EDITORIAL

AMERICAN WATER RESOURCES ASSOCIATION

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Dedication to James J. Fitzpatrick

This Featured Collection is dedicated to James J. Fitzpatrick. Jim was a colleague to many of us who have contributed to this collection. He was a friend to all he met. Jim was an active, enthusiastic participant in management modeling of Chesapeake Bay over a period of 40 years. One early contribution was as co-author of a management model of the Potomac River Estuary (Thomann & Fitzpatrick, 1982). To me (Cerco), this was the first in a new generation of management models. I can recall pouring over the report and ensuring my own models were consistent with Thomann and Fitzpatrick. The model, which included phytoplankton and identified phosphorus as a key limiting nutrient in the tidal fresh Potomac, was a key component in the formation of management plans to alleviate nuisance algal blooms in the Potomac River.

Jim was a team member and lead author of a study which completed one of the first three-dimensional, coupled hydrodynamic and eutrophication models of Chesapeake Bay (Fitzpatrick et al., 1988). This groundbreaking study was conducted in recognition that previous models were insufficient to address the bottom-water hypoxia recently revealed in the Bay. The study noted that bottom sediments were the largest sources of phosphate and ammonium to the water column during summer conditions. A significant conclusion was that only management strategies which decreased sediment oxygen demand and sediment nutrient releases would significantly improve dissolved oxygen and algal conditions.

Despite the success of the modeling effort, limitations were apparent. The chief limitation was the absence of a predictive model of sediment–water interactions. No means existed to predict how these sediment processes would respond to nutrient load reductions. Neither was the time scale for completion of the responses predictable. Once again, Jim was a key participant in a study which filled a crucial gap in management modeling technology. Jim produced model code and helped apply and calibrate a fully predictive model of sediment oxygen demand and sediment–water nutrient fluxes (DiToro & Fitzpatrick, 1993). The sediment diagenesis model is incorporated into the ICM eutrophication model employed by the Chesapeake Bay Program (Cerco & Cole, 1993) as well as other independent model efforts (Cai et al., 2020; Testa et al., 2014) and is a crucial component of what is now a standard approach to management modeling.

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A Dedication should be more than a summary of an individual's professional accomplishments. What kind of person was this individual? Jim's death was followed by emails and Internet postings from family, friends, and colleagues. A sampling of tributes includes:

I remember his love of skiing and other outdoor things. The music. His overall enthusiasm about life. When I see him in my mind, I always see him with a smile.

Fitz was a fun-loving guy who lived a life full of happiness and good cheer. I fondly remember camping trips, ski trips, concerts and a host of other activities with Jim.

You were always a fun person to be around and more importantly a kind and caring man who went out of the way for those he loved. Your kindness and positive outlook on life will be greatly missed.

Jim was always patient and savvy and great to work with. He was an inspiration to so many. Jim cared deeply about his work—but also knew how to have fun and was a wonderful story-teller.

The words "love," "fun," "enthusiasm," repeat in these and so many other tributes. No wonder I (Cerco) would look for Jim whenever I traveled to a meeting or conference. Often, I would find him in the lounge, already surrounded by others enjoying this remarkable individual's company. Farewell Jim Fitzpatrick. We'll miss you.

Carl F. Cerco

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REFERENCES

Cai, X., Y. Zhang, J. Shen, H. Wang, Q. Qin, and F. Ye. 2020. "A Numerical Study of Hypoxia in Chesapeake Bay Using an Unstructured Grid Model: Validation and Sensitivity to Bathymetry Representation." *Journal of the American Water Resources Association*. https://doi.org/10.1111/1752-1688.12887.

Cerco, C., and T. Cole. 1993. "Three Dimensional Eutrophication Model of Chesapeake Bay." *Journal of Environmental Engineering* 119: 1006–25.

DiToro, D., and J. Fitzpatrick. 1993. "Chesapeake Bay Sediment Flux Model." Contract Report EL-93-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. https://apps.dtic.mil/sti/pdfs/ADA267189.pdf.

Fitzpatrick, J.J., A.F. Blumberg, D.M. DiToro, T.J. Mulligan, D.J. O'Connor, and C. App. 1988. "Development and Application of the Chesapeake Bay Eutrophication Model." In *Soil Properties Evaluation from Centrifugal Models and Field Performance*, edited by Townsend, F.C. and Norris, G.M., 926–31. Reston, VA: American Society of Civil Engineers.

Testa, J.M., Y. Li, Y.J. Lee, M. Li, D.C. Brady, D.M. Di, W.M. Toro, W.M. Kemp, and J.J. Fitzpatrick. 2014. "Quantifying the Effects of Nutrient Loading on Dissolved O_2 Cycling and Hypoxia in Chesapeake Bay Using a Coupled Hydrodynamic–Biogeochemical Model." *Journal of Marine Systems* 139: 139–58.

Thomann, R.V., and J.J. Fitzpatrick. 1982. *Calibration and Verification of a Mathematical Model of the Eutrophication of the Potomac Estuary*. Washington DC: DC Department of Environmental Sciences.