Carbon Hot Spots Workshop](#) to be held at the Monterey Bay Aquarium Research Institute on September 25-26, 2017.
- Co-Chair of the *Physical-Biological-Biogeochemical Interactions* session at the [Ocean Carbon and Biogeochemistry \(OCB\) Summer Workshop](#) at WHOI on June 26-29, 2017.
- Chair of the [Chemical Oceanography MEeting: A BOttom-up Approach to Research Directions \(COME ABOARD\) Meeting](#) at the University of Hawaii, October 14-16, 2016

*forthcoming activities

REFeree

Journals: Environmental Science & Technology, Limnology and Oceanography, Marine Chemistry, Global Biogeochemical Cycles, Estuaries and Coasts, Journal of Geophysical Research Oceans, Geophysical Research Letters, Oceanography

Funding Groups: Sea Grant, National Oceanic and Atmospheric Administration, National Science Foundation, Schmidt Ocean Institute

TEACHING

University of Washington Osher Lifelong Learning Institute, Instructor: *Ocean change: Why is the ocean changing and what does it mean for the Pacific Northwest?* Seattle, WA. Apr. - May 2014

Kaplan Test Prep, Graduate Record Exam (GRE) Instructor. Seattle, WA. 2010 - 2014

University of Washington Marine Biology 250, Guest Lecturer: *The Ocean's role in the global carbon cycle*. Seattle, WA. Aug. 15, 2013

University of Washington Osher Lifelong Learning Institute, Instructor: *The Ocean's role in global climate*. Seattle, WA. Feb. - March 2013

University of Washington Chemical Oceanography 400, Teaching Assistant. Seattle, WA. Jan. - March 2009

Washington State University Extension Carbon Masters Program, Course Development: *Global climate change*. Seattle, WA. 2008 - 2009

ENGINEERING & FIELD EXPERIENCE

- Recovery, modification, and redeployment of a malfunctioning sensor on a moored buoy in the Gulf of Mexico aboard the *R/V Point Sur*. Sept. 14-19, 2015
- Deployment of a dissolved inorganic carbon (DIC) sensor on a moored buoy in the Gulf of Mexico aboard the *R/V Point Sur*. Aug. 3-5, 2015
- DIC sensor modification, deployment, and technical support for biological Ocean Acidification experiments at the NOAA laboratory in Mukilteo, WA. March 2015 - June 2016
- DIC sensor deployment in the Seattle Aquarium Ocean Health XPRIZE tank. Feb. - April, 2015
- DIC moored buoy deployment in near Oahu, HI. Oct. 2013 - June 2014
- Design and deployment of a flow-through instrument testing system to evaluate the performance of a novel DIC sensor at the Seattle Aquarium. April - Sept. 2013
- Oregon State University carbon chemist aboard the *R/V Wecoma* during the 33-day 2007 North American Carbon Program West Coast Cruise. May - June 2007
- ThermoEnergy Corporation Chemist during two summer internships in Hudson, MA. Design and testing of liquid chromatography water quality testing apparatus. 2005, 2006

WORKSHOPS & TRAINING

IOCCP Biogeochemical Sensors Summer Course, June-July, 2015

NOAA Communicating Science Workshop, June 2, 2015

PSEMP Marine Waters Workshop, April 1, 2015

Line P Workshop, March 3, 2015

COMPASS Ocean Acidification Advanced Policy Training, July - Oct, 2014

Surface Ocean CO₂ Atlas Community Event Workshop, June 23, 2014

COMPASS Communication Training Workshop, Oct. 19-20, 2013

Worldwide Universities Network Workshop on Ocean Acidification, Aug. 28 - Sept. 2, 2011

PROFESSIONAL ACTIVITIES

American Geophysical Union, Member, 2009 - present

University of Washington Program on Climate Change, Member, 2007 - 2014

IGERT Program on Ocean Change Winter Seminar Series, Organizer, 2012 - 2013

Marine Technical Society, Member, 2008 - 2013

University of Washington Program on Climate Change Board, Graduate Student Representative, 2010 - 2011

4th Annual Graduate Climate Conference, Science Program Organizer, 2009 - 2010

University of Washington Friday Harbor Ocean Acidification Mesocosm Planning Committee, Member, 2008

OUTREACH

- **Mentor** for a NOAA Hollings Scholar, July 2015
- **Volunteer lecture** to Central Washington University students visiting NOAA PMEL: *Ocean carbon uptake*, March 6, 2015
- **Expert panelist** for NOAA Science Camp Current Events Panel on Ocean Acidification, July 9 & 16, 2014
- **Mentor** and subject for a 10th grade Nathan Hale student's *Author of Change* project, May-June, 2014
- **Invited lecture** at the Art Institute of Seattle: *Ocean Acidification: Impacts in Washington State*, May 20, 2014
- **Panelist** for NOAA Science Camp Speed Networking Event, July 17, 2013
- **Volunteer judge** for Regional Ocean Sciences Bowl (ORCA Bowl), June 2007; Feb. 2013
- **Volunteer lecture** to Central Washington University students visiting NOAA PMEL: *What it's like to be a grad student at UW/NOAA*, March 2, 2012
- **Volunteer** science advisor for an 8th grade student from Issaquah, WA, June 2010
- **Invited lecture** for the Washington State University Carbon Masters Training Program: *The science behind climate change*, Jan. 27, 2010
- **Invited lecture** for the Washington State University Carbon Coaches Training Program: *Global climate change*, Oct. 8 2009