# Frank Bahr

Emeritus Research Scholar

Department of Physical Oceanography

Woods Hole Oceanographic Institution

Christian Albrechts University Kiel, Germany Physical Oceanography B.S., 1981

University of Hawaii, Honolulu, HI Physical Oceanography, M.S., 1986

Emeritus Research Scholar, 2023-present, Woods Hole Oceanographic Institution.

Research Specialist, 1991−2022, Woods Hole Oceanographic Institution.

Junior Researcher, 1989−1991, Joint Institute for Marine and Atmospheric Research (JIMAR).

Research Assistant, 1987−1988, University of Hawaii.

Research Assistant, 1986, Alfred Wegener Institute, Bremerhaven, Germany.

Research Assistant, 1983−1985, University of Hawaii.

Member, American Geophysical Union

Member, Oceanography Society

Research Interests: Work with oceanographic instrumentation from cruise preparation (including design modifications to fit the needs of individual experiments) through data acquisition at sea to data processing and analysis. With the retirement of the WHOI SeaSoar in 2017, typical instrumentation now include CTDs (Seabird and RBR), and Acoustic Doppler Current Profilers (ADCPs) in self-contained and shipboard applications. In semi-retirement, I hope to continue with the above when opportunities to help out arise.

Co-author of twenty-two refereed scientific publications.

August 2020

**Refereed Publications**

McPhaden, M. J., F. Bahr, Y. du Penhoat, E. Firing, S. P. Hayes, P. P. Niiler, P. L. Richardson, J. M. Toole, 1993. The response of the western equatorial Pacific Ocean to westerly wind bursts during November 1989 − January 1990. *Journal of Geophysical Research*, **97**(C9), 14,289−14,303.

Joyce, T. M., J. R. Luyten, F. B. Bahr, and J. S. Pallant, 1998. Mesoscale structure of subducting water in the subtropical gyre of the eastern North Atlantic Ocean. *Journal of Physical Oceanography*, **28**, 40−61.

Joyce, T. M., I. Yasuda, Y. Hiroe, K. Komatsu, K. Kawasaki, and F. Bahr, 2001. Mixing in the meandering Kuroshio Extension and the formation of North Pacific Intermediate water. *Journal of Geophysical Research*, **106**(C3), 4397−4404.

Yasuda, I., Y. Hiroe, K. Komatsu, K. Kawasaki, T. M. Joyce, F. Bahr, and Y. Kawasaki, 2001. Hydrographic structure and transport of the Oyashio south of Hokkaido and the formation of North Pacific Intermediate Water. *Journal of Geophysical Research*, **106**(C4), 6931−6942.

Gawarkiewicz, G., F. Bahr, R. C. Beardsley, and K. H. Brink, 2001. Interaction of a slope eddy with the shelfbreak front in the Middle Atlantic Bight. *Journal of Physical Oceanography*, **31**(9), 2783−2796.

Hiroe, Y., I. Yasuda, K. Komatsu, K. Kawasaki, T. M. Joyce, and F. Bahr, 2003. Transport of North Pacific Intermediate Water in the Kuroshio-Oyashio Interfrontal Zone. *Deep-Sea Research* *II*, **49,** 5353−5364.

Gawarkiewicz, G., F. Bahr, K. H. Brink, R. C. Beardsley, M. Caruso, J. F. Lynch, and C.-S. Chiu. 2004. A large-amplitude meander of the shelfbreak front during summer south of New England: Observations from the shelfbreak PRIMER experiment. *Journal of Geophysical Research–Oceans*, **109**, C03006, doi: 10.1029/2002JC001468.

Gawarkiewicz, G., J. Wang, M. Caruso, S. Ramp, K. Brink, and F. Bahr, 2004. Shelfbreak circulation and thermohaline structure in the northern South China Sea - contrasting spring conditions in 2000 and 2001. *IEEE* *Journal of Oceanic Engineering*, **29**(4), 1131-1143.

Gawarkiewicz, G., J. Wang, M. Caruso, S. Ramp, K. Brink, and F. Bahr, 2004. Inter-annual variability of shelfbreak thermohaline and velocity fields in the ASIAEX study region: Contrasting spring 2000 and 2001. *Journal of Oceanic Engineering*, **29**(4), 1131-1143.

