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July 26, 2013

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## Arctic Methane Release Due To Climate Change Could Cost Global Economy \$60 Trillion, Study Reports

Reuters | Posted: 07/24/2013 9:09 am EDT | Updated: 07/25/2013 6:46 pm EDT



By Nina Chestney

LONDON, July 24 (Reuters) - A release of methane in the Arctic could speed the melting of sea ice and climate change with a cost to the global economy of up to \$60 trillion over coming decades, according to a paper published in the journal Nature.

Researchers at the University of Cambridge and Erasmus University in the Netherlands used economic modelling to calculate the consequences of a release of a 50-gigatonne reservoir of methane from thawing permafrost under the East Siberian Sea.

They examined a scenario in which there is a release of methane over a decade as global temperatures rise at their current pace.

They also looked at lower and slower releases, yet all produced "steep" economic costs stemming from physical changes to the Arctic.

"The global impact of a warming Arctic is an economic time-bomb," said Gail Whiteman, an author of the report and professor of sustainability, management and climate change at the Rotterdam School of Management, part of Erasmus University.

"In the absence of climate-change mitigation measures, the model calculates that it would increase mean global climate impacts by \$60 trillion," said Chris Hope, a reader in policy modelling at the Cambridge Judge Business School, part of the University of Cambridge.

That approaches the value of the global economy, which was around \$70 trillion last year.

The costs could be even greater if other factors such as ocean acidification were included, the study said, or reduced to some \$37 trillion if action is taken to lower emissions.

As much as 80 percent of the costs would likely be borne by developing countries experiencing more extreme weather, flooding, droughts and poorer health as the Arctic melt affects the global climate, the paper said.

Methane is a greenhouse gas usually trapped as methane hydrate in sediment beneath the seabed. As temperatures rise, the hydrate breaks down and methane is released from the seabed, mostly dissolving into the seawater.

But if trapped methane were to break the sea surface and escape into the atmosphere, it could "speed up sea-ice retreat, reduce the reflection of solar energy and accelerate the melting of the Greenland ice sheet," the study said.

It said that could bring forward the date at which the global mean temperature rise exceeds 2 degrees Celsius by between 15 and 35 years - to 2035 if no action is taken to curb emissions and to 2040 if enough action is taken to have a 50 percent chance of keeping the rise below 2 degrees.

Scientists have said the rise in global average temperatures this century needs to stay below 2 degrees Celsius to prevent devastating climate effects such as crop failure and melting glaciers.

However, the International Energy Agency warned last month that the world is on course for a rise of 3.6 to 5.3 degrees Celsius citing record high global carbon dioxide (CO2) emissions last year.

The Arctic has oil and gas reserves which Lloyd's of London has estimated could draw investment of up to \$100 billion within a decade. Environmentalists warn Arctic drilling is too risky and could have devastating consequences for the region. (Editing by Jason Neely)

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## Scottish scientists launch crowd-funding for robots that repair coral reefs

Published on May 8, 2013

EDINBURGH, Scotland -- The ocean covers over 70% of the planet, but is threatened by multiple stressors such as bottom fishing, pollution and climate change. Coral reefs support the livelihoods of almost half a billion people; marine litter affects around half of all marine mammals and kills almost a million seabirds per year.

These threats require active and urgent intervention to ensure global sustainability of human livelihoods and biodiversity. Currently, habitat remediation or restoration can only be achieved in small patches. In deep sea ecosystems, these tasks are also too dangerous for direct human intervention.

A team of scientists and engineers at Edinburgh University is committed to addressing these threats using innovations in computing, marine biology, and undersea robotics to revolutionize how such threats are addressed, combining autonomous underwater robotics with 'swarm intelligence.' Nature shows how groups or swarms of organisms (e.g. bees and termites) operate collectively to achieve complex objectives.

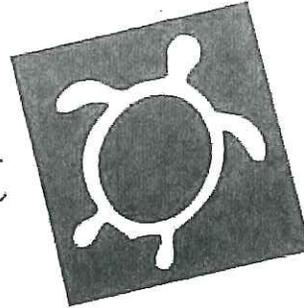
The "Coralbots" team plans to deploy teams of autonomous underwater robots to restore and rebuild damaged coral reefs.

The first future mission will restore reefs damaged by hurricanes and ship groundings in Belize. Running until May 26, 2013, the team have a project on Kickstarter to help accelerate this mission. Individuals, schools and corporations are invited to work with them, by contributing directly to the Kickstarter campaign, and taking up the opportunity to be directly involved.

Involvement will be centred on helping the team accelerate development around the many 'artificial intelligence' tasks in the project, ranging from recognition of coral in images, to robot stability in strong currents, while the team will provide educational packages and interaction with schools.

This project represents a glimpse of the future, where robotic intelligence works alongside human activity to repair, restore and protect the future of the global environment.

# Environment



## Moving Beyond Climate Change Plans To Action Challenges State, Counties

In Anahola, Kaua'i, the county has been struggling to keep 'Aliomanu Road passable for the better part of two decades. It has spent millions defending the road, now reduced to one lane, from scouring waves. In years to come, it will face spending millions more to keep open the only vehicular route to a small neighborhood of large homes and

vacation rentals. Might it be cheaper to open up an alternative route to the enclave?

At the other end of the island chain, in the Puna district of the Big Island, the homeowners' association of Kapoho Vacationland is facing the daunting challenge of what to do about Wai'opae Road.

to page 4

### *Climate Change continued from page 1*

Ever since 1986, when Hurricane Estelle generated 22-foot-high surf along the shoreline, the pavement has resembled a minefield more than a subdivision street. Water washes over it at low tide from the ubiquitous natural ponds on lots mauka of the road. At high tide, the potholes fill up from the makai flows, making the worst hazards invisible to unsuspecting motorists drawn to the area to snorkel in the tidepools. Four years ago, the homeowners' association approved spending up to a quarter of a million dollars to repair the road but no work has begun yet.

On O'ahu, the industrial area of Mapunapuna, a former marsh that lies below sea level, floods whenever tides are high or rainfall is heavy. Two years ago, the City and County of Honolulu tried to fix the problem, spending nearly \$1 million to install one-way valves in drainage systems. By December

2011, however, the floods were back (a faulty valve was blamed). Although the valves may stop seawater from entering the area today, they can do nothing to address inundation by brackish water from a rising water table in years to come.

The beaches of Ka'anapali draw hundreds of thousands of visitors a year to West Maui, but in the fall of 2003, management at the Maui Marriott hotel and the Ka'anapali Ali'i condos saw erosion on a scale that toppled trees and threatened walkways and a pool. The eroding face of the shoreline cliff was buttressed with 40,000 or more sandbags, and when those failed to halt the encroaching sea, the hotel brought in steel plates and Triton barriers. This year, the Ka'anapali Operations Association, made up of hotel and condo owners, sought to have the state match its own payment of up to \$400,000 to pay for an environmental impact study in anticipation of a beach restoration project. Despite strong support

from the Maui delegation, the Legislature did not approve the bill.

It is possible that climate change has nothing to do with any of these events. Even so, the challenges they pose are the very sort that will become more frequent and daunting in the not-too-distant future. Whether, how well, and how efficiently the state and county governments cope with these changes down the road will be determined, in large measure, by how they prepare for them today.

And if the measures taken at Anahola, Mapunapuna, Ka'anapali and Kapoho are any guide, the outlook is not great.

### *Plans and More Plans*

One thing Hawai'i does have going for it, says Jesse Souki, director of the state Office of Planning, is the fact that no one in any meaningful position of responsibility is disputing that climate change is real. "One positive thing in Hawai'i that's not often recognized," he said in a phone interview,

"is that we're one of the few states where the conversation isn't about whether it's happening, it's all about what we will do about it."

In Virginia, for example, the 2012 legislature refused to include the phrases "climate change" and "sea level rise" in a bill for a \$50,000 study of climate change impacts on the state's shorelines. As one legislator put it, those were "liberal code words." Instead, legislators chose to describe the study as one investigating "recurrent flooding" and "coastal resiliency."

With the blessing of Gov. Neil Abercrombie, Souki said, shortly after he was appointed to head the Office of Planning, "we began working on a climate change adaptation policy. I saw we had a policy dealing with greenhouse gases, but to be frank, if we produce zero greenhouse gases today, we'd still suffer for decades given what science is telling us — with sea level rise, a warming climate, the impact on agriculture and coastal structures," and the like.

With the Office of Planning taking the lead, Souki convened about a group of around 60 people, representing federal and state agencies, some community groups, non-profits, and businesses (including insurers). With the help of Jim Dator, a futurist from the University of Hawai'i, "we were looking out 50 years or more, looking at future scenarios," Souki said. Participants were asked to select a future and figure out how it could be achieved. "This served as a basis for climate change adaptation guidelines," he said, which the Legislature passed in 2012 as Act 286.

"It's a policy," Souki said. "We're the only state I know that has a policy passed by a legislative body and adopted by the governor. It's integrated into the statewide planning act, so all land use decisions—decisions by the Land Use Commission, the Board of Land and Natural Resources, county zoning, all of that—need to take into consideration climate change adaptation."

"The actual things you need to do aren't defined, and that's where our office comes in. We're not the only agency working on this, but we have made it a priority of the Office of Planning to assist sister agencies in the state and counties to deal with the impacts — how to integrate policy into action."

The update of the Ocean Resources Management Plan is an important step forward, Souki said. "It's an interagency document — the governor signed off on it, federal agency partners agreed to allow us to use their logos, which shows their support."



Hundreds of sandbags placed along the beach, fronting the Ka'anapali Ali'i and Maui Marriott were swept away by ocean swells in summer and fall of 2003.

PHOTO BY JONATHAN STARR

"There's a lot of science out there" that supports the policy, he said. "The issue is: how do we connect that to on-the-ground decision-making that is ongoing? How does science inform that?"

### *The Bathtub Model*

One of those who is wrestling with those questions on a near daily basis is Sam Lemmo, administrator for the Office of Conservation and Coastal Lands within the state Department of Land and Natural Resources. The OCCL is the agency that regulates development and construction on state-owned submerged and coastal lands, up to the shoreline, and on all Conservation District land.

In a phone interview with *Environment Hawai'i*, Lemmo said that climate change impacts were now being considered whenever his agency processes Conservation District Use Applications for work in coastal areas.

But figuring out exactly how climate change should be modeled is complicated, he acknowledged. The National Oceanic and Atmospheric Administration has published sea-level rise maps for Hawai'i, he noted, but "it's a bathtub-model approach. It's two-dimensional. There are certain things you don't see in that data."

What Lemmo calls the "bathtub model" predicts coastal flooding based only on the sea level rising at a certain rate over a certain period of time and does not consider other factors that come into play, such as storm surges that reach far inland or low-lying lands flooded by higher water tables. "There are other potential models," he said, "and we're interested in looking

for a higher resolution model for what sea-level rise will do to the Hawai'i shoreline."

He acknowledged the plethora of studies already published that show the impacts of rising sea levels on the state's shores. "It's a lot of regurgitation of the same old thing, kind of like a broken record... They don't really tell me anything. You need to show people what the actual change is going to be to your shoreline and show what facilities are being exposed to these threats," he said.

What Lemmo wants, he said, "is a higher resolution model for what sea level rise will do to the Hawai'i shoreline," including a beach vulnerability study. He has submitted funding requests, he said, and is hoping to work with the University of Hawai'i's Coastal Geology Group to get the research under way.

### *Hoping for the Best...*

Chip Fletcher is head of the Coastal Geology Group and associate dean of the School of Ocean and Earth Science and Technology. He is well known, both in and outside Hawai'i, for his research on shoreline processes and climate change. And while he harbors no illusions about the inevitable impacts of sea level rise, his outlook is not as bleak as one might expect.

"I see some rays of hope in Hawai'i," he said, pointing to Lemmo's request for help with a study of the effects of sea level rise on the coast. "He wants to know how sea level rise will affect beaches, and he wants it in a quantitative manner so he can use it in developing policy."

Act 286, which amended the State Planning Act in 2012, “is a beacon of extreme hope,” he said. In addition, he was pleased to receive a phone call from a high-ranking administration official following up on a statement Fletcher had made to the effect that the only way to preserve beaches is to purchase coastal land. The official, he said “wants to discuss how to fund a study of this particular issue.”

Still, “we’re just at the beginning of planning,” he said. “Every single state department and county department needs to figure out how sea level rise and other factors impact our mission. There has to be a long, complicated discussion involving some sort of committee that will look at all the details – decreased rainfall, rising sea level, rising temperatures, greater exposure to tsunamis, storm surges, and hurricanes, heavier and localized flooding. There’s a plethora of potential impacts intersecting with a plethora of government activities. I don’t know anywhere this discussion has begun to take place.”

