BIOGRAPHICAL MEMOIRS

Edward Lancelot Miles

December 21, 1939 – May 7, 2016
Elected to the NAS, 2003

A Biographical Memoir by William C. Clark, David L. Fluharty, Diana M. Liverman, and John M. Wallace

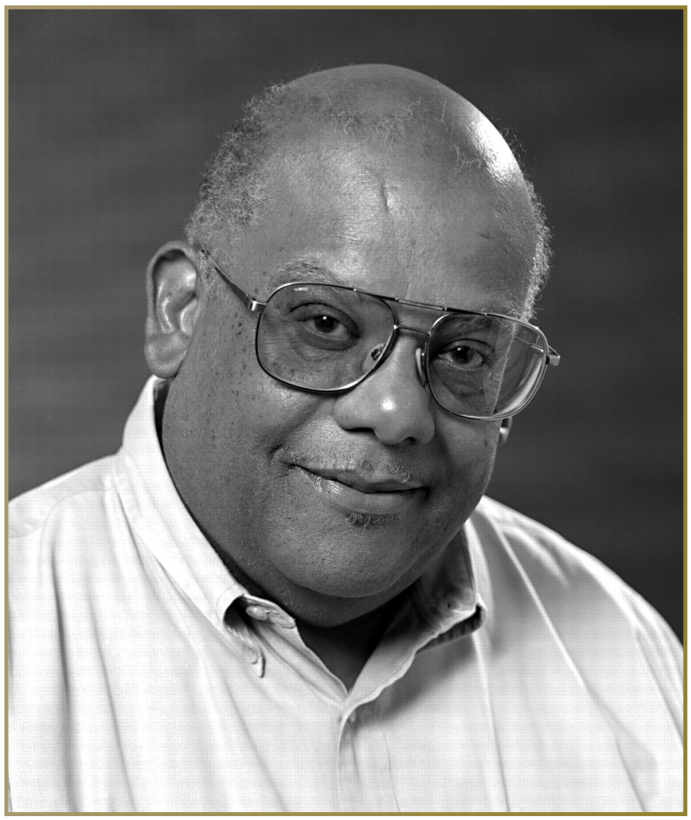

Figure 1 Edward L. Miles. *Credit: Mary Levin/University of Washington*

"I spent a lot of time on, in and around the ocean, and I'm absolutely fascinated by it," recalled Ed Miles in an interview for PNAS shortly after his election to the National Academy of Sciences in 2003.[1] That fascination would blossom into an outpouring of important research discoveries and institutional inventions during his more than forty years on the faculty of the University of Washington (UW) in Seattle. He sought to understand how cooperation for sustainable use of the oceans and other global commons could be enhanced. Unlike many in such fields, he combined research in the physical, social, and biological sciences with policy and international relations. He was a pioneer in the area of creating solutions for adaptation to global climate change.

Early Life, Education, and Academic Career

Edward Lancelot Miles was born on the Caribbean island of Trinidad on December 21, 1939. He emigrated to the United States in 1959 to attend college at Howard University in Washington, D.C. He completed a bachelor's degree at Howard in history and political science, graduating *magna cum laude*, in 1962 and completed a Certificate of Achievement at the University of Oslo's International Summer School. He then entered the University of Denver to pursue a Ph.D. in international relations with additional training in sociological theory and comparative politics, completing his studies in 1965 and joining the faculty of the Department of International Studies there. In 1974, Miles moved to Seattle, where he became a founding faculty member in the newly created Institute for Marine Studies (now School of Marine and Environmental Affairs) at UW. He was named professor of Marine Studies and Public Affairs there and would remain at the university for the rest of his career, until his retirement in 2010.

