



the OTTER ROMP

SPECIAL INVESTIGATIVE REPORTING EDITION

Spring 2015

ENERGY & ENVIRONMENT

Oil and water don't mix unless you add money and politics

Energy and environment are two of the most polarizing issues in the United States. Here in Monterey County, it is no different. From the kitchen sink to the gas tank, we must consider these issues here in our own backyard.

We need energy; sustainable energy. We also need a clean, sustainable environment. Often times these two needs are seen as exclusive and in direct conflict with one another.

Officials at every level are struggling to develop policies that will allow us to have the best of both worlds. Passing the buck seems to be the most common course of action, rather than developing a clear direction.

Many believe that we are tenaciously acquiring cheap energy at the catastrophic expense of the environment. Water contamination tops the list of environmental concerns related to oil and gas extraction.

As California suffers through a historic

drought, water use and conservation are hot topics. Asking how much water we have and what should it be used for, are on-going statewide debates.

Monterey County is faced with many water-related challenges. One is the mandate to reduce water-consumption by 20 percent, and to limit pumping from the Carmel River. The other is whether to allow hydraulic fracturing to take place in order to extract natural gas from the Monterey Shale formation. "Fracking" requires large volumes of water for the extraction process, and is risky when it comes to possible groundwater pollution.

Articles in the Energy and Environment section explore the complex issues surrounding fracking and Monterey County water use.

After a three month investigation *Otter Romp* reporters unearthed data that revealed California State University, Monterey Bay (CSUMB) has a history of over-paying for water used (or rather not used) on East Cam-

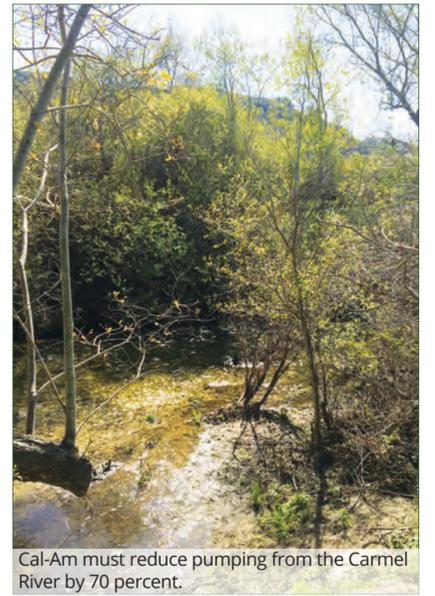
pus. Originally the over-payment was due to a lack of East Campus water meters. Now CSUMB believes it is because of greediness on the part of the Marina Coast Water District.

A second team of reporters investigated fracking in Monterey County and California, as well as transportation and seismic activity related to the technique.

The U.S. has developed a love for natural gas in the past decade, and specifically - cheap natural gas. Fracking is an increasingly popular way to extract natural gas from shale formations throughout the U.S.

Techniques such as fracking provide much needed fuel for our lives and political debate. Looking at local and state politics, and available scientific information, the reporting team has built a comprehensive look at understanding natural gas.

The Energy & Environment section begins on page 3.



Cal-Am must reduce pumping from the Carmel River by 70 percent.

Photo by Susan Webb

CAMPUS & COMMUNITY

growing pains

CSUMB struggles as campus swells

With the promise of beautiful landscape, community based environment, small classes and progressive thinking, California State University, Monterey Bay (CSUMB) draws students from around the world.

At a glance, the university seems put together, and as one of the newest CSUs, there is exciting potential. Unfortunately, the push to reach this potential is creating growing concerns for current students regarding CSUMB's ability to provide quality education, campus services and a comfortable lifestyle.

The 2015-2016 academic year will be the first time CSUMB is impacted for incoming freshmen. There is also proposed impaction for Biology and Marine Science upper division transfer applicants starting in fall 2016. CSUMB is growing at an exponential rate, but is this growth happening too quickly?

During fall 2014 the campus saw an additional 400 students admitted, required by the Chancellor's office, which caused many issues to arise including the lack of campus housing for admitted students.

There was a large population on campus that was unable to have a roof over their heads at the beginning of the current academic year. Not having a place to call home makes the college experience difficult to enjoy.

Going away to college is scary enough, but arriving at CSUMB and having nowhere to live dramatically heightens those fears. Due to miscommunication within the housing administration, confusion and panic struck students during the housing fiasco.

When it comes to adequate housing and classroom space, CSUMB is aware of the problem and is addressing the issues by constructing and purchasing additional buildings including Promontory Housing; Business and Information Technology; and the former *Monterey Herald* building in Ryan Ranch.

The campus also has an aggressive demolition plan in the works, to clean up the blighted areas left behind by the U.S. Army. All needed demolition for the campus is funded and planned to be complete within three years.

The question is, will the building and construction be able to catch up to the current needs of the campus?

Two teams of reporters have developed a series of stories that explore the issues of

CSUMB growth and the effects it had on student satisfaction, and the community.

Why were so many students left without a place to live? What changes are being made? These are questions asked and answered in an in-depth article about campus housing by one of the teams.

This team of reporters also took a look at problems faculty and staff who live in Schooner Park have had with that property.

The second team reports on the ever-changing face of CSUMB's campus - new construction and demolition. They also asked

students what concerns they have about CSUMB's growth and the need for more student services on campus.

Realizing the symbiotic relationship between CSUMB and the City of Marina, reporters interviewed the leaders of both - Dr. Eduardo Ochoa, CSUMB president and Bruce Delgado, mayor of Marina to get their visions of the future of our campus and community.

The Campus & Community section begins on page 6.

Photo by Alex Hennessey

AGRICULTURE TECHNOLOGY

Feeding the Future

You eat, right? Then you need to pay attention to the high tech revolution taking place in agriculture. The agriculture industry is developing new ways to feed a future filled with more people, more pollution, and more problems.

We have to work to find solutions to the wicked problems laid out by Dr. Sonny Ramaswamy, director of the National Institute of Food and Agriculture (NIFA), before we head down a treacherous path that could result in wide-spread famine and thirst.

Ag Tech advancements

Robots that resemble roombas presented by Harvest Automation are a new way of addressing the problems of farm labor. Companies are looking for new ways to meet the high demand for fruits and vegetables throughout the country in a time where labor is at an all time low.

Field Laborers are having a difficult time adjusting to these new technological advancements. Low wages, reduced workforce needs and hazardous working conditions are concerns for workers.

Technological advancements have both positive and negative aspects. The positives are being highlighted through the **Thrive Accelerator** initiative based out of Salinas. The program offers agriculture tech startups an opportunity to network and pitch their products. In July, one lucky company will receive a multi-million dollar investment from eager investors.

The **investments** in these technologies are being made now, but they are at risk of not keeping up with the rapidly growing population. The future of food production depends on the collaboration between the agriculture and technology sectors.

Improvements to **food safety systems** have been made through developing software applications that help producers and growers manage inventory. Tainted products can be identified faster than ever before.

Satellites and drones are offering producers new means of farming from afar. Complex mapping systems allow **precision agriculture** techniques to make production more efficient, which can save time and money, as well as precious resources such as water.

This series addresses all of these issues and the six wicked problems described by Dr. Ramaswamy.

The Agriculture Technology section begins on page 8.

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Editorial Policy

The *Otter Romp* is a special edition newspaper produced by students enrolled in HCOM 388: Investigative Reporting. Opinions expressed herein do not necessarily reflect the views of the *Otter Realm*, CSUMB Administration, faculty, staff or the college policy. The *Otter Romp* adheres to all editorial policies and practices established by the *Otter Realm*.

That's fracked up

By Jose Armenta

The unwinnable and daunting task of trying to balance economic interests and the environment has even the nation's leaders up at night. Even after speaking with billionaires, physicists, experts, lawyers, and locals, natural gas fracking is a difficult topic.

When evaluating the value of fracking various complexities arise; from use, to storage, to infrastructure, along with industry, capital, and values all issues are taken into consideration. As my team researched this topic for our package of stories it was difficult to grasp an individual issue that needed to be addressed.

Natural gas is a fuel source that will be exploited for our use and we need to come to terms with that fact. The growth of natural gas across the United States will inevitably fall out of favor at some point or another and we should plan for a future not ravaged by yet another industry.

The U.S. will turn to natural gas for economic security when faced with scattered pricing and foreign markets and to reduce foreign dependency on oil. During the research process, the idea of frontier psychology became a major theme.

Frontier psychology that has produced ecological and economic disasters in the past can be mitigated by patience for the production of facts. If we are going to do something we need to do it right.

This is where the moratoriums come into play; simply deciding that we do not know enough to say definitively "yes" or "no" to the issue. If not only available information but fact checked information determines fracking is safe, then frack away.

Also, pointing out the missteps by key players in the situation and how they should have progressed is necessary to really understand this topic.

The Energy Information Administration had estimates for the Monterey Shale that were millions of barrels off, even admitting (during the announcement of reduction) the original estimates were entirely based off production companies' data.

The reduction from 13.7 billion recoverable barrels was whittled down to 600 million.

At any given time the public needs to be able to trust government agencies. Even presentations on fracking by professionals had these outdated and blatantly incorrect figures.

Producing this information that the public will cite needs to be correct every time, or public opinion and policy will be formed by a fairy tale.

The Monterey County Board of Supervisors left this topic of a moratorium on the backburner for years. Praying for the state to come down and make a decision they would not have to be responsible for.



Andre Sitolini

If the board is unable to make decisions that have an impact on the community, what is their job?

They have a responsibility to act. Developing a pattern of claiming it is the state's responsibility is not the route we want our board to take.

As California's fracking industry booms, much hesitance is advised after our past transgressions with production being swept out from under thousands of workers feet. The ruins of industry, even the oil industry, are scattered across the state.

Even now falling oil prices have led to a reduction in shale oil production. The black gold rush will not happen due to natural gas any time soon, and if we are not cautious to any new industry we may face the same lack of security.

If expansive industry is built, and then abandoned, no economic benefit or environmental benefit of natural gas is worth it. We will have an entire industry of workers jobless and the construction of railways, plants, and the fracturing itself will all mitigate any real benefit for the use of natural gas.

Having waded through mountains of information personally, I feel there is no conclusive data on saying the practice of hydraulic fracturing itself is an inherently negative way to extract oil. That being said this is a much bigger monster than most people care to entertain.

If the national debate has brought forth anything, it is a demand for independent scientific research that should come before decades of use but nonetheless in July we will have just one more piece of the puzzle.

The future will hold the outcomes of this debate. Our addiction to oil will be sustained domestically or abroad and we can only hope we have done our research so that when the lights are switched on we know the energy got there in a sustainable way.

Student journalists learn the ropes of investigative reporting



By Dr. Sam Robinson
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Reporters need to know how to interpret large volumes of data, government reports and statistics. Investigative journalists also need to know the law.

As citizens we are entitled to public information. As journalists we have a duty to bring to light issues in our communities. While we hope officials share our vision of a transparent government, we sometimes need to utilize the Freedom of Information and California Public Records Acts in order to get the documents needed to tell the full story.

This semester 23 student journalists enrolled in HCOM 388: Investigative Reporting embarked on a journey that required them to learn about and use all of the skills needed to be an investigative reporter. The paths have had ups and downs, twist and turns and ultimately led to this special section, the *Otter Romp*.

Early in the semester students had the chance to meet with reporters from the *Monterey Herald*, to discuss their topics and get a better understanding of the impact on the Monterey area. Dave Kellogg, city editor for the *Herald* provided considerable background for the group that looked into the growth of CSU Monterey Bay.

Kellogg and his team were generous with their time and feedback, and he helped to review stories as they progressed. I am thankful for his efforts and community-minded collabora-



Monterey Herald reporter Phillip Molnar speaking with Investigative Reporting students about agriculture technology.

tion.

We also had the opportunity to hear from Doug McKnight, long-time public-radio-man. McKnight helped our largely print-based class to think about presenting news in an audio form.

Many thanks are also offered to CSUMB's administration and staff who took the time to sit down for interviews and answered so many questions for us. I urge the CSUMB officials who declined to comment or refused interviews to think about their role at a public institution and the need for transparency.

Students submitted several California Public Records Act request letters and not all were honored. Failing to produce documents or failing to provide a clear explanation as to why information has been denied could be seen as a violation of the law and rarely gets journalists to stop asking questions.

Some of the documents that students did obtain this semester will be shared with the *Monterey Herald* so reporters there

can follow up and expand the stories.

As with all print publications, we are only as good as a deadline allows. Students spent three months exploring their topics, but found they wished they had even more time. That is what happens when you do in-depth journalism; you want just one more interview, just one more rewrite. But the time has come for us to go to press.

I am very proud of what the students, many of whom had no prior reporting or news-writing experience, accomplished this semester. If you have any questions or comments about the reports, please contact me. I welcome your comments.

I hope you enjoy the *Otter Romp*.

CSUMB tries to tighten spigots on East Campus, but water district still wants the cash to flow

By Danny Simon,
Katie Kishi and Stefan Fahrner

When East Campus student housing was brought online, its water usage was not metered or recorded. California State University, Monterey Bay (CSUMB) and Marina Coast Water District (MCWD) officials estimated the usage. This resulted in CSUMB overpaying MCWD by approximately \$50,000 per year.

Once meters were installed, the university did not see any savings though due to a hike in water rates by MCWD.

This is one issue that has created tension between the two organizations. The other issue is related to pressure MCWD and the Fort Ord Reuse Authority (FORA) put on CSUMB to join in water augmentation plans, despite the fact CSUMB has a track-record of effectively conserving water and it has sovereignty as a state agency when it comes to county-level issues.

The East Campus issue

Before it was home to CSUMB students, faculty and staff, East Campus was the residential area for the former Fort Ord Army post. In alignment with Army practice, the homes did not have utility meters; the residents did not pay utility bills.

When CSUMB started offering the homes to its students and staff, it needed a benchmark to estimate the water usage. As a result, the MCWD estimated East Campus usage was 490 acre-feet of water per year, and CSUMB was charged for that amount, which at the time equated to approximately \$800,000 per year.

CSUMB suspected it was overpaying.

"[We] estimated that much less was actually used and this was subject of a controversy in the University's last master plan and environmental impact report (EIR)," said Mike Lerch, associ-

ate director of Facilities, Services and Operations at CSUMB.

