



## Keep on marching for science education

*Scientists might have made a difference, had they protested against laws that now threaten what can be taught in our classrooms, argues **Brandon Haught**.*

The new school year is beginning in the United States, and science education in Florida is at risk from laws that passed earlier this summer. It leaves me wondering: where have those who joined April's March for Science gone?

That global action was probably the most popular science-advocacy event of this generation. I took part in Titusville, Florida, and was impressed with the attendance, enthusiasm and creative slogans. In the speeches that followed, I warned against pending legislation that would allow any citizen to demand a hearing to challenge instructional materials. Both critics and advocates see this as a way to stifle teaching about evolution and climate change. We had the summer to make our case.

The science-advocacy group Florida Citizens for Science — for which I volunteer as a board member and communications officer — led the battle to kill, or least modify, those bills. We lost on all fronts. The bills are now law.

Where were those marchers when we needed them? I know several science cheerleaders who took some concrete steps to forestall the legislation (by phoning elected representatives, for example), but I can count on one hand the number of working scientists who offered their expertise to our group. And I didn't hear of any who approached lawmakers on their own.

Having the scientific community more actively involved might have had an impact. The final vote in the state senate was tight. Advocates of the law were widely quoted as claiming that evolution is just a theory and that anthropogenic global warming is in doubt. It would have been invaluable if scientists at local universities had issued simple statements: yes, evolution is a fact; the word 'theory' is used differently in science from how it's used in casual conversation; and the basics of human-caused global warming need to be taught. Perhaps authoritative voices from the state's universities would have swayed a senator or two.

Since the laws were passed, dozens of articles about them have been published statewide and even nationally. Social media has been buzzing. But the scientific community is still woefully quiet.

Hey, scientists, beleaguered high-school science teachers could use your support.

Other US states have endured attacks on science education. Legislatures in Alabama and Indiana passed non-binding resolutions that encourage 'academic freedom' for science teachers who cover topics — including biological evolution and the chemical origins of life — that the lawmakers deem controversial.

In Iowa, state lawmakers proposed a law requiring teachers to balance instruction on evolution and global warming with opposing views. That effort dwindled without concrete action, but not because of pressure from the scientific community.

We have had some help in our efforts: Jiri Hulcr and Andrea Lucky, scientists at the University of Florida in Gainesville, spoke out with me against these bad educational bills in a newspaper opinion piece. We argued that the choice was stark: training students for careers in the twenty-first century, or plunging them into the Middle Ages.

And Paul D. Cottle at Florida State University in Tallahassee is unrelenting in pursuing his goal of preparing elementary and high-school students for their adult lives. He's an integral part of Future Physicists of Florida, a middle-school outreach programme that identifies students with mathematical ability and guides them into courses that will prepare them for university studies in science and engineering. More generally, he makes sure that students, parents and school administrators hear the message that the path to high-paying, satisfying careers using skills acquired in mathematics and science starts long before university, and depends on accurate instruction.

Plenty of issues need attention. The pool of qualified science and maths teachers is shrinking. Florida students' performance in state-mandated science exams has been poor and stagnant for nearly a decade. This year, the state's education department will begin to review and select science textbooks that will be used in classrooms across the state for at least the next five years.

We need scientists who are willing to take the time and effort to push back against the textbook challenges that these new laws will encourage. We need expert advisers eager to review and recommend quality science textbooks for our schools. We need bold scientists ready to state

unapologetically that evolution, global warming — and, yes, even a round Earth — are facts of life.

You're busy. I know. And some of you are uncomfortable in the spotlight. But doing something, even on a small scale, is better than doing nothing. Sign up for action alerts from the National Center for Science Education and your state's science-advocacy group, if you have one. Be a voice within any organizations you belong to, urging them to make statements supporting science education as issues arise. Introduce yourself to teachers at local elementary and high schools.

Even if all you have to offer are ideas and emotional support, we'll take them. Politicians, school administrators, business leaders, parents and even children need to know that you support high-quality science education.

The March for Science was a beneficial, feel-good event. It's over. But we need you to keep on marching! ■

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HEY, SCIENTISTS,  
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SUPPORT.