Risky Work

Ed's life as a researcher was driven by his sense of the big challenges facing society rather than by the cutting-edge concerns of individual academic disciplines. In a 1997 interview, he said, "My choices are made on whether the

problem is large, interdisciplinary and significant. Does it matter? And if the answer is yes, then I'm willing to take risks."[2] Reflecting on where that approach had taken him, he later wrote, "I have worked at the interface of the natural sciences, social sciences, and law, primarily on problems related to the global commons.… Much of this work has been global in nature, some of it regional (in an international sense), and some of it national (on a comparative basis)."[3] Over the half century he pursued it, Ed's "risky work" resulted in a profusion of articles, chapters, books, reports, lecture notes, interviews, testimony, AV recordings, course syllabi, and more. With the luxury of hindsight, however, we see two major strands of research findings that emerged from that vast output. The first concerns the global environmental impacts of human activities; the second concerns the design and evaluation of institutions for managing those impacts. Ed's work on these two strands was continually evolving and always intertwined, but they are nonetheless worth considering separately.

Impacts of Human Activities on the Global Environment

Ed made significant contributions to our understanding of how human activities alter and threaten various components of the Earth's system, particularly the oceans. His early work on exploited fisheries, for example, highlighted the continuing vulnerability of straddling stocks despite serious international efforts to protect them.[4] His participation in a major international study that demonstrated the very low risks involved in sub-seabed disposal of high-level radioactive waste was described by Ed as "one of the intellectual high points of my professional life."[5] By the mid-1990s, he had become recognized as one of the world's leading authorities on the effects of climate change on the world's oceans, as reflected in his appointment as one of the principal lead authors for the "Oceans" chapter of the Second Assessment Report from the Intergovernmental Panel on Climate Change (IPCC).[6] Ed also played a leading role in bringing the impacts of fossil fuel emissions on ocean acidification to the attention of U.S. scientists and policy makers. His ultimate contribution to impact studies, however, was his persuasive argument that humanity's most worrisome changes to marine systems came not from any single cause but rather from the interactions among multiple stresses. Ed had been a member of the steering committee for an early National Research Council (NRC) workshop on the topic, and later wrote an extended review in which he crafted his multiple stress argument.[7,8] These, he showed, were accelerating and intensifying the transformation of a future ocean that was "warming up, rising high, turning sour"[9] in complex ways that posed new challenges for both research and management.

Institutions for Managing Human Use of the Environment

Ed's interest in the impacts of human activities on the environment was exceeded only by his drive to understand what sorts of institutional arrangements could help to manage those impacts. His graduate training in international relations provided a solid foundation for this strand of his work. But it was through his intensive, decade-long engagement in developing the Law of the Sea that Ed emerged as a pioneer and innovator in the design of environmental management regimes. Especially influential was his analysis of how those regimes were shaped by the ways in which the structure and dynamics of the negotiation process incorporated both science and politics.[10] Ed subsequently expanded his work on regime formation to explore regime effectiveness, conducting with colleagues from Norway pathbreaking studies combining qualitative and quantitative methods to evaluate what makes some environmental regimes work and others fail. Their work showed that both the alignment among participant interests and the degree of scientific uncertainty significantly influenced the prospects for regime success. Perhaps more surprisingly, they found that even in regime negotiations that initially struggled, some managed to build institutional capacity that fostered social learning and increasing effectiveness over the long run. Ed concluded that capacity building worked best when it sought to complement the conventional quest for international agreements with the design of subnational structures that could support local decision-makers with science relevant to their particular needs. This insight led directly to what many see as Ed's crowning intellectual contribution to environmental management: his design of and advocacy for a national climate service consisting of networked regional centers providing place-based science support that enabled local firms, communities, and governments to identify the climate risks and response options most relevant to them.[11]

Institution Building

Ed Miles didn't just research institutions, he also built them. Beginning with his Directorship of the Institute for Marine Studies his institution-building efforts went on to mastermind the consolidation of marine sciences at the University of Washington into the College of Ocean and Fishery Sciences. When global attention was focused on the publication of the United Nations's "Our Common Future" report in 1987, Ed was tasked to develop a university-wide focus on sustainability that laid the intellectual foundation for the establishment of the College of the Environment. Ed's early leadership led UW toward becoming a leader in broad problem-driven, interdisciplinary, place-based training and research grounded in the earth and environmental sciences,

Figure 2 Ed looking out at the ocean. *Photo by Adrienne Karpov.*

with a healthy dose of social sciences. Ed wasn't just the "idea guy," he was very cognizant that successful institutions require stable funding. Never was a concept fronted by Ed without the inclusion of a concrete budgetary ask. Ed was forthright and persistent in convincing funding entities about the need to invest in new ideas and institutions.

