

# Teaching kids about desalination



Carmel Middle School teacher Joseph Guzzi, along with Stacey Nightengale and Steve Woodward, conducts an experiment relating to saltwater intrusion on Friday at a Water Education Today seminar in Carmel Valley. (Luke Gianni — California American Water)

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CARMEL VALLEY >> Just a stone's throw from one of the area's major, albeit endangered, water sources — the Carmel River — 14 area science teachers spent Friday learning about aquifers and desalination plants to impart that knowledge to their students.

The Water Education Today seminar was conducted by the Pasadena-based Disaster Scope for California American Water using the Next Generation Science Standards (NGSS). Disaster Scope consults with government and business to mitigate natural disasters.

Disaster Scope's compensation did not come from ratepayer-generated revenues, said Cal Am external affairs specialist Luke Gianni.

The Next Generation standards were released for adoption in April 2013 after 26 states, including California, were involved in developing the standards, which are meant to better integrate concepts of science with engineering practices.

Jason Maas-Baldwin, who teaches 11th- and 12th-grade advanced placement environmental science and honors chemistry at Carmel High School, said the new standards are key.

“One huge focus of the new standards is getting them (students) into real-world questions and real-world problem solving,” Maas-Baldwin said.

“We are really trying to figure out how to inject engineering standards into our current science classes and to have a framework of relevant topics to refer back to is really helpful,” he said.

“From today’s presentation ... it’s more of an educator’s education,” said Maas-Baldwin. Most effective teachers have a background in their subjects, although students “love it when you don’t have the answer, when you don’t know much about it too.”

The teachers from Carmel, Pacific Grove and Santa Cruz heard tutorials on Cal Am’s proposed saltwater desalination plant and the Carmel River aquifer from Cal Am general manager Eric Sabolsice and performed hands-on experiments on saltwater intrusion from Disaster Scope’s curriculum developer Becky McKinney.

“This is a subject that is incredibly relative in our community and a real-world issue that you can engage students in with respect to lesson planning,” Maas-Baldwin said during a break.

California adopted NGSS a couple of years ago and Carmel Middle School will roll out a NGSS class this year with the high school following next year, he said.

Emily Merrifield teaches environmental science, biology and chemistry to grades 9-12 at Cypress Charter High School in Santa Cruz.

“The information about the desal plant is really valuable,” she said. “It’s nice to just have more data about what’s going on locally as far as desalination, so that’s probably the biggest takeaway so far.”

Merrifield believes bringing engineering into the mix is a positive. “I like the focus on engineering standards,” said Merrifield.

“We haven’t traditionally done a lot of engineering in science classes and so with the new science standards kind of incorporating that, it’s kind of nice to have new ideas and play with how that’s going to fit into what we are already doing.”

Cal Am’s Sabolsice gave the group an overview of the Monterey Water Supply Project meant to help meet the demands of the company’s service area and comply with a state mandate to reduce overpumping from the Carmel River by 2016. Part of that project is a saltwater desalination plant combined with new groundwater replenishment, plans that are undergoing environmental review.

Disaster Scope’s McKinney demonstrated an example of a water table and saltwater intrusion by placing on each table a mini-water table comprised of a plastic container with sand and water with a blue liquid infused, to simulate saltwater intrusion.

“This is a great visual for your students,” she said. Saltwater intrusion leeching into fresh water sources can contaminate them.

McKinney suggested teachers have student teams come up with solutions in five-minute presentations to the saltwater intrusion problem with teams voting on the best idea.