Gawarkiewicz, G., J. Churchill, F. Bahr, C. Linder and C. Marquette, 2008. Shelfbreak frontal structure and processes north of Cape Hatteras in winter. *Journal of Marine Research*, Volume 66, Number 6, November 2008, pp. 775-799(25)

Joyce, Terrence M., Leif N. Thomas, and Frank Bahr, 2008. Wintertime observations of subtropical mode water formation within the Gulf Stream. *Geophysical Research Letters*, Geophysical Research Letters 36 (2009): L02607.

Lin, P., R. S. Pickart, K. M. Stafford, G.W.K. Moore, D. J. Torres, F. Bahr, Jianyu Hu, 2016. Seasonal Variation of the Beaufort Shelfbreak Jet and its Relationship to Arctic Cetacean Occurrence. *Journal of Geophysical Research*, Vol 121, Issue 12, 8434-8454 pp.

A.M. Thurnherr, A. M., I. Goszczko, and F. Bahr, 2017. Improving LADCP Velocity with External Heading, Pitch and Roll.2017. *Journal of Atmospheric and Oceanic Technology*, published online, https://doi.org/10.1175/JTECH-D-16-0258.1

Lozier, M. S., F. Li1, S. Bacon, F. Bahr, A. Bower, S. Cunningham, F. de Jong, L. de Steur, B. DeYoung, J. Fischer, S. Gary, B. Greenan, N.P. Holliday, A. Houk, L. Houpert, M. Inall, W. Johns, H. Johnson, C. Johnson, J. Karstensen, G. Koman, I. LeBras, X. Lin, N. Mackay, D. Marshall, H. Mercier, M. Oltmanns, R.S. Pickart, A. Ramsey, D. Rayner, F. Straneo, V. Thierry, D.J. Torres, R. Williams, C. Wilson, J. Yang, I. Yashayaev, J. Zhao, 2018. A sea change in our view of overturning– first results from the Overturning in the Subpolar North Atlantic Program. Science, Vol. 363, Issue 6426, pp. 516-521.

Andres, M., M. Muglia, F. Bahr, and F. Bane, 2018. Continuous Flow of Upper Labrador Sea Water around Cape Hatteras. *Scientific Reports*, 8, 1, 4494.

James J. R., J. Steele, K. Brink, D. Gifford, and F. Bahr. 2018. Understanding large-scale energy flows through end-to-end shelf ecosystems – the importance of physical context. *Journal of Marine Systems*, 187.

Pacini, A., R. S. Pickart, K. Moore, C. Nobre, F. Bahr, K. Våge, K. Arrigo. 2019. Characteristics and transformation of Pacific winter water on the Chukchi Sea shelf in late-spring. *Deep Sea Research Oceans, Vol 124, Issue 10, 7153-7177 pp.* <https://doi.org/10.1029/2019JC015261>

Renfrew, I. A., R. S. Pickart; K. Våge; G. W. K. Moore; T. J. Bracegirdle; A. D. Elvidge; E. Jeansson; T. Lachlan-Cope; L. T. McRaven; L. Papritz J. Reuder; H. Sodemann; A. Terpstra; S. Waterman; H. Valdimarsson; A. Weiss; M. Almansi; F. Bahr; A. Brakstad; C. Barrell; J. K. Brooke; B. J. Brooks; I. M. Brooks; M. E. Brooks; E. M. Bruvik; C. Duscha; I. Fer; H. M. Golid; M. Hallerstig; I. Hessevik; J. Huang; L. Houghton; S. Jónsson; M. Jonassen; K. Jackson; K. Kvalsund; E. W. Kolstad; K. Konstali; J. Kristiansen; R. Ladkin; P. Lin; A. Macrander; A. Mitchell; H. Olafsson; A. Pacini; C. Payne; B. Palmason; M. D. Pérez-Hernández; A. K. Peterson; G. N. Petersen; M. N. Pisareva; J. O. Pope; A. Seidl; S. Semper; D. Sergeev; S. Skjelsvik; H. Søiland; D. Smith; M. A. Spall; T. Spengler; A. Touzeau; G. Tupper; Y. Weng; K. D. Williams; X. Yang; S. Zhou, 2019: The Iceland Greenland Seas Project. Bull. Amer. Meteor. Soc., **100**, 1795–1817, <https://doi.org/10.1175/BAMS-D-18-0217.1>.