Pulling buildings and infrastructure away from the shore — an approach known as retreat — is just one of several ways to deal with sea level rise, Fletcher noted. Engineering is another, whether it takes the form of armoring the coast or building structures to withstand rising sea level and everything that entails.

“Forty years from now,” he said, “Hawai’i will see just the tip of the spear of accelerated sea level rise. The National Academy of Sciences has predicted that, globally, we’ll see between seven and 19 inches of sea level rise by 2050. That averages out around a foot.

“But Hawai’i for various reasons is going

to see above-average sea level rise. By the end of the century, the National Academy is predicting between 20 and 55 inches, or upwards of five feet.”

“The first thing we need to ask ourselves is: What will the impact on us be of a one-foot rise in sea level? Probably the most immediate one will be a broadening and acceleration of coastal erosion,” he said.

Fletcher noted that his group had recently done a study of beach erosion on the islands of Kaua’i, Maui, and O’ahu, finding that 70 percent of them are experiencing loss. Nine percent were completely gone, usually as a result of seawalls built to protect private property.

On Maui’s north shore, almost 90 percent of the beaches were eroding, his group found.

As the erosion increases, Fletcher said, the state and counties will be forced to wrestle even more with coastal property owners who want to protect their land with seawalls.

“The DLNR has wrestled with this for some time,” he said. Today, “it does not very often award permits for walls, whereas 15 years ago they used to; it was standard practice.”

A one-foot rise in sea level “will come up in the storm drains,” he said. “On the sides of every road, you have these pukas. That’s where rainfall runs to the ocean, but the ocean is already coming up in some of these places — Waikiki and Kaka’ako on O’ahu, Kahului on Maui. We’ll see salt water ponding in the streets.”

Roads will be heavily affected as well. “A one-foot rise will make worse the seasonal high waves impinging on roadways that are already seasonally inundated,” he said, giving as examples Kamehameha Highway on the windward side and north shore of O’ahu.

“The areas that already have problems where the land and sea meet — those are already the first theaters of interacting with sea level rise,” he continued. “And this will only broaden and spread.”

Sea level rise will be most pronounced at high tide: “The highest tide of the day is where we’ll see the most flooding, the most wave overwash,” Fletcher said. “We’ll see waves running up on eroded beaches, crashing into houses — that sort of thing. Beach nourishment is going to become more common in Waikiki and Ka’anapali. Millions of dollars will be spent on sand replenishment where the economics justify it. We’ve had a few cases of neighbors hui-ing together to pay a coastal engineer to design a beach nourishment project, but that’s not always successful. Everyone thinks we can go out and find sand to put on the beach, but high quality sand is a rare commodity.”

Buried infrastructure will also be affected, he said. “Where we have not replaced the sewer lines, where they are still heavily perforated, we’ll see more and more infiltration and inflow as the water table rises.” Infiltration and inflow can hasten corrosion of pipes and overwhelm sewage treatment plants, resulting in sewage spills.

A rise in sea level of around a foot by 2050 is a near-certainty, given the thermal expansion of the ocean and melting of the world’s ice. “But Greenland is doing some alarming things,” Fletcher said. “Some glaciologists believe that as the ice melts back to where it is finally on bedrock, the rate of retreat will slow tremendously, but that neglects the melting that is occurring on the surface.

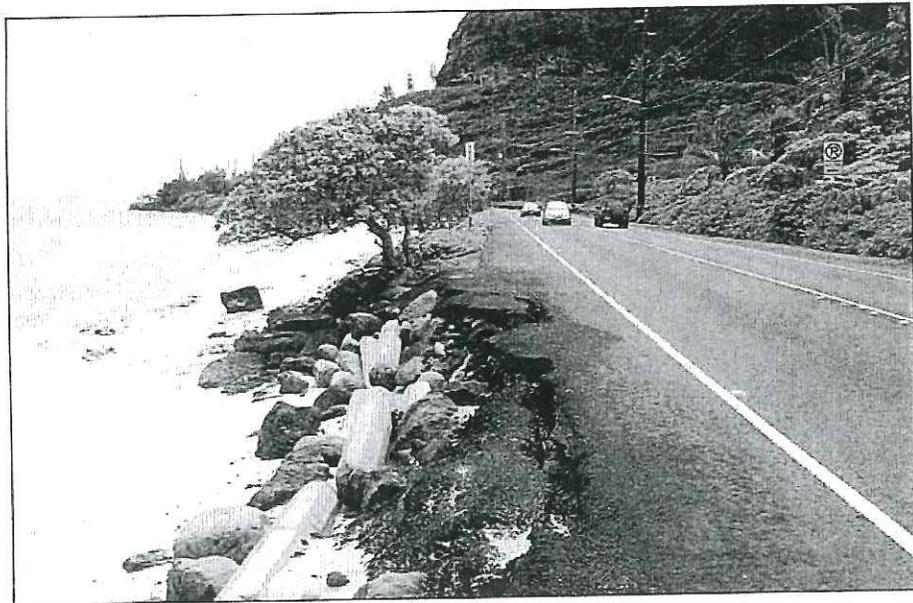
“A paper came out in May that predicts that by 2025, there is a 50 percent probability that the entire surface of the Greenland ice sheet will go into a state of decay... So has Greenland crossed, or is it approaching, a tipping point?” If that happens, the widely accepted models of the Intergovernmental Panel on Climate Change would have to be revised substantially.

But, Fletcher concluded, “these are off-the-cuff observations. In the end, we go along with the consensus of scientists. I hope sea level rise will be a slower process than many people fear. I don’t think the sky is falling, but I do think the longer we wait, the more expensive it will be to deal with.

“We can still plan for sea level rise adaptation in a very considerate, thoughtful manner. But government agencies have to take a leadership role and exemplify good adaptation practices. The private sector will see that happening and follow suit.

“We should hope for the best but plan for the worst.”

— Patricia Tummons



Shoreline erosion, Kamehameha Highway, O’ahu

## In Hawai'i, a Long History of Plans For a Changing Climate, Few Actions

If planning were all it took to solve the problems of global warming, the state would be sitting pretty. The call for plans to address climate change goes back more than 40 years. In 1972, the federal Coastal Zone Management Act included the statement that “global warming may result in substantial sea level rise with serious adverse effects in the coastal zone” and called on coastal states “to anticipate and plan for such an occurrence.” States participating in the CZM program — including Hawai'i — are to protect natural resources and manage coastal development “to minimize the loss of life and property caused by improper development in hazardous areas as well as those areas likely to be affected by sea level rise and other impacts of climate change.”

Over the last decade, the focus of climate change planning in Hawai'i has shifted. A study prepared by the Department of Business, Economic Development and Tourism in 1998, titled “Hawai'i Climate Change Action Plan,” dealt mostly with ways Hawai'i could and should reduce its greenhouse gas emissions. Nearly a decade later, Act 234 of the 2007 Legislature called for reductions in greenhouse-gas emissions and established a task force to report back on how specific goals to do so could be met.

Two years later, the Legislature overrode Gov. Linda Lingle's veto of a bill to establish a climate change task force. “The problem was it was never funded by the administration at the time,” says Jesse Souki, director of the state Office of Planning. “It just ceased to

exist.” Still, growing out of that impetus was a partnership between the state's working group on revising the Ocean Resources Management Plan and the University of Hawai'i's Center for Island Climate Adaptation and Policy. That led to the preparation and publication of a November 2009 report, “A Framework for Climate Adaptation in Hawai'i,” which underpins much of the updated Ocean Resources Management Plan.

In 2010, the Legislature again paid its respects to the threat of climate change in passing Act 73, relating to food security. “Now is the time for bold action to squarely address Hawai'i's energy and food requirements and plan for and address the inevitable effects of climate change,” the law states in its “Findings” section.

Last year, the Legislature amended the law setting out planning guidelines for the state, Chapter 225. The amendment makes adapting to climate change one of the top priorities that is to guide state and county governments as they develop plans and allocate resources. “The priority guidelines will serve as a guiding policy for adapting to the expected impacts of climate change through the existing implementation provisions of the Hawai'i State Planning Act, which include guiding all major state and county activities, programs, budgetary, land use, and other decision making processes, and county general plans and development plans,” the act states.

### Meanwhile, in the SMA

The state Coastal Zone Management Act as well as Article VIII of the state Constitution give to the counties the right to regulate development in the Special Management Area, a narrow belt that runs inland from the shoreline to, generally, the nearest major road.

Both Maui and Kaua'i counties have in recent years built into their SMA regulatory systems an approach that considers coastal erosion. In Kaua'i,

setbacks for building in the SMA are determined using an annual average shoreline erosion rate multiplied by 70 years, plus a 40-foot buffer on top of that. For buildings greater than 5,000 square feet, the multiplier is 100 years, since larger buildings will generally have a longer useful life, the county reasoned.

In Maui, setbacks are calculated by multiplying the average annual erosion rate by 50 and adding a buffer of 25 feet.

Neither O'ahu nor Hawai'i county has adopted a similar approach. Hawai'i County has a standard minimum setback of 40 feet. O'ahu setbacks are generally 40 feet, although for smaller lots they can be as little as 25 feet. New subdivisions on O'ahu are required to impose setbacks of 60 feet, however.

Although erosion-based setbacks are an improvement over fixed ones, they, too, have their limits. As Souki says, “they don't take into account sea level rise” and are based instead only on historical records. Michael Dahilig, director of the Kaua'i County Planning Department, acknowledges that limitation. “A lot of information is coming in now about melting glaciers and ice fields,” he said — information that is not apparent in historical data.

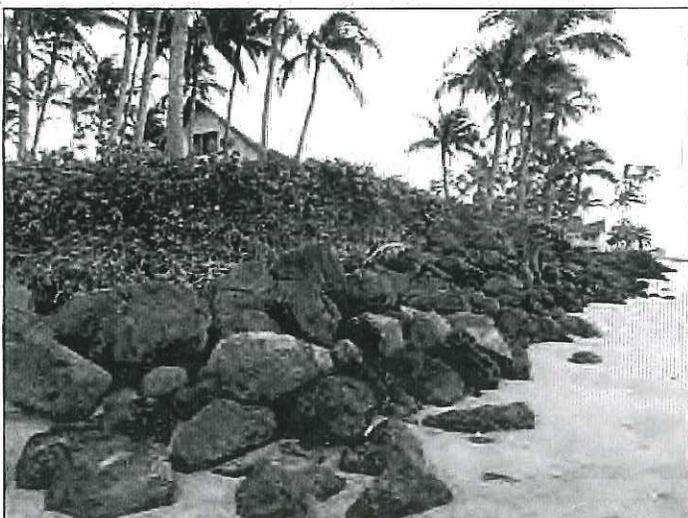
### Seven Steps

Souki told *Environment Hawai'i* that the Abercrombie administration is not planning to introduce legislation next year to address climate change. “There's no need,” he said. “We haven't done all we can do with what we already have.”

But the Hawai'i Coastal Geology Group, a part of the School of Ocean and Earth Science and Technology at the University of Hawai'i, has laid out a seven-step plan for action that will require a regulatory framework much more ambitious than what is now on the books.

Step 1 involves acknowledging sea level rise (SLR). “This can be achieved by writing SLR into our laws, public awareness efforts, and planning activities,” the group says on its web page describing the impacts of sea level rise in Hawai'i. Notwithstanding the changes to the state planning act approved last year, “currently, you are not required to consider the future threat of SLR in where or how you build (or redevelop existing structures).”

The second step is to require potentially vulnerable structures to incorporate elements to mitigate the negative impacts of SLR. “By shifting the planning process to a risk-based footing, guidelines could be implemented to improve the safety of your house and reduce negative impacts on the environment,” the recommendations state. “Planning is already



An eroding beach in Kihiki, Maui

on a risk-based footing with regard to tsunami and storm surge inundation, and there is a growing effort to plan for the risk of coastal erosion. But there are no planning requirements in Hawai'i with regard to SLR." The 2012 amendments to the State Planning Act fall short of requiring action. Rather, they merely "encourage planning and management of the natural and built environments that effectively integrate climate change policy" and call on agencies to "promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options."

Chip Fletcher, head of the Coastal Geology Group and associate dean of the School of Ocean and Earth Science and Technology, said in a phone interview that to date, incorporation of climate change in planning documents has not occurred on any meaningful scale. "So far, we haven't really seen any actual engineering or construction projects," he said. "As far as I know, no activities that are going for permits have been required to go back and address adaptation issues."

Step 3 is a requirement that all development plans include an assessment of risks associated with sea level rise—something, the recommendations say, that "will not be particularly challenging," given all the tools that already exist to accomplish this.

