# Yuichiro Takeshita Curriculum Vitae

# Present Position

Scientist

Monterey Bay Aquarium Research Institute

7700 Sandholdt Road

Moss Landing, CA 95039

Tel: (831) 775-1713

Email: yui@mbari.org

# EDUCATION

June 2008 B.A. Chemistry, Carleton College

Sept 2014 Ph.D. Oceanography, University of California San Diego

*Research Advisor:* Professor Todd R. Martz

# HONORS

2004-2008 International Starr Scholarship

2008 Undergraduate Academic Honor: cum Laude

2008-2009 University of California San Diego Directors Fellowship

2014 National Oceanographic Partnership Program (NOPP) Excellence in Partnership Award

# PROFESSIONAL EXPERIENCE

2006-2007 Summer undergraduate research assistant, Carleton College

2008-2014 Graduate Student Researcher, Scripps Institution of Oceanography

2014-2015 Postdoctoral Scholar, Scripps Institution of Oceanography, Prof. Todd R. Martz

2015-2016 Postdoctoral Researcher; Carnegie Institution for Science, Dr. Ken Caldeira

2017-Present Scientist, Monterey Bay Aquarium Research Institute

# AFFILIATIONS

American Chemical Society (2006-2007, 2011-present)

American Geophysical Union (2010, 2012-present)

Association for the Sciences of Limnology and Oceanography (2012-present)

# Field Experience

2009 American Academy of Underwater Sciences certified SCUBA diver

2009 Summit Station, Greenland, firn carbon isotope study (P.I. Jeff Severinghaus)

2009 R/V New Horizon, Mooring deployment for CCE (Chief Scientist: Uwe Send)

2009 Puerto Morelos, Yucatan, deployment of SeapHOx (P.I. Adina Paytan)

2010 R/V Ron Brown, CLIVAR A16.5 (Chief Scientist John Bullister)

2010 Puerto Morelos, Yucatan, deployment of SeapHOx (P.I. Adina Paytan)

2011 Maui, deployment of SeaFET sensors

2012 R/V Melville, student cruise MV1207 (participated as student PI)

2012 Palmyra Atoll, deployment of SeaFET and SeapHOx sensors (P.I. Jennifer Smith)

2012 R/V Melville, student cruise MV1209 (participated as student PI)

2012 Puerto Morelos, Yucatan, deployment of SeapHOx (P.I. Adina Paytan)

2014 Kaneohe Bay, Hawaii, deployment of BEAMS (P.I. Jennifer Smith)

2014 Palmyra Atoll, deployment of BEAMS (P.I. Jennifer Smith)

2014 Kaneohe Bay, Hawaii, deployment of BEAMS (P.I. Jennifer Smith)

2009-2015 Deployment of SeapHOx sensors on SIO pier and La Jolla Kelp forest

2015 Bermuda, deployment of BEAMS and recruitment tiles (P.I. Nichole Price)

2015 R/V Kilo Moana, Xprize phase 4 validation cruise

2015 Bermuda, deployment of BEAMS, refurbishment of buoys (P.I. Andreas Andersson)

2016 Palmyra Atoll, deployment of BEAMS (P.I. Jennifer Smith)

2016 One Tree Island, deployment of BEAMS, Border experiment (P.I. Ken Caldeira)

2018 KEO winter cruise, carbon hotspots (Chief Scientist: Oka Eitarou)

2018 Ischia pH sensor array (Collaboration with Kristy Kroeker)

2018 BEAMS deployment, Maui (P.I. Takeshita)

2018 Mote Marine Labs: BEAMS coral nursery, (Collaboration M. Platz)

2018 Lizard Island, LIMIT expedition (P.I. Takeshita & Albright)

2019 Eddy Covariance deployment, Mission Bay, (P.I. Takeshita)

2019 Chief Scientist for MBARI C3PO Cruises (May, July)

2019 Hopkins Kelp Forest, BGC mooring array (P.I. Takeshita, Nickols, Dunbar)

2019 Lizard Island, LIMITS expedition (P.I. Takeshita, Albright, Cyronak)

2021 Palmyra Atoll, deployment of BEAMS and sensor maintenance (Collab: Jennifer Smith)

2022 Kahekili, Maui. BEAMS deployment (Collab: Jennifer Smith)

2022 Palmyra Atoll, deployment of BEAMS and sensor maintenance (Collab: Jennifer Smith)

# TEACHING EXPERIENCE

2006-2007 Laboratory Teaching Assistant, Organic Chemistry I & II (CHEM 233&234, Carleton College)