In 2010, CSUMB equipped East Campus with water meters to determine the actual amount it used. Sure enough, in fiscal year 2010-11 East Campus used only 327 acre-feet – or about 53 million gallons less than the estimate.

For years the university had been overpaying.

Lerch conservatively estimated that CSUMB overpaid the MCWD approximately \$50,000 each year during the period of estimating the water usage on East Campus. This translates into approximately \$750,000 in over payment in the 15 years before water meters were installed on East Campus.

Despite documenting a much lower actual usage, when compared to the estimate, CSUMB did not see any savings in the East Campus water bill. That same year, MCWD jacked up the rates 38 percent so the university still ended up paying \$70,000 more for its total water usage.

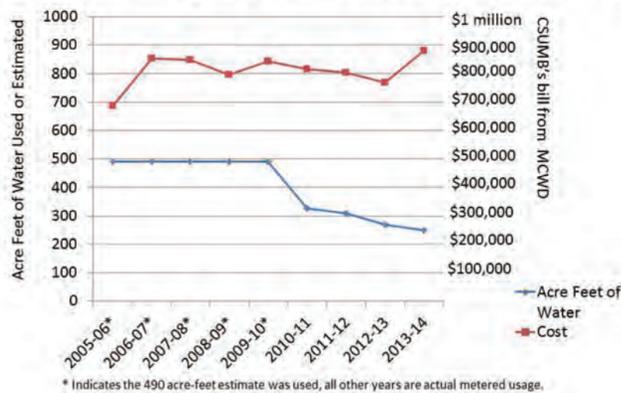
"MCWD has an insatiable thirst for revenue and no amount of conservation can affect that; they will simply raise rates to achieve their revenue goals."-Mike Lerch

Usage goes down, but costs go up

Since CSUMB began metering on East Campus, the overall water usage has decreased significantly, yet rates continue to increase.

The last year the estimated usage of 490 acre-feet per year was used for East Campus, CSUMB paid more than \$1.2 million to MCWD. This was the combined water bill for both main campus and East Campus.

East Campus Water Usage & Costs



Last year, the actual metered usage for main campus and East Campus combined was only 419 acre-feet, 71 less than what had been estimated and purchased just for East Campus. However, the university saw no savings. Its bill from MCWD was more than \$1.3 million – more money for less water. This is due to the increase in rates from MCWD each year.

"We get the same service and the same amount of water or maybe even less, but we pay more each year," said Lerch. "MCWD has an insatiable thirst for revenue and no amount of conservation can affect that; they will simply raise rates to achieve their revenue goals."

Lerch says the biggest reason for this rate increase is MCWD's \$18 million investment into a desalination project that never happened. Additionally, the old Fort Ord water systems are just that—old. Repairing the aged infrastructure is costly.

The MCWD is also "trying to expand the system to serve customers in the parts of Fort Ord that are in Seaside, Del Rey Oaks, and Monterey, and those

are very long distances to have to bring new pipes to," said Lerch.

Although CSUMB does have sovereignty in regards to the county mandate to reduce water usage, Lerch said it is still under considerable pressure from MCWD to participate in water augmentation projects.

"We believe our allocation will be more than enough for 12,500 students, so it's not completely evident that we have any need to participate in augmentation projects like the new desalination plant MCWD is working on, but there has been a lot of pressure particularly in the last master plan and EIR from MCWD and FORA to participate in the water augmentation projects," he said.

Water saving mandate and MCWD water augmentation projects

California lawmakers established a mandate for Monterey County, which requires it to reduce its water use by 20 percent by the year 2017. Additionally, California American Water Company (Cal-Am) must reduce pumping from the Carmel River by 70 percent. So far, Monterey County has reduced its water

usage by approximately 13 percent.

As mentioned previously, CSUMB is not held accountable to the county mandate, because it is a state institution.

Contributing to the environmental improvement of Monterey County is important to CSUMB, however, according to Dr. Eduardo Ochoa, CSUMB president.

"We do have sustainability as one of our strategic objectives and we have a sustainability committee that works and is constantly looking for ways to improve how we operate," he said. "We do, however, have sovereignty on these issues relative to the county, as a state agency, so we are not bound by county rules, but we certainly share those objectives."

Marina Coast Water District's response

Getting answers from MCWD was difficult. *Otter Romp* reporters made multiple attempts to contact the agency to no avail. Only after a California Public Records Request was submitted and followed up on, did MCWD agree to an interview.

When asked about the East Campus situation and rate increases, Bill Kocher, MCWD interim general manager said: "Lerch put you up to this."

Kocher then went on to talk about the complexities of estimating water usage without ever truly addressing the question at hand. There clearly is tension between CSUMB and MCWD.

MCWD did provide spreadsheets that include water usage data for all land use jurisdictions for the past 10 years. This data verified the information provided by Lerch.

The agency also agreed to provide the other documents requested in the Public Records request. However, due to deadline constraints, that information was not available at press time. It will be shared with the *Monterey Herald* for future stories.

Navigating the current: Water and energy use at CSUMB

By Danny Simon,
Katie Kishi and Clare Lenard

"Turn off the TV when you're done watching it." "Why do you take such a long shower? Are you trying to make a career out of it?" "Turn off the lights when you leave your room."

Do you remember these popular parental refrains?

Our parents said these and many more because they paid the water and electric bills. The more we used, the higher the monthly bill. Can you imagine what they would say if their monthly bill totaled nearly \$187,000?

That is roughly what California State University, Monterey Bay (CSUMB) pays for its utilities on main campus alone. Mike Lerch is the man in charge of managing these costs and looking for ways to make CSUMB better at reducing its energy intensity and conserving its resources.

Lerch, associate director of Facilities, Services and Operations (FSO) at CSUMB, manages energy, utilities, and facilities maintenance on campus. Lerch grew up in Monterey County, and returned in 2005 when he became CSUMB's manager of Energy and Utilities.

Lerch provided data that shows significant strides have been made in conservation efforts since he joined the university. "The way I see it," he said, "it's not about where you are at any given moment, it's about continuously improving."

Developing a "green" campus

Sustainability has been a long-term goal for CSUMB. The campus Sustainability Committee was formed in 2007. Since the CSU Board of Trustees issued Executive Order 987 in 2006, universities system-wide have been required to reduce their carbon footprints and compose Climate Action Plans to document

progress and strategize for the future.

Lerch helped create CSUMB's Climate Action Plan, and he works closely with the Fort Ord Reuse Authority (FORA) and the Marina Coast Water District (MCWD), as well as other departments within the university to meet its goals.

With the rapid expansion of CSUMB's student body over the years, water use grew steadily from 2006 to 2012, but despite CSUMB's population growth since 2012, water use has gradually decreased. This is partly due to meeting the Climate Action Plan goals.

The plan called for several changes that allow water to be used more efficiently. For instance, all new fixtures

are water saving, and older buildings are retrofitted with more efficient technology wherever possible.

"We have retrofitted shower heads and faucet aerators in residence halls. We have installed pumps on irrigation systems to improve the flow of the water. We have tightened up on the irrigation times, many little things," said Lerch.

The plan also includes a review of landscaping and irrigation, as well as the drinking water and bottled water systems on campus. Because of these actions, CSUMB has used 15 percent less water since 2012, even in the midst of student growth.

Despite CSUMB's success in

maintaining water reduction, Lerch and his office continue to develop means to increase conservation efforts. "We are continually looking for ways to improve efficiency," said Lerch.

All of the progress the university has made in water and energy conservation has been possible with minimal impact on students.

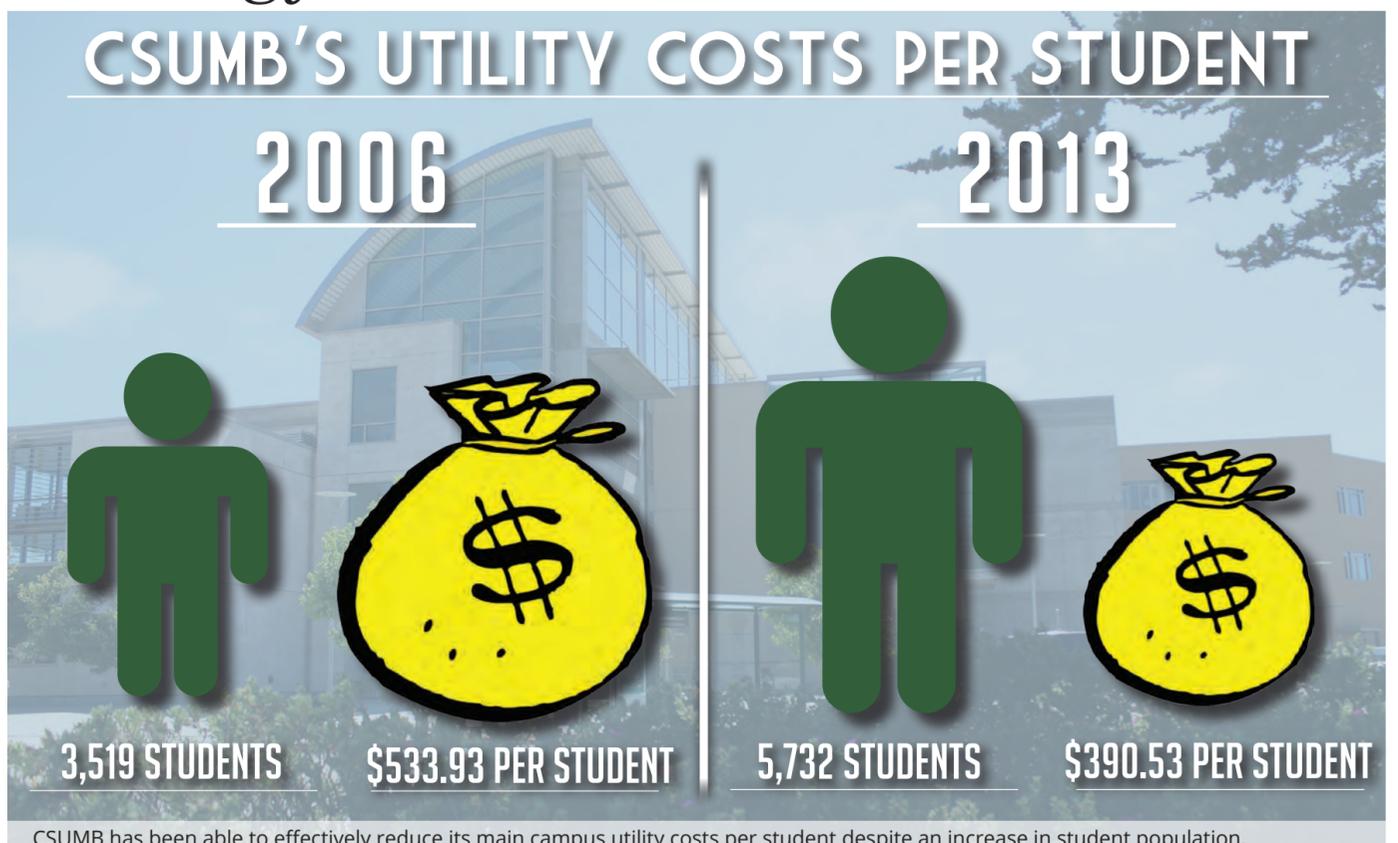
"So far we have been increasing efficiency across the board but it's been completely behind the scenes. By doing things like reducing air conditioning and retrofitting appliances we have been able to improve without changing anyone's behavior. I think the next step will be getting people to be more conscious of their utility use and getting

people to start changing their behavior," Lerch said.

CSUMB students will likely begin to see efforts to change their behavior soon. Campus Planning and Development is in the process of hiring a Director of Sustainability. "This will be the first person with sustainability as their only responsibility," said Lerch. "In the past this task has fallen to people with other job priorities and other things to worry about."

So far there have been a lot of minor improvements, but a project he is currently working on should make a much larger impact.

Continued to page 10



CSUMB has been able to effectively reduce its main campus utility costs per student despite an increase in student population.



School of Frack

Fracking is a complex issue with myriad political and environmental issues. It is hard to keep all the terminology and organizations straight. Here is a list of some of the key terms and organizations involved:

Modern Well-Stimulation Techniques

Hydraulic fracturing also known as **fracking** is the process of drilling about a mile down into the earth then roughly a thousand more feet, and breaking up rock with a high powered water mixture in order to extract natural gas. A combination of sand, water, and chemicals are injected into the well allowing gas to flow out of the head.

Horizontal Drilling is a process when a well is drilled horizontally over a gas and oil formation, and the well is turned horizontally. This process is said to increase oil production up to 20 times more than vertical drilling.

Cyclic Steam Injection is a process consisting of three steps; injection, soaking, and production. First, steam is injected into the well in order to heat the oil, this can last anywhere from a few weeks to a few months. Following the injection, the oil sits for days to weeks in order to soak in the heat. Last, the hot oil is pumped from the well which can take months. This process, although expensive, is said to recover up to 25 percent more oil than other techniques.

Monterey Shale

Monterey Shale is an area extending from northern California all the way down to the Los Angeles area. The EIA, in late 2014, downgraded the amount of recoverable oil underground in the Monterey Shale by 96 percent, just 600 million recoverable barrels.

Measure J

A measure passed in San Benito County to ban fracking in the area. The measure was created to protect San Benito's water supply from the potential dangers of fracking. In November 2014 the measure passed with 59 percent of the vote. Funding in opposition of the measure came from private companies and lobby groups like WSPA.

San Ardo Oil Field

The San Ardo Oil Field is in southern Monterey County. It is the 13th largest oil field in California.

California Assembly Bill 32

California Assembly Bill 32 also known as the Global Warming Solutions Act would require California to develop regulations that will reduce greenhouse gas emissions to the levels (just under 35,000 emissions) by 2020. This is the first nationwide bill to address climate change and aims at improving the environment while boosting the economy. As of 2010, greenhouse gas emissions were at roughly 45,000 million metric tons of carbon dioxide equivalents.

California Senate Bill 4

California Senate Bill 4 is a bill that requires the State Water Board to develop model criteria for groundwater monitoring. The research required by this bill also provides key information to our state making a broad sweeping decision. The model criteria will be developed by July 2015 and will monitor any drinking water sources, and protect water that has been designated as having potential beneficial use.

The mandated report titled "An Independent Scientific Assessment of Well Stimulation in California" has three volumes, the first of which has been released.