The next step involves redefining the special management area in light of SLR impacts. "Given the rising water table and drainage

problems related to sea level rise," the group says, "a simple distance from the shoreline is no longer adequate" to define the zone.

Step 5 is to designate "no-build" and "no-rebuild" zones, which "would move the coastal community toward improved resilience (the ability to quickly recover from catastrophic events)." The group acknowledges that step involves formidable challenges—including the likely charge of unconstitutional taking by affected landowners. "The most straightforward approach is to purchase the land, or purchase restrictions on how the land is developed," the recommendations state. "That is, pay the landowner to not develop." In this connection, the group notes that the university's Sea Grant program has already published a study, "Climate Change and Regulatory Takings in Coastal Hawai'i," that looks at this very problem. (The study, written by Douglas Codiga, Dennis Hwang, and Chris Delaunay, is available online.)

Fletcher, who was the author of the recommendations, said that in considering areas for purchase, "you have to apply a triage approach. Places that are already locked up in seawalls or which are extremely expensive—don't bother with them. I would look at healthy beaches with a healthy sediment budget that are not otherwise impacted. Maybe where there are homeowners who have no heirs. You could help them by buying a conservation easement and then they leave their property to the state. Also, a number of coastal homes are not owner-occupied or

may be used as illegal vacation rentals. We could contact these owners and work out a deal—let them continue to operate on the condition they sell it to us at less than market value, for instance."

In that same vein, the group proposes new permitting tools in Step 6. One of the most innovative allows development to occur so long as the owner exercises a deed covenant restricting or forbidding the construction of seawalls to protect it in the event of sea level rise and also preventing redevelopment or rebuilding of damaged structures.

The last step—Step 7—involves "climate-proofing" communities. "Allowing the continued development of accreted lands, such as still occurs on some of the last healthy beaches in Hawai'i, makes no sense. In an era of accelerated sea level rise, this has got to end," the recommendations state.

Climate proofing involves some simple actions—such as raising the elevation of roadbeds when they are due for routine maintenance; adding one-way valves to culverts (such as those installed at Mapunapuna) to protect developed lands and valuable coastal wetlands; re-engineering ports, and anticipating and addressing impacts on infrastructure. A planning standard should be adopted to set targets for construction. As an example, the recommendations refer to a table of best- and worse-case scenarios for sea level rise that anticipates a worst-case rise of three feet by as early 2070 (with 2090 being the latest year in which a rise of that level would be seen).

— P.T.

## BOARD TALK

# DLNR to Create Trust Fund For Coral Reef Restoration

"We need it yesterday," Department of Land and Natural Resources director William Aila said of the proposed new scheme to help his department restore damaged reefs and bill those responsible.

During a September 12 briefing, Aila's deputy director, William Tam, explained to the Board of Land and Natural Resources that the program, initiated by the DLNR's Division of Aquatic Resources (DAR), would mirror one employed by the U.S. Army Corps of Engineers to restore wetlands destroyed by construction projects. Under that program, when a Corps-permitted project is expected to harm or destroy a wetland, the permittee must fund and implement a restoration project that provides ecosystem services equivalent to the expected loss.

Regarding damages to Hawai'i reefs and potentially other natural resources managed by the DLNR, the department plans to establish a "mitigation bank" into which responsible parties can pay fines – if the damages are inadvertent – or contribute money to restoration activities to offset impacts from a permitted project.

How badly does the DLNR need this program?

"We [need] look not much further than today's headlines and probably tomorrow's headlines," Aila said, referring to the spill by Matson days earlier of 233,000 gallons of molasses into Honolulu Harbor. The spill suffocated tens of thousands of fish and turned live corals ghostly white almost overnight.

Matson has committed to paying for all damages resulting from the spill. Tam said that besides having to pay fines under the Clean Water Act, the company will also have to address damages to the marine ecosystem.

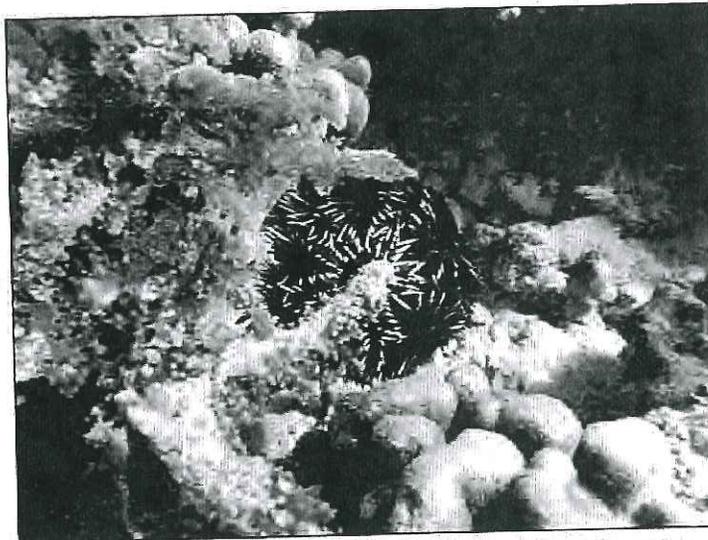
"That's a natural resource case that is going to happen," Tam said.

For now, the DAR is starting the process of getting the mitigation bank approved by the Army Corps. According to DAR invasive species specialist Kate Cullison, the division planned to submit a draft prospectus to the Corps by the end of last month.

"It's the very first of a series of more complex documents to be submitted," she told *Environment Hawai'i*, adding that it will take several months for the Corps to complete its reviews.

If and when the Corps approves the establishment of a bank, DAR will then submit a natural resource management plan to the Land Board for approval, she said.

While the primary focus of the program will be on corals, it has larger implications for the department, Tam told the board.



The DLNR's proposed mitigation bank could fund ongoing restoration projects, such as the raising and release of sea urchins to help control invasive algae in Kane'ohe Bay.

PHOTO: HAWAII SUPER SLICKER FACEBOOK PAGE

The Land Board is obliged to protect the state's public trust resources, including submerged lands. Although rules and statutes give the board the power to issue fines and assess administrative costs, as well as costs associated with restoration of damaged areas, "we've done this on catch-as-catch-can basis in the past," Tam said.

The board has sometimes struggled to determine the value of natural resources that have been damaged. In a decade-old Land Board case involving reef damages at Pila'a Bay, Kaua'i, the Hawai'i Intermediate Court of Appeals expressly stated that the board can choose how to assess damages, Tam said. However, that case has been appealed to the Supreme Court, which heard oral arguments earlier this year. Whether the court will share the ICA's opinion remains to be seen.

In any case, Tam said he anticipated the

Land Board will be contending with valuing natural resource damages more and more.

Already, the state's coral reefs are getting banged up on a regular basis, and without any restitution paid to the state. Sinking boats, vessel groundings, and anchor damage can really add up, Cullison told the board. On average, she continued, there are 168 reported coral reef damage incidents per year.

"We can assume there are many more. Most are on O'ahu and Maui," she said.

DAR focuses most of its response on securing vessels and salvaging them. But there is no process set up after that to assess damages, she said.

"The larger groundings, we have less of a process that's spelled out. There have been three large ones in the past several years. All have been treated differently," she said, referring to the *Cape Flattery*, *Voge Trader*, and *USS Port Royal* groundings. (See the February 2013 cover story for more on this.)

Without a process in place, Cullison said, the DLNR is missing opportunities to recover damages.

### Planned Impacts

One of the biggest bottlenecks for projects that require an Army Corps permit is the mitigation plan. "The Army Corps of Engineers' goal is no net loss" of habitat, Cullison said.

A mitigation bank could save permittees from developing and implementing a mitigation plan, she continued. The state Department of Transportation, for example, is planning to expand Kapalama harbor and is

expected to destroy some 7,000 corals in the process. Under the proposed program, the DOT would pay into the bank an amount agreed to by the DLNR and the Army Corps covering the cost of a restoration project that offsets the coral damage. The DLNR would then be responsible for conducting the restoration and the harbor expansion would be allowed to proceed unfettered.

The restoration projects would not necessarily be tailor-made in response to a particular construction project. They would more likely be projects already ongoing, i.e., invasive algae removal at Kane'ohe Bay. Projects would, however, be located within the same county of the proposed permitted activity.

Cullison said the DLNR would choose restoration sites that are already somewhat degraded but which could be improved with management. The sites would also have to

host a diverse range of species.

This approach is "usually much more effective than piecemeal projects," Cullison said. "We are hoping this will provide some level of cost recovery [so we] can do enhancement, restoration, creation, and preservation."

All restoration projects would have to be approved by an independent review team composed of representatives from the National Oceanic and Atmospheric Administration, the Fish and Wildlife Service, the Environmental Protection Agency, and, of course, the Army Corps, which would chair the team.

In addition to reviewing all project proposals, the team would re-evaluate projects every year. The DLNR would also have its own internal scientific review team, and the Land Board would also approve any modifications to its mitigation and restoration plan. That plan could include projects such as a sea urchin hatchery, the use of super suckers to remove invasive algae, and a coral nursery, Cullison said.

"It's a fast way to solve some of these problems," Tam said. "We're going to start taking these ideas to other areas."

### **Board Questions**

At-large board member San Gon said he appreciated the fact that the DLNR has an opportunity to standardize its response to repeated patterns of damage and focus on restoration. However, he added, "I know the devil is going to be in the details of this thing."

With runoff, for example, which causes significant damage to reefs, "on the one hand, it's a consequence of rains; on the other hand, it's the result of decades of loss from ungulates. ... How do you tease out long-term landscape change and perhaps a particularly wet winter, and those ascribable to a particular thing?" he asked.

Maui member Jimmy Gomes asked whether the DLNR had adequate staff to manage the program and to implement restoration projects.

Tam admitted that his division would have to build that capacity.

Aila said the Army Corps and other federal partners are very supportive and interested in the DLNR's proposal.

"It hasn't been done anywhere in the country in applying it to coral reefs," he said.

Should the bank be established, it would eliminate the confusion that's occurred in the past over whether settlement funds from reef damages go to the state general fund or to the DLNR.

Whatever money is paid into the bank will be "kapu money," Tam said, adding, "We're

going to try to [have] our documents to say this is a trust fund, not a special fund" that can be raided by the Legislature.

# Matson, state lacked molasses spill plans

By Marcel Honoré  
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Matson Inc. officials said Thursday that the shipping company did not have a response plan for a molasses spill, even though its vessels export as much as 2,000 tons of the viscous liquid each week to the mainland from a pipeline at Honolulu Harbor.

The revelation comes after an estimated 233,000 gallons of molasses from Matson's operation poured into the harbor Monday, killing thousands of fish and marine animals there and around Keehi Lagoon so far. The disaster further threatens to destroy coral colonies in Honolulu Harbor.

The state didn't require Matson to plan for the possibility, Hawaii Department of Health Deputy Director Gary Gill and state Department of Transportation spokeswoman Caroline Sluyter said.

"We are ... devastated by what we've seen so far," Matson Senior Vice President Vic Angoco said during a briefing for reporters Thursday. "We take pride in being good stewards of the land, good stewards of the ocean, and in this case we didn't live up to our standards and we are truly sorry for that."

However, Angoco left many questions unanswered about the pipe where the leak occurred. So far, Matson has focused on helping state and federal agencies with the cleanup, and the investigation into what caused the spill must take its course before many questions can be answered, Angoco said.

Matson, which has run a molasses export operation at Sand Island since 1983, has not made known how old the



DENNIS ODA / DODA@STARADVERTISER.COM

**Nearly 2,000 dead fish have been pulled from Honolulu Harbor since Monday's enormous molasses leak, a state official said Thursday during a news briefing at Pier 38. Lopaka Luecke displayed two of the fish as Jake Darakian manned their boat. The workers are with Pacific Environmental Corp., which is collecting the fish and taking water samples.**

deteriorated pipe was where the leak occurred or when it was last inspected. The company hadn't used the pipe for years, and Angoco said it had been capped sometime ago but that Monday's leak occurred in a section of pipe before the cap.

It's also not clear how such a massive amount of molasses was able to leak undetected or how long the spill lasted, even though Angoco said Matson monitors the volumes that travel through the pipeline.

"We've got to let it go through the process," he said of the investigation into the leak's cause.

Angoco also said he couldn't answer whether the costs of any penalties Matson receives would be passed to customers. The molasses exported out of Honolulu Harbor is first shipped in on barges from Maui, according to Matson officials.

The company has launched a claim hotline, at

848-8300, for those affected by the spill.

Meanwhile, Hawaii's public health officials said they also lacked a response plan specific to a molasses spill, and they find themselves in uncharted territory as they respond to the disaster.