2008 Teaching Assistant, Organic Chemistry II (CHEM234, Carleton College)

2011 Teaching Assistant, Chemical Principles of Marine Systems (SIO141/CHEM174, UCSD)

2014 Guest Lecturer (Oceanic Production), Marine Chemistry (SIO260, UCSD)

2015 Guest Lecturer (Carbon Cycle, Anthropogenic Carbon, Ocean Acidification), Marine Chemistry (SIO260, UCSD)

2022 Guest Lecturer, Biological Oceanography (S. Smith), Moss Landing Marine Labs

# students mentored

2011 Mentored REU student, Rebecca Rolph, and Melinda Lopez

2012 Mentored REU student, David Muller

2013 Mentored 4 electrical engineering students for their senior project (ECE19, UCSD)

2016-2020 Ph.D. Thesis committee member for Heidi Hirsch, Stanford University

2018-2021 Ph.D. Thesis committee member for Michelle Platz, University of South Florida

2018 Steve Nixon (summer MBARI Intern)

2019 Kyle Conner (summer MBARI Intern)

2020 Brooke Hales and Anna Hughes (summer MBARI Interns)

2021-present Ph.D. Thesis committee member for Taylor Wirth, UCSD

2021 Stephen Huie and Adam Gibbs (summer MBARI/CSUMB Interns)

# Outreach experience

2009-2010 Volunteer for National Ocean Bowl, La Jolla

2011-2013 Expanding your Horizon participant, San Diego

2013 BE WiSE participant, Birch Aquarium

2013-2015 Volunteer diver for Birch Aquarium

# Conferences and PRESENTATIONS (Primary presenter)

2010 AGU Fall Meeting, San Francisco (poster)

2011 Invited Speaker, Argo Oxygen Workshop, Brest

2011 ACS Western Regional Meeting (poster)

2012 Ocean Sciences, Salt Lake City (poster)

2013 Aquatic Sciences, New Orleans

2014 Ocean Sciences, New Orleans

2014 Co-host, pH sensor workshop, SIO

2014 Special Seminar, University of Hawaii

2014 Marine chemistry departmental seminar, SIO

2015 Carnegie internal seminar, Stanford

2015 Invited seminar, BIOS

2015 American Geophysical Union, San Francisco

2016 Ocean Sciences, New Orleans

2016 International Coral Reef Symposium, Honolulu.

2016 Invited lecturer, BGC Sensor Workshop, MBARI

2017 Invited seminar, Carleton College

2017 Invited seminar, UCSC

2017 SOCCOM annual meeting (oral presentation)

2017 US Biogeochemical Argo Steering Committee workshop, Princeton

2017 Invited seminar, UCD

2018 Ocean Sciences, Portland

2018 Invited Speaker: Biogeochemical Profiling Float workshop, Seattle

2018 Invited host for Durafet calibration/QC workshop, UCSC

2019 EGO Glider Workshop, Rutgers (Poster)

2019 Ocean Carbonate System Intercomparison Forum (oral), Woods Hole

2019 Summer Ocean Carbon and Biogeochemistry Workshop (poster), Woods Hole

2019 Invited seminar, Monterey Peninsula College

2020 Invited seminar; Moss Landing Marine Labs

2021 Led CO2 working group in SOCCOM annual meeting

2021 Ocean Carbonate System Intercomparison Forum (oral x3)

2021 Invited Seminar, UC Santa Barbara

2022 Ocean Sciences, co-chair of ocean carbonate session

2022 Invited speaker, Stanford at Sea

2022 GO-BGC Annual Meeting (oral x2), San Diego

2022 Underwater Glider User Group (oral), Seattle

# Primary and corresponding Author PUBLICATIONS

1. Takeshita, Y., K. L. Mertz, A. Norgaard, S. Gray, M. H. Verburg, and E. E. Bockmon. **2022**. Accurate spectrophotometric pH measurements made directly in the sample bottle using an aggregated dye perturbation approach. *Limnol. Oceanogr. Methods* 1–7. <https://doi.org/10.1002/lom3.10486>