Division of Oil, Gas, & Geothermal Resources (DOGGR)

A California state agency created to regulate statewide activities related to oil, gas & geothermal resources.

Western States Petroleum Association (WSPA)

A non-profit trade association that represents companies that account for the bulk of petroleum exploration, production, refining, transportation and marketing in the five western states of Arizona, California, Nevada, Oregon, and Washington.

Energy Information Administration (EIA)

A statistical agency within the Department of Energy. The administration is responsible for assisting public understanding of energy, its interaction with the economy, and the environment as well. It is also responsible for collecting and analyzing data related to energy.

Monterey County fractured on heated natural gas debate

By Jose Armenta and
Joey Bennett

Because of the natural gas boon of the last decade the term 'fracking' has become commonplace in media and conversation. The term quickly invokes opinions for and against the modern well-stimulation technique.

The debate has come home to Monterey County, as local and state officials make decisions on extracting natural gas and oil from the Monterey Shale. The direction lawmakers take will have an impact on the energy portfolio of California and the United States.

"If we reduce our oil drilling in California by a few percent, which a ban on fracking would do, and we import more oil by train or by boat, that doesn't make a lot of sense," said California Governor Jerry Brown in an interview with Chuck Todd on NBC's *Meet the Press*.

Locally, the Monterey County Board of Supervisors was faced with this predicament and ultimately decided it is not its problem but rather the state's decision to make.

Fracking is the systematic breaking up of shale by horizontal drilling coupled with the injection of a pressurized water-chemical formula to destroy formations and capture the newly freed oil.

From directional drilling to hydraulic fracturing and cyclic-steam injection, both economic and environmental considerations must be taken into account when setting policy. In fact, one of the few things more complex, layered, and buried from public view than the



Photo from wikipedia

technicalities of fracking could be the bureaucratic process surrounding it.

Measure J

Measure J was a ballot initiative in San Benito County that was approved by voters in 2014. This measure was designed to prohibit fracking, and related gas and oil extraction activities, as well as other "high-intensity petroleum operations," including acid well stimulation and cyclic steam injection. It also banned any new gas or oil drilling activity - even conventional, low-intensity activity - in areas of the county zoned for residential or rural land use, according to the State's election website.

Measure J highlights a couple of points on the politics of the fracking situation. Big money is involved in well development, and the campaigns for and against fracking.

On the proposing side of this debate, the Coalition to Protect San Benito County spent approximately \$140,000 on its campaign. Opponents to the

measure reportedly spent nearly \$2 million.

Opponents, including drilling company Citadel, said the measure was overstepping in local jurisdiction. They see it as a state's rights issue, meaning states should make laws and policies governing fracking not local or federal government.

Citadel had received approval to begin a cyclic steam injection project in San Benito, however the broad sweeping measure eliminated the project.

Citadel has followed the approval of Measure J with a lawsuit, claiming damages up to \$1.2 billion. Citadel's attorney refused to comment due to the ongoing legal battle but their position is quite clear.

Growth in the natural gas sector has broader implications than those in the oil field, or the shale below that field to be more specific.

Monterey County

There recently has been a closure of specific wells in California, some in Monterey County at the San Ardo field. The primary reason for closure has been water contamination.

Stopping fracking because of the leaking of contaminated water by disposal wells is "the first step in a much broader movement," said Patrick Sullivan, a spokesperson for the Center for Biological Diversity and a leader for Californians Against Fracking groups. Blocking fracking is seen as the logical way to secure California's "billions of unprotected gallons [of water]."

The San Ardo field in Monterey County is a major source of natural gas. It is located in the Salinas Valley about 20 miles from King City.

This field alone defines Monterey County's relationship with oil production and decisions made here have implications all the way down the Salinas Valley.

Any broad sweeping measure to block modern well-stimulation techniques would have serious

economic impacts. Lawsuits over the current contract's termination already threaten to cause serious ripples in the community as we have seen in San Benito County.

The Monterey County Board of Supervisors cites the desire for the state regulatory body (carried out by the ironically renamed Department of Conservation which oversees the Division of Oil, Gas, and Geothermal Resources- DOGGR) to bring down the gavel on this decision.

Monterey County could look to measures across the state that have popped up and blocked the expansion of fracking. In Mendocino County voters approved to dis-allow fracking. The vote in San Benito County has laid foundational legislation to look to.

There is potential at the state-level, with Senate Bill 4, for fracking to become a state's rights issue.

California

Senate Bill 4 also requires an independent scientific study of well-stimulation techniques throughout California. Governor Brown will base his position on the topic largely on the results of a study on fracking's relationship to the environment, that will be released in July of this year.

In the meantime, local communities continue to weigh sustaining California's economy against protecting its environment simultaneously.

Even with much of California's progressive policies it does not change the fact California is second only to Texas in natural gas consumption.

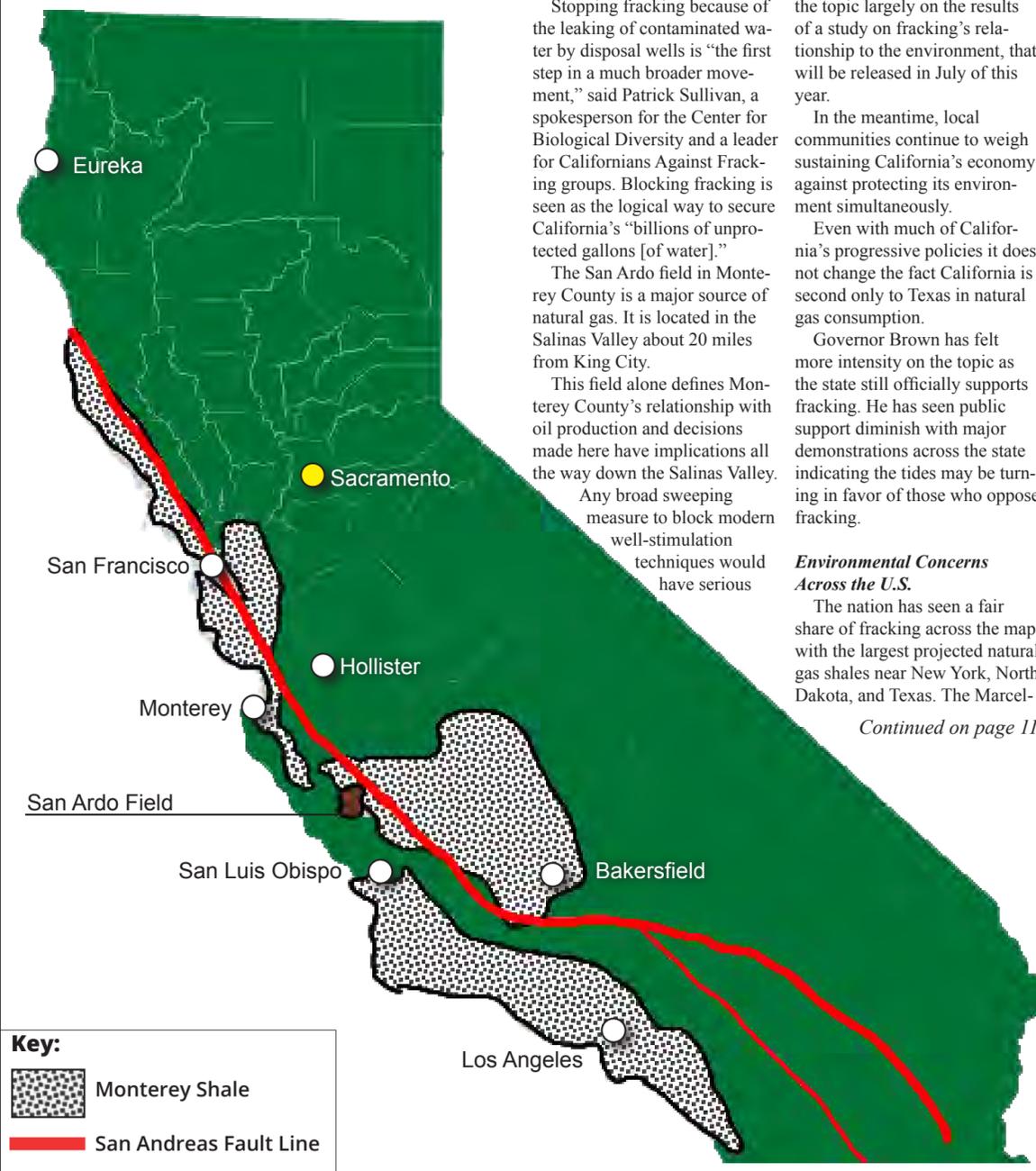
Governor Brown has felt more intensity on the topic as the state still officially supports fracking. He has seen public support diminish with major demonstrations across the state indicating the tides may be turning in favor of those who oppose fracking.

Environmental Concerns Across the U.S.

The nation has seen a fair share of fracking across the map with the largest projected natural gas shales near New York, North Dakota, and Texas. The Marcel-

Continued on page 11

Map of the Monterey Shale



Key:
 Monterey Shale
 San Andreas Fault Line

Celebrities and social activists join the movement against fracking

By Jessica Salimi

Environmental activist groups, Hollywood celebrities, and even the average Joe have started paying attention to fracking activities and are taking a stand against it. Activists from California all the way to New York are spreading their positions against fracking via social media outlets. If there is one thing social media succeeds in doing, it is spreading the word, whether it be good or bad.

One way to bring a spotlight to the issue of fracking is with the help of celebrities with profound influence on the general public.

A prominent figure in the fracking debate is actor Mark Ruffalo. He often tweets information regarding what legislation is occurring for or against fracking, along with upcoming events and happenings related to environmental conservation.

Ruffalo has been vital to the movement due to the fact that many of his followers and fans have become exposed and pushed to educate themselves about fracking.

Actor Edward Norton is also helping spread information against fracking and has involved himself in the movement to stop fracking in Maryland as well.

Another prominent figure in the anti-fracking community is

Josh Fox, director of Gasland and Gasland 2, two documentaries covering experiences of people who have had their land polluted by the fracking projects in their local areas.

Fox helps bring a specific spotlight to many of the issues that arise with hydraulic fracturing. In a recent interview, Fox talks with a city administrator about an oil train accident (derailment) that had occurred three weeks previously in his town.

With the celebrities using their social media megaphones to push important interviews, articles or videos to the frontlines and into headlines, people who would normally not receive this information now can easily access it.

Social Activists

A local California group based out of Monterey called: "Monterey County Against Fracking," established itself in order to take a stand against any hydraulic fracturing throughout the Monterey County area. This particular group views fracking as a major threat to the local environment and the way of life for coastal residents, and created a Facebook page for public outreach.

"We see risks to our agricultural industry watershed, the dangers of fracking on top of the San Andreas earthquake fault line, and the millions of gallons



Mark Ruffalo, environmental activist and actor.

of chemically infused water used for each well during a drought. Urban areas are also facing threats from "bomb trains" - oil tanker cars transported by rail with no notice or regulation," said Luana Conley, one of the group's associates.

The Center for Biological Diversity based out of San Francisco has also been heavily

active in the fight against fracking and even attempted to sue the federal government over the practice. *Otter Romp* spoke with Patrick Sullivan, spokesperson for the organization and assistant in campaign against fracking.

When asked about the latest petition California is attempting to push through against fracking, Sullivan informed this reporter

that there is currently an emergency petition to Governor Jerry Brown to cease all hydraulic fracturing in California.

The strong movement against fracking has gained more and more popularity throughout the years and will likely continue to grow until the individuals against the issue feel their message is heard.

The power of social media can give a voice to anyone willing to use it. Fracking is something that has moved more than just a single state; it is now moving the nation.

Tornado Alley to Earthquake Alley: Fracking is shaking up the Great Plains

USGS statistical data shows 23 earthquakes occurred throughout Oklahoma from April 27 to May 3: two of which were recorded at more than 4.0 magnitude.

By Jenna Bandy

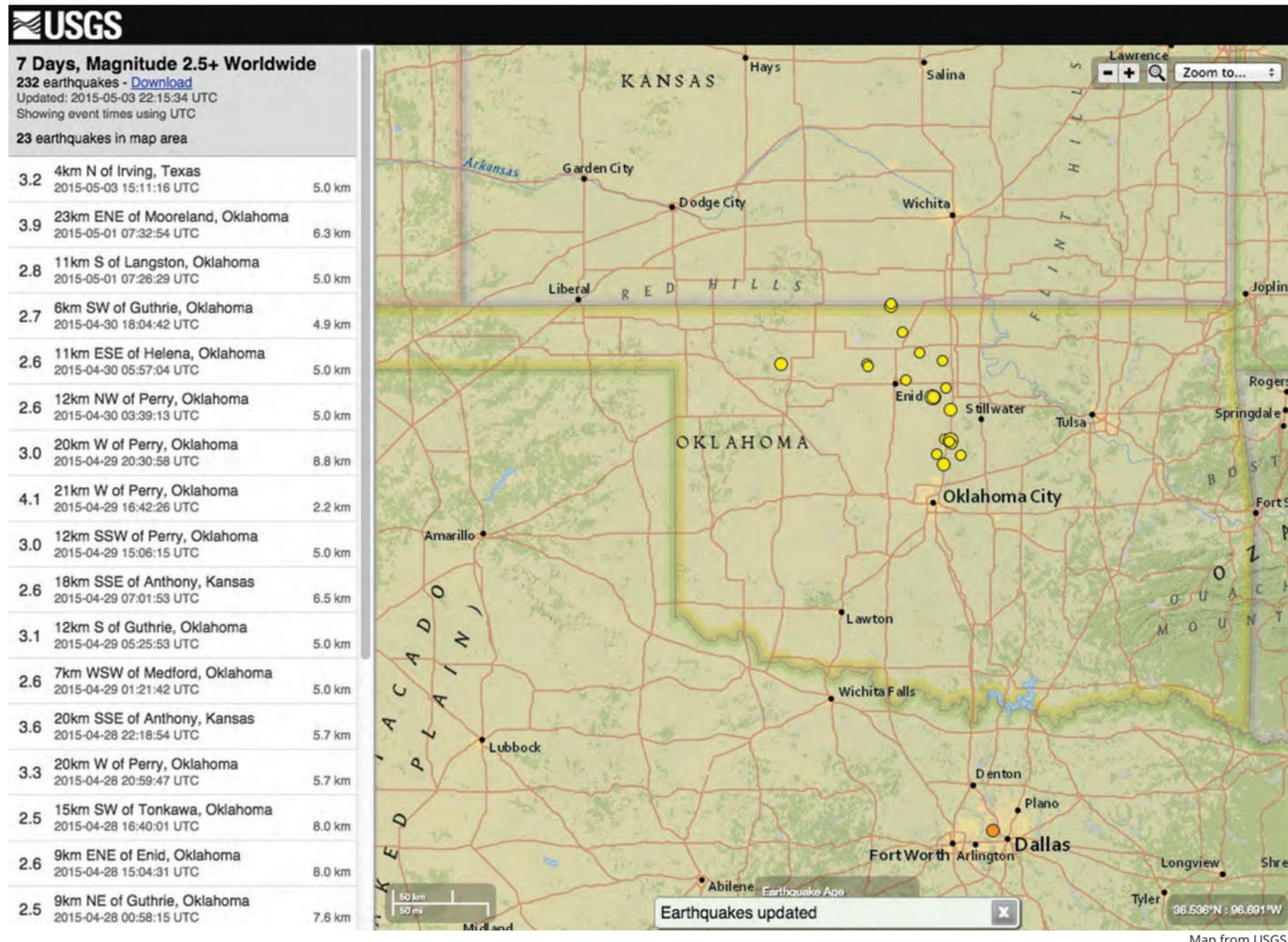
Fracking activity is most likely to blame for the recent earthquakes occurring in Kansas and Oklahoma, according to the United States Geological Survey (USGS).

