

VITA

2018-present, **CeNCOOS Director**, Monterey Bay Aquarium Research Institute, Moss Landing, CA. Part time.

- Oversees all aspects of the CeNCOOS including governance, observing systems, data management, modeling and analysis, and education and outreach
- Coordinates with regional partners SCCOOS and NANOOS, and with the IOOS office and IOOS Association and other federal, state, and local partners including legislators, industry representatives, and non-governmental organizations

2018-present, **Senior Research Scientist**, Ocean Biogeochemistry and Ecosystems Group (OBE), National Oceanography Centre, UK. Part time.

- Long-term ecological and carbon cycle research in the NE Pacific and NE Atlantic
- Assessment of climatic influences on ecosystem function with observations and models
- Autonomous instrument and methodology development for oceanographic research
- Coordination of NOC input to European and international ocean observatory efforts
- Resource industry collaboration to evaluate impacts and inform best practices
- Experience on more than 25 oceanic expeditions, including 4 as Principle Science Officer

Oct 1 2010-2018, **Head, DeepSeas Group, Associate Head, Ocean Biogeochemistry and Ecosystems Group** (OBE), National Oceanography Centre, UK. Full time.

- Manage group of ~20 staff scientists and PhD students studying deep-sea ecology
- Senior Management Team member of the Directorate of Science & Technology

2014-2018, **Adjunct Researcher**, Monterey Bay Aquarium Research Institute, Moss Landing, CA.

July 10 2008- Oct 1 2010, **Research Scientist**, National Oceanography Centre, Southampton, UK.

- NERC Band 6 (a.k.a. Uni. 4 prior to TUPE), appointed July 2008

2006-2008. **Postdoctoral Fellow**, Monterey Bay Aquarium Research Institute, Moss Landing, CA.

- Deep-sea ecological research with Kenneth L. Smith Jr.
- Energy industry collaboration to evaluate impacts and promote informed resource use
- Abyssal macro- and mega-faunal community dynamics and bioturbation effects
- Antarctic research on pelagic biogeochemical effects of icebergs

2001-2006, **Ph.D. Marine Biology**, Scripps Institution of Oceanography, U. Cal., San Diego, CA.

- Deep-sea ecological research with Kenneth L. Smith Jr.
- Examining links between climate and abyssal processes and communities
- Mentoring and advising of undergraduate students
- Birch Aquarium at Scripps advisory panel member

2005, **Teaching Assistant**, University of California, San Diego, CA.

- Biological Oceanography with Michael Landry

2000, **Staff Research Associate**, Scripps Institution of Oceanography, U. Cal., San Diego, CA.

- Antarctic and deep-sea ecological research with Kenneth L. Smith Jr.

1998, **Hydrology**, Johns Hopkins University, Washington, DC.

1996, **B.S. Biology**, George Mason University, Fairfax, Virginia.

- Environmental Management Certificate with aquatic ecosystem focus

1994-1999, **Biological Science Technician**, GS-5, US Geological Survey, Reston, VA.

- Long-term studies of aquatic vegetation ecology in the Chesapeake Bay and South Florida
- Remote sensing and model parameterization and verification

PERSONAL DEVELOPMENT

- Leadership for NERC - Personal & Professional Impact training
- Management Essentials training
- Safety Management in a Research Environment training
- Challenging conversations and Coaching training
- Seagoing Principal Science Officer training
- Media engagement training for print, radio, and television
- Performance in Public Speaking training
- Personal Survival Techniques training

PROFESSIONAL ASSOCIATIONS

- Chair, International Science Advisory Board (ISAB) for Ocean Networks Canada (ONC)
- Co-Chair, Deep Ocean Observing Strategy (DOOS) steering committee
- NOC Self-Assessment Team, Athena - Scientific Women's Academic Network
- Natural Environment Research Council (NERC) - Peer-Review College member
- UN World Ocean Assessment - open-ocean deep-sea working group member
- European Marine Board – deep-sea working group member
- Fix-O³ (Fixed point Open Ocean Observatories programme) Steering Committee member
- EMSO (European Multidisciplinary Seafloor and water-column Observatory) Steering Committee member (www.emso-eu.org)
- DELOS (www.delos-project.org), Steering Committee member
- ALOHA Cabled Observatory Advisory Committee (ACO-AC)
- INDEEP (International Network for Scientific Investigations of Deep-Sea Ecosystems)
- GEO-BON, (Group on Earth Observation-Biodiversity Observation Network) WG5 Member
- UK-IMON (UK – Integrated Marine Observation Network), associate scientist
- MAREMAP (UK Marine Environmental Mapping Programme), associate scientist
- NSF Long-Term Ecological Research Program, Associate Scientist
- NERC Cruise Programme Review Group (2013-2016)

PEER-REVIEWED PUBLICATIONS

- Ardron, JA, HA Ruhl, DOB Jones. 2018. Incorporating transparency into the governance of deep-seabed mining in the Area beyond national jurisdiction. *Marine Policy* 89: 58-66.
- Thompson, et al. An approach for the identification of exemplar sites for scaling up targeted field observations of benthic biogeochemistry in heterogeneous environments. *Biogeochemistry* 135:1–34.
- Yool, A, AP Martin, TR Anderson, BJ Bett, DOB Jones, and HA Ruhl. 2017. Big in the benthos: Future change of seafloor communities in a global-scale, body size-resolved model. *Glob. Change Biol.* DOI: 10.1111/gcb.13680
- Durden, JM, HA Ruhl, C Pebody, SJ Blackbird, D van Oevelen. 2017. Differences in the carbon flows in the benthic food webs of abyssal hill and plain habitats. *Limnology and Oceanography*. doi: 10.1002/lno.10532.
- Sweetman, AK, et al., 2017. Major impacts of climate change on deep-sea benthic ecosystems. *Elementa: The Science of the Anthropocene* 5: doi.org/10.1525/elementa.203.
- Main, CE, A Yool, NP Holliday, EE Popova, DOB Jones, HA Ruhl. 2017. Simulating pathways of subsurface oil in the Faroe–Shetland Channel using an ocean general circulation model. *Marine Pollution Bulletin* 114: 315-326.
- Simcock, A et al. 2016. Chapter 20 Coastal, Riverine and atmospheric inputs from land. In: *United Nations World Ocean Assessment I*. Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations. 95pp.
- Ingels, J et al. 2016. Chapter 36F Open ocean deep sea. In: *United Nations World Ocean Assessment I*. Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations.37pp.