"This hasn't happened anywhere near this magnitude in the past in Hawaii, so we have a lot to learn in terms of the impacts. They are severe," Gill said at the news briefing at Pier 38.

By late Thursday morning, boat cleanup crews contracted by DOH had pulled nearly 2,000 dead fish from the harbor, which is probably a "small part" of the total devastation, Gill said. DOH eventually plans to work with University of Hawaii scientists to estimate how much marine life was killed.

Officials have been testing the waters in at least 10 sites, each at several depths, in Honolulu Harbor and Keehi Lagoon, Gill said. The results "will tell us how quickly this disaster is diminishing over time" and perhaps provide

pointers on other ways to respond, he added.

Parts of the Pier 38 shore had already shown signs of clearing up; officials still believe it could take weeks for the molasses to leave the harbor area.

Surf, wind and rain are other variables affecting how long the clear-up could take.

Lawmakers also plan to look into the spill next week. Rep. Chris Lee (D, Kailua-Lanikai-Waimanalo), chairman of the House Energy and Environmental Protection Committee, said details were being finalized Thursday.

In a statement Thursday, Gov. Neil Abercrombie said his administration "will do everything needed to restore harbor channel waters to the highest quality and take all appropriate action to ensure that such a spill will not recur."

At least one other large molasses spill took place in Hawaii in 2003, when 50,000 gallons bound for a Matson barge leaked out of a state transmission line in Maui.

Gill said the Maui spill pales in comparison with what's happened this week in Honolulu Harbor.

*The Associated Press and Star-Advertiser reporter B.J. Reyes contributed to this report.*

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# Kalia Marketplace work will resume

*The absence of a lease stalled the \$28 million Waikiki boating hub*

By Allison Schaefer  
aschaefer@staradvertiser.com

Kalia Marketplace, a planned commercial and entertainment center that is designed to redevelop the gateway to Waikiki and serve as the hub for boating and ocean activities at Ala Wai Harbor, is expected to resume construction this month after a

lengthy delay.

Developer Honey Bee USA Inc. originally envisioned March 2013 as the opening month for its \$28 million project, which includes three new buildings with a total interior of 40,000 square feet and a 17,000-square-foot boat repair dock with 51 parking stalls underneath.

However, plans were pushed back after Honey Bee ran into challenges securing the state lease that allowed development of two Ala Wai Harbor parcels covering 53,568 square feet.

Final lease approval was delayed until last December due to additional environmental requirements, difficulties subdividing the site and political uncertainty over whether the now-repealed Public Land Development Corp. or the state Department of Land and Natural Resources' Division of Boating and Ocean Recreation, or DOBOR, should execute the agreement, said Honolulu attorney Keith Kiuchi, who represents

*Please see KALIA, B7*

## KALIA: Completion pushed back to mid-2014

*Continued from B5*

Hideaki Shimakura, the Kyoto-based head of Honey Bee.

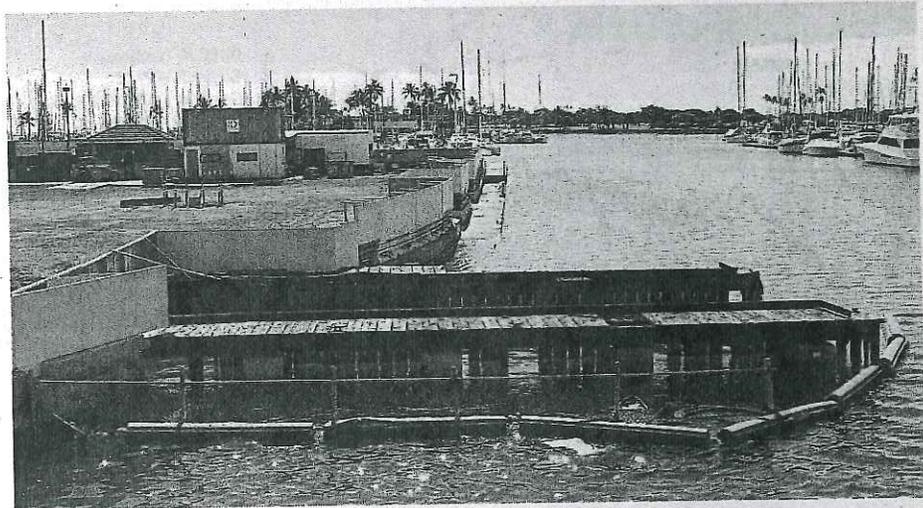
"At this point the lease is being finalized. We had hoped to get it by February or March," Kiuchi said. "I'd guess we are about six months to a year behind on this project."

Later this month, DOBOR Administrator Ed Underwood said he anticipates issuing the lease, which once in effect will bring \$900,000 in rent to the state annually.

"DOBOR already has given a right-of-entry permit to Honey Bee, and Honey Bee has started site prep and driving piles," he said.

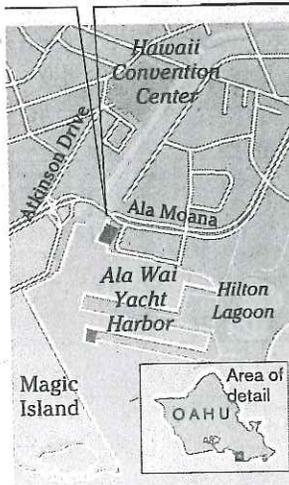
While Hawaiian Dredging did some preliminary construction work, Kiuchi said the company's financing requirements stopped the process from advancing without a signed lease.

Based on conversations with DOBOR, Kiuchi said he anticipates that by Oct. 21



KRYSTLE MARCELLUS / KMARCELLUS@STARADVERTISER.COM

**Construction at Kalia Marketplace, a \$28 million project on the Ala Wai Harbor, is expected to resume this month after a lengthy delay.**



STAR-ADVERTISER

construction could begin in earnest.

"If that happens, we could have the project completed by July or August of 2014," he said.

Jeffrey Hossellman, a retired attorney and longtime Ala Wai boater, said he supports the improvements but is frustrated by the delays, which have affected the community. The structure for repairing boats has been torn out for more than a year, and the harbor's only fuel dock is gone, he said.

"So in a whole harbor of a thousand boats, nobody can get fuel," Hossellman said.

"If they are going to be a responsible tenant in that harbor, Honey Bee needs to get started dispensing fuel."

Deborah Ward, spokeswoman for the state Department of Land and Natural Resources, said Honey Bee was not given a fuel dock deadline.

"DOBOR did hire an interim fuel truck service, but due to very poor fuel sales, the vendor determined that it was not feasible to continue service," Ward said.

Kiuchi said Honey Bee will work to get the fuel docks operable for the development's opening.

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## Can a Cellphone App Help Hawaii's Opihi?

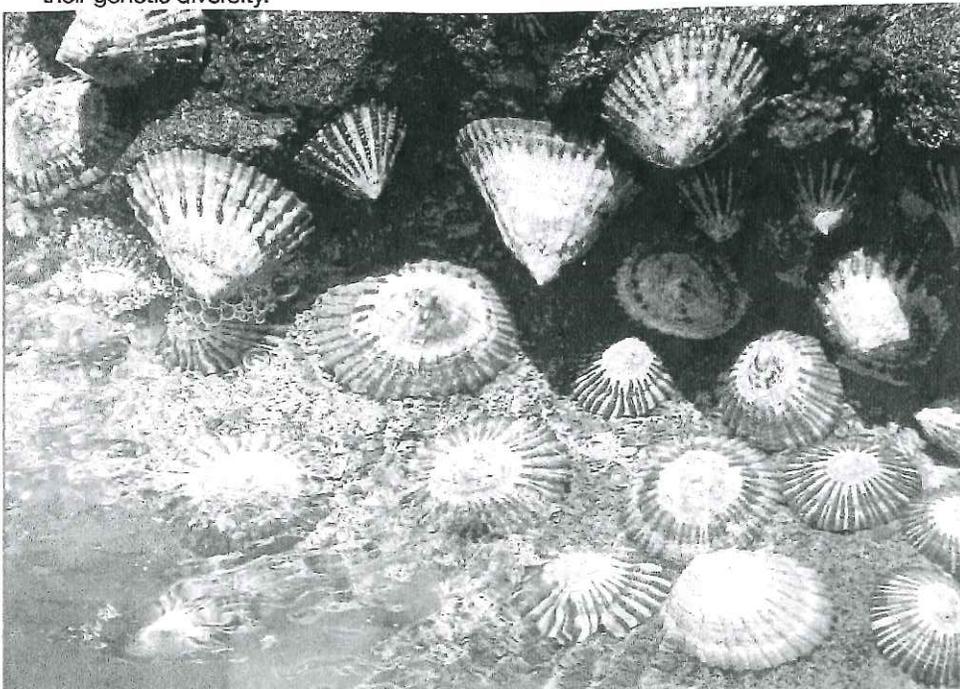
A researcher at Texas A&M University-Chorpus Christi has developed an android cellphone app that he hopes will help Hawaii's declining opihi population.

The app, which uses GPS, allows researchers to track the population of the mollusks, according to a university press release:

In Hawaii, 'opihī is considered a prized delicacy and is served only at special occasions. As the Hawaiian Kingdom transitioned from traditional to western practices of harvesting fish and marine life in the 1890's and 1900's, the 'opihī fishery crashed from 150,000 pounds-per-year to about 10,000 pounds-per-year by 1944. Since then, there's been no recovery despite management efforts over the past 35 years. As a result, the price of 'opihī is skyrocketing; up to \$42.50 a pound at markets in Honolulu this past summer.

Dr. Chris Bird, Assistant Professor in the College of Science and Engineering, developed an android cellphone app that uses GPS, to not only keep count of the 'opihī numbers, but to mark where they were found. Bird and his team used the new technology over the summer within parts of the federally protected Papahānaumokuākea Marine National Monument.

"As we count 'opihī, we enter the number into the app. The app pinpoints our location with GPS and tracks what we found and where we found it," said Bird. "This will be used to help scientists assess how 'opihī populations vary over time, and measure their genetic diversity."



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## **Kauai County Crosses the Rubicon, Council Passes Pesticide and GMO Bill**

10/16/2013 Sophie Cocke/ Civil Beat

After a marathon hearing, the Kauai County Council passed a hotly debated bill on Wednesday that could lead to prison time or fines for employees of agricultural companies if they don't divulge specifics about pesticide use, abide by strict setback rules for spraying chemicals or disclose when they grow genetically engineered crops.

The council voted 6 to 1 to make Bill 2491 into law. The lone vote against the bill came from Councilman Mel Rapozo, who said the measure unfairly targets biotech companies and sets the county up for lawsuits.

The law is set to take effect in nine months — with or without the mayor's signature, because bills receiving five or more votes are veto-proof.

The hearing, which began at 9 a.m. on Tuesday, lasted nearly 19 hours. As the deliberations stretched on, council members grew tired and cranky, and the audience became raucous enough that Council Chair Jay Furfaro threatened to evict members of the audience if they didn't settle down following the testimony of Mayor Bernard Carvalho.

But the excitement of Kauai residents was clear well before the hearing even began. Some camped out overnight on the lawn in front of the Kauai County Building to make sure they would have a seat in the small, upstairs hearing room.

Supporters of the bill erupted in celebration of the vote, which came at 3:35 a.m., following the culmination of a hearing in which about 100 people argued for one side or the other. Cheers echoed inside the hearing room, while others could be heard on the front lawn where the public had remained around loudspeakers to listen to deliberations.

"To the seed companies, I want to make sure you understand that we have to envision the future for our island," said Council Chair Jay Furfaro minutes before the vote. "Your companies have your policies. But we need to envision Kauai in the future and this is a start for us."

The bill affects the heaviest users of restricted use pesticides, including the four biotech companies that operate on the island: Syngenta, DuPont-Pioneer, Dow and BASF, as well as Kauai Coffee Co.

The law will force those companies to disclose what pesticides they are using, where and in what quantities. It sets up buffer zones between fields sprayed with pesticides and public areas, including schools, waterways, parks and hospitals, and requires companies to notify the public before they spray. The county will also be obliged to conduct health and environmental studies to assess the potential effects of pesticide use. All farmers will have to publicly disclose any genetically engineered crops that they grow.

The bill passed over the objections of Mayor Bernard Carvalho after the council rebuffed his suggestion that it delay voting on the measure for one month so that he could finish working out a deal between state officials and the biotech companies that would lessen the county's financial and logistical burdens in enforcing the bill.

At 3:00 a.m., Councilwoman Nadine Nakamura, who was recently appointed managing director for the mayor, appeared as if she was going to make a motion to delay the vote. "I'm proposing this just because I know in a few weeks I am going to have to be involved in implementing this law," she said. Nakamura expressed concerns that the bill would be too hard to implement and be a magnet for lawsuits.