This occurrence is another supporting factor that adds to the theory of fracking being the cause of seismic shocks in generally stable places.

There is a direct link between earthquake activity and the increased number and volume of waste wells in the state of Kansas, according to Kansas's local reports. Geologists believe it is not a coincidence, rather "reasonable probability," of a significant correlation between tremors and fracking injections.

The majority of injections do not cause seismic activity, according to USGS, however it is possible when the water is put near fault zones or inserted with large volume that activity can occur.

Between 1977 and 2012, Kansas has only seen 34 earthquakes



with 2.5 magnitude, but since 2013, the state has experienced 115 quakes of that magnitude or greater. To increase its seismic monitoring, the USGS needs around \$500,000.

There's always the chance that a fatal event will happen particularly in relation to injection wells. Not only would this be catastrophic to the oil and gas companies, but more importantly, the lives and properties

around the wells.

California is known for having a splendor of earthquakes given its geographical location, with the San Andreas Fault line running through the state. Increasing fracking in the state could exacerbate the issue.

"There were more earthquakes of magnitude 3 or higher in Oklahoma last year than in California. Several were of a magnitude greater than 5, and caused considerable damage,"

according to the USGS.

Arkansas, Oklahoma, Ohio and Texas have all experienced an increase of earthquakes lately as fracking motivates energy businesses to tap more fossil fuel reservoirs.

In 2010, Oklahoma began to use hydraulic fracturing and doubled its oil output from 160,000 to 320,000 barrels each day. This is an economic lottery win, although for the health of the citizens in the area, this is a

sign of bad news.

Before 2009, earthquakes in Oklahoma were rare and if one did occur it was small, with little recorded damage, according to the USGS. After 2010, you can clearly see that suddenly the number of earthquakes begins to spike, getting more severe through the years.

By cross-referencing the data of when hydraulic fracturing began, and the sudden appearance of earthquakes, how can one not

see the correlation?

Why are decisions being made to terraform our planet, without even taking the time to research the side-effects?

It has been proven that earthquakes cause damage in homes, roads, pipes, buildings and oil sites; therefore it is a logical observation that we are losing more than we are gaining in this process.

A car, a garage, or a laundry room – your new home away from home

By Kiley Eriksen,
Peyton Smith,
Bernice Molina
and Jacob Guzman

“It was the worst time of my life,” said Steven Salazar, a fourth year Human Communication major with a Pre-Law focus, as he told of his experience living in his car for the first month of the fall 2014 semester.

Each night, he would routinely move all his belongings from his trunk to the front seat in order to create a makeshift bed. While doing this, he would run the heater in his car so it would be warm enough to fall asleep.

“I would wake up from my sleep in my trunk. I would get out of my car, be horribly sore, and head straight to the gym to shower and brush my teeth and do my hair every single day,” said Salazar of his morning routine. It was a daily struggle, with nowhere to go: “I had cops come multiple times.”

When he did move into East Campus, Salazar was shocked when his new roommates informed him that his room had been open since the beginning of the semester. This was one of many similar stories.

Approximately 200 students were left without housing when the fall term started at California State University, Monterey Bay (CSUMB). Unbeknownst to most at the time is that CSUMB had been hit with a last-minute influx of students because the university had not declared impaction.

So what happened?

“Campus impaction (otherwise known as campus-wide impaction) means a campus has exhausted existing enrollment capacity in terms of the instructional resources and physical capacity of the campus,” according to the California State University (CSU) website.

Without the declaration of impaction, the CSU Chancellor’s office told CSUMB it had to accept 400 additional students. This resulted in a campus-wide scramble to accommodate students and faculty alike.

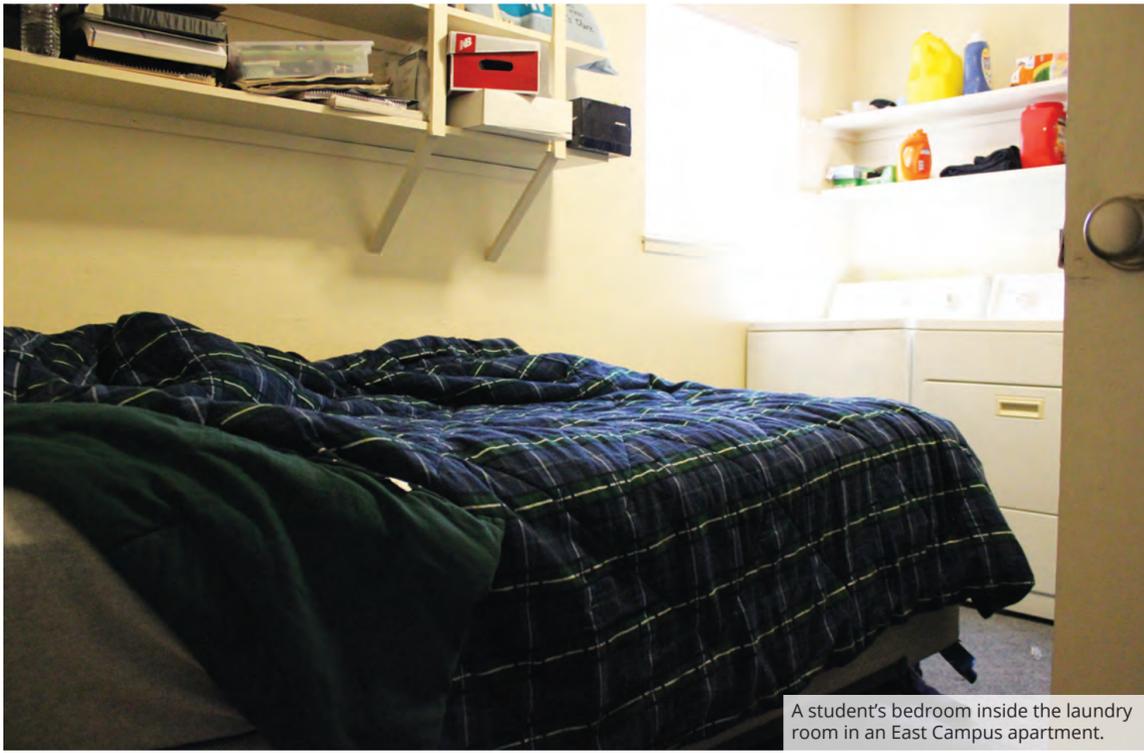
An article in the *Monterey Herald* told of students living in hotels and even campsites. Many reported living on couches or floors of friends. Some ended up moving illegally into the laundry rooms and garages of East Campus residents. Parents were outraged, and students were stressed out.

Students’ attitudes about CSUMB housing

In a survey conducted for this investigation, students rated their levels of satisfaction with housing at CSUMB. The results indicated 28 percent of students claimed they had difficulty finding housing. Additionally, 25 percent of students who completed the survey, stated the housing situation has impacted their ability to succeed as a student.

Kevin Steinfield, a freshman and recruited athlete to the CSUMB golf team, also did not receive housing. He ended up living on a teammate’s floor for four weeks. At the end of the fourth week he decided to go back to his home in Huntington Beach and told his coach upon leaving: “If you don’t find me a place to live, I’m just gonna stay at home because it’s not working out for me.”

An apartment was found for Steinfield. He shares it with two employees from the golf course, and says he is much happier now, but added: “That first month was so rocky, it just pushed me away from this place.”



A student's bedroom inside the laundry room in an East Campus apartment.

Photo by Alex Hennessey



Steven Salazar

Photo by Kiley Eriksen

Where is the university in all of this?

CSUMB is well aware of the overpopulation on campus and is trying to adapt in order to make students more comfortable. This effort is taxing on everyone involved.

Impaction has now been successfully declared for first-time freshmen (not transfer students) for the 2015-2016 academic year, according to the CSU website. Therefore, the university will not be required to accept excess students like it had previously.

Additionally, CSUMB students will have access to a new housing facility being built just off campus – the Promontory.

Still issues to address

These factors may lower the pressures on housing in the coming year, but in the case of students such as Salazar, the issue remains that a room was available the entire time he, a full time student, was without one.

Bianca Orozco, an East Campus resident, explained that she was immediately given a home to herself when she first moved in the middle of the 2014 fall semester. The open spaces remained unfilled until the beginning of the spring semester.

Sara Galindo, a fourth year Environmental Studies major, expressed her fear of securing a home for the coming year: “Everywhere already seems crowded on campus, so I’m pretty nervous about what I’m going to do next year and how I’m going to find housing because I don’t think I can live in East Campus again.”

How do students get assigned housing?

Students are able to reserve their housing slots during a time period called “Reservation Days.” During this time students may select or reserve their living space for the following semester.

“After ‘reservation days’ we have to figure out how many spots we have left,” said Jen Crompton the director of Student Housing and Residential Life, and Joe Chiappa, associate director of operations.

“Some space we save for emergencies, we have to figure out who’s staying over the summer, we have to figure out who cancels and who doesn’t. Sometimes I think the process takes longer, because people have an assignment, and then they cancel, and we have to process that,” said Crompton.

This process becomes even more complicated when students who abandoned their housing assignment never actually report that they have left their unit. This means the housing assignment cannot progress because it is still seen as occupied by the administration. This accounts for many of the housing slots that are mysteriously vacant.

One difference between the housing assignment processes of main campus and East Campus, is the presence of multiple outside factors. On East Campus pets are allowed, which can bring allergy problems if applicants’ information is not sorted and handled carefully. The smoking/non-smoking option creates the same type of health complications.

“Sometimes that process of fitting the best person with the best space does take a little longer. And sometimes we don’t have any cancellations, so we’re just waiting for a space to open

up,” said Chiappa.

Not only must the East Campus housing office first address the waiting list, they must then select people who are the appropriate gender to fill the open homes. Beyond that, is when the preferences come into play which makes the assignment process even more tedious.

“The majority of the issues we have are all communication,” said Kevin Saunders, the executive director of the University Corporation at CSUMB, in an interview about the housing issues facing the campus.

What is CSUMB doing to help?

CSUMB has many programs in place to assist commuter students from the immediate area, which makes living off campus and getting to school much easier. Using the free Rideshare van service (students just need to complete an application) and the free access to full utilization of the Monterey-Salinas Transit system that is provided to students via their Campus ID cards can ease the commuter strain, which in turn helps reduce the demand for on-campus housing.

However, the problem with the lack of accommodations for students who are not from the immediate area and want or need to live on campus still remains.

As the university continues to expand and gain notoriety, more students from throughout California will apply. CSUMB has the second smallest student population in the CSU system, and the surrounding areas have been forced to slowly accommodate more and more students as the university grows in size.

With the sudden jump in numbers this year, and more students seeking housing somewhere in the community, there becomes a greater need to assist students who are unfamiliar with the area both to find appropriate housing and to know the area.

Using the UCSC example

Just across the bay, UC Santa Cruz (UCSC) experienced a record high number of applications this year with more than 49,000 students vying for just 4,850 slots. UCSC has historically experienced similar scenarios in which on campus housing had reached capacity yet many students still needed housing.

It developed a campus-run website dedicated to displaying lists of approved landowners who are willing to work with the university and house students. This is a user-friendly website that helps students find reliable housing in the UCSC area.

CSUMB is just beginning to develop a website like this to

help students with off campus housing, said Crompton and Chiappa. The site is still in its early stages but it already has some apartment resources to check out. CSUMB’s Residential Life is also planning to create a criterion to help determine which apartments and communities are student friendly.

Residential Life is also working on some educational workshops/events to teach students various techniques for house hunting. Specifically, there is a tutorial on how to safely use Craigslist to find a home, a guide to renting off campus, and an introduction to landlord/tenant law basics all in the pipeline to help students.

What about the future?

While the surrounding communities continues to adapt to the growth of CSUMB, it is incredibly important to note that in President Ochoa’s March 3 newsletter, he states that CSUMB is planning to continue growing rapidly. The total student population is projected to be more than 12,000 by the year 2024 which is roughly double the school’s current population. This would mean CSUMB

would grow just as much in the next nine years as it has in its full lifetime of 20 years.

“We’re growing. We’re always going to be a little behind until we reach the critical mass,” said Saunders. He shared hopeful plans for the future of CSUMB housing as the ‘critical mass’ of the campus appears on the distant horizon. In theory, new developments and the general layout of future on campus housing should effectively quell the growing pains that the college is facing today.

Plans for the future include East Campus to be dedicated to housing for students who are married or have families, or maybe even graduate students. The rest of student housing for CSUMB could be moved over to the surrounding area of the Promontory and North Quad buildings.

This area will be designated as something along the lines of a student village, to include projects such as a new Student Recreation Center that will also offer new dining options to those living in the proposed housing hub of the future.

Saunders urged students to share their opinions for the future of CSUMB, in order to more directly represent their perspective. The university is currently revisiting its Master Plan and sought student, faculty and staff input in a series of workshops held at the end of April.

