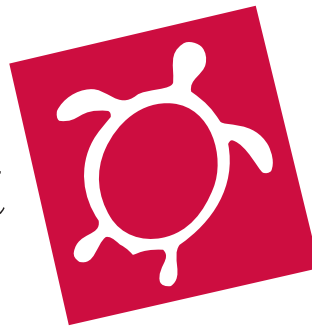


Environment



Hawai'i

a monthly newsletter

Stream Dreams

Just how much water the sugar substitute crops in Central Maui will require is anyone's guess – though chances are, they'll require nowhere near the amount that A&B's plantation needed.

Still, the latest decision in the contest over the fate of many of the streams in East Maui that feed into the irrigation ditches that once watered thousands of acres of sugar would give the successors to sugar almost as much water as sugar needed. Whether it will be adopted by the Commission on Water Resource Management and withstand the near-inevitable court challenge is now anyone's guess.

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Arbiter in Maui Water Case Gives Weight To A&B's Tentative Diversified Ag Plan

With the closure last December of Hawaiian Commercial & Sugar's (HC&S) sugarcane plantation, most of its former fields in Central Maui now sit fallow. Some cattle graze on a small portion, and the company has made moves to grow bioenergy crops and sell about 850 acres to Maui County for use as an agriculture park. But despite interest from a number of farmers wanting to use the remaining former cane lands, HC&S has claimed that none have been willing to commit to cultivation without some assurance they will have access to adequate, affordable water.

Most of the water that has historically fed the Central Maui plain comes from streams diverted by the East Maui Irrigation System, which is owned by HC&S parent company, Alexander & Baldwin (A&B). No one can know whether or not the state Board of Land and Natural Resources will continue to allow A&B to divert water from tens of thousands of acres of state land in East Maui. The company's current holdover permits expire in December.

But last month, HC&S's efforts to re-

tain enough water to bring its diversified agriculture plans to life got a boost: hearing officer Lawrence Miike found that all of the company's proposed future uses of some 26,000 acres (i.e., orchard and beverage crops, a dairy) were reasonable and beneficial. For the last few years, Miike has been presiding over the contested case before the state Commission on Water Resource Management (CWRM) brought by a group of native Hawaiian residents of East Maui called Na Moku 'Aupuni o Ko'olau Hui over the interim instream flow standards (IIFS) of about two dozen streams that have been diverted for roughly a century.

Miike's recommendations regarding beneficial and reasonable off-stream uses of water issued in late July and amended on August 2 aren't vastly different from those he issued in January 2016, when HC&S was still actively growing sugarcane. Back then, Miike proposed amending the IIFS of some of the streams so that a total of about 18 million gallons a day flowed in them. That amount of water, he believed, would meet the needs of East Maui taro farmers

continued to page 6



PHOTO: USGS

Under recent recommendations by hearing officer Lawrence Miike, about 100 million gallons water a day could, and perhaps should, still be diverted to Central and Upcountry Maui via the East Maui Irrigation Ditch pictured here.

Environment

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NEW AND NOTEWORTHY

Hu Honua Permit: The Public Utilities Commission has given the green light to a power purchase agreement between Hawaiian Electric and Hu Honua, the 30-megawatt power plant under construction some 10 miles north of Hilo that proposes to use trees as its main fuel source.

The order approving the agreement was issued on July 28. On August 7, the state consumer advocate asked the PUC to amend its order by adding requirements that would require the utility to file with the PUC "all Hu Honua invoices related to the engineering, procurement, construction, and maintenance associated with the project no later than 60 days after the commercial operations date" and copies of "Hu Honua's income statements or results of operations related to the project that will allow the commission and consumer advocate" to compare actual results to projections made in support of the application.



In rejecting the consumer advocate's request, the PUC noted that the consumer advocate had made a similar request for disclosures by the three O'ahu solar power plants whose power purchase agreements were approved in July.

The consumer advocate did not show that the original decision was "unreasonable, unlawful, or erroneous," the PUC found. It could have made such an argument in its original statement of position filed in July, but did not, the PUC added.