But she was sharply rebuked by other councilmembers. Councilman Gary Hooser, who co-introduced the bill with Tim Bynum, said he was "flabbergasted to put it mildly."

Bynum choked up with emotion even as the anger of supporters of the legislation erupted into screams of "Pass the Bill!"

"Until you resign, your responsibility is to the people of Kauai," Bynum said, "and for you to say that next week that you have to work for the mayor and will have to implement this is highly impartial and unethical."

Council Chair Furfaro stood up to try to calm the unrest.

The motion for a delay was never put up for a vote and Nakamura ultimately voted in favor of the bill.

Carvalho, who sat through the entire hearing, expressed concerns that Kauai does not have sufficient personnel or funding to properly implement the bill. The mayor's office estimates that it will need to come up with \$1.3 million by the middle of next year to fund various measures in the bill.

While the state has come under fire from county council members for lax oversight of pesticides, Carvalho told council members Tuesday that he had assurances from the state that it would improve.

Last month, the governor issued a statement to say that he would work toward the creation of voluntarily pesticide disclosure guidelines and buffer zones that the biotech companies would agree to comply with. Carvalho said at the hearing that he received assurance this week from Russell Kokubun, chair of the state Department of Agriculture, that the state would implement the new guidelines by the end of October.

"I believe this is going to be a model for the whole world to see," Carvalho said in his effort to persuade the county council. "And I would hope that this model would be to work it out and bring people together."

But council members remained skeptical about the state's commitment to expanding and enforcing pesticide regulation, and they questioned the biotech industry's willingness to compromise, given its staunch opposition to the bill.

"Frankly, everyone else is a little bit late to the dance," said Hooser. "We've been working on this for months. The governor shows up three weeks ago and Kokubun shows up ten days ago."

Critics accused the governor and state officials of intervening late in an effort to derail the bill.

Conversely, biotech companies argue that they are being unfairly targeted and that there is no substantive scientific basis for what they see as the council's legislative attack on their work. They also expressed concerns that if Kauai passed the bill, it could lead other counties, states or nations to follow suit.

Attorneys for the biotech companies said during the hearings that aspects of the bill are "vague and ambiguous" or amount to an "illegal taking" of property.

Council members said that they expect biotech companies to file lawsuits in response to the bill's passage.

(Small farmers are exempt from the bill's pesticide provisions.)

Earlier this month, nine local attorneys, including prominent environmental lawyers, released a statement urging council members not to bow to pressure from the biotech companies.

"We believe that Bill 2491 is sound, and the mere threat of a lawsuit by industry interests should not prevent the council from taking action they believe is important to their community," the statement read.

An attorney for Kauai provided the county council with a 66-page brief outlining his view of the bill's legality. Council members voted 5-2 on Tuesday to keep that document confidential, noting that it could undermine the county's arguments if Bill 2491 ends up in court.

The Hawaii Crop Improvement Association, a trade group for the biotech companies, issued a statement shortly after the vote expressing disappointment in the bill's passage.

"After months of constructive dialogue, our companies, employees and their families are extremely disappointed in the Kauai County Council for passing Bill 2491 and for not recognizing the opportunity presented by Mayor Carvalho and Gov. Abercrombie," the statement read.

"If 2491 becomes law, the County of Kauai will find itself mired in duplicative rules and regulations it does not have the resources to enforce. What's more, an entire industry – one that employs 600 residents and is a major driver of the island's economy – will be put at risk."

## Molokai Clean Energy Initiative Unveiled

By Larry Tool 09/13/2013

After five productive meetings the time has come to bring the general public up to date on the Molokai Clean Energy Initiative, or MCEI.

These monthly meetings are held at Kulana O 'Iwi here on Molokai. They are sponsored by I Aloha Molokai and chaired by IAM President Kanohowailuku Helm. Our goal is to provide both a venue and a forum for communities, organizations and other stakeholders to meet together, share ideas, and envision a cleaner, more affordable energy future for everybody.

IAM is a nonprofit, volunteer community organization, originally formed to oppose the Big Wind turbines slated for Molokai's West End. Two years ago we were approached by Molokai Ranch, our largest landowner. The Ranch wanted to discuss other issues of concern to the community. We promised we would talk, as soon as the wind turbines went away. This past Spring the Ranch canceled its lease agreement with Pattern Energy. At our first MCEI meeting we were able to keep our promise to the Ranch, and the Ranch is still participating in our discussions.

Another incentive for the MCEI came from our Legislature. Last session our own Representative Mele Carroll drafted a resolution to allow Molokai to opt out of Big Wind and the cable. Two House Committees amended and expanded our draft into a call for bottom-up planning statewide. This became House Concurrent Resolution 189, which passed unanimously. The MCEI is our effort to honor this Resolution and to set an example of bottom-up planning for the rest of the state.

We are confident this effort will continue. We invite everyone to join us, or to set up similar initiatives of their own on other islands. So far, our participants have included: Office of Hawaiian Affairs, Molokai Ranch, Maui County Energy Office, Maui Public Works, Department of Hawaiian Homes, Kamehameha Schools, Hawaii State Energy Office, Office of the Consumer Advocate, Kauai Island Utility Cooperative, Maui Electric Company, Hawaii Natural Energy Institute, U.S. Department of Agriculture, Kohala Center, Ti Leaf Group, Sustainable Molokai, Habitat for Humanity, Island Petroleum, and many others.

MCEI has already been a success. Most participants continue to attend, and also to meet and form partnerships on their own. Although we have been able to explore the pros, cons, and costs of a Molokai utility coop, IAM has not yet chosen to support any particular project or organization. Where everyone's power and wallet is at stake, we want to proceed with care and thoroughness. Once we do decide to support a particular option, we will present it to the whole community for discussion and consideration. All the information and options presented in our meetings are being recorded in minutes and collected in a matrix, which is updated each month. Matrix and past minutes are available upon request.

Mr. Helm saw early on that energy planning is closely linked with emergency preparedness. Without built-in redundancy and back up, no system is likely to function in a crisis. Several of our presenters alerted us to the fact that state disaster plans are incomplete, and that some statewide response sequences have not been established or tested.

Just on Molokai, we have a major shelter (the High School Gym) that doesn't meet current codes, a west end with no fire station, an east end with a fire station in the flood zone, and other deficiencies. By weaving the preparedness issue into energy planning now, we hope to end up not only with a better prepared Molokai, but also with a better disaster plan for the state. For example, if a tsunami were to close major sea level airports, Molokai's upcountry airfield could become a central staging area for air-borne relief – if the necessary infrastructure were put in place.

Looking forward, IAM plans to ask our Legislature to reaffirm HCR189. With our Representative, we are also hoping to explore legislation regarding emergency preparedness. This means bringing major shelters up to code, moving emergency equipment out of the flood zone, increasing energy back-up for vital services, and improving coordination with Maui and Oahu.

As we approach the end of the year, we are hoping to make our Third Annual Alternative Energy Festival a showplace for MCEI's work to date. This year we are expanding the Festival to 3 days:

On Thursday, January 9th we hope to involve Molokai students in an Emergency Preparedness Fair, with service providers, hands on demonstrations, a mock disaster exercise, and prizes for student creativity.

On Friday, January 10th we will bring back community spokesmen, energy experts, and energy vendors for a Statewide Energy Forum, building on ideas from MCEI.

On Saturday, January 11th we will host an IAM Music Festival, with food, games for kids and one or two inspiring speakers. We invite everyone to come join the fun.

Because we live on small, remote and fragile islands, Hawaii does not have the margin of error for poor planning or wasted resources enjoyed by the mainland. We cannot afford wild guesses, quick fixes, or seductive sales pitches. We have to bring everyone together, explore all the options, and make plans that meet real needs with existing resources.

We are I Aloha Molokai, and that's what we're trying to do.

For more information go to [ialohamolokai.com](http://ialohamolokai.com), [ialohamolokai.org](http://ialohamolokai.org) or call 808-213-1231.

**About the author:** *Larry Tool is a former college instructor, longtime Bay Area business owner, local official in Martinez, CA in the mid-90s, reviewer for SF Chronicle in the 80s and 90s.*

<http://manoa.hawaii.edu/news/article.php?ald=5928>

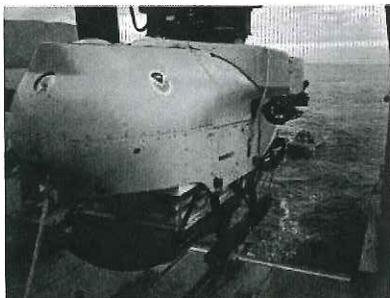
## Submarine canyons a source of marine invertebrate diversity, abundance

University of Hawai'i at Mānoa Posted: Aug 26, 2013

Contact: [Talia Ogliore, \(808\) 956-4531](mailto:tal.ogliore@hawaii.edu) Public Information Officer, Vice Chancellor for Research



Researchers sampled diversity in Hawaii's submarine canyons, including these off Kaneohe Bay.



The dives were conducted on the Pisces manned submersibles operated by HURL.



View of the sediment coring process, from inside the submersible.

Submarine canyons play an important role in maintaining high levels of biodiversity of small invertebrates in the seafloor sediments of the main and northwestern Hawaiian Islands, according to research from the University of Hawai‘i at Mānoa.

What’s more, scientists have used this data to draw new connections between the levels of faunal diversity and the heterogeneity of submarine canyon landscapes at various spatial scales.

“Submarine canyons encompass myriad habitat types,” said Fabio C. De Leo, a doctoral graduate from UH Mānoa’s department of oceanography and the lead author on a new paper that was recently published in the scientific journal *Deep Sea Research Part II*. “This heterogeneity at the landscape-scale helps to enhance local biodiversity in canyon seafloor sediments.”

De Leo and colleagues, including oceanography professor Craig Smith, the study’s principal investigator (PI), conducted 34 submersible dives into six underwater canyons and their nearby slopes. Plumbing depths of up to 1,500 meters (~5,000 feet), their study area ranged across the Hawaiian archipelago, from the main Hawaiian Islands through Papahānaumokuākea Marine National Monument in the Northwestern Hawaiian Islands.

The scientists evaluated and mapped landscape metrics of each canyon habitat, including the roughness of the seafloor and the steepness of canyon walls. At depths of 350, 650, and 1,000 meters in each location, they collected sediment core samples on the canyon floor. From these samples, they carefully sorted out and identified all of the marine organisms called macrobenthos—including worms, clams and shrimp-like crustaceans—that range in size from a millimeter to several centimeters. The scientists then correlated the macrobenthos species data with the landscape metrics.

The scientists found that submarine canyons can serve as species oases in the sea by channeling ocean currents, capturing and trapping sinking particles, funneling migrating animals, and generally providing a varied physical landscape. As a result, canyons promote high species diversity.

Researchers say this is the first study of its kind to thoroughly examine submarine canyons on island margins. The research effort had previously yielded reports of high species diversity of fish and large invertebrates, the so-called megafauna, in Hawai‘i’s submarine canyons. This corroboration led them to conclude: “Canyons may be particularly important in the Hawaiian islands, in part because they supply organic matter to the typically food-limited deep sea,” De Leo said. “When there’s more food, there’s more life.”

One thing that became evident from this study was that canyons near the main Hawaiian islands tended to collect and hold much more land-based organic matter than canyons in the Northwestern Hawaiian Islands. Materials such as branches, leaves, nuts and algae were abundant off Moloka‘i and O‘ahu, washed into the ocean by rain and carried out deep onto the canyon floors by ocean currents. These decomposing materials, scarcer in the islands of Nihoa and Maro Reef, serve as valuable food sources for the seafloor invertebrates, themselves a food source for other, larger fish.

The scientists have already documented four new species discovered during the course of their research dives, including three new types of crustaceans. Up to 60 percent of the species that taxonomists identified in the submarine canyon seafloor samples are only recognized to the family level.

“There is room for discovery of many more new species,” De Leo said. “The deep sea fauna of Hawai‘i is poorly sampled and poorly understood. Every time we go to sea and sample a new area, it’s likely that we’ll find a new species.”

*This series of dives was conducted on the Pisces IV and Pisces V manned submersibles operated by the Hawai‘i Undersea Research Laboratory (HURL). The research was conducted in partnership with Hawai‘i Pacific University and the New Zealand National Institute of Water and Atmospheric Research.*

**Citation:** Fabio C. De Leo, E.W. Vetter, C. R. Smith, A. R. Ashley, and M. McGranaghan. Spatial scale-dependent habitat heterogeneity influences submarine canyon macrofaunal abundance and diversity off the Main and Northwest Hawaiian Islands. Deep Sea Research Part II: Topical Studies in Oceanography. 11 July 2013.