Crompton and Chiappa also urge students to take the time to go to them with issues or problems about any aspect of residential life. Crompton can be reached at (831) 582-3865 or jercrompton@csumb.edu. Chiappa can be reached at (831) 582-5011 or jchiappa@csumb.edu.

They are both available to schedule appointments through email, and are both located in the Student Center.

If you have feedback for the housing staff, or just the university in general, don’t hesitate to speak your mind and put yourself out there to be heard and make a difference in your community.

I can see the ocean from here!



Joey Bennett

CSUMB GROWTH

small classes diversity affordable access to faculty closed classes long lines no parking no housing poor communication

Rush of new students pushes CSUMB to the limit

By McKenna Holmes

From the spring 2009 semester to fall 2014, California State University, Monterey Bay (CSUMB) saw an increase of more than 41 percent in student enrollment, according to the CSU system enrollment statistics reports.

This growth is unprecedented in the CSU system and is causing concern for current students who worry growing the campus could mean losing what they love about CSUMB. Closed classes and long lines in campus offices, with few staff to answer questions are particularly bothersome side effects of the growth.

CSUMB's unequalled growth

Even when compared with other CSU's with substantial growth including Northridge and the system as a whole, CSUMB tops the charts. During the same time period Northridge only saw 14 percent growth and the CSU system just 6 percent growth.

While many students felt the impact of the growth in student population, specifically during the past academic year, university officials had no way to stop the growth.

Kevin Saunders, vice president of Administration & Finance and executive director of University Corporation

explained the growth as coming from a CSU Chancellor's office mandate.

During the summer of 2014, the CSU Chancellor's office required CSUMB to admit an additional 400 students.

"We never declared impaction, we had everything all set," said Saunders. "Because we didn't declare impaction the Chancellor's office told us we had to accept more students. We ended up making a deal with them and accepted 400 more students than originally planned."

From the spring 2009 semester to fall 2014, California State University at Monterey Bay (CSUMB) saw an increase of more than 41 percent in student enrollment.

2015 is the first year CSUMB will be designated as an impacted university for freshmen. The CSU defines impaction as: "when the number of applications received from fully qualified applicants during the initial filing period exceeds the number of available spaces." This will allow CSUMB to deny admittance to students outside the three county service area, if there is not enough space for

them.

The rapid growth created many problems for the university, and continues to concern students as well.

Students worry about class availability

"I loved the Monterey area and when I found out the campus was small I knew I wanted to go here," said Cassidi Lauck, a third year Psychology major.

One of the reasons students such as Lauck are attracted to CSUMB is because of the campus' small size. With the amount of growth CSUMB has seen in previous years many students have concerns about the direction of the university and the services offered.

With the campus enrollment quickly expanding students have been worried about class availability and possible subsequent graduation delays. CSUMB's four-year graduation rate is just 12 percent, according to the US News College rankings. This statistic validates the concerns of students who worry about graduating in a timely manner.

Even before the crush of CSU mandated students, CSUMB had difficulties with course offerings. The influx of students arguably will just make it worse.

Samuel Johnson, a second year Human Communication major, signed up for an American Sign Language (ASL) class for the spring 2014 semester

after deciding it was the best fit for him to complete his language proficiency requirement.

Johnson was able to enroll in an ASL 101 class, however on January 17, 2014, just four days before the semester started he received an email that stated: "Due to unfortunate circumstances, we must cancel several ASL 101 sections for this semester. You can enroll in a different language class, take the class at a local college or take the class in the fall 2014 semester."

There were originally five ASL 101 courses offered that semester but three were cancelled, leaving students scrambling to find courses to meet CSUMB's Language Proficiency Requirement or meet the unit amount to be considered a full-time student.

This example is one of many that highlight the challenges students faced when trying to get the classes they needed in order to graduate on time, even before the 2014-2015 tsunami of students hit our shores.

Not all CSUMB students see the growth as problematic.

"I understand the concerns other students may have about the growth of CSUMB, but I am looking forward to seeing the campus grow and to be a part of this exciting time for our school," said Megan Butler, a second year Human Communication major.

Access to student services on campus

There also have been questions of the growth of additional services on campus, such as the Health Services department. As the university grows, it is crucial these additional services continue to grow to accommodate the student population.

The Humboldt State Health Center, another CSU with only a slightly larger student population, hosts four Medical Doctors (MDs) specializing in different areas including psychiatry. Currently, the CSUMB Health Center has only one MD.

The wait time for an appointment at the health center can be up to two weeks. Having more doctors at CSUMB would reduce wait times and offer faster service during walk-in hours.

Humboldt State also has a pharmacy on campus whereas CSUMB students have to travel off campus to fill prescriptions.

Several attempts were made to contact staff members of the Health Services department for an interview, no one replied.

Even though the university has experienced substantial growth the past several years, the steep growth seen this year is not expected to continue. Saunders stated the next time the campus is expected to see considerable growth is the 2017-2018 academic year, which is not too far away.

Why did you choose to come to CSUMB?



Will Buckingham, 4th year Business major

"The small class size and the general environment."



Ryan Richter, 1st year, Marine Science major

"I chose to attend CSUMB because of its close-knit, inclusive community. Also, the surrounding area is fantastic, with a pleasant ocean breeze and easy access to Big Sur."

Schoonover Park suffers from poor communication, resident dissatisfaction

By Peyton Smith and Kiley Eriksen

When making a move across the state, the last thing anyone wants is trouble. Unfortunately, that's exactly what Soyeon Kim, a Cinematic Arts and Technology assistant professor at California State University, Monterey Bay (CSUMB), experienced.

Kim was hired as an assistant professor at CSUMB and was given the opportunity to live in Schoonover Park, a section of East Campus, which is available to faculty and staff at the university as well as employees of other nearby institutions.

"The campus neighborhoods

provide employees with workplace-convenient, continuously affordable housing," according to the property management website.

"I was really excited," said Kim about the opportunity to live so close to campus with such great rates. "Having the faculty housing itself made moving easy."

However, the next three months, starting with moving day, would prove to be not quite as easy as she had hoped. Kim's stay in Schoonover Park was nothing short of catastrophe. From loud neighbors, to unresponsive staff members, to

even walking downstairs to find someone inside her home with no notice or warning they would be doing so, she had enough and moved out.

"Almost every week we had to deal with something new," said Kim. Ultimately the disappointment with Schoonover Park drove her and her husband to find somewhere else to live.

For Kim the convenience factor alone was a big reason to move to Schoonover, not knowing that they would have to pay a bigger price for the location convenience.

The Alliance staff made Kim's move a little more difficult by providing false requirement information when it came to moving in with her two dogs. If it had not been for Kim talking personally to her veterinarian in regards to a health certificate before moving in, she would have spent approximately \$600 for paperwork that was not really required.

The vet mentioned this certificate normally is not a requirement for any apartment, which led Kim to double check with Alliance if a canine health certificate was actually necessary, they replied back saying that it was not, after telling her it was just days before.

This is a similar situation for multiple other residents and former residents of the living community which is managed by Alliance Residential property managers. A petition was started at one point by another CSUMB faculty member to make changes within Schoonover, but prob-

lems are still present.

CSUMB's responsibility to employees who live in Schoonover

Schoonover Park is often used as a recruiting tool for the campus' faculty, according to multiple professors. Since CSUMB is located in such an expensive area to live, being able to find an affordable living situation is a must for prospective faculty and staff. Having the employee housing available is often a deciding factor when it comes to accepting a job at the university.

However, when they move in and have to deal with situations similar to Kim's, they are either driven away or forced to stay and cope with an unsatisfying living situation.

While the area of East Campus that is dedicated to student housing, Fredricks I and II, is supervised by CSUMB's Housing and Residential Life, in the form of student Resident Advisors and staff, the situation at Schoonover Park is much different. Resident's must deal directly with Alliance and have no university support when problems occur.

When Schoonover residents have issues such as loud neighbors, they report having trouble contacting Alliance staff, who are supposed to be addressing the problems. "I sent multiple emails on different occasions," Kim stated about her experience. "Days and weeks would pass by before I would hear from anyone."

When asked about the trouble

at Schoonover Park, Kevin Saunders, executive director of the University Corporation which manages the faculty housing along with the student housing at CSUMB, said: "they have the option to live out there and it is their choice," and "they're in charge of their own situation out there."

This rather calloused response demonstrates CSUMB's lack of concern for faculty and staff who live in Schoonover, which is the only place many can afford to live given the fact that CSUMB faculty are some of the lowest paid in the CSU system, while the Monterey area continues to be one of the most expensive places to live. This contributes to the low morale many CSUMB faculty and staff report.

It also fails to recognize that CSUMB actively uses Schoonover Park as a recruiting tool, and that of all the property management companies in the area, only Alliance is listed on CSUMB's website as an official partner organization.

With no help resolving issues from the property management or from the University itself, tenants are feeling like there is nowhere to turn. In Kim's case, she was able to find somewhere else to move. Not all residents have the same option.

Can residents expect any changes?

Because of her unpleasant experiences Kim had to encounter, she wishes her story can help future faculty and staff members.



This Schoonover Park townhouse is representative of the lack of care given to the homes as well as the poor communication demonstrated by Alliance staff. The planter boxes were removed from homes months ago, as part of a "neighborhood beautification" project that never started. Residents have no idea when to expect the project will be completed.

Agriculture Technology

Wicked problems call for radical thinking

By Alex Hennessey,
Caeman Amelio,
Yuri Lara and
Mackenzie Handy

The United Nations estimates the world's population will reach 9.6 billion in 2050. Serious concerns exist and are increasing daily about our ability to meet the needs of the ever-growing population, while at the same time sustaining our planet.

"The population problem is the mother of all wicked problems and that's where all the other issues that we see today are deriving from... we see the pressures on land, the pressures on water, we need to build more cities, we need to build more homes, we need to provide more food," said Dr. Sonny Ramaswamy, director of the National Institute of Food and Agriculture (NIFA).

Ramaswamy describes the major challenges facing society today as the "six wicked problems." In addition to the growing population, the other five problems include food, water, climate change, health, and energy. These wicked problems will continue to grow as the global population continues to increase.

The problems each present a unique set of challenges, yet they are connected. For example, as population increases, the demand for food increases, which leads to more production, which leads to more carbon dioxide filling the atmosphere. Producing more food also requires more water.

"Water being a very important point that drives the world it will become a grand problem if the prediction about 2050 becomes realistic," said Ramaswamy.

The threat of climate change affects the problems exponentially. This, com-

ined with the depletion of water and land resources is taking us down a treacherous path, which is why Ramaswamy is adamant on investing in our future, now.

Agriculture technology is an area that Ramaswamy and the NIFA are investing in heavily. Tech innovations in agriculture will help to address issues of labor, water conservation, precision agriculture and food safety. The adoption of new agriculture technologies could be more impactful than the introduction of the motorized tractor.

What is agriculture technology?

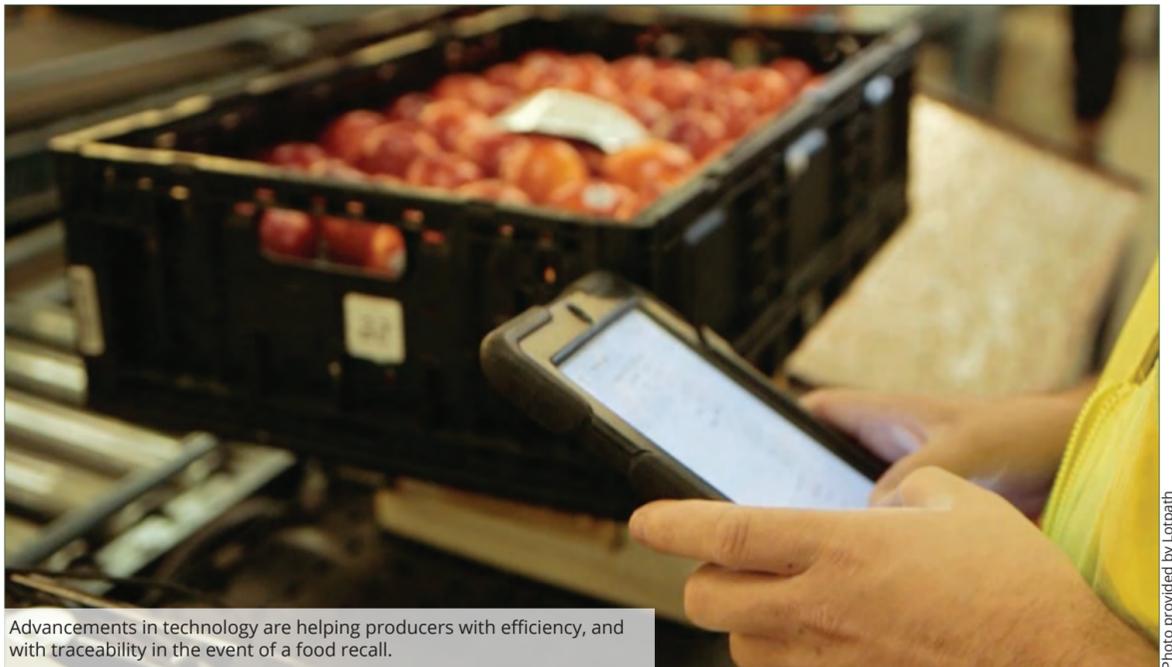
Agriculture technology is a thriving sector from the digital evolution that has occurred in the past 20 years. The processes, techniques and advancements used to grow and harvest crops, as well as those used to raise livestock, are prime areas for startups and global tech companies.

"We got to be investing now, discovering new things now, inventing new things now, so that it will pay dividends over the longer haul,"

- Sonny Ramaswamy

The need for technology advancements in agriculture is immense as the industry moves towards alternative and innovative ways to meet supply demands. Technological innovations have emerged in the agriculture sector and are reshaping many common agricultural practices.

California is uniquely suited to lead the way in



Advancements in technology are helping producers with efficiency, and with traceability in the event of a food recall.

Photo provided by Lotpath

developing new agriculture technologies, as it blends two of its leading industries – farming and technology. Producers and innovators in Salinas and Monterey County are working to unite Silicon Valley and the Central Valley to develop the next wave of agriculture technology.

