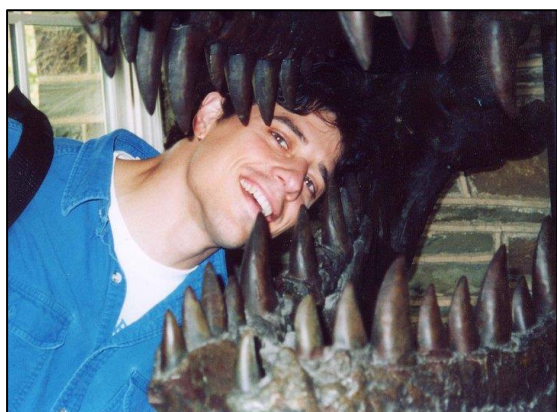


## My Earth science educator story – Glenn Dolphin

### What I did, why I did it and what happened



Me...and T-rex.

#### **The authors of my professional life: How mentors influenced my professional trajectory**

I would have to say that my dad was my first mentor in the trajectory of my career as an earth science educator. He taught me neither geology, nor education (he was an electrical engineer), but rather the importance of going after what I wanted. He accompanied me into “the field” a couple of blocks from my house – I might have been 10 – to look for fossils. What he found was poison ivy. Yet, that did not cause him to abandon me. Sometime later, our whole family traveled a few hours by car to Cooperstown, New York State, to visit the baseball hall of fame. Due to its closeness, we stopped in a town called Herkimer, to collect Herkimer diamonds (really, double terminating quartz crystals). It was a rainy afternoon. Regardless, dad and I left my brother, my two younger sisters, and mom in the car for the whole afternoon, while we pounded on excruciatingly hard dolomite to find pockets of treasure. That small act of support remains with me.

In high school, I took an earth science course (required in New York State at the time) from another great mentor, Dom Iacovazzi. He would teach me earth science and also encourage me to do an independent geological investigation of the effects of glaciation in our town. I later became involved with a community

program which matched high school students with career mentors. Jim Sorauf and Frances Wu at Binghamton University had me making thin sections and photomicrographs of Devonian corals, and analyzing seismic data (respectively) over an almost three-year period of after school time.

Later, as an undergraduate at Binghamton University (then State University of New York at Binghamton), I met professors Tim Lowenstein and Bob Demicco who became personal friends and nurtured my geological development. Both Tim and Bob encouraged me to apply to Johns Hopkins University, their doctoral institution, for my PhD. I applied and was accepted. I became a student in carbonate sedimentology under Tim and Bob’s former advisor, Lawrence Hardie. Lawrie became yet another important role model in my professional development. He had the uncanny ability to distil seemingly complex problems into fundamental questions that became easy to solve by applying first principles.

Upon graduation, I quickly found a job in the groundwater industry in New Jersey. My direct manager at that job was none other than Bob Demicco’s brother Pete (I know, it’s beginning to sound a bit incestuous). I started to learn the ins and outs of industry, and realized that I was not cut out for industry (or industry was not cut out for me). I eventually went back to school (Binghamton University, once more) to earn my Masters of Arts in Teaching (MAT) geology.

From there I went back to school – this time to teach. I got a job at my *alma mater*, working next to Dom Iacovazzi (whom we’ve met already in this story) and my former eighth science teacher, Phil Childs. Each encouraged me to walk well outside of the traditional teaching model, while at the same time kept me tethered so as not to get lost. Phil

encouraged me to become professionally active. I was elected Director-at-Large for Earth Science in New York State in the Science Teacher Association of New York State (STANYS). While teaching, I became very interested in how students learn, leading to my resigning my teaching position to get a PhD in science education.



Dom Iacovazzi, Phil Childs and me standing next to a car with meteorite impact damage.

I traveled to Syracuse University and started my doctoral studies. John Tillotson at Syracuse became a great mentor and friend, giving me insight into how grant-funded work is done and how the academy operates. These were great lessons. The International History and Philosophy of Science and Science Teaching group (IHPST) became one of my intellectual homes. Here I met two would-be new mentors, Michael Clough and Douglas Allchin. Each, patient with my newness to higher education, involved me with projects and encouraged me to expand my ideas of good teaching. Douglas became a supervisor for my dissertation and really has been probably one of the best teachers I ever had. He never really told me anything, but continuously asked questions of me whenever I made assertions.

After defending my thesis, the University of Calgary (my current affiliation) offered me a job as the Tamaratt Chair in Geoscience. This is a geoscience education research position located within the Department of Geoscience. Here I involved myself in working with students to develop historical case studies for teaching geoscience concepts and the

nature of science. I also enhanced my background in conceptual metaphor to understand how students learn and how teachers teach. Douglas played a big role in helping me with these projects, but I managed to develop a relationship with another mentor, Leslie Ried, the previous Tamaratt Chair. She had since moved on to become associate Dean of Teaching and Learning in the Faculty of Science. Leslie has been an amazing influence and inspiration for me, opening up opportunities for leadership, research and learning as I continue to develop professionally. She was even the support person in the delivery room for the birth of my wife's and my twin baby girls!

So, this is where I am. I have a job I love. It allows me to do the research I enjoy and teach geology.



University of Calgary undergraduate research assistants (from left) Simon Wiebe, Jessica Burylo, and Emily Hurst, and me. The URAs developed multiple historical case studies for teaching geology concepts and the nature of science.

As I look back at my trajectory from budding geology enthusiast through to geoscience education researcher, I am reminded of the words of Mott Greene in his biography of Alfred Wegener. I'll paraphrase, but he basically said that we are not the authors of our own life. That is the role of others who are engaged in our life. This is just how it has been for me. I would not be where I am, enjoying the life I have now, if it were not for the many authors contributing to the various chapters of the story of my life. I am grateful to all of them.

### Recent publications

- **Dolphin, G.** (2016). Toward an understanding of teaching in the making: Explaining instructional decision making by analyzing a geology instructor's use of metaphors. *Geosphere*, v. 12, no. 6, p. 1725–1743, doi:10.1130/GES01202.1.
- **Dolphin, G.** (2016). Stories in geology: What we know and how we figured it out. Kendall-Hunt Publishing Company.
- **Dolphin, G.** (2016). Mott Greene's Wegener: Not the textbook example. *Science & Education*. Published online, <http://link.springer.com/article/10.1007/s1191-016-9841-7?view=classic>.
- **Dolphin, G.**, and Benoit, W. (2016). Students' Mental Model Development During Historically Contextualized Inquiry: How the "Tectonic Plate" Metaphor Impeded the Process. *International Journal of Science Education*. Published online: <http://dx.doi.org/10.1080/09500693.2016.1140247>. DOI: 10.1080/09500693.2016.1140247.
- **Dolphin, G.** and Tillotson, J. (2015). "Uncentering" Teacher Beliefs: The Expressed Epistemologies of Secondary Science Teachers and How They Relate to Teacher Practice. *Journal of Environmental and Science Education*. 10(1), 21-38.
- **Dolphin, G.** and Dodick, J. (2014). Teaching controversies in earth science: The role of history and philosophy of science. In Matthews, M., ed., *International handbook of research in history, philosophy and science teaching*. Chapter 17. Springer, Dordrecht.

*Glenn Dolphin, aged 51, Calgary, Canada,  
February 2017,  
glenn.dolphin@ucalgary.ca*