2. Takeshita, Y., Warren, J. K., Liu, X., Spaulding, R. S., Byrne, R. H., Carter, B. R., DeGrandpre, M. D., Murata, A., and Watanabe S. **2021** Consistency and stability of purified meta-cresol purple for spectrophotometric pH measurements in seawater. *Marine Chemistry*. 236, 104018, <https://doi.org/10.1016/j.marchem.2021.104018>
3. Takeshita, Y., Jones, B. D., Johnson, K. S., Chavez, F. P., Rudnick, D. L., Blum, M., Conner, K., Jensen, S., Long, J. S., Maughan, T., Mertz, K. L., Sherman, J. T., and Warren, J. K. **2021**. Accurate pH and O2 measurements from Spray underwater gliders. *Journal of Atmospheric and Oceanic Technology*. <https://doi.org/10.1175/JTECH-D-20-0095.1>
4. Takeshita. Y., Johnson, K. S, Coletti, L., Jannasch, H., Walz, P., and Warren, J. K. **2020**. Assessment of pH dependent errors in spectrophotometric pH measurements of seawater. *Marine Chemistry*. 223, 103801, <https://doi.org/10.1016/j.marchem.2020.103801>
5. Takeshita, Y., Cyronak, T., Martz, T. R., Kindeberg, T., and Andersson, A. J. **2018.** Drivers of coral reef carbonate chemistry variability at different functional scales. *Frontiers in Marine Science*. *5* (MAY), <https://doi.org/10.3389/fmars.2018.00175>
6. Takeshita, Y., Johnson, K. S., Martz, T. R., Plant, J. N, and Sarmiento, J. **2018**. Assessment of autonomous pH measurements for determining surface seawater partial pressure of CO2. *Journal of Geophysical Research-Oceans*. (September), 2–36, <https://doi.org/10.1029/2017JC013387>
7. Takeshita, Y. **2017**. Understanding feedbacks between ocean acidification and coral reef metabolism, *Journal of Geophysical Research-Oceans*, (September), 2–36, <https://doi.org/10.1002/2017JC012740>
8. Takeshita, Y., Martz, T. R., Colleti, L. J., Dickson, A. G., Jannasch, H. W., and Johnson, K. S. **2017**. The Effects of Pressure on pH of Tris Buffer in Synthetic Seawater. *Marine Chemistry*, 188, 1-5. <https://doi.org/10.1016/j.marchem.2016.11.002>
9. Takeshita, Y., W. McGillis, E. M. Briggs, A. Carter, E. Donham, T. R. Martz, N. N. Price, and J. E. Smith **2016**, Assessment of net community production and calcification of a coral reef using a boundary layer approach, *Journal of Geophysical Research-Oceans*, 121 1-17, <https://doi.org/10.1002/2016JC011886>
10. Takeshita, Y., Martz, T.R., Ballard, J.R., Feely, R.A., Nam, S., Navarro, M.O., and Frieder, C.A. **2015.** Including high frequency variability in coastal ocean acidification projections. *Biogeosciences*, 12, 5853-5870. <https://doi.org/10.5194/bg-12-5853-2015>
11. Nam S., Takeshita, Y., Frieder, C.A., Ballard, J.R., and Martz, T.R.. **2015**. Seasonal advection of Pacific Equatorial Water alters oxygen and pH in the Southern California Bight. *Journal of Geophysical Research-Oceans,* 120 1-13. <https://doi.org/10.1002/2015JC010859>
12. Takeshita, Y., Martz, T.R., Johnson, K.S., and Dickson, A.G. **2014** Characterization of an Ion Sensitive Field Effect Transistor and Chloride Ion Selective Electrodes for pH Measurements in Seawater. *Analytical Chemistry*, 86 (22) 11189-11195. <https://doi.org/10.1021/ac502631z>
13. Takeshita, Y., Martz, T.R., Johnson, K.S., Plant, J.N., Gilbert, D., Riser, S.C., Neill, C., and Tilbrook, B. **2013** A Climatology-Based Quality Control Procedure for Profiling Float Oxygen Data. *Journal of Geophysical Research-Oceans*, 118, 5640-5650. <https://doi.org/10.1002/jgrc.20399>