"Our goal is really, to bridge the gap between the two valleys," said Jesse Martin, Chief Operating Officer at AgTech Insight out of Salinas.

Emerging technologies come in many forms such as drone and satellite use for data collection, software for mobile logistics management systems, development of new vertical farming practices, and robots for harvesting.

"Technology can manifest itself [in] different ways depending on the application. That application being pushed by necessity. I can think of a few examples that are major impacts at the moment and in the near future," said Abel Valdez, an

IT project and collaboration manager at Tanimura & Antle, a Salinas Valley produce company.

As technology progresses so does its prominence in agriculture. The demand for agriculture advances can be seen in farmers' collaboration with tech companies. However, not everyone is eager to jump on board.

Cultural conflicts

Technology can help to address many aspects of the six wicked problems; however, there are challenges when it comes to getting innovations out of the research phase and into daily production cycles.

"Techies" who work on new technology and the old-fashioned farmers tend to "butt heads" with one another and this holds up progress, said Ramaswamy.

The two groups need to come together because when they do collaborate, great things can happen.

"The butting of heads" has spawned startups, major

companies, and investment bankers to create events allowing for the two cultures to combine forces. These gatherings are needed so "conversation begins between the two industries [and] relationships are strengthened," said Patrick Dosier, of TransValley Ag Tech, an agriculture technology consultant business out of Sacramento.

The thing to do now would be to educate people. "Learning to question assumptions [and] [take advantage of] hands-on learning," is what needs to happen, said Ramaswamy.

Planting the seeds for tomorrow

To achieve food security for the fast growing population, NIFA, a division of the U.S. Department of Agriculture which was created in 2008, with the mandate to coordinate all federally funded agriculture research, is investing millions in agricultural research.

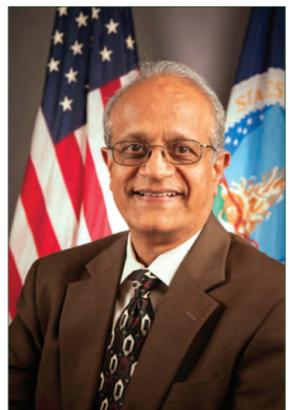
"We got to be investing now, discovering new things now, inventing new things now, so that it will pay dividends over the longer haul," said Ramaswamy.

Agricultural technology advancements are crucial in developing solutions for the six wicked problems.

Already, important agricultural advancements have been made possible as a result of being funded through NIFA. Currently, approximately 20 percent of the wheat that is grown in the United States is a direct result from investments made years ago through programs now managed by NIFA. Those particular wheat crops have been developed to withstand droughts as well as low nitrogen levels.

With Ramaswamy as Director of NIFA, the agency has been able to consistently grow its budget despite national funding concerns. Even during the 2014 government shutdown, NIFA saw a 17.5 percent increase in funding. Ramaswamy has proposed the 2016 budget, and if approved it would mean the agency has grown its budget by half a billion dollars, since he took the helm in 2012.

"I like to quote Winston Churchill who said, 'A crisis is a terrible thing to waste.' This is crisis time; we've got to be focused on the future of our nation and of the world as



Dr. Sonny Ramaswamy

well," said Ramaswamy.

Tech comes to fruition in the Salinas Valley

Big agriculture companies have seen multiple gains from their technological investments. This, in turn, helps them create more efficient ways of growing. Tanimura & Antle, a large grower and shipper of vegetables in the Salinas Valley, has started deploying these new innovations.

"We want to produce the best quality product, while taking care of our resources and maximizing yields," said Valdez, of Tanimura & Antle.

"Whether it's ag or any other industry, you have to constantly be looking for ways to create a better product, reduce your cost, [and] make your people more efficient," said Mike Antle, CEO, Executive Vice President, and VP of Harvest Operations for Tanimura & Antle.

Ramaswamy noted that people who are willing to accept these new production and harvest methods are leading the way for agricultural revolution, which will pave the way for a future of safer food and water, while addressing the issue of climate change.

The way companies can meet Ramaswamy's challenge is through technology.

"Drip irrigation with remote valves that are dependent on soil humidity help us conserve water, tractors that are guided by GPS, allow us to be faster at soil preparation, [and] use less fuel and time, [and] data input in the field that allows us to be more nimble and make better decisions as it comes to weather, pests and market conditions thus ensuring better quality and supply to our customers," said Valdez about the benefits he sees in technology.

Tanimura & Antle have adopted multiple technologies that have improved harvesting and packing: from hand-held devices to large machines that help wash and pack lettuce, technology is at work in the fields today.



Photos provided by Tanimura & Antle

NASA helps growers

By Alex Hennessey

California's historic drought has impacted the state's agriculture industry, which is actively seeking new ways to conserve water. California State University, Monterey Bay (CSUMB), NASA, UC Cooperative Extension and other project partners are using satellite-derived estimates of crop water requirements to support agricultural producers and water managers in maximizing the benefits of available water supplies in the ever-drying fields of California.

As California Governor Jerry Brown imposes major restrictions on residents for water usage due to the severe 4-year long drought, California's agriculture industry also faces significant cuts to their water supplies. Many growers in the Central Valley are receiving 0-25 percent of their full allocations from surface water supplies while water prices continue to increase. As a result, growers are having to rely on groundwater pumping to sustain their crops, creating challenges in many areas around the state with rapidly declining groundwater levels.

Governor Brown recognizes the integral function of

California's Central, Salinas and Pajaro Vallies in providing a major portion of the nation's fruits and vegetables and is under increasing pressure to further address groundwater overdraft challenges beyond the 2014 Sustainable Groundwater Management Act.

NASA's Satellite Irrigation Management Support (SIMS) framework is an advanced computing and data processing system dedicated to providing growers and irrigation managers with actionable information with the potential to maximize crop-per-drop, and allow the state of California to increase on-farm water use efficiency. This process is precision agriculture at the highest level, and has the potential to help thousands of growers, once freely available to the public.

"The SIMS framework is intended to provide new information products for our growers at the irrigation-block scale while still encompassing the entire ranch and even state; optimizing and informing challenging daily decisions such as irrigation timing and duration," said Kirk Post, research scientist with CSUMB and the Cooperative for Earth

Science Research working on the SIMS project.

California agriculture production was valued at \$47 billion in 2013, according to the U.S. Department of Commerce. With California's historic drought on water professional and municipality's minds alike, Forrest Melton, the Primary Investigator on NASA's SIMS project and his team of collaborators are aiming to address part of the economic and sustainability problems growers are facing both now and into the future.

The SIMS project, headed by Melton, along with NASA Ames research center, CSUMB scientists and students, and the California Department of Water Resources, has developed a framework for using satellite data to map key indicators of crop condition and crop water requirements.

By mapping the condition of the crop canopy using satellite imagery, and combining information from the California Irrigation Management Information Systems (CIMIS), they are able to understand crop water requirements across multiple crop types, encompassing thousands of acres owned by their partner growers.

As opposed to companies searching for investors to market the next best thing since the tractor, the SIMS team is applying their advanced data driven resources to benefit growers, and the state's water supply.

"How to analyze and understand that data, I think that's the biggest challenge in precision Ag at this point in time. It's not acquiring the data; it's creatively leveraging the data we have to develop new applications and scalable solutions within the context of commercial production. You can have this great high resolution data set, but the crux is how a grower can use that information in real time, and make an actionable decision," said Post.

By making data from SIMS available through other advanced irrigation management software, such as the UCCE CropManage system, the team hopes to further increase the utility and effectiveness of the new information products.

Recently, the CSUMB and NASA Co-op received grant funding from the National Institute of Food and Agriculture (NIFA) as part of the Non-Land Grant College of Agriculture (NLGCA) to support capacity building for agriculture sustainability on the California central coast through research and educa-



Kirk Post, research scientist with CSUMB and the Cooperative for Earth Science Research, monitoring water levels in the soil.

Photo provided by Kirk Post

tion working with Hartnell College, UC Davis, Cal Poly San Luis Obispo, Monterey County Resource Conservation District and the UC Cooperative Extension Program to develop curriculum and enhance regional research capacity and education.

Working collaboratively with local universities and research centers, the team will develop curricula that will help the current and future agricultural workforce to irrigate and nutrient decisions.

Post, who will be teaching 'Career Opportunities in Agriculture' this upcoming Fall,

hopes to create a cohesive team through this grant to address education in agriculture throughout Monterey County. He is intent on addressing the needs of both small self-run farming operations to large, vertically-integrated agribusiness firms which may soon have the capacity to use research driven decision support tools broadly to make actionable, real time decisions, ultimately improving the agriculture industry resilience to the ongoing drought.

Technology aids in food recalls



Photo by Alex Hennessey

By Alex Hennessey

The food on your dinner plate travels a long way before it gets there. To have the capability to trace where that food came from in the event of a recall due to contamination is of utmost importance to the public, growers, and government agencies.

The problem is having the technology to trace food accurately to get it off the shelf and minimize the risk of human consumption, and to meet the standards of the Food Safety and Modernization Act which requires a lot of documentation.

On April 13, Taylor Farms, a large producer of fruit and vegetables out of Salinas, was transporting spinach through Michigan that tested positive for both Salmonella, and non-shiga toxin producing E. coli. The testing was performed by the Michigan Department of Agriculture and Rural Development as a routine food safety assurance program.

Two of Taylor Farms distributors issued public reports of the recall; Gordon Food Service and US Foods. The

two distributors had clashing recall notices with Gordon Foods stating that two lines were possibly infected with the pathogens and needed to be recalled, and US Foods stating that there were three lines that were possibly infected, according to Food Safety News.

Most of the recalled spinach was not taken out of stores before being bought by the public, meaning there is a great possibility that the contaminated spinach was consumed by people who never heard about the recall.

In the event of a recall, such as the one with Taylor Farms, it is crucial to be able to quickly identify all potential contaminated product. Traceback, as it is called, can be greatly enhanced through new technological advances.

Lotpath, a Fresno Based company that builds apps for the fresh produce industry, has developed software that allows clients to use it in a way that supports food safety practices- specifically traceability.

Lotpath's original inten-

tion for their software was to record product quality, not ensure food safety. "[Lotpath Quality] is used to record product quality. When recording product quality, produce companies record information about products in the supply chain that may prove useful during a recall," said Mike Dodson, CEO of Lotpath.

"For example, inspection records may include information about growers, fields, lot numbers, harvest dates, and product defects," said Dodson.

This technology has also prompted other useful tools in food safety. The software has been used for inspection of workers to insure they are following food safety guidelines, as well as performing inspections at harvest sites to insure there are sufficient portable toilets, and hand-washing stations.

This an example of how technology can help monitor food safety, and safely feed the future.

Wicked Problems, Radical Thinking

Continued from page 8

In addition to private companies and NIFA exploring new agriculture technologies, many universities and colleges also are on board. In Salinas, Hartnell College has an active program and here at home, California State University, Monterey Bay (CSUMB) is also developing a program.

CSUMB's role in solving the six wicked problems

Although the CSUMB Watershed Institute has a hand in developing solutions to agriculture's major problems with organizations such as NASA, and the university is home to many faculty and researchers who specialize in agriculture fields, CSUMB has yet to offer an extensive agriculture program.

As an agricultural titan, California and its university systems have played a significant role in developing innovations for the agriculture industry. Fresno State, which is part of the CSU system, is currently building the Jordan Research Center, which will house new programs directly related to science and technology in agriculture. University of California, Davis continuously makes new strides in research that helps growers to better understand precision agriculture.

CSUMB is working to develop agriculture curricula in several areas, with hopes of launching an Agriculture Science degree in the near future.

"Our complementarity piece is not to do something UC Davis, Cal Poly San Luis

Obispo, CSU Chico or Fresno is doing, because they have great programs," said Dean of Business for CSUMB, Shyam Kamath. "There's no point in doing what they're doing."

Kamath said CSUMB has decided to focus on five specific areas in agriculture research for the new program: post harvest supply chain, perishable crops, precision agriculture, alternative agriculture systems including vertical agriculture, and sustainable or organic agriculture.

"We're going to make our ag program complimentary to the College of Science. They're going to do the ag science part, and we are going to do the ag business part," said Kamath.

Feeding the future

"From the perspective of NIFA, [we must] ensure that everybody has access to safe and affordable food that it is nutritionally adequate," said Ramaswamy.

Meeting the demands of the six wicked problems is not optional. We must collaborate - tearing down the walls of suspicion or distrust - and develop innovative means to feed 9.6 billion people while sustaining a healthy planet. Ramaswamy agrees we cannot wait until the time is upon us; we need to adopt the mindset now that what we do today is feeding our future.

"It is about the future," said Ramaswamy. "Our history in the United States and around the world tells us what's in the pipeline takes 20 to 30 years before you actually see it on the ground. We have to be investing now."

Feeding the Future

Feeding the Future is a series of stories exploring multiple aspects of meeting the food demands for the rapidly growing population through advancements in technology.

These stories were written by a group of student journalists enrolled in HCOM 388: Investigative Reporting.

Scan these to read other stories in the series that the team has published in the *Otter Realm*.

Thrive Accelerator



<http://otterrealm.com/feeding-the-future>

In The Fields



<http://otterrealm.com/feeding-the-future-2>

Fog could provide a clear path to alternative water source

By Evan Areias

Due to the scarcity of rain California has been getting over the past few years, it is essential to value every single drop. Dan Fernandez, a Science and Environmental Policy professor at California State University, Monterey Bay (CSUMB) is quite literally utilizing every drop. Fernandez came up with an idea to gain as much water as possible from fog.

On a hot mid-summer day in Central California at a meditation retreat, Dan Fernandez was sleeping in a tent trying to figure out how to escape the heat. While trying to figure this out, he started thinking about how Monterey has a lot of fog and myriad water issues. After finishing the retreat he decided to look into fog water collectors and ever since then, he has been creating more and more fog water collectors all over California.

The main goal of the fog collector is to capture fog water in nets, drain the water from the fog down to a pipe at the bottom of the net, and let the water drip down into a bucket that is strategically positioned next to the fog collector. There are many



Dan Fernandez inspects one of his fog collectors located near East Campus.

Photo by Evan Areias

potential uses for the water collected, such as nourishment of local gardens or small patches of land.

Although fog collectors capture only a small amount of water, they can perhaps help

remediate water use in some circumstances. Depending on the amount of fog on any given day, each collector can produce anywhere from no water to multiple liters in a day.