Climate Impacts Group

Beyond his substantive contributions to the Law of the Sea and the management regime for the North Pacific marine region noted earlier, the most consequential of his efforts was the Climate Impacts Group (CIG) that he founded at UW in 1995 and led for the next fifteen years. The "large, interdisciplinary, and significant" problem that motivated Ed to build CIG was the gap he encountered in his IPCC work between the scale of climate information being produced by scientists and the actual needs of regional decision makers. He understood before most others that bridging that gap would require far more than appending good science writers to existing research labs. What was needed, he argued, was rather the creation of institutions that could foster long-term collaboration among scientists from multiple disciplines and decision makers from multiple sectors in the production of use-inspired, place-based research. The CIG was Ed's effort to build such an institution through learning-by-doing, with the Pacific Northwest region being the "place" of the experiment and the National Oceanic and Atmospheric Administration (NOAA) as visionary funder of this particular instance of Ed's "risky work." CIG's early successes and ability to acknowledge and learn from its failures helped the Pacific Northwest to become a leader in climate adaptation and resilience efforts.

National and International Impact

The pioneering activities of the CIG encouraged NOAA to move ahead with an ambitious national program that eventually launched a dozen additional regional integrated assessment and adaptation centers modeled on CIG.[12] Ed's practical experience with CIG and its relatives were also central to the design he later proposed for a national climate service, noted earlier. And his core idea of building institutional structures to support use-inspired, place-based, interdisciplinary research was taken up as a model by the International Science Council in its roadmap on science missions for sustainability.[13] These efforts built on his earlier contributions to strengthening the world's capacity to address marine issues through his service as a member of the U.S. National Committee for UNESCO (1974–77), an advisor to the North Pacific Fishery Management Council (1976–82), a negotiator for the Micronesian Maritime Authority (1978–93), and as an advisor on marine resources for the Food and Agriculture Organization.

Ed served on important National Academy of Sciences/National Research Council (NAS/NRC) standing committees and studies and was an advisor to other national institutions that shaped research programs and policy advice. For example, he was chair of the NRC's Ocean Policy Committee from 1974–79 and led its 1982 study United States Interests and Needs in the Coordination of International Oceanographic Research.[14] He subsequently served as a member of the NOAA Climate and Global Change Advisory Panel from 1996–2004, the NRC Committee on the Human Dimensions of Global Environmental Change (2005–10), and the NRC's panel on America's Climate Choices (2008–2010): Informing Effective Decision and Actions Related to Climate Change.

Colleague, Mentor, Teacher, Advisor

What kind of a person was the Ed Miles who managed to accomplish so much as a research scholar and institution builder? Above all, he was someone whose students, mentees, colleagues, and friends all felt blessed to have known. Members of CIG put it this way,

> Ed's exuberant spirit elevated everyone around him.… [He] was an outstanding mentor for graduate students and early career scientists seeking opportunities to work in the challenging space where science and policy intersect. He will be remembered for his high expectations, demand for excellence, and the independence he provided to those who worked for him.[15]

Ed was also someone who people came to trust. For the countless young people he invited into the world of ocean

science and policy, that trust "was a tribute to his gentle nature—he had a way of talking to students and drawing them out" recalls Andy Rosenberg of the Union of Concerned Scientists.[16] For colleagues at UW who he managed to bring together across disciplinary divides, author David L. Fluharty recalls, "Ed was like the Pied Piper. He scheduled group meetings, and people came, and they kept coming, meeting after meeting, …. because CIG meetings provided an extraordinarily effective venue for getting to know and collaborate with colleagues in other disciplines."[17] Ed "was a really humble person who was not trying to push his own point of view.… Behind the scenes, he provided the venue for that (collaboration) to happen, and was giving encouragement and feedback."[18] For decision-makers, trust in Ed came from his participant-observer approach to research: his ability to listen, to empathize, to put problems both big and small into proper perspective and point down the road toward logical next steps.