**Support:** This study of submarine canyons off the main and Northwestern Hawaiian Islands was supported by grants from NOAA Office of Ocean Exploration and Research (PIs C.R. Smith and E.W. Vetter), HURL, and the Census of Diversity of Abyssal Marine Life (CeDAMar, PI C.R. Smith). F. De Leo was also funded through a 4-year Ph.D. fellowship from the Brazilian Ministry of Education (Capes) in partnership with Fulbright.

For more information, visit: <http://www.soest.hawaii.edu/HURL/>

<http://civilbeat.us1.list-manage1.com/track/click?u=e23104acf3e9c0a23f9d89163&id=6c9564d8f1&e=b3e41770fb>

## Does Hawaii's Failure to Enforce Pesticide Use Justify Action by Kauai?

10/08/2013 Sophie Cocker/ Civil Beat

The state Department of Agriculture has only one employee assigned to review pesticide inspection reports and follow up on possible violations. And she says she hasn't gotten around to reviewing most reports in several years so there's been little if any action against pesticide misuse.

Since 2009, the department has suffered budget cuts that have stretched its pesticide oversight to the limit, its director says. There are only six pesticide inspectors in the state, including one on Kauai, where local officials are moving to take pesticide oversight into their own hands.

Meanwhile, the state Department of Health has no program in place to regularly test for pesticide contamination in the soil, air, or water. The sole position on Kauai that is supposed to monitor dust under pesticide regulations has been vacant for more than a year.

The state's lack of ability to effectively oversee pesticide use and public health concerns is giving impetus to a move by the Kauai County Council to take matters into its own hands. The council is slated to vote as early as today on a measure — Bill 2491 — that would increase county oversight of the heaviest agricultural users of restricted-use pesticides, namely the four biotech companies operating on the island — Syngenta, DuPont-Pioneer, Dow and BASF — and Kauai Coffee Co.

"We need to do something. We can't count on the state," said Kauai County Councilman Gary Hooser, who co-sponsored the bill with Councilman Tim Bynum. "In our particular situation, I believe there is urgency. The doctors we talked to in those committee hearings believe there is urgency and we can't sit around and wait for the state to get its act together."

The bill takes a more aggressive approach to overseeing pesticide use on Kauai. It requires that the state's largest restricted-use pesticide users disclose what they are spraying, where and in what quantities, something the state hasn't embraced.

It also sets up buffer zones between GMO fields and public spaces, including schools, roads and waterways, another requirement lacking in state regulations.

And it requires the county to conduct studies on whether pesticides are contaminating the environment and harming human health. The state has not invested in wholesale studies of pesticide contamination.

Bill 2491 originally included extensive regulations of both pesticides and genetically modified organisms. But last month, the Kauai County Council's Economic Development and Intergovernmental Relations Committee amended the measure to focus more closely on pesticide use. The committee passed it 4-1 on Sept. 27 and is set to be heard by the full council today.

The biotech companies are vigorously fighting the bill. They say they are being unfairly targeted in the midst of what they describe as a radical, pseudo-scientific attack on genetically modified organisms.

"It's not about community health, it's not about pesticide use, it's about getting rid of these companies," said Alicia Maluafiti, executive director of the Hawaii Crop Improvement Association, a trade group for the biotech companies. She noted that the companies employ more than 500 people on Kauai.

Residents, including health care providers, on the west side of Kauai where the biotech operations are concentrated, have been particularly worried over the years that the pesticides being sprayed on GMO fields are making people sick and harming the environment. In 2011, more than 150 residents in Waimea filed a lawsuit against Dupont-Pioneer, formerly Pioneer Hi-Bred, alleging that the company's pesticides sparked health concerns and drove down local property values.

Kauai residents have complained that state officials have been slow to respond to their concerns and investigate reports of pesticide odors, dust and possible oversprays.

### State Oversight Lax

Avis Onaga is the environmental health specialist in the agriculture department's pesticides branch who is supposed to review pesticide inspection reports to determine whether there have been violations and if fines need to be levied. She told Civil Beat last week she's been able to review only a handful of reports in the past few years.

She finished just seven of 72 investigations into possible violations on Kauai alone for 2011 and 2012. An overall tally of backlogged reports — either for inspections or public complaints — wasn't available, according to department officials.

Instead, she said, she has been designated as the person responsible for responding to public records requests about pesticides and those duties have kept her so bogged down she hasn't had time to concentrate on the job she was hired to do. The requests are coming from lawyers, Kauai County Council members and media.

"I've had so many requests that I haven't had a chance to work on any of my cases for the past so many years," she said.

Onaga, who said she has received 46 public records requests since 2010, said that she had prioritized the requests over her inspection reports because public records requests have a deadline and pesticide inspection reviews do not.

Russell Kokubun, director of the Department of Agriculture conceded the department could become more efficient in making records available to the public and said he would seek approval from the Legislature for an additional position to investigate pesticide violations.

But that's not the only problem at the Department of Agriculture, which is in charge of monitoring pesticide use under the Federal Insecticide, Fungicide and Rodenticide Act.

The department doesn't track general-use pesticides that are being sprayed throughout the state, about 75 percent of all of the pesticides sprayed, according to the federal Environmental Protection Agency. The state does have sales records for restricted-use pesticides, but the records only provide limited information.

Kokubun said that the department was just starting to rebuild its pesticides branch which was weakened by the 2009 budget cuts. He wants the department to enhance its oversight beyond what it was doing before the budget cuts.

"We don't want to just stop with what was there before," Kokubun said. "There needs to be more outreach and more awareness about what pesticides are and what they do."

The Hawaii health department also says it suffers from a chronic lack of funding when it comes to monitoring the environment for pesticides.

The department is responsible for overseeing the federal Clean Water Act, but it has no statewide testing program for pesticides.

The health department turned responsibility for testing drinking water over to the counties, which test for pesticides. But the health department doesn't have a statewide program for monitoring whether chemicals are leaching into the soil, contaminating streams and coastal areas or being carried on dust from GMO fields.

There is a position for an environmental health specialist on Kauai who would be in charge of enforcing dust regulations. But the position has remained vacant for nearly a year.

The agency has interviewed candidates for the position and is waiting for approval to hire from the state's human resources department, according to Janice Okubo, a state health department spokeswoman.

Last month, a Kauai County Council member asked department officials how the agency was doing enforcing dust regulations on Kauai.

"Probably badly," responded Gary Gill, deputy director for environmental health.

## Legislature Also Fails to Get Tough

Backers of Bill 2491 also point to a history of watered-down measures passed by the Hawaii Legislature and a failure of the state departments to toughen their own rules and regulations.

Lawmakers debated a bill last year that would have required extensive public disclosure of both general-use pesticides and restricted-use pesticides — which have more potential to harm public health and the environment.

But the legislation that passed only requires that sales records for restricted-use pesticides be posted on the Department of Agriculture's website. The department has yet to post the information, saying there are propriety business concerns it needs to resolve first.

The Legislature also passed a resolution this year requesting that the health department test for levels of atrazine in surface water, coastal waters and the air. Atrazine is a pesticide that's been linked to birth defects.

But, as the health department's Gill recently told the Kauai County Council, the Legislature didn't provide any money for the testing. The department has pulled together \$70,000 to do statewide testing for atrazine as well as other pesticides, he said.

Rep. Cynthia Thielen, who sponsored the resolution on atrazine, supports the Kauai regulatory effort because she thinks the state is doing a bad job regulating pesticides. "I think it's important for the county to act to protect its own population," she said.

Hooser, the Kauai councilman behind Bill 2491, said that the department's lack of willingness to fund pesticide testing and programs shows the state isn't taking the issue of pesticides seriously.

"It just boggles the mind the lack of urgency from the state," he said.

But overseeing pesticide use doesn't come cheap, whether it's the state or the county taking the lead. Bill 2491 would cost the county millions of dollars and county officials say they aren't sure where the money will come from.

Kauai County Council Chair Jay Furfaro initially put the price at \$4.4 million for the first two years and \$911,000 every year after that.

Hooser said that the the biggest cost would likely be health and environmental studies, which could amount to \$2 million and that the costs of regulation would be relatively minimal. He said that the studies are critical to figuring out if there is cause to be concerned about pesticides.

If studies show unsafe levels of pesticides in the environment, then the county can charge the companies for cleanup efforts and further testing, he said.

"Ultimately, these companies should pay the price, not the people of the community," he said.

Last month, days before the Kauai council committee voted on Bill 2491, Gov. Neil Abercrombie promised that he would work with the Legislature to restore funding and positions for pesticide regulation within the health and agriculture departments. He also suggested that agricultural companies would voluntarily comply with new safety and health guidelines that would be put in place while the Legislature and department heads deliberated on stricter controls.

But supporters of Bill 2491 were swiftly critical, arguing that the governor was simply trying to derail the county's efforts. They questioned whether the biotech companies would really comply with new guidelines voluntarily, especially since the companies had taken a hard line against the bill during hearings, protesting buffer zones and pesticide disclosure.

Alicia Maluafiti of the Hawaii Crop Improvement Association said that the biotech companies hadn't had time to meet with the governor to discuss issues such as buffer zones and pesticide disclosure because they are too busy fighting "fear mongering by Mr. Hooser and the extremists on Kauai."

"We obviously haven't had a chance to sit down," she said. "We are still fighting a pretty pissy bill on Kauai."

*(Bill 2491 with amendments)*

<http://dlnr.hawaii.gov/dobor/2013/09/27/nr13-116b/>

For Immediate News Release September 27, 2013

**LAIE FISHERMAN SENTENCED FOR OPERATING HIS VESSEL  
WITHIN A RESTRICTED AREA OF WAIMEA BAY**

PUPUKEA — A Laie fisherman was cited by DLNR Division of Conservation and Resources Enforcement (DOCARE) for operating his vessel within a restricted area of Waimea Bay ocean waters on August 1, 2013. A Waialua resident reported the incident to DOCARE after he observed a vessel enter Waimea Bay and nearly running over two early morning swimmers. The vessel then stopped within ten feet from the shoreline to drop off a person. Upon exiting Waimea Bay, the vessel almost ran over another fisherman who was in the water managing an ‘opelu net. The incident was captured on video.

On August 29, 2013, Perry D. Rauch was charged and sentenced at Wahiawa District Court for violating Hawaii Administrative Rule (H.A.R.) 13-256-63(b)(1) that prohibits motorized vessels within Waimea Bay ocean waters, specifically within 1,837 feet from the shoreline. The judgment imposed fines and court fees total \$855 and 6 months probation. Violator must remain arrest and conviction free for duration of the probation period.

“Ocean water safety is of utmost importance. Any type of reckless behavior by vessel operators that has the potential to endanger other ocean water users is not acceptable and law enforcement response will take place,” said Randy Awo, DOCARE Chief.

To report an incident, call 643-DLNR.

<http://www.hawaiinewsnow.com/story/23553329/man-sentenced-for-illegally-driving-boat-into-waimea-bay>

## **Man sentenced for illegally driving boat into Waimea Bay**

*Posted: Sep 27, 2013 2:23 PM*



**WAIMEA BAY, OAHU (HawaiiNewsNow) -**

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<http://www.bizjournals.com/pacific/news/2013/09/13/contract-award-expected-soon-for-50mw.html?s=print>

## Contract award expected soon for 50MW geothermal project on Hawaii's Big Island

Duane Shimogawa Reporter- *Pacific Business News*



Duane Shimogawa Sep 13, 2013, 4:16pm HST

From left, Maori Chief Tawhiri Morehu, Maori Trust Attorney Sandra Eru and Roberta Cabral, founder of Innovations Development Group, talk about geothermal energy at the Pacific Club in Honolulu.

A contract to develop a 50-megawatt geothermal project on the Big Island, which some say could cost up to \$200 million, is expected to be awarded soon by Hawaii Electric Light Co., Pacific Business News has learned.

At least six companies are said to be in the running to develop the project, including Huena Power, formed by Innovations Development Group, a Native Hawaiian renewable-energy development firm founded in 1998 by Roberta Cabral.

A spokesman for HELCO parent Hawaiian Electric Co. did not immediately respond to an email seeking comment on the geothermal contract.

Huena Power, which says it already has invested a several million dollars in preparation for this development contract, including a television commercial blitz featuring community leaders, brought in some heavy hitters from New Zealand to help it gain some momentum.

Maori Chief Tawhiri Morehu and Maori Trust Attorney Sandra Eru were in Honolulu on Friday to share their experiences with geothermal energy, which supplies about 14 percent of the power in New Zealand.

Innovations Development Group has worked with both Morehu and Eru in demonstrating the success of this "native-to-native" model, where it has formed partnerships with indigenous people groups to develop land, geothermal and wind projects that are making what it calls significant contributions to that nation's alternative-energy production, while benefiting all stakeholders.