# Co-Author PUBLICATIONS

1. García-Ibáñez, M. I., Y. Takeshita, E. F. Guallart, N. M. Fajar, D. Pierrot, F. F. Pérez, W. J. Cai, and M. Álvarez. **2022**. Gaining insights into the seawater carbonate system using discrete fCO2 measurements*. Mar. Chem*. 245. <https://doi.org/10.1016/j.marchem.2022.104150>
2. Johnson, K. S., M. R. Mazloff, M. B. Bif, Y. Takeshita, H. W. Jannasch, T. L. Maurer, J. N. Plant, A. Verdy, P. M. Walz, S. C. Riser, and L. D. Talley. **2022**. Carbon to Nitrogen Uptake Ratios Observed Across the Southern Ocean by the SOCCOM Profiling Float Array*. J. Geophys. Res. Ocean*. 127: 1–16. <https://doi.org/10.1029/2022jc018859>
3. Toy, J. A., K. J. Kroeker, C. A. Logan, Y. Takeshita, G. C. Longo, and G. Bernardi. 2022. Upwelling-level acidification and pH/pCO2 variability moderate effects of ocean acidification on brain gene expression in the temperate surfperch, Embiotoca jacksoni*. Mol. Ecol.* 4707–4725. <https://doi.org/10.1111/mec.16611>
4. Nickford, S., Palter, J. B., Donohue, K., Fassbender, A. J., Gray, A. R., Long, J., Sutton, A. J., Bates, N. R. and Takeshita, Y. **2022** Autonomous Wintertime Observations of Air-Sea Exchange in the Gulf Stream Reveal a Perfect Storm for Ocean CO2 Uptake, *Geophys. Res. Lett*., 49(5), <https://doi.org/10.1029/2021GL096805>
5. Evans, W., Lebon, G. T., Harrington, C. D., Takeshita, Y., and Bidlack, A. **2022**. Marine CO2 system variability along the northeast Pacific Inside Passage determined from an Alaskan ferry. *Biogeosciences*, 19 (4), 1277-1301. <https://doi.org/10.5194/bg-19-1277-2022>
6. Griffin, A. J., Anderson, A., Ballard, J., Bates, N. R., Garley, R., Jonson, R., Martz, T. R., Pacheco, F., Takeshita, Y., and Andersson, A. J. **2022** Seasonal changes in seawater calcium and alkalinity in the Sargasso Sea and across the Bermuda carbonate platform. *Marine Chemistry*, 238, <https://doi.org/10.1016/j.marchem.2021.104064>
7. Traiger, S. B., Cohn, B., Panos, D., Daly, M., Hirsh, H. K., Martone, M., Gutierrez, I., Mucciarone D. A., Takeshita, Y., Monismith, S. G., Dunbar, R. B., and Nickols K. J. **2021** Limited biogeochemical modification of surface waters by kelp forest canopies: Influence of kelp metabolism and site‐specific hydrodynamics. *Limnology and Oceanography*, (Ipcc 2019), 1–12. <https://doi.org/10.1002/lno.11999>
8. 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. **2021** The technological, scientific, and sociological revolution of global subsurface ocean observing. *A Supplement to Oceanography* 34(4), <https://doi.org/10.5670/oceanog.2021.supplement.02-02>
9. Carter, B. R., Bittig, H. C., Fassbender, A. J., Sharp, J. D., Takeshita, Y., Xu, Y, Alvarez, M., Wanninkhof, R., Feely, R. A., and Barbero, L. **2021** New and updated global empirical seawater property estimation routines. *Limnology and Oceanography: Methods*. 19(12) <https://doi.org/10.1002/lom3.10461>
