In Memoriam

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IN MEMORIAM

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DR. NICHOLAS C. KRAUS (1942–2011)

Dr. Nicholas C. Kraus passed away peacefully on February 3, 2011, while at his home with his wife Kinu. With Nick's passing, the coastal engineering community has lost a great researcher, inspiring teacher, unbelievably energetic mentor, colleague, and friend. Many of us may know Nick from Coastal Sediments, Coastal Dynamics, and International Coastal Engineering Conferences; Nick cochaired or served on organizing committees for these conferences for many years and was a *Shore & Beach* editor from 1988–2003. If you ever worked with Nick, you know that he always kept his BlackBerry within easy reach and rarely took more than five minutes to answer an email, day or night. Nick was driven to learn and to publish his work, and for those of us who worked closely with him, he instilled in us several rules to work by that are discussed here in his honor.

Nick began his coastal engineering career in the early 1980s after receiving degrees in physics from the State University of New York (SUNY), Stony Brook, New York (BS, 1967) and the University of Minnesota (Ph.D., 1972). His zeal for life and learning took him to Japan to study martial arts at the Hombu Dojo in Tokyo. During his time in Japan, he met Professor

Nick receiving an honorary doctorate from the University of Lund, Sweden, 2001.

Kiyoshi Horikawa at the University of Tokyo and Nearshore Environment Research Center (NERC). Dr. Horikawa, Dr. Tamio Sasaki, and others in NERC realized that Nick could be a great researcher and encouraged him to learn coastal engineering through reading and field work. Nick rapidly became an expert in riding rip currents and deploying field equipment while voraciously reading coastal science books in the evenings.

(a) Nick (right) with Dr. Horikawa (left), in Japan, 1981. (b) Sediment transport measurements in the surf zone, Duck, North Carolina, 1985. Nick is located furthest offshore, near the highest-energy waves (as usual, Nick took the most difficult measurements!). (c) Nick's martial arts training in Japan (left, ~1983). (d) Some of Nick and Kinu's work and training colleagues, from left to right: Nick Kraus, Kinu Kraus, Joan Pope, and Dave Leenknecht, at CHL (1986). (e) Nick at the "NCK Symposium." From left to right, Dr. Tim Kana, Dr. Nick Kraus, Dr. Marcel Stive, and Dr. Co van de Kreeke.

I met Nick in 1984 when he came to the U.S. Army Corps of Engineers' Coastal Engineering Research Center (now called the Coastal and Hydraulics Laboratory [CHL]). My first project with Nick involved measuring sediment transport in the surf zone with streamer traps, and it was during this time that I learned what I call Nick's Rule #1: Analyze, Assess, and Adapt. Implementation of this rule meant that we analyzed sediment transport data every evening after a long day of measurements in the surf zone, and we adapted our work the next day to test new ideas and correct any problems we saw in the data collection.

Nick continued his martial arts training and leadership while at CHL, teaching many colleagues (and families of colleagues) from 1986 through fall 2010. One of the guiding principles of Aikido is love, as if sparring with a friend.

I continued working with Nick within the Coastal Inlets Research Program (CIRP), in which Nick was Program Manager from 1997–2009. It was during this time that I learned (and relearned) Nick's Rule #2: Fail Fast. Although at first glance this rule seems negative, what Nick intended was to rapidly implement and test new ideas so that any failures could be quickly alleviated. For example, Nick was frustrated when he would learn that we designed a field data collection program without setting up a system to test hypothetical data first in order to better know where to position instruments. Nick also encouraged and mentored his colleagues in an old adage that I call Nick's Rule #3: Publish or Perish. Throughout his career, Nick authored and coauthored nearly 400 documents, including 23 book chapters, 69 journal articles, 147 conference papers, 30 technical notes, 17 university reports, and 12 report chapters while at NERC. Nick was also passionate about mentorship of younger coastal engineers and scientists. His passion and drive inspired many to sharpen their skills and make a positive impact on the coastal world. He supervised seven Ph.D. and seven MSc theses. In part because of his prolific writing and mentoring, Nick won many awards including the U.S. Army Corps of Engineers (USACE) Research and Development Awards (one in 1987, two in 1988), Outstanding Technology Transfer Awards (2003, 2005), the American Shore and Beach Preservation Association's M.P. O'Brien Award (2004), and the Coastal Sediments–Coastal Dynamics "Coastal Award" (2009), which is discussed more below.

Nick took several sabbaticals from the CHL to teach at Texas A&M, Corpus Christi, Texas, SUNY Stony Brook, New York, and Florida Institute of Technology, Melbourne, Florida. It was during this period of time that he developed course notes on "Numerical Modeling of Coastal Inlet Morphology and Hydrodynamics," which I believe he would have eventually finalized and published. It is in Chapter 1 that he discusses four rules for numerical modeling, the first of which was the most oft-quoted to his colleagues and is renamed here as Nick's Rule #4: Don't Calculate Unless You Already Know the Answer. Nick expanded on this rule in these class notes, writing,

> …we should develop or apply the proper model, the one suited for describing the processes being studied. If we do not know enough about the processes or we have not made enough observations…. then we may not succeed in the modeling activity.

In a footnote, Nick continued,

> A long time ago, I attended a kick-off meeting to develop a study plan for a new project. At the start of the meeting, the project manager stood in front of the group and said, "What models should we apply?" I raised my hand and said, "What is the problem, and what are the dominant processes?" The meeting then became interesting in discussion of the processes rather than the models. Further, for many studies, we may not need a numerical model, or modeling may not be the most efficient approach.

In 2009, Nick was honored at a symposium held at the Florida Institute of Technology, the so-called "NCK Symposium." Proceedings from that Symposium will be published in a Special Issue of the *Journal of Coastal Research*, scheduled for Spring 2011. Many of Nick's past and present colleagues, students, and friends attended and gave presentations about work they either conducted with Nick or had continued since their tenure with Nick. Nick was honored there with the Coastal Award, a joint Coastal Sediments–Coastal Dynamics Conferences Award in honor of his "contributions to coastal science, across generations and across continents."

It is with great sadness that we say goodbye to Nick, our friend, mentor, and visionary. He inspired his colleagues with a "can-do" attitude, boundless energy, and enterprising spirit. Those of us who worked with Nick will strive to continue forward with his quest to continually learn, improve, and publish. Nick, we greatly miss you.

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