Eru told PBN that they were here to tell Native Hawaiians about their experience in geothermal energy.

“It’s not something to be feared,” she said. “They own the resource, so they need to have control, skin in the game, just as we have.”

Cabral says Huena Power has received inquiries about the company from countries such as the Philippines, Indonesia and Mexico.

“Because of our experience [in New Zealand], it gave us the confidence to understand the technology,” she said.

The Big Island is home to the lone geothermal project in Hawaii, Puna Geothermal Venture, which has a total generating capacity of 38 megawatts.

Geothermal was one of the buzz words during the 5th Annual Asia-Pacific Clean Energy Summit and Expo, which just wrapped up this week in Honolulu.

The state is hoping to eventually utilize this dependable renewable resource as part of a proposed grid tie between the Islands.

<http://www.hawaiinewsnow.com/story/22616084/one-year-after-lanai-purchase-governor-calls-ellisons-efforts-terrific>

## **One year after Lanai purchase, governor calls Ellison's efforts 'terrific'**

*Posted: Jun 17, 2013 5:43 PM HST Updated: Jun 17, 2013 5:46 PM HST*

By Keoki Kerr HONOLULU (HawaiiNewsNow) -

A year after software billionaire Larry Ellison purchased the island of Lanai, Gov. Neil Abercrombie praised what he called Ellison's "very successful" first year as owner of the former Pineapple Island.



Ellison has sunk millions of dollars into Lanai's two aging resorts since he bought the island in June 2012. He told the Wall Street Journal newspaper the hotels' former décor was "dreadful" when he bought them. That's why he replaced Asian artwork and furniture with Hawaiian artwork.

Abercrombie likes what he sees so far.

"The positive outcome after a year, I think, is terrific. I think everybody's very optimistic about Lanai. People are moving to Lanai," Abercrombie said. "They (Ellison's company) have exercised, I think, an enormously positive sense of collaboration and discussion and dialogue."

Ellison is planning a third luxury hotel with up to 100 bungalows at Kahalepalaoa, on Lanai's eastern side, perhaps his most controversial proposal for the island's future.

The hotel will be composed of grass huts, will use solar electricity and make its own fresh water, Ellison told the Wall Street Journal. It will be built on pristine land facing Maui and Molokai, raising concerns about construction on an undeveloped coastline.

Ellison's company also has told members of the Lanai community it would like to build 50 5-acre home lots near that new resort, something that has community activists concerned.

"If you have 50 people living in those homes, are you going to then need stores and what about the roads? What kind of infrastructure is going to be required? So it has the potential to make a

massive change to what is now an untouched area," said Robin Kaye of the group Friends of Lanai.

Abercrombie said Ellison's managers have handled themselves and the community very well.

"I can't think of anything that I've been involved with in decades, of a magnitude of this nature, that has been more pleasant and productive and cooperative than the relationship that at least we in the state have had with Mr. Ellison and his people," Abercrombie told reporters in his office Monday.

Ellison's managers have told residents they plan to bring in as many as 300 construction workers over the next couple of years to Lanai. And that's another concern for activist Kaye.

"The last time this kind of thing happened was when they built the hotels and they built a tent city for the workers and there was a marked increase in drug abuse and a marked increase in domestic violence," Kaye said.

Kaye said senior management of Lanai Resorts are aware of that unpleasant part of Lanai's history and are working on ways to prevent that from happening again. But, Kaye said, "Nonetheless, it's a concern."

Kaye and other community leaders agree "There's such a better spirit on the island" under Ellison's ownership. Many Lanai residents felt previous owner David Murdock, another billionaire, didn't listen to them about their concerns on the island. Many Lanai residents still oppose Murdock's plan to build a wind farm on Lanai and have even purchased television spots against the project.

Lanai residents have praised Lanai Resorts Chief Operating Officer Kurt Matsumoto, who grew up on the island and worked for Murdock managing the resorts there for ten years. He has held numerous small and large meetings with residents and business people on the island, explaining Ellison's vision and listening to reaction from the community.

"People are working, people are coming back. Kurt has hired some very good people and overall I think it's a very positive feeling now," Kaye said.

Ellison told the Wall Street Journal that he plans to endow a sustainability laboratory that will help making the island "the first economically viable 100 percent-green community."

He told the newspaper Lanai has the right climate and soil to grow "the very best gourmet mangos and pineapples on the planet and export them year-round to Asia and North America."

"We have the ideal location for a couple of organic wineries on the island," Ellison told the Journal. "But the reintroduction of commercial agriculture to Lanai is 100 percent dependent upon increasing the available water on the island. So we're going to use solar energy to convert seawater to fresh water."

<http://www.foxnews.com/us/2013/09/12/huge-molasses-spill-in-hawaii-kills-thousands-fish/>

## Huge molasses spill in Hawaii kills thousands of fish

Published September 12, 2013 | Associated Press

HONOLULU – Thousands of fish are expected to die in Honolulu waters after a leaky pipe caused 1,400 tons of molasses to ooze into the harbor and kill marine life, state officials said.

Hundreds of fish have been collected so far, the state Department of Health said in a statement Wednesday. Many more fish are expected to die and thousands will likely be collected, it said.

The fish are dying because the high concentration of molasses is making it difficult for them to breathe, said department spokeswoman Janice Okubo. Television footage shows some fish sticking their mouths out of the water.

The department has warned people to stay out of the area because the dead fish could attract sharks and other predators like barracuda.

The brown, sugary substance spilled Monday from a pipe used to load molasses from storage tanks to ships sailing to California. The shipping company, Matson Navigation Co., repaired the hole and the pipe stopped leaking Tuesday morning, spokesman Jeff Hull said.

As much as 233,000 gallons of molasses leaked into the harbor, Matson said. That's equivalent to what would fill about seven rail cars or about one-third of an Olympic-sized swimming pool.

Underwater video taken by Honolulu television station Hawaii News Now showed dead fish, crabs and eels scattered along the ocean floor of the harbor and the water tinted a yellowish brown.

State officials expect the spill's brown plume will remain visible for weeks as tides and currents flush the molasses in to nearby Keehi Lagoon and out to sea.

There's a possibility the state could fine Matson for violations of Clean Water Act after the department investigates the circumstances of the spill, Okubo said. The state's focus is currently on public safety, she said.

The state was documenting the fish it collected and keeping them on ice for possible testing. Officials were also collecting water samples. The data will allow the department to estimate the duration and severity of the contamination.

Matson ships molasses from Hawaii to the mainland about once a week. Molasses are made at Hawaii's last sugar plantation, run by Hawaiian Commercial & Sugar Co. on Maui.

Matson said in a statement it takes its role as an environmental steward very seriously. The company is taking steps to ensure spills don't occur in the future, it said.

[http://thegardenisland.com/news/local/mana-march-draws-thousands/article\\_04ff6c36-190b-11e3-b902-001a4bcf887a.html](http://thegardenisland.com/news/local/mana-march-draws-thousands/article_04ff6c36-190b-11e3-b902-001a4bcf887a.html)

## **Mana March draws thousands** Residents urge council to pass Bill 2491

Dennis Fujimoto/The Garden Island posted: Monday, September 9, 2013 1:00 am

Thousands of Kauaians — doctors, environmentalists, farmers, parents and concerned citizens from all walks of life — poured into the streets of Lihue in a sea of red Sunday to participate in what organizers are calling the largest march in the island's history.

The message — at least for this event — was unified, loud and clear. "Pass the bill!" the crowd, mostly dressed in red shirts, chanted as they walked from Vidinha Stadium to the lawn fronting the Historic County Building in Lihue.

"Mana March," as it was called, brought together those in support of County Bill 2491, introduced in June by Kauai County Council members Gary Hooser and Tim Bynum.

If passed, 2491 would require Kauai's largest agricultural companies to disclose the use of pesticides and genetically modified crops, establish pesticide-free buffer zones around public areas, and temporarily halt the expansion of genetically modified crop fields.

"They got to be deaf, dumb and blind not to hear what the people want on this island," organizer Dustin Barca told the crowd from the steps of the county building, drawing a loud roar.

Barca said GMO is the most important issue Kauai has ever faced, and that everyone who turned out Sunday did so for the same reason — "our future."

"We're going to make 'em hear us around the world," he said.

Following a pule around 11:30 a.m., the crowd, waving anti-GMO signs and banners, hit the pavement for the one-mile walk to the county building. Once there, they formed a circle around the building and council chambers, where the final vote on Bill 2491 will eventually be cast.

Event organizer Fern Rosenstiel said the 4,000-plus marchers stand united for their right to know.

"We stand united against four of the largest chemical companies in the world that do not want to tell us what they do here," she said. "They do not want to tell us what chemicals they spray, what genetically modified crops they experiment with, and that is unacceptable."

On Kauai, 22 restricted use pesticides — about 18 tons of them — are sprayed annually by the five commercial agricultural companies, according to information obtained by Hooser. Those companies include biotech giants Syngenta, Dow AgroSciences, DuPont Pioneer and BASF, as well as Kauai Coffee.

Hawaiian activist Walter Ritte said Kauai is the leader in the movement against the GMO industry, and that the rest of the state is watching and taking notes.

"Whatever you guys do today, and what you're doing right now, is going to have an impact not only in Hawaii, not only in the United States, but throughout the whole world," he said.

Ritte said giving up Sunday to march — and sweat — in the heat is worth it because that's what it takes to influence government leaders.

"You are going to win," he said. "There is no stopping Kauai."

Hooser said he didn't know what to expect, but that he was happy with the turnout.

"They could be at the beach, they could be watching sports on TV," he said. "But they're choosing to spend their day supporting a cause that's important to them."

Maui County Councilwoman Elle Cochran, who has been working on legislation that would require GMO foods to be labeled, said she came to show her support.

"I commend Kauai for always standing up and making a big impact," she said.

Hoku Cabebe, of Wainiha, marched with her family because she is concerned about the industry's chemical use.

"What this bill does is it makes our community aware and alert," she said. "We want people to know what's going on."

Nate Dickinson, of Waimea Valley, said one of the main reasons he came Sunday is his son, who has suffered from unexplainable seizures since birth.

"This right to know bill is so important, especially for my family," he said. "The thing you have to ask yourself is when these guys say everything they're doing is safe, then why can't they tell us what's going on?"

Bryce Boeder, also of Waimea Valley, said the bill, disclosure and buffer zones are all common sense.

"My opinion, why they don't want disclosure is because they're aware of what these pesticides do," he said.

Dr. Lee Evslin, a pediatrician and retired CEO of Wilcox Memorial Hospital, said there is a growing amount of knowledge about the dangers of pesticides, especially for children.

"I think it's a very important step," he said. "It's focusing on the issue and it's doing things that are specifically supported by the American Academy of Pediatrics. I think it's the beginning of a dialogue on this subject."

Guy Hanohano Naehu, a close friend of Ritte's, said it was impressive to see so much mana (or power) standing together.

"Obviously, every single one of you here knows what aloha aina means, and that makes my heart happy," he said. "From Hilo to Hanalei, and everything in between, we're all in this together."

Sunday, although a success, is not the end of the battle, according to Ritte.

"You guys are going to have to participate in making sure that these politicians, if they don't follow your lead, you guys are going to have to get them out of office," he said.

Today, the council's Economic Development Committee meets to discuss Bill 2491 and potentially introduce amendments. The meeting begins at 9 a.m. at the Historic County Building in Lihue.

• Chris D'Angelo, environmental reporter, can be reached at 245-0441 or [cdangelo@thegardenisland.com](mailto:cdangelo@thegardenisland.com)

The  
Economist

## Climate change

# While Congress sleeps

**Barack Obama offers stopgap measures to slow global warming**

Jun 29th 2013 | WASHINGTON, DC | From the print edition

IN THE full glare of Washington's summer sunshine, Barack Obama unveiled what he called "a co-ordinated assault on a changing climate" on June 25th.

He promised to deploy almost every green weapon at his

disposal, from better insulation in

public buildings to loan guarantees for clean energy. To engage the enemy as quickly as possible, he is relying solely on authority already granted to him by Congress. Yet most of the munitions in his atmospheric arsenal are less than fearsome—and Congress, which could provide reinforcements, prefers not to.



Getting hotter

The centrepiece of Mr Obama's "climate action plan" is a directive to the Environmental Protection Agency (EPA) to limit the amount of carbon dioxide that power plants may produce. The EPA was already working on such a rule for new plants; the president wants it to produce that by September 20th, and one curbing emissions from existing plants a year from now. Since power plants spew out almost 40% of America's greenhouse gases, and are not yet subject to any restrictions, this order could in theory make a big dent in America's contribution to global warming.