10. Mucciarone, D. A., DeJong, H. B., Dunbar, R. B., Takeshita, Y., Albright, R., & Mertz, K. **2021**. Autonomous submersible multiport water sampler. HardwareX, 9, e00197. <https://doi.org/10.1016/j.ohx.2021.e00197>
11. Ricart, A. M., Ward, M., Hill, T. M., Sanford, E., Kroeker, K. J., Takeshita, Y., et al. **2021**. Coast-wide evidence of low pH amelioration by seagrass ecosystems. Global Change Biology, (November 2020), 1–12. <https://doi.org/10.1111/gcb.15594>
12. Romanó de Orte, M., Koweek, D. A., Cyronak, T., Takeshita, Y., Griffin, A., Wolfe, K., et al. **2021**. Unexpected role of communities colonizing dead coral substrate in the calcification of coral reefs. Limnology and Oceanography, 66(5), 1793–1803. <https://doi.org/10.1002/lno.11722>
13. Wolfe, W., Shipley, K., Bresnahan, P., Takeshita, Y., Wirth, T., & Martz, T. **2021**. Technical Note: Stability of tris pH buffer in artificial seawater stored in bags. Ocean Science Discussions, 1–15. <https://doi.org/10.5194/os-2020-120>
14. Bresnahan, P. J., Takeshita, Y., Wirth, T., Martz, T. R, Cyronak, T., Albright, R., Wolfe, K., Warren, J., K., and Mertz, K. L. **2021**. Autonomous in situ calibration of ion-sensitive field effect transistor pH sensors. *Limnology and Oceanography: Methods*. <https://doi.org/10.1002/lom3.10410>
15. Hirsh, H. K., Nickols, K. J., Takeshita, Y., Traiger, S. B., Mucciarone, D. A., Monismith, S., & Dunbar, R. B. **2020**. Drivers of biogeochemical variability in a Central California kelp forest: Implications for local amelioration of ocean acidification. *Journal of geophysical research: Oceans*, 125(11), 1-22. <https://doi.org/10.1029/2020JC016320>
16. Platz, M. C., Y. Takeshita, E. Bartels, and M. E. Arias. **2020**. Evaluating the potential for autonomous measurements of net community production and calcification as a tool for monitoring coral restoration. *Ecological Engineering*. 158: 106042. <https://doi.org/10.1016/j.ecoleng.2020.106042>
17. Doo, S.S., Kealoha, A., Andersson, A., Cohen, A., Hicks, T.L., Long, M.H., Johnson, Z.I., McElhany, P., Mollica, N., Shamberger, K.E.F., Silbiger, N., Takeshita, Y., and Busch, S.D. **2020** The challenges of detecting and attributing ocean acidification impacts on marine ecosystems, *ICES Journal of Marine Science*, <https://doi.org/10.1093/icesjms/fsaa094>
18. Lumpkin, R. L., Ed., **2020**: Global Oceans [in “State of the Climate in 2019"]. *Bulletin of the American Meteorological Society*, 101 (8), S129–S183, <https://doi.org/10.1175/BAMS-D-20-0105.1>
19. Silveira, C. B., Luque, A., Roach, R. N., Villela, H., Barno, A., Green, K., Reyes, B., Rubio-Portillo, E., Le, T., Mead, S., Hatay, M., Vermeij, M. J., Takeshita, Y., Haas, A., Bailey, B., and Rohwer, F. **2019** Biophysical and physiological processes causing oxygen loss from coral reefs. *eLife,* 8 (1-24) doi: 10.7554/eLife.49114
20. Cyronak, T., Takeshita, Y., Courtney, T.A., DeCarlo, E.H., Eyre, B.D., Kline, D.I., Martz, T.R., Page, H., Price, N.N., Smith, J.E., Stoltenberg, L., Tresguerres, M., and Andersson, A.J. **2019** Diel temperature and pH variability scale with depth across diverse coral reef habitats. *Limnology and Oceanography Letters*, doi:10.1002/lol2.10129.