“There was a day when a fog

collector in Big Sur gathered nine gallons,” said Fernandez. This is a significant amount of water that dwarfs what is collected on most days.

With the production of more fog nets, more water can be ex-

tracted from fog. There are approximately eight standard fog collectors in Monterey County, one of them located on top of building 59 on the CSUMB campus. It cost only \$300 to build a standard fog collector,

and repairs are a short and cheap process.

As he researched his idea, Fernandez found that it was not original. FogQuest, a non-profit organization in Canada, seeks to help developing nations by providing them with fog nets and other sustainable sources of water. FogQuest has been helping local and international organizations and communities with the goal of making optimum use of atmospheric sources of water.

In 2010, the Ethiopian Orthodox Church asked FogQuest to supply fog nets to its community and FogQuest has consistently provided them ever since. Fernandez used FogQuest as a resource and inspiration when he first began creating his fog nets.

Although fog nets collect a limited amount of water, Fernandez is hopeful that they will become more widely known. With the addition of fog nets to other parts of the world, fog water use may become more widespread and it may encourage a greater appreciation of the preciousness of water.

Navigating the current

Continued from page 3

“One big thing is that we are combining all our separate irrigation systems into a centralized system controlled by a single computer which will help us monitor and control irrigation campus-wide. This should really help us conserve water, and the entirety of the \$175,000 project will be funded by money earmarked for energy efficiency from the Chancellor’s office,” he said.

In addition to the action already mentioned, another significant addition to the campus is the percolation pit, located on Inter-Garrison Road across the street from the Visual and Public Art buildings.

The pit may look like just a hole in the ground, but it can be used in several ways to conserve water. When it rains, the pit collects water, which is then drained and used as groundwater for CSUMB. It is also used to stop water from flooding Inter-Garrison Road.

The peak water use months for the university are September through November when students are here and it is not raining, said Lerch.

Of all the water used on main campus, 50 percent is used by irrigation and 29 percent is used in the residence halls. Between 2013 and 2014, Lerch and his department managed to reduce water used in irrigation 39 percent.

Water use by the numbers: is there enough to go around?

When the Army left Fort Ord in 1994, it transferred its water rights of 6,600 acre-feet per year to FORA. FORA then allocated portions of that 6,600 acre-feet to the jurisdictions that would redevelop Fort Ord. The newly established CSUMB was one of them, and it was allocated 1,035 acre-feet of water per year, which at the time was estimated to be enough to guarantee campus build-out to 12,500 students, according to Lerch.

Although CSUMB only uses about half of this allocated amount, it is predicted to grow to more than 12,000 students



CSUMB’s utility dollar: For every dollar CSUMB spends for main campus utilities, 61¢ goes to electricity (50¢ to PG&E and 11¢ to Sun Edison-solar), 25¢ to water and sewer, and 14¢ to natural gas.



The percolation pit next to the Chapman Science Center.

Photo by Danny Simon

by 2024. Based on the current rate of use, CSUMB will use approximately 913 acre-feet when it hits its peak enrollment. Lerch is confident that by then the university will be better at conservation and may use even less.

CSUMB does not charge its students individual rates for utilities, but rather a fixed fee is included in housing costs. Therefore, CSUMB students have little incentive to reduce their water usage, and as Lerch said, there have been next to no attempts to change student behavior up to this point.

However, as the student population climbs the university will need to continue to show improvements in water conservation.

Energy use

The Climate Action Plan also includes measures to reduce

energy use. The numbers for energy use are similar to those for water: the amount we use is on the decline despite a higher student population, yet the amount we pay keeps steady or increases year after year.

In a similar way to water conservation efforts, many small steps have been taken to improve efficiency in energy use. With the new Business, Information and Technology (BIT) building and the Promontory opening in the fall, Lerch predicts energy use will increase substantially.

Last year CSUMB used 10.5 million kilowatt hours (KWH) of energy, and he estimates next year it will be up to 12.5 million KWH.

Still, compared to where the university was 10 years ago, this is a major improvement. In FY 2004-2005 CSUMB had 3,500 students, and it used 11.9 million

KWH. Last year, more than 5,700 students used less than 10.5 million KWH.

Additionally, the 12.5 million KWH estimation is high, says Lerch. There are already steps being taken to lower that number. For instance, right now the FSO department is replacing 300 street lamps with energy efficient LED bulbs. It is hoped that this project alone will reduce the university’s energy consumption by 180,000 KWH per year, which could save \$23,000 from the yearly electricity bill.

Lerch hopes that, thanks to efforts like this, next year CSUMB will use closer to 12 million KWH. “That would get us back to the amount of energy the campus used 10 years ago before we did any major energy efficiency work.”

“We could then say we doubled the student population and added 50 percent more square

feet of building space, all without increasing energy consumption,” added Lerch.

A remedy for the high Pacific, Gas and Electric (PG&E) rates has been under way since 2010, when the solar farm off Butler Street was developed. Sun Edison, the solar company, built the solar farm at no cost to the university. All they required was space and a contractual agreement that CSUMB buy the energy it generates for 20 years. CSUMB owns roughly 1,300 acres, much of it empty or occupied by abandoned buildings, so space was not a problem.

When the university first began buying energy from Sun Edison, it cost more than the energy supplied by PG&E. After only four years, the PG&E rate has increased to the point that it is significantly higher than the cost of solar power.

Solar generates 18 percent of the university’s power today, all of it generated from the farm off Butler Street.

Since solar is cheaper and there is an abundance of empty space, why not build another farm? “There has been some consideration,” said Lerch, of adding more, “but there are some regulatory issues we have to be careful of.”

A bright future for CSUMB

With the times changing, and people becoming more environmentally aware of our ever-changing climate, it is reassuring to know that CSUMB is

becoming involved in the efforts to conserve water and electricity. CSUMB, as well as other universities have taken a stance on reducing their carbon footprint and conserving resources.

Monterey County still has quite a distance to go in decreasing its water use by 2017; however, with the strides CSUMB is making to help meet this goal there is still hope for the county.

What to know:

The Fort Ord Reuse Authority (FORA) is the committee overseeing Fort Ord’s transition from military to civilian activities, and it determines allocation of resources.

Water consumption is measured in acre-feet, which translates to one acre (about the size of a football field) of water one foot deep. This, according to Lerch, is just a smaller and simpler number to deal with than hundred cubic feet or gallons of water. One acre-foot of water is roughly 43,560 cubic feet or 325,853 gallons.

Kilowatt Hour (KWH) is a unit of energy equal to 1,000 watt-hours. An example of a KWH is a 40-watt light-bulb operating for 25 hours uses 1 KWH.

Oil transportation on track for disaster

U.S. railways provide cheap transportation at a high cost to safety

By Di Andra Espinoza

Jackie sits in her bed staring out the window at the plethora of stars that dot the dark blue sky. She suddenly hears a faint but familiar chime in the distance.

Summer fondly reminds her of crackling campfires, the whip of jump ropes hitting the pavement and most notably the whistle of trains passing through the town. Until recently this sound triggered a bank of memories stored in Jackie's mind of long summer days and warm summer nights.

Now as Jackie looks up, counting the invisible numbers of whistles until the train passes by her house she holds her breath. She hopes that this time the train going by isn't holding tons of crude oil and that if it is, the train sticks to the metal tracks it was designed for.

Jackie knows that at any moment her peaceful life on the banks of Bakersfield could quite literally go up in flames. As the train shakes by her house Jackie lets out a sigh of relief. This time she is safe from the sticky black tar that threatens to ruin her peace.



Photo from wikipedia

This is not always the case for towns and families that host such a dangerous form of transportation. As 2014 came to an end, Americans saw the biggest spike in history of crude oil spills and accidents caused by the railroad system.

Hydraulic fracturing, or fracking, has doubled the amount of oil America produces almost instantaneously. Our country has been faced with the question of transporting this oil across the states.

With delays on the Keystone XL pipeline, oil companies have opted for railroads to do the heavy hauling. Rail transportation is economically beneficial, as well as time saving, and oil companies were quick to jump on the tracks. But what does this mean for the townspeople who watch these ticking time bombs

pass through their cities?

The U.S. Department of Transportation, Federal Railroad Administration reported that in 2012 the most hazardous materials being transported by rail included petroleum crude oil, hydrochloric acid solutions, molten sulfur, gasoline, Argon, corrosive liquid and various other highly flammable materials.

While the Association of American Railroads (AAR) ensures that there has been community preparedness and first responder training in the event of an accident, the towns' people often times do not know what exactly is held in these train cars, or what to do in the event of a real emergency.

Furthermore, the train cars are often inadequately equipped to safely transport the materials.

Numerous accidents, often

resulting in death, have been caused by the failures of train cars to successfully transport crude oil and other dangerous liquids. The combination of flammable material and derailment of train cars is the direct fear of railroad transportation of crude oil.

In a November 2013 proposal the AAR stated that: "freight railroads stepped up the call for even more rigorous standards for tank cars carrying flammable liquids, including asking that existing tank cars be retrofitted to meet these higher standards or phased out if they cannot be made safer."

AAR also proposed that there should be rules for transporting flammable materials via railroads, with a draft of said rules to be released this month.

However, NBC News

reported that "on January 15 the Department of Transportation missed a deadline set by Congress for final rules related to tank cars, which have a decades-long history of leaks, punctures, and catastrophic failure."

On May 12, 1989 a train carrying Trona, a non-marine evaporate material, derailed in San Bernardino. The train conductors were killed and several nearby houses were flattened.

Thirteen days after the "Duffy Street Disaster," the pipeline that was buried close to the same railway ruptured "showering the neighborhood with what appeared to be a peculiar vapor, which ignited into a large fire that burned for close to seven hours and emitted a plume of smoke three hundred feet into the air."

Two people were burned alive and property damage was estimated to be \$14.3 million.

More recently, Alabama and Quebec, Canada each faced accidents with railroad transportation, the latter contributing to 47 deaths, according to a *New York Times* report.

While it may seem like a scene in an action movie that could not possibly be a reality, the truth of the matter is that these explosions can and have happened before. They can occur in any town that uses railroads as its form of transportation of crude oil. They can happen to ordinary people leading ordinary lives.

Fractured debate

Continued from page 4

lus Shale in the Northeast, the Bakken Shale in the North, and the Barnett Shale in the South.

Regions like the Three Fork Play in the North and the Barnett region on the Texas-Oklahoma border have been the most heavily affected by the natural gas economic explosion.

"United States natural gas will see production increases from 40% in 2012 to 53% in 2040," according to the Energy Information Administration.

The Environmental Protection Agency (EPA) claimed in 2011 somewhere between "70 to 140 billion gallons of water were used to fracture 35,000 wells in the United States each year - which is approximately the annual water usage of 40 to 80 cities each with a population of 50,000."

California is seeing more and more austerity measures for the sake of its precious water and understanding water usage by natural gas exploration is one part of that debate.

The United States Geological Survey has also linked increased earthquake activity with the long-term storage techniques involved with fracking.

Because of the depth of underground casing used in fracking, and the risk of a contaminated water leak, casings are built to an even higher standard beyond assessed risk. The modern technique also faces the challenge of being field tested and implemented at the same time.

The EPA lacks the ability to monitor all disposal sites, and specific processes of the overall industry are difficult to manage.

The Clean Air Act was unable to impose regulation on air pollutants including excess methane release caused by below ground activities (like fracking). This

is where the importance of the Clean Water Act and managing possible contamination needs to be addressed by any able governing body.

Transportation of Oil

Transporting volatile oil from shale reserves can be highly dangerous if not done properly. If strict regulations are not put into place it could spell disaster. Many people argue that alternative transportation methods should be explored.

One alternative is the con-

struction of more interstate pipelines, but those also have many risks.

The national debate about pipelines or trains is one that has become necessary due to the fact that transportation by train has caused large explosions and destruction to communities that these oil cars are passing through.

The U.S. transported "291 million barrels in 2013, with nearly 40,000 of these barrels being spilled throughout the year," according to the Association of American Railroads.

The failure of oil-by-rail projects has come up in many

recent reports, citing excessive methane release and innumerable environmental concerns, as well as debates between the usage of trains versus transportation through pipelines.

In Bakersfield, California a debate over an oil-by-rail project and a constant danger of environmental contamination, collisions and derailments has arisen in its surrounding communities.

How to Decide

With all the information available it is difficult to come down to a decision on how the U.S. and Californians should deal with modern well-stimulation

techniques.

Current information only leaves one option; more research, which will provide better answers than those currently produced. That research is coming very soon as well.