In addition, the president ordered the strengthening of fuel-economy standards for lorries and buses, on top of the increases for all vehicles adopted in his first term. He offered \$8 billion in loan guarantees for the deployment of technologies that make fossil fuels less harmful to the climate, such as carbon capture. He promised to promote renewable power by encouraging the construction of wind farms and solar arrays on federal lands, by requiring government agencies to obtain more of their own power from such sources and by streamlining permits for a more efficient electricity grid.

Mr Obama said he would tighten energy-efficiency standards for federal buildings and try to get mortgage lenders to take more account of energy efficiency in home sales. There was talk of curbing leaks of natural gas, managing forests to trap more carbon and phasing out HFCs (chemicals used in air-conditioners and fridges that are especially potent greenhouse gases).

Some thought Mr Obama would approve Keystone XL, a pipeline for carrying Canadian oil to American refineries. Instead, he said the pipe could go ahead only if it “does not significantly exacerbate” carbon pollution—a high hurdle for oil from tar sands.

All this is supposed to help fulfil the president’s pledge to get America’s greenhouse-gas emissions to 17% below the level of 2005 by 2020. In fact, America’s emissions have been falling, thanks to the recession and widespread switching from coal- to gas-fired power stations. But not fast enough: they are only 7% below the level of 2005, and the administration estimates that they are poised to start rising again.

Green groups say that Mr Obama’s plan, if vigorously pursued, might propel America most of the way to its target. But the president is less agitated than they are about the need to reduce emissions from natural-gas drilling and transport, for example. He gave no indication of the scale of cuts he would like to see from existing power plants, the most important element of his plan. And however exacting the EPA’s rules are, drafting and implementing them will be a long and uncertain process.

The EPA’s authority over greenhouse gases stems from the Clean Air Act, which was first passed in 1970 to combat smog. Under its terms, the agency must propose standards for existing power plants, revise them after listening to comments and then wait for each state to come up with an implementation plan, which in turn will set compliance dates that may be several years in the future. Mr Obama is thus likely to be out of office before the new standards bring down emissions at all.

Moreover, even the relatively modest rules the agency has promulgated under the act on less pervasive pollutants than carbon dioxide have sparked endless lawsuits. This week, for example, the Supreme Court agreed to hear a challenge to restrictions on ozone that drifts over state boundaries. There is great uncertainty as to whether the relevant section of the act permits the EPA to adopt trading schemes and other market-based mechanisms to spur cuts, or only allows it to require particular technological fixes. And even if the rules survive in court, a future administration could reverse them, as George W. Bush’s underlings did in 2005 with a Clinton-era ruling that mercury was an especially dangerous pollutant to be regulated under a particular section of the act.

If you want less of it, tax it

Mr Obama himself admits that it would be far better if Congress adopted a more sweeping measure that, in effect, puts a uniform price on carbon from any source. That would allow cuts to be achieved more cheaply and efficiently. But all such proposals have run aground in Congress; the last big push, in 2009, cost many Democrats their seats in the next year's mid-term elections.

Many House Republicans doubt that the planet is heating up at all. Others question the expense and effectiveness of Mr Obama's plan. Almost all salivate at the prospect of excoriating Democrats at next year's mid-terms for throttling the economy with green tape. No wonder, then, that the most impassioned part of Mr Obama's speech was when he called on supporters to convince their neighbours that climate change is real, and to urge them to vote accordingly.

From the print edition: United States

## Climate-Change Policy In America, Europe, And China

The Economist Jun. 29, 2013, 10:25 AM 4,334 43

REUTERS/Ivan Milutinovic

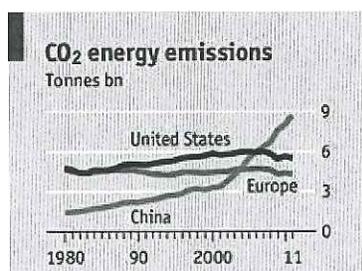
THIS is an unusually busy moment in the unhappy history of efforts to curb climate change. In two weeks at the end of June the world's three biggest polluters unveiled carbon-reducing measures. In China and America these are more ambitious than previous policies. But they fall far short of what is needed to rein in the relentless rise in global carbon emissions.

The centrepiece of the changes was the announcement, on June 25th, of new controls on American greenhouse-gas emissions, "one of the most important decisions we make as a nation", Barack Obama boasted (see article). A week before that China, the largest greenhouse-gas producer, unveiled its most far-reaching attempt so far to control toxic air pollution; it also started a pilot carbon-trading scheme in the southern city of Shenzhen, loosely based on the troubled European scheme. Not to be outdone, the European Union confirmed limits on car emissions for 2020.

Let us give credit where it is due. After years of fruitless wrangling to negotiate a global treaty for all, the big polluters have decided to go it alone. This is better than nothing. But the measures they propose are not those needed most; and they may even diminish further the chances of a treaty, since big polluters can now claim that such a thing is unnecessary.

Many of the American and Chinese moves are of the command-and-control variety—a ceiling on emissions here, a regulation of polluting activities there. In China there is a public-health justification for this sort of approach. Beijing suffered an "airpocalypse" in January, with smog 40 times above safe levels: too high at any price. America has no such justification. Mr Obama is using measures associated with Soviet central planning out of desperation: he cannot get climate laws through Congress, so executive orders are his only weapons.

The trouble is, such measures are not very accurate. Bans or quantitative limits restrict emissions without considering the policy's full costs. Some may provide net benefits (like controls on vehicle exhausts). Many do not. Retrofitting carbon capture and storage, for example, costs a fortune. America's plans look worryingly like an energy-policy grab-bag in which the president has been rummaging, rather than an efficient carbon-cutting plan.



## The Economist

Environmental policies are no different from any others: you want the biggest bang for your buck. The way to get that is to use market mechanisms to discover, say, the most efficient way of cutting carbon. America does not have such a mechanism at the federal level and is struggling to set one up.

Europe can claim to be ahead here: since 2005 it has had a cap-and-trade scheme which sets a limit on emissions and allows companies to trade pollution permits up to that level, thus putting a price on carbon. But the scheme is complex and has been undermined by vast exemptions—flaws which apply to China's new scheme, too. The European Parliament will vote on an emergency fix on July 2nd. Even if a compromise is passed though, it will merely stave off collapse for a year or so.

### A Churchillian approach to global warming

Winston Churchill famously said America would always do the right thing after exhausting the alternatives. The right thing in climate policy for all the big countries is a carbon tax, which is simpler and less vulnerable to fluctuations in emissions than cap-and-trade schemes. For years, such a tax has been a non-starter politically. But as the alternatives are tested to destruction, it deserves to be looked at again. Current environmental policies will not keep the rise in global temperatures to below 2°C—the maximum that most climate scientists think safe. A carbon tax, if stiff enough, could. Big polluters should assume that such a tax will one day arrive, and start planning for it now.

## Feds study humpback whale endangered list removal

POSTED: 12:20 p.m. HST, Aug 30, 2013 LAST UPDATED: 12:21 p.m. HST, Aug 30, 2013

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By Audrey McAvoy  
Associated Press



The National Oceanic and Atmospheric Administration is launching a review of whether it should take North Pacific humpback whales off the endangered species list.

NOAA Fisheries is responding to a petition filed by a group of Hawaii fishermen saying the whale should no longer be classified as endangered because its population has steadily grown since the international community banned commercial whaling nearly 50 years ago.

The agency said in a Federal Register notice this week the petition presents substantial scientific and commercial information indicating a delisting may be warranted. It will study the issue for the next year.

The Hawaii Fishermen's Alliance for Conservation and Tradition Inc. filed its petition in April.

There are more than 21,000 humpback whales in the North Pacific, compared with about 1,400 in the mid-1960s.

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<http://www.civilbeat.com/articles/2013/08/26/19750-will-the-changing-energy-landscape-spark-biofuel-buyers-remorse/>

## Will the Changing Energy Landscape Spark Biofuel Buyer's Remorse?

By Sophie Cocke  
08/26/2013

**UPDATED** The promise of biofuels was that they would deliver a locally produced, renewable fuel source. The question is increasingly: at what cost?

As Hawaiian Electric Co. has committed in recent weeks to drive down electricity rates that are three times the national average, there are signs that biofuels may not be able to compete with other energy sources. Yet, the utility could be locked into long-term commitments to buy the fuel at a fixed cost.

What would this mean to consumers? "If electricity prices fall, I suspect we are going to get stuck," said Robert Rapier, an energy expert and executive at renewable energy company, Merica International. By that, he means stuck paying for fuel that carries a significant premium.

HECO has signed four contracts with local biofuel companies in recent years. Three are being scrutinized by state regulators, and the fourth, for algae biofuel, seems to have stalled.

Biofuels have played a central role in the utility's renewable energy strategy since the state and HECO signed the Hawaii Clean Energy Initiative in 2008. Such fuel can be derived from a variety of plant feedstocks, by converting it into oil. It makes for an attractive option for HECO because the "clean fuel" can be dropped into the utility's generators, just like petroleum. And local companies seeking to produce biofuel have touted the economic benefits of the energy projects, saying they will create local jobs and bolster the Hawaii economy.

Tens of millions of dollars have been invested in local start-up projects, but there has been little success so far and some of the technology remains unproven.

HECO signed contracts with the biofuel companies before it received any assurance that their projects would be successful in delivering the fuel. Part of it was to help stimulate a market for local biofuels.

But amid growing pressure from the Hawaii Public Utilities Commission to reduce electricity rates, HECO has stated in its new long-term energy plans for Oahu, the Big Island and Maui County, that it will pursue liquefied natural gas, retire oil-fired generators that involve costly upkeep and solicit lower-cost wind and solar energy sources. In a changing energy landscape, where there's a new emphasis on consumer cost, it's not clear how biofuels will fit in.

**Update** HECO spokesman Peter Rosegg said that the utility will seek future sources of biofuel at the lowest price possible.

"Biofuels can be part of that portfolio of renewable resources and a component in reducing the cost of the firm generation needed to support variable renewable energy that now must be largely met with fossil fuels," he wrote by email.<sup>1</sup>

The Aina Koa Pono contract was rejected by the PUC three years ago because commissioners said the price of the fuel was too high and not in the best interest of consumers. Aina Koa Pono and HECO subsequently negotiated the

price of the project down by \$125 million, but the fuel from that bill would nonetheless add to customer electricity bills based on current projections for the price of oil.

**Update** Rosegg said that while the Aina Koa Pono contract would initially raise electricity rates by about \$1 a month for Big Island and Oahu residents, over the course of the 20-year contract, the fuel is expected to produce cost savings. (The fuel would be used by the utility on the Big Island only, but HECO is seeking to spread the cost of the biofuel to Oahu ratepayers as well, to lessen the bill impact.)

The PUC could rule on that contract as early as next month, according to Kenton Eldridge, a founder of Aina Koa Pono, who declined to comment further because the matter is still before the commission.

Meanwhile, Hu Honua Bioenergy and Hawaii Bioenergy are awaiting final decisions on their contracts with HECO as well.

Joel Matsunaga, chief operating officer at Hawaii Bioenergy, warned that lengthy deliberations before the PUC are driving up his project costs.<sup>2</sup>

“The longer it takes to get approval, the higher the cost the project ends up being in the long term,” he said, noting that the company is currently paying for the land it intends to use for biofuels.

In September 2011, HECO announced in a press release that the project would be located on Grove Farm land on Kauai, but Matsunaga said that the location and feedstock are still being determined.

He also said that he expected the cost of the biofuel to be competitive, but noted that this depends on where energy prices go in the future.

John Sylvia, CEO of Hu Honua, didn't return a call for comment about his company's hopes of turning the former Pepeekeo Sugar Mill on the Big Island into a biofuel facility for locally grown feedstocks such as eucalyptus. (If approved, the facility is expected to supply about 10 percent of the Big Island's electricity needs.)

HECO also announced an agreement with Phycal in September 2011 for the purchase of algae biofuel from a farm in Wahiawa on Oahu. However, the contract between Phycal and HECO has not been submitted to the PUC for approval, according to the HECO spokesman.

“We remain in contact with Phycal and are hopeful they will move ahead on their plans,” Rosegg said by email. “Once there is more definite and detailed information, we will apply to the commission.”

Phycal received a \$48.5 million grant from the U.S. Department of Energy to develop a 34-acre pilot farm, which was expected to break ground in late 2011 or early 2012. The agreement with the power company requires the biofuel to be delivered to the utility starting in April 2014, according to a HECO press release.

Kevin Berner, CEO of Ohio-based Phycal, did not return Civil Beat's calls for comment, and it's not clear if the project is still moving forward. The Honolulu phone number listed on Phycal's web site is no longer in service.