- Le Bris, N et al. 2016. Chapter 45 Hydrothermal vents and cold seeps. In: *United Nations World Ocean Assessment I*. Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations. 18pp.
- Morris, KJ, BJ Bett, JM Durden, NMA Benoist, V Al Huvenne, D OB Jones, K Robert, MC Ichino, GA Wolff, HA Ruhl. 2016. Landscape-scale spatial heterogeneity in phytodetrital cover and megafauna biomass in the abyss links to modest topographic variation. (*Nature Scientific Reports* 6, Article 34080, doi: 10.1038/srep34080)
- Smith, KL Jr, CL Huffard, AD Sherman, HA Ruhl. 2016. Decadal change in sediment community oxygen consumption in the abyssal northeast Pacific. *Deep-Sea Research II*. (DOI 10.1007/s10498-016-9293-3).
- Dunlop, KM, D van Oevelen, HA Ruhl, CL Huffard, LA Kuhnz, KL Smith Jr. 2016. Carbon cycling in the deep eastern North Pacific benthic food web: Investigating the effect of organic carbon input. *Limnology and Oceanography*. (DOI: 10.1002/lno.10345).
- Lebrato. M, et al. 2016. Global co-occurrence of benthic calcifiers and seawater mineral undersaturation. *Global Biogeochemical Cycles* 30: 1038–1053.
- Cristini, L, RS Lampitt, V Cardin, E Delory, P Haugan, N O'Neill, G Petihakis, HA Ruhl. 2016. Cost and value of multidisciplinary fixed-point ocean observatories. *Marine Policy* 71: 138–146.
- Best, MMR, et al., 2016. The EMSO-ERIC pan-European consortium: Data benefits and lessons learned as the legal entity forms. *Marine Technology Society Journal* 50: 8-15.
- Laguionie-Marchais, C, G Paterson, BJ Bett, KL Smith Jr, HA Ruhl. 2016. Inter-annual variations in body size, energy use and community assemblage structure of abyssal polychaete. *Progress in Oceanography* 140: 43-53.
- Aguzzi, J, C Doy, S Tecchio, F De Leo, E Azzurro, C Costa, V Sbragaglia, J Del Río, J Navarro, HA Ruhl, JB Company, P Favali, A Purser, L Thomsen, and IA Catalán. 2015. Coastal observatories for monitoring of fish behaviour and their responses to environmental changes. *Reviews in Fish Biology and Fisheries* 25: 463-483.
- Morris, KJ, RJ Milligan, DOB Jones, BJ Bett, DM Bailey, JM Durden, S McPhail, K Robert, VAI Huvenne, HA Ruhl. 2014. A new method for ecological surveying of the abyss using autonomous underwater vehicle photography. *Limnology and Oceanography: Methods* 12: 795–809.
- Kuhnz, LA, HA Ruhl, CL Huffard, KL Smith Jr. 2014. A benthic megafaunal community in the abyssal northeast Pacific: Structural changes over a 24-year time series. *Progress in Oceanography* 124: 1-11.
- Ruhl, HA, BJ Bett, SJM Hughes, CJS Alt, EJ Ross, RS Lampitt, CA Pebody, KL Smith, DSM Billett. 2014. Links between deep-sea megafauna respiration and community dynamics. *Ecology* 95: 1651-1662.
- Smith, Jr, KL, HA Ruhl, M Kahru, CL Huffard, A Sherman. 2013. Deep ocean communities impacted by changing climate over 24 y in the abyssal northeast Pacific Ocean. *Proceedings of the National Academy of Sciences, USA* 110: 19838–19841.
- Jones, DOB, A Yool, C-L Wei, SA Henson, HA Ruhl, RA Watson, M Gehlen. 2014. Global reductions in seafloor biomass in response to climate change. *Global Change Biology* 20, 1861–1872, doi: 10.1111/gcb.12480.
- Mora, C, et al., 2013. Biotic and Human Vulnerability to Projected Changes in Ocean Biogeochemistry over the 21st Century. *PLoS Biology* 11(10): e1001682. doi:10.1371/journal.pbio.1001682.
- Ruhl HA, et al. 2011. Societal need for improved understanding of climate change, anthropogenic impacts, and geo-hazard warning drive development of ocean observatories in European Seas. *Progress in Oceanography* 91: 1-33.
- Ruhl, HA, and NB Rybicki. 2010. Long-term reductions in anthropogenic nutrients link to improvements in Chesapeake Bay habitat. *Proceedings of the National Academy of Sciences, USA* 107: 16566–16570.
- Ruhl, HA, JA Ellena, KL Smith Jr. 2008. Connections between climate, food limitation, and carbon cycling in abyssal sediment communities: a long time-series perspective. *Proceedings of the National Academy of Sciences, USA* 105, 17006–17011.
- Ruhl, HA and KL Smith Jr. 2004. Shifts in deep-sea community structure linked to climate and food supply. *Science* 305: 513-515.