

## My Earth science educator story – Rosanne Fortner What I did, why I did it and what happened



Leading a professional conference in 2011.  
(NAAEE).

### From biology to Earth science to marine/aquatic education

When I was in middle school, to be a girl meant that instead of taking science you were assigned to a “home economics” class to learn the skills you’d need as a wife and mother. With other girls in 7<sup>th</sup> grade, I helped prepare the school lunch each day while boys my age learned science. While we chopped vegetables and spread mayonnaise, the teacher talked to us about the relative merits and pitfalls of working as a teacher, a nurse, or a secretary, the three professions generally open to women who weren’t at home being wives and mothers.

Honestly, people in their early teens didn’t think much about careers, at least in the West Virginia coalfields in the mid-20<sup>th</sup> Century. That changed when Sputnik was launched in 1957. Suddenly the United States was behind in the space race. Students considered capable of doing science were pushed into it, and wise teachers insured that even girls were afforded extra opportunities to pursue science instead of chopping carrots. This was an opportunity I embraced enthusiastically.

### Biology was the plan

I chose a double major in college -- biology and education [remember, teaching was in the top three career opportunities!] – but sought practical nature-oriented forestry classes, field ecology and local flora. My instructors were excellent, enlightened people [mostly males], and I succeeded in my classes without feeling gender bias. As the only woman in my forestry classes, though, I got to ride in the cab of the truck instead of in the open back of the vehicle with the guys!

### Earth science became the reality

My biology degree won me my first job as a middle school teacher, but the school admitted they really needed an Earth science teacher instead. Hmm. While I was certain I could teach oceanography, I had never had geology, meteorology, astronomy or other science courses that would help teach Earth science! I struggled to keep ahead of the curriculum, explored with an old rockhound, and learned to love teaching with topographic maps. Earth science was exciting and energizing. It took over my life and my husband Richard’s – and our garage – as we collected specimens, built models, tumbled rocks and engaged students in a blend of biology and Earth science.

While Richard pursued graduate studies at Oregon State University, I became a radiation biology technician in a research lab. My job was maintaining two 150-gallon marine aquaria under conditions like the cold water of the Oregon coast, and collecting the marine invertebrates being studied by Dr. D.J. Kimeldorf and his graduate students. Water chemistry, collecting animals in the tide pools [and keeping them alive in the lab], and being in on high level science discussions was infectious. As a mentor, Kimeldorf was subtle and supportive, encouraging me along with his [male] students as we learned how marine invertebrates detect

ionizing radiation. Another blending of biology and Earth science...

When I wasn't in the lab I was taking Earth and environmental science courses part time, acquiring basic geology courses as well as geological oceanography courses with legendary scientists like Tjeerd van Andel. My Master's degree was also designed for teacher preparation, but the independence and ocean science gained in Oregon brought me back to the classroom with bigger notions. Within a very few years, and while teaching middle school life science and oceanography, I undertook an EdD program in science education at Virginia Tech.

### **The value of a professional conference**

Since my graduate degrees were both completed as a part time student, I lacked the program immersion, collegiality and peer learning that full time graduate study can offer. I needed to mix with professionals in the field that was calling me, marine environmental education.

Some things are meant to be – my husband spotted a notice about the annual meeting of the National Marine Education Association (NMEA) in the summer of 1977. I attended it, to talk with people who were working where I wanted to work, doing the teaching I wanted to do. On a field trip bus I met Dr. Vic Mayer, who described research that marine educators needed to enhance their work. My doctoral committee approved the topic I chose: *Student experiences related to oceanic knowledge and attitudes*. With degree in hand, I returned to NMEA in 1978, hoping the people who had dissertation topics might also have jobs available. Dr. Mayer hired me to come to The Ohio State University (OSU) to assist with a new Great Lakes/ Ocean curriculum project.

### **The University and Sea Grant**

I'm not a risk-taker but Richard is: he left his EPA job so I could take the "soft money" OSU position. Determined to become indispensable and permanent as a member of staff in the ultimate teaching arena, I learned from Vic how to navigate

university politics and research protocols. He was the architect of big ideas in Earth systems education, and I was a busy builder toward the vision. My source of ideas for curriculum and professional development? Teaching, of course! Our initial program funding came from the National Oceanic and Atmospheric Administration (NOAA) Sea Grant program, and I followed that source to my current position on the National Sea Grant Advisory Board. At OSU I gained faculty status in Environmental Education in 1979, and grew to Professor status by 1991, accompanied by the title of Ohio Sea Grant Education Coordinator [through 2005] and President of NMEA in 1988-89. Coach Woody Hayes would call this "paying forward" to the work of others in the field.



Representing OSU projects at a National Science Teachers Association conference in the 1990s. (Vic Mayer).

The synergy of marine/aquatic education with high quality Earth science teaching led not only to curriculum and teacher education but also to research and evaluation to complete those efforts. Teaching about Earth as a system became the theme of my career. With

support of the National Science Foundation (NSF) and NOAA, Ohio State became known for excellence in Great Lakes education. With other regional educators we developed Great Lakes Literacy Principles to guide the curriculum. Collaboration with international educators through a Fulbright Senior Fellowship in Cyprus, the International Geoscience Education Organisation (IGEO), and my graduate students has built a network of valued colleagues. Among those colleagues are my creative former students, teachers from university to elementary classrooms and informal institutions.

My retirement is filled with watching grandchildren and former students grow and prosper. Teachers grow from each other's insights and contributions; we reach into the next generations without even thinking of gender or what careers are open. Life is good for marine/aquatic educators in the 21st Century!

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Rosanne teaching about glacial grooves on Lake Erie, 2011. (Lyndsey Manzo).