Gawarkiewicz, G., K. Chen, J. Forsyth, F. Bahr, A. Mercer, A. Ellertson, P. Fratantoni, H. Seim, S. Haines and L. Han. 2019. Characteristics of an Advective Marine Heatwave in the Middle Atlantic Bight: Shelfbreak Exchange Driven Thermohaline Anomalies in Early 2017. Front. Mar. Sci., 22 November 2019  <https://doi.org/10.3389/fmars.2019.00712>

Lin, Peigen, R. S. Pickart, D. Fissel, E. Ross, J. Kasper, F. Bahr, D. Torres, J. O'Brien, K. Borg, H. Melling, F. Wiese. (2020). Circulation in the vicinity of Mackenzie Canyon from a year-long mooring array. Progress in Oceanography. 102396. 10.1016/j.pocean.2020.102396.

Li, Jianqiang., R. S. Pickart, P. Lin, F. Bahr, K. Arrigo, L. Juranek, X. Yang, 2020. The Atlantic Water Boundary Current in the Chukchi Borderland and Southern Canada Basin. *Journal of Geophysical Research*, Vol 125, Issue 8. <https://doi.org/10.1029/2020JC016197>

Pacini, A., R. S. Pickart, F. Bahr, D. Torres, A. Ramsey, J. Holte, J. Karstensen, M. Oltmanns, F. Straneo, I. Le Bras. 2020. Mean conditions and seasonality of the West Greenland Boundary Current System near Cape Farewell. J. Phys. Oceanogr., doi: <https://doi.org/10.1175/JPO-D-20-0086.1>.

Annie P. S. Wong, Susan E. Wijffels, Stephen C. Riser, Sylvie Pouliquen, Shigeki Hosoda, Dean Roemmich, John Gilson, Gregory C. Johnson, Kim Martini, David J. Murphy, Megan Scanderbeg, T. V. S. Udaya Bhaskar, Justin J. H. Buck, Frederic Merceur, Thierry Carval, Guillaume Maze, Cécile Cabanes, Xavier André, Noé Poffa, Igor Yashayaev, Paul M. Barker, Stéphanie Guinehut, Mathieu Belbéoch, Mark Ignaszewski, Molly O'Neil Baringer, Claudia Schmid, John M. Lyman,, Kristene E. McTaggart, Sarah G. Purkey, Nathalie Zilberman, Matthew B. Alkire, Dana Swift, W. Brechner Owens, Steven R. Jayne, Cora Hersh, Pelle Robbins, Deb West-Mack, Frank Bahr, Sachiko Yoshida, Philip J. H. Sutton, Romain Cancouët, Christine Coatanoan, Delphine Dobbler, Andrea Garcia Juan, Jerôme Gourrion, Nicolas Kolodziejczyk, Vincent Bernard, Bernard Bourlès, Hervé Claustre, Fabrizio D'Ortenzio, Serge Le Reste, Pierre-Yve Le Traon, Jean-Philippe Rannou, Carole Saout-Grit, Sabrina Speich, Virginie Thierry, Nathalie Verbrugge, Ingrid M. Angel-Benavides, Birgit Klein, Giulio Notarstefano, Pierre-Marie Poulain, Pedro Vélez-Belchí, Toshio Suga, Kentaro Ando, Naoto Iwasaska, Taiyo Kobayashi, Shuhei Masuda, Eitarou Oka, Kanako Sato, Tomoaki Nakamura, Katsunari Sato, Yasushi Takatsuki, Takashi Yoshida, Rebecca Cowley, Jenny L. Lovell, Peter R. Oke, Esmee M. van Wijk,, Fiona Carse, Matthew Donnelly, W. John Gould, Katie Gowers, Brian A. King, Stephen G. Loch, Mary Mowat, Jon Turton, E. Pattabhi Rama Rao, M. Ravichandran, Howard J. Freeland, Isabelle Gaboury, Denis Gilbert, Blair J. W. Greenan, Mathieu Ouellet, Tetjana Ross, Anh Tran, Mingmei Dong, Zenghong Liu, Jianping Xu, KiRyong Kang, HyeongJun Jo, Sung-Dae Kim and Hyuk-Min Park. 2020. Argo Data 1999–2019: Two Million Temperature-Salinity Profiles and Subsurface Velocity Observations From a Global Array of Profiling Floats. Front. Mar. Sci., 15 September 2020; <https://doi.org/10.339/fmars.2020.00700>