On the other hand, his colleagues at CIG recall:

> Ed wasn't afraid to be "the skunk at the garden party" when his work showed him that a difficult issue needed to be raised. Throughout his career, Ed distinguished himself by his willingness to speak the truth as he saw it, from raising difficult issues about regional and institutional climate vulnerabilities to pointing out the inadequacies of existing legal and institutional structures for reducing risks to the global commons.[19]

A good sense of how Ed deftly balanced his roles as scholar and skunk can be gained from the video recording of his keynote address to the 2011 University of Washington Science & Policy Summit.[20] What the video does not capture, however, is the sheer fun of Ed at play. He was a steel drummer, so good that he and the steel band he joined to help pay for his undergraduate education were invited to perform at Washington's Kennedy Center. His love of music stayed with him throughout his life and, Ed being Ed, led him to serve on the board of directors for the Seattle Opera from 2006–12. A bon vivant who loved a good story, food, wine, and music of all kinds, Ed was a great host of parties and enjoyed doing the cooking. He especially enjoyed sharing the super heat of the yellow pepper sauce from his Trinidad homeland.

Ed Miles died on May 7, 2016, of complications from Lewy body dementia. At the time of his death, Ed was survived by his sisters Monica Bowyer, Yvonne Farmer, and Janice Reid; his wife Adrienne Karpov, his children Anthony Miles and Leila Miles; and his children by marriage Miriam Karpov, Mia Karpov, Aneil Singha, Jeramy Jiracek, and Maile O'Hara.

References

1 Downey, P. 2006. Profile of Edward L. Miles. *Proc. Natl. Acad. Sci. U.S.A.* 103(52):19613–19615.

2 Henderson, D. Untangling webs—UW professor loves tackling thorny problems that span several a number of disciplines. *The Seattle Times,* July 29, 1997; https://archive.seattletimes.com/archive/19970729/2551996/untangling-webs----uw-professor-loves-tackling-thorny-problems-that-span-several-a-number-of-disciplines.

3 Miles, E. L. 1998. Personal reflections on an unfinished journey through global environmental problems of long timescale. *Policy Sci.* 31(1):1–33.

4 Miles, E. L, and W. T. Burke. 1989. Pressures on the United Nations convention on the law of the sea of 1982 arising from new fisheries conflicts: The problem of straddling stocks. *Ocean Dev. Int. Law* 20(4):343–357.

5 Miles, E. L. 1998.

6 Ittekkot, V., S. Jilan, and E. L. Miles. 1996. Oceans. In: *Climate Change, 1995: Impacts, Adaptations, and Mitigation of Climate Change: Scientific-Technical Analyses,* eds. R. T. Watson, M. C. Zinyowera, and R. H. Moss, pp. 267–288. New York: Cambridge University Press.

7 National Research Council. 2007. *Understanding Multiple Environmental Stresses: Report of a Workshop.* Washington, D.C.: National Academies Press.

8 Miles, E. L. 2009. On the increasing vulnerability of the world ocean to multiple stresses. *Annu. Rev. Environ. Resour.* 34:17–41.

9 Miles cites the phrase approvingly in his 2009 paper, op. cit., crediting R. Schubert et al. 2006. *The Future Oceans: Warming up, Rising High, Turning Sour,* a special report of the German Advisory Council on Global Change.

10 Miles, Edward L. 1987. *Science, Politics & International Ocean Management: The Uses of Scientific Knowledge in International Negotiations.* Policy Papers in International Affairs, No. 33. Berkeley: Institute of International Studies, University of California.

11 Miles, E. L., et al. 2006. An approach to designing a national climate service. *Proc. Natl. Acad. Sci. U.S.A.* 103(52):19616–23.

12 The NOAA follow ups to CIG were initially launched under the title of the Regional Integrated Scientific Assessment (RISA) Program, with the name later changed by Congress to the Climate Adaptation Partnerships (CAP) Program, https://cpo.noaa.gov/divisions-programs/climate-and-societal-interactions/cap-risa/.