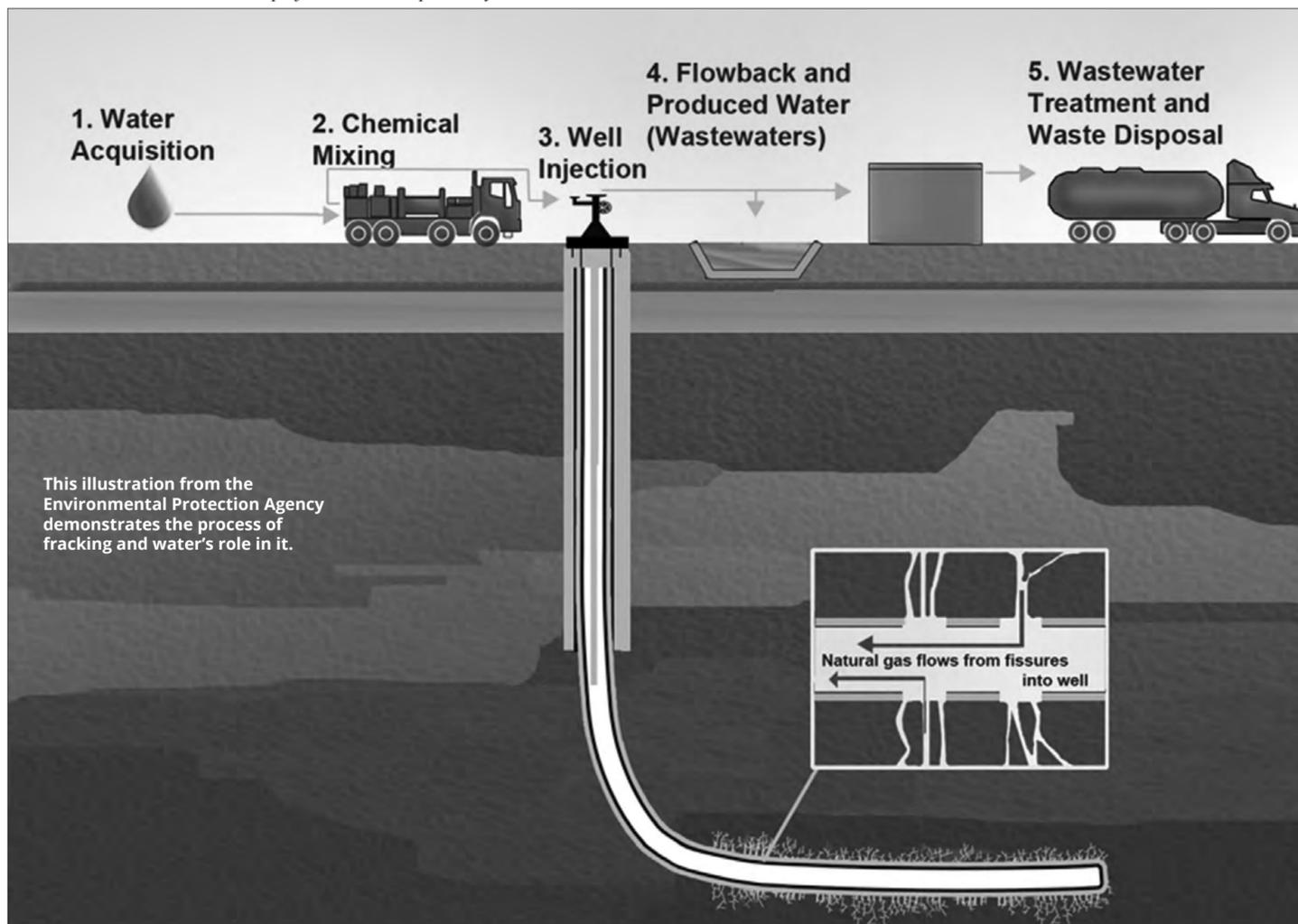
The U.S., along with the rest of the world needs energy. We will get that energy. Making sure that lights turn on when the switch is triggered, is a priority.

Extracting and providing oil to the world should be done in a sustainable way- for the environment and our economy. The U.S. is a global leader and we must take into consideration

our position in the world and the lasting effects of developing an industry like natural gas.

Governor Brown knows that Californians want and need, "more renewable energy... in that respect, California is leading the country and some would say even the world, and we're going to continue moving down that path."

Many of our nation's leaders recognize the transition to sustainable practices in obtaining energy must occur. The questions are: how quickly and when?



Eduardo Ochoa



It was 4:30 in the afternoon on the Friday of Spring Break. It had been a full day. He already had met with the California State University, Monterey Bay (CSUMB) Foundation Board, hosted a press conference announcing the university received \$8 million in innovation grants, and conducted the daily business of running a university. Yet, Dr. Eduardo Ochoa, CSUMB president, still found time to sit down and talk with *Otter Romp* reporters about his vision for the university including its challenges and opportunities.

Otter Romp: Can you tell us about the growth in student enrollment this year and what the projected growth is for the next five years?

Ochoa: First of all, we had been making the case both internally and [with] the Chancellor's office that CSUMB needs to grow faster than the CSU system as a whole in order to reach an efficient size in scale as soon as possible. And so, to try to move that conversation along, I developed a growth scenario that would have us reach 12,000 full time students by the year 2025. I shared that growth scenario with the Chancellor who endorsed the principle.

What has been the biggest challenge(s) and how has CSUMB addressed the challenge(s)?

The challenge is that we are making moves that we are presuming we will be able to be on this high growth path. For example, we created new colleges. Early on we created the College of Business by

pulling it out of the College of Professional Studies and then we started having a conversation about what should happen with the remaining College of Professional Studies. If we had been anticipating a slow growth environment the prudent thing to do would have been to distribute those programs to existing colleges, not create new colleges. The more we looked at that, the more sense it made to take what was left and break it into two colleges, the College of Education and College of Health Sciences and Services. We are a little top heavy with colleges for our current size but as we grow that will be the proper structure.

What was the total cost for the Business and Information Technology (BIT) building and Promontory? How were the projects funded? How will they address the issues related to growth?

The BIT building was \$38 million. It's rare that a building is funded 100 percent by the state. The reason is because we are a growing campus. It is funded through the capital planning program that the state and CSU have. The Promontory was an interesting approach we took; it was built through a private developer with their own funding on land that is not owned by the campus. The City of Marina owns the land. Their target market is our students and the establishment will be transparent to residential campus we have now. We will benefit by having more campus housing without having to pay for it. We also have the option to buy it, which we will if we have the funding in the future.

This year we heard a lot of stories about students struggling to find affordable housing while attending CSUMB. As President of the University, what do you see as the campus's primary responsibility and duty in meeting the students' housing needs?

We're a residential campus... 65 percent of the students come from outside our area. We have a responsibility to provide housing and our students are actually living on campus and as an

additional percentage who are clearly living away from home.

51 percent are living on campus and 14 [percent] that are [in] other housing and that 14 percent is a low estimate. We have the Promontory that has added to the housing capacity and if you look at the actual housing cost for our campus, we are among the lowest cost in the CSU system. So we're trying to keep it affordable.

What are some positive aspects of the growth?

There are a lot of positive aspects of growth. The biggest one is that we need to achieve an efficiency scale. As we move into larger enrollment levels, we reduce our average cost per student and that allows us to be more efficient. The system should allow us to grow faster. That was one. The other is to offer a wide variety of programs. We have a limited number of majors now. Some students we lose to transferring out because they want to pursue a major we don't have. Also in terms of the impact we have on the region, as we grow larger, our budget gets bigger. And when our budget grows, our impact on the region then grows.

Is there anything we didn't ask that you think is very important when looking at the growth of CSUMB?

One of the things that this university can become is a real key institution for our region; play a central roll promoting the social, economic, and cultural development of the region. And the cultural piece is where we are weak. If we get bigger and provide more comprehensive programs, we should strengthen the arts and that is going to have a very positive effect on the community and the aspects of all majors.

The City of Marina, once a thriving military town is now welcoming a new growth within its city limits. California

State University, Monterey Bay (CSUMB) will add more than 500 residents to Marina's population through the students who will live in the Promontory, a new residential facility just off campus. CSUMB investigative reporters sat down with Bruce Delgado, Mayor of Marina and discussed what Marina has planned once the Promontory houses residents.

Otter Romp: Who will have jurisdiction over the Promontory building considering Marina still owns the land; University Police or Marina Police?

Delgado: Because it is within the city limits, and not on state property, and owned by AMCAL (a private company) it is no different than any other building in Marina. So if things don't change from where they are today that is who owns it (a private company). Then Marina Police and Fire will be first responders. It is basically private land within the city limits. If CSUMB owns the land, it is not clear who will have the primary responsibility for it.

What will Marina do to restore the roads leading to the Promontory building?

The City of Marina is responsible for 8th Street. It is my understanding the 8th Street will be resurfaced and fixed in the near future. I don't know the time scale but the delay is due to the alignment of the street, [it] is supposed to change in the near future. The city did not want to put a lot of money into fixing it

Bruce Delgado



while in its current alignment. It took years to fill the potholes since 8th Street was thought to be out in the boonies. But when there are 485 people coming and going and we want them to have good roads because I want us to become a university town as much as we can. When we discuss the budget and approve the budget that will be the money spent after July 1. So, we have between July 1 and August 20 to start working on that road.

How will Marina manage the traffic of new and future students to and from the Promontory? What will it cost the city to manage the traffic?

Realignment will probably cost \$300,000 or \$400,000 - these are estimates. And fixing the potholes will probably cost about \$500,000. That can be done without any big contract. That stop sign at the intersection of 8th Street and California Avenue used to be a three way stop and now it is a one way. That intersection needs to be clarified, so people who are trying to save time are not cutting people off.

As mayor, do you see CSUMB's growth as an asset to the City of Marina?

Yes, it is the biggest asset that we have. CSUMB students will be 1 in 40 of the Marina population. It is more important and more valuable culturally, environmentally, and economically. Culturally valuable because it will bring people who aren't from here and if you look at any university town there is a lot going on because of the university; people walking, bicycling and skateboarding. Economic value with people getting haircuts, ice cream shops, of course restaurants. And environmentally university cities tend to educate the people about the environment to help understand the connection between outside the city that we depend on, the environment and inside the city for those who do not have that education.

What does it mean to be the Mayor of Marina and building pride for the university as well as Marina?

It means a lot of connections,

good partnerships and good times. I attended a lecture by a gentleman named Chavez on immigration. And that lecture would not have come to this area if it wasn't for the university. What it means to me as mayor is to try and make it as good as it can be for the university and Marina. Bring in as many students into town as we can and bring central residents into the university.

How is CSUMB involved in the community of Marina?

The Students work with our senior citizens, our teen center, they work at our youth center. They intern here in the city. There is not an event that happens in the town via Labor Day parade that doesn't involve students, the organizing and planning of events. When kids see that, they are exposed to higher education.

As CSUMB continues to grow, so will its impact on the surrounding communities. Maintaining already existing ties, while developing new opportunities is an important issue for our Campus & Community. We recently talked with the leaders of CSUMB and the City of Marina to hear their visions of what the future may hold.

The Q & A was conducted by Natalie Magana, McKenna Holmes, Eric Ransom and Taylor Johnson

Changing the face of 8th Street

By Natalie Magana and McKenna Holmes

At the beginning of this academic year, California State University, Monterey Bay (CSUMB) saw a tidal-wave of new students impact campus housing. Students struggled to find on campus housing. Many were put on a waitlist due to lack of availability.

Student housing took all the measures it could to accommodate as many students as possible. This included turning some double rooms into triples, and allowing freshmen to live in the previously "upperclassmen only" North Quad.

Despite these accommodations the student population speculated that the University had bitten off more than it could chew.

However, some relief is in sight with the opening of the new Promontory buildings in the fall semester.

CSUMB's new Promontory buildings will serve as new student housing for residents with at least sophomore standing. The Promontory is comprised of three buildings.

Every suite will have a full kitchen, and washer and dryer. Every bedroom within a suite will be a single occupancy (one person only), with a bathroom for every bedroom.

One of the buildings will

have a gym that all promontory residents will have access to, as well as a small "theater" space that will have a large screen and sound system already installed.

The new gym space may help relieve the burden put on the current Otter Sports Center. One thing not included in the new Promontory is a dining facility. This means the long lines found at on campus dining options are not likely to go away.

It may seem a happy coincidence that these buildings are ready for use just as the school declares impaction for the 2015/2016 academic year, but the plans for these buildings have been three years in the making.

The Promontory's location on 8th Street will be an impressive addition to what many consider an unofficial second entrance to the university. Kevin Saunders, executive director of University Corporation said: "it was really important for [CSUMB] to focus and clean up that area."

For a long time University

Corporation struggled with what would be built here, as the City of Marina had some less than ideal plans for the space. There was relief when the plans for new housing became solidified, and a private development company AMCAL came in and partnered with CSUMB and construction began.

Currently, CSUMB is on a one-year, \$5 million lease for the Promontory buildings and does not have technical ownership over the development. However, plans are to own the buildings and the land in a year, which will be purchased by University

Corporation for approximately \$69 million.

Although, the school does not have ownership yet, students should expect a similar, if not better living experience than that of living on main campus. University Corporation and AMCAL are maintaining a close relationship to make the new developments as similar to other housing on campus such as North Quad. The terms of ownership of the Promontory will not have an effect on residential life, other than a technical one.

The opening of the Promontory will also be beneficial to

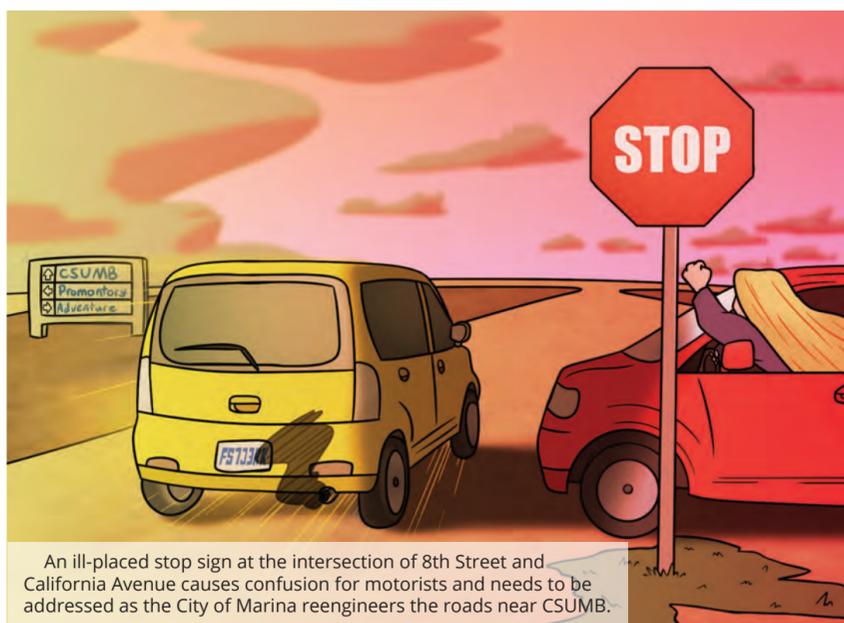
the City of Marina. Promontory residents will be full-fledged Marina citizens, according to Bruce Delgado, Mayor of Marina. "One in 40 Marina residents will live in the Promontory," said Delgado.

Unlike students, faculty and staff who live on East Campus, Promontory residents will get to vote as Marina residents in all City elections

Marina still has work to do as it prepares to receive these new residents. One of the priorities is to work on 8th Street and other roads leading to the new facility. With hundreds of additional

people traveling the tattered streets, problems could get worse if action is not taken soon.

One area of concern is the intersection of 8th Street and California Avenue. An ill-placed stop sign has created confusion and near collisions, as some motorists choose to ignore it and run through, nearly colliding with motorist who have stopped before turning.



An ill-placed stop sign at the intersection of 8th Street and California Avenue causes confusion for motorists and needs to be addressed as the City of Marina reengineers the roads near CSUMB.