21. Claustre, H., Johnson, K. S., and Takeshita, Y. **2020** Observing the Global Ocean with Biogeochemical-Argo, *Annual Reviews of Marine Science*, 12 (1) 1-26. Doi: 10.1146/annurev-marine-010419-010956
22. Ninokawa, A., Takeshita, Y., Jellison, B. M., Jurgens, L., and Gaylord, B. Biological modification of seawater chemistry by an ecosystem engineer, the California mussel, Mytilus californianus **2019**, *Limnology and Oceanography*, dio: https://doi.org/10.1002/lno.11258
23. Bushinsky, S. M., Takeshita, Y., and Williams, N. L. **2019** Observing changes in ocean chemistry: Our autonomous future. *Current Climate Change Reports*. doi: https://doi.org/10.1007/s40641-019-00129-8
24. Fox, M. D., Carter, A. L., Edwards, C. B., Takeshita, Y., Johnson, M. D., Petrovic, V., Amier, C. G., Sala, E., Sandin, S. A., and Smith, J. E. **2019** Limited coral mortality following acute thermal stress and widespread bleaching on Palmyra Atoll, central Pacific, Coral Reefs 1-12, doi: https://doi.org/10.1007/s00338-019-01796-7
25. Koweek, D. A., Forde, A., Albright, R., Takeshita, Y., Mucciarone, D. A., Ninokawa, A., and Caldeira, K. **2019** Carbon isotopic fractionation in organic matter production consistent with benthic community composition across a coral reef flat, *Frontiers in Marine Science*. *5 (JANUARY)*, doi: 10.3389/fmars.2018.00520
26. Koweek, D. A., Zimmerman, R. C, Hewet, K. M., Gaylord, B., Giddings, S. N., Nickols, K. J., Ruesink, J. L., Stachowicz, J. J., Takeshita, Y., Caldeira, K. **2018**. Expected limits on the ocean acidification buffering potential of a temperate seagrass meadow, *Ecological Applications*, *28*(7), 1694–1714,, doi:10.1002/eap.1771.
27. Albright, R., Takeshita, Y., Koweek, D. A., Ninokawa, A., Wolfe, K., Rivlin, T., Nebuchina, Y., Young, J., and Caldeira, K. **2018**. Carbon dioxide addition to coral reef waters suppresses net community calcification. *Nature*. *555*(7697), 516–519, doi:10.1038/nature25968.
28. Cyronak, T., Andersson, A. J., D’Angelo, S., Bresnahan, P. J., Davidson, C., Finlay, A., Kindeberg, T., Pennise, J., Takeshita, Y., and White, M. **2018**. Spatial and temporal carbonate chemistry variability in two contrasting seagrass meadows: Implications for ocean acidification buffering capacities, *Estuaries and Coasts*, *41*(5), 1282–1296, doi:10.1007/s12237-017-0356-5
29. Carter, B. R., Feely, R. A., Williams, N. L., Dickson, A. G., Fong, M. B., and Takeshita, Y. **2018**. Updated Methods for Global Locally Interpolated Estimation of Alkalinity, pH, and Nitrate, *Limnology and Oceanography Methods*, *14*(4), 268–277, doi:10.1002/lom3.10087.
30. Briggs, E. M., Sandoval, S., Erten, A. Takeshtita, Y., Kummel, A. C., and Martz, T. R. **2017**. Solid State Sensor for Simultaneous Measurement of Total Alkalinity and pH of Seawater, *ACS Sensors*, acssensors.7b00305, doi:10.1021/acssensors.7b00305