Robert S. Pickart, Michael A. Spall, Peigen Lin, Frank Bahr, Leah T. McRaven, Kevin R. Arrigo, and Jacqueline M. Grebmeier. hysical controls on the benthic biomass in Barrow Canyon, Chukchi Sea. JGR Oceans Volume 126, Issue 5, http://dx.doi.org/10.1029/2020JC017091

Donald M Anderson (corr-auth) , Evangeline Fachon , Robert Pickart , Peigen Lin , Alexis D Fischer , Mindy L Richlen , Victoria Uva , Michael Brosnahan , Leah McRaven , Frank Bahr , Kathi Lefebvre , Jaqueline Grebmeier , Seth Danielson , Yihua L Yu , Yuri Fukai. Evidence for massive and recurrent toxic blooms of Alexandrium catenella in the Alaskan Arctic. *Proceedings of the National Academy of Sciences, Submitted.*

# Non-Refereed Publications

Bahr, F. 1991. SeaSoaring during Subduction 1. *SeaSoar News*, a newsletter by Chelsea Instruments, Issue 2, Winter 1991.

Bahr, Frank, and Jerome P. Dean, 1992. Monitoring the flight of the Seasoar. *MTS 1992 Proceedings,* **2**, 567−578.

Bahr, Frank, P. D. Fucile and J. Dean, 1996. Seasoar vehicle control and data acquisition. *MTS 1996 Proceedings*, **2**, 1000−1007.

Fucile, Paul, A. Gordon, F. Bahr and J. Dean, 1997. Fiber optic control of an undulating platform. *MTS 1997 Proceedings*}, **1**, 105−108 pp.

Bahr, F., 2001. ASIAEX: Shallow Water SeaSoaring during the South China Sea Cruise OR610. (online). (<http://science.whoi.edu/users/seasoar/scs/scs3/cbrep/scs3cb.html>)

Bahr, F., 2001. ASIAEX: Acoustic doppler current profiler during OR610. (Online − (http://science.whoi.edu/ users/seasoar/scs/scs3/adcprep/scs3adcp.html)

## Technical Reports

Bahr, Frank, and Eric Firing, and Jiang Songnian, 1989. Acoustic Doppler current profiling in the Western Pacific during the US−PRC TOGA cruises 2, 3, and 4. *Joint Institute for Marine and Atmospheric Research (JIMAR) Data Report No. 5*, 197 pp.

Bahr, Frank, and Eric Firing, Jiang Songnian, 1990. Acoustic Doppler current profiling in theWestern Pacific during the US−PRC TOGA cruises 5 and 6. *Joint Institute for Marine and Atmospheric Research (JIMAR) Data Report No. 7*, 161 pp.

Pallant, Julie S., F. Bahr, T. M. Joyce, J. Dean and J. R. Luyten, 1995. Subduction in the subtropical gyre: Seasoar cruises data report. *Woods Hole Oceanographic Institution Technical Report* WHOI-95-13.

Bahr, Frank and T. M. Joyce, 1997. Acoustic Doppler current profiling in the western Pacific during the WOCE P10 cruise, November/December 1993. *Woods Hole Oceanographic Institution Technical Report* WHOI-97-04, 130 pp.

Bahr, F., and E. Firing. Acoustic Doppler current profiling in the Western Pacific during the US−PRC TOGA cruises 7 and 8, in press.

Newhall, A. E., J. F. Lynch, G. G. Gawarkiewicz, T. F. Duda, N. M. McPhee, F. B. Bahr, C. D. Marquette, Y.-T. Lin, S. Jan, J. Wang, C.-F. Chen, L. Y. S. Chiu, Y. J. Yang, R. C. Wei, C. Emerson, D. Morton, T. Abbot, P. Abbot, B. Calder, L. Mayer, P. F. J. Lermusizux. 2010, Acoustics and oceanographic observations collected during the QPE experiment by Research Vessels *OR1, OR2,* and *OR3* in the East China Sea in the Summer of 2009. *Woods Hole Oceanographic Institution Technical Report, WHOI-2010-06,* August 2010.

**Synergistic Activities:** Work with Rhode Island fishermen on general understanding of our coastal waters, and the impact of recent environmental changes.