13 International Science Council. 2023. *Flipping the Science Model: A Roadmap to Science Missions for Sustainability.* Paris: International Science Council; https://council.science/publications/flipping-the-science-model/.

14 Ocean Policy Committee. 1982. *United States Interests and Needs in the Coordination of International Oceanographic Research.* Washington, D.C.: National Research Council/National Academies Press.

15 Fluharty, D., T. Leschine, and A. Snover. 2017. Edward L. Miles (1939–2016): In Memoriam. In: *Ocean Yearbook, Vol. 31,* eds. A. Chircop, S.t Coffen-Smout, and M. L. McConnell, pp. ix–xv. Leiden, Netherlands: Brill.

16 Quoted in P. C. Frumhoff, 2016, Farewell to Edward L. Miles (1939–2016): Friend, Colleague, Force for Science-based Policy, *The Equation;* https://blog.ucs.org/peter-frumhoff/farewell-to-edward-l-miles-1939-2016-friend-colleague-force-for-science-based-policy/.

17 Personal recollection of D. Fluharty, one of the authors of this memoir.

18 Personal recollection of J. Wallace, one of the authors of this memoir.

19 Climate Impacts Group. 2016. Edward L. Miles—scholar, humanitarian, bon vivant, teacher, mentor and friend (1939–2016). *Climate Impacts Group,* https://cig.uw.edu/2016/05/edward-l-miles-scholar-humanitarian-bon-vivant-teacher-mentor-and-friend-1939-2016/.

20 Edward L. Miles, Keynote Lecture, UW Video, streamed live on 2011, Graduate and Professional Student Senate, Science & Policy Summit, YouTube video, 1:01:13, https://www.youtube.com/watch?v=Y1Aau0TGBwQ

Selected Bibliography

1982 *The Management of Marine Regions: The North Pacific: An Analysis of Issues Relating to Fisheries, Marine Transportation, Marine Scientific Research, and Multiple Use Conditions and Conflicts.* Berkeley: University of California Press.

1989 With W. T Burke. Pressures on the United Nations convention on the law of the sea of 1982 arising from new fisheries conflicts: The problem of straddling stocks. *Ocean Dev. Int. Law* 20(4):343–357.

1994 With W. T. Burke and M. Freeberg. United Nations resolutions on driftnet fishing: An unsustainable precedent for high seas and coastal fisheries management. *Ocean Dev. Int. Law* 25(2):127–816.

1998 Personal reflections on an unfinished journey through global environmental problems of long timescale. *Policy Sci.* 31(1):1–33.

1999 With B. Callahan and D. Fluharty. Policy implications of climate forecasts for water resources management in the Pacific Northwest. *Policy Sci.* 32 (3):269–93.

2000b With A. K. Snover et al. Pacific Northwest regional assessment: The impacts of climate variability and climate change on the water resources of the Columbia River Basin. *J. Am. Water Resour. Assoc.* 36(2):399–420.

2002 With A. Underdal et al, eds. *Environmental Regime Effectiveness: Confronting Theory with Evidence.* Cambridge, Mass.: MIT Press.

2003 With P. W. Mote et al. Preparing for climatic change: The water, salmon, and forests of the Pacific Northwest. *Clim. Change* 61(1–2):45–88.

2006 With A. K. Snover, et al. An approach to designing a national climate service. *Proc. Natl. Acad. Sci. U.S.A.* 103(52):19616–23.

2009 On the increasing vulnerability of the world ocean to multiple stresses. *Annu. Rev. Environ. Resour.* 34:17–41.

2010 With M. M. Elsner et al. Assessing regional impacts and adaptation strategies for climate change: The Washington Climate Change Impacts Assessment. *Clim. Change* 102(1–2):9–27.

2011 With I. G. Brosnan and T. M. Leschine. Cooperation or conflict in a changing arctic?" *Ocean Dev. Int. Law* 42(1–2):173–210.