31. Williams, N.L., Juranek, L.W., Feely, R.A., Johnson, K.S., Sarmiento, J.L., Talley, L.D., Dickson, A.G., Gray, A.R., Wanninkhof, R., Russell, J.L., Riser, S.C., and Takeshita, Y. **2017** Calculating surface ocean pCO2 from biogeochemical Argo floats equipped with pH: an uncertainty analysis, *Global Biogeochemical Cycles,*31 (3), 591-604. doi:10.1002/2016GB005541
32. Johnson, K.S., Jannasch, H.W., Coletti, L.J., Elrod, V.A., Martz, T.R., Takeshita, Y., Carlson, R.J., and Connery, J.J. **2016.** Deep-Sea DuraFET: A pressure tolerant pH sensor designed for global sensor networks, *Analytical Chemistry*, acs.analchem.5b04653, doi:10.1021/acs.analchem.5b04653
33. Bresnahan, P.J., Martz, T.R., Takeshita, Y., Johnson, K.S., and LaShomb, M. **2014** Best practices for autonomous measurement of seawater pH with the Honeywell Durafet. *Methods in Oceanography*, 9 44-60. doi: [10.1016/j.mio.2014.08.003](http://dx.doi.org/10.1016/j.mio.2014.08.003)
34. Paytan, A., Crook, E.D., Cohen, A.L., Martz, T.R., Takeshita, Y., Rebolledo-Vieyra, M., and Hernandez L. **2014**. Reply to Iglesias-Prieto et al.: Combined field and laboratory approaches for the study of coral calcification. *Proceedings of the National Academy of Sciences U.S.A.,* 111 (3), E302-E303. doi: 10.1073/pnas.1319572111
35. Martz, T.R. Send, U., Ohman, M.D., Takeshita, Y., Bresnahan, P., Kim, H., and Nam, S. **2014**. Dynamic Variability of Biogeochemical Ratios in the Southern California Current System. *Geophysical Research Letters*, 41, 2496-2501. doi:10.1002/2014GL059332
36. Petrenko, V.V., Severinghaus, J.P., Smith, A.M., Riedel, K., Baggenstos, D., Harth, C., Orsi, A., Hua, Q., Franz, P., Takeshita, Y., Brailsford, W., Weiss, R.F., Buizert, C., Dickson, A., Schaefer, H. **2013.** High-precision 14C measurements demonstrate production of in situ cosmogenic (CH4)-14C and rapid loss of in situ cosmogenic (CO)-14C in shallow Greenland firn. *Earth and Planetary Science Letters*, 365, 190-197. doi: 10.1016/j.epsl.2013.01.032
37. Martz, T.R., Takeshita, Y., Rolph, R., and Bresnahan, P.J. **2012** Tracer Monitored Titrations: Measurement of Dissolved Oxygen. *Analytical Chemistry*, 84(1), 290–296 **doi:**10.1021/ac202537f
38. Hoffman, G.E., Smith, J.E., Johnson, K.S., Send, U., Levin, L.A., Micheli, F., Paytan, A., Price, N.N., Peterson, B., Takeshita, Y., Matson, P.G., Crook E.D., Kroeker, K.J., Gambi, M.C., Rivest E.B., Frieder, C.A., Yu, P.C., and Martz, T.R. **2011** High-frequency dynamics of ocean pH: a multi-ecosystem comparison. *PloS ONE*, 6(12) e28983. doi:10.1371/journal.pone.0028983
39. Cich, M.J., Hill, I.M., Lackner, A.D., Martinez, R.J., Ruthenburg, T.C., Takeshita, Y., Young, A.J., Drew, S.M., Buss, C.E., and Mann, K.R. **2010** Enantiomerically Selective Vapochromic Sensing. *Sensors and Actuators B: Chemical*, 149, 199-204 [doi:10.1016/j.snb.2010.05.059](http://dx.doi.org/10.1016/j.snb.2010.05.059)