Bigeye Quota Reached: The National Marine Fisheries Service forecast that by September 1, the Hawai'i-based longline fishery would reach its annual Western Pacific bigeye tuna quota of 3,138 metric tons. On that date, NMFS announced, the fishery would be closed.

Bigeye tuna are experiencing overfishing, a condition where the amount caught is not sustainable over the long term. "Failure to close the fishery immediately would result in additional fishing pressure on this stock, in

violation of federal law and regulations that implement" decisions of the Western and Central Pacific Fisheries Commission, NMFS stated in its notice of the closure published in the Federal Register of August 14.

By the time the closure takes effect, it's likely that NMFS will have approved bigeye quotas for the U.S. territories in the Pacific that, under a transfer arrangement with the Hawai'i Longline Association, will allow Hawai'i's fleet to continue fishing. (For details, see the EH-Xtra item posted on the *Environment Hawai'i* home page: www.environment-hawaii.org.)

Environment Hawai'i

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Environment



September
1-30, 2017

Hawai'i, Inc.
77036

Give Aloha, Please: Throughout the month of September, Foodland is sponsoring its annual GiveAloha drive. This allows shoppers to donate to charities across the state – including *Environment Hawai'i* – as they check out. At the end of the month, Foodland and the Western Union Foundation will match each donation received with at least \$300,000 for all organizations combined. The amount of the match for each charity is based on its percentage of total donations made. So the more you give, the more we get.

Foodland customers holding a Maika'i card may make donations to a given charity of up to \$249 to qualify for the match. (You can donate beyond that, but anything beyond \$249 will not be counted toward the match.)

Our registration number is 77036.

No worry if you forget: there will be a list of charities at each checkout station. You can find us listed there as well.

Quote of the Month

*"I think we should not continue
to put our head in the sand
and take peoples' money."*

— Stanley Roehrig, Land Board

Once More, Green Infrastructure Agency Is Attempting to Remove PUC Oversight

If at first you don't succeed...

With the Hawai'i Green Infrastructure Authority (HGIA) having failed to win the Legislature's approval of a bill to relieve it of Public Utility Commission oversight, it is now trying to get the PUC to bow out on its own accord.

The HGIA is the state authority charged with lending out Green Energy Market Securitization (GEMS) funds secured by surcharges on bills sent to Hawai'i Electric customers. As *Environment Hawai'i* has documented over the last two years, the authority has faced a series of challenges in carrying out its charge, with the result that only a few million of the \$146 million originally available to lend out to people wanting to install energy-saving technology has actually been distributed. And of that, much has gone not to households who have had difficulty obtaining conventional financing, as the Legislature intended when it set up this program, but rather to large commercial property owners.

On July 21, HGIA filed a motion with the PUC seeking to modify the PUC's order of September 30, 2014, that set out the framework for HGIA's operation. Whenever HGIA seeks to add a "product" (a category of loan addressing a particular type of technology or customer), it needs to file a "project notification" with the PUC. So far, it has filed 11 project notifications. Whenever HGIA might want to modify the structure of the program beyond the scope of the original order, it would need to file a "program modification" request. The July 21 motion is the first program modification HGIA has sought.

In both cases, the PUC is able to veto the change sought. The state Consumer Advocate, as a necessary party to the proceeding, is required to weigh in on the proposals, and the original parties to the proceeding are also invited to comment. These are Hawaiian Electric utilities, Life of the Land, Blue Planet Foundation, Hawai'i Solar Energy Association, and the Hawai'i Renewable Energy Alliance. (That last organization has recently disbanded.) Public comment can also be submitted, but that rarely occurs.

Now HGIA is asking the PUC to eliminate provisions requiring both program notifications and program approvals.

During the 2017 legislative session, the HGIA lobbied hard for a bill that, among

other things, would have removed most of the PUC's oversight of the agency. (For details, see the cover story in our May 2017 issue.) The bill made it to a conference committee, but in the end didn't pass out.

At the same time as the bill was being heard, Gwen Yamamoto Lau, HGIA's executive director, filed an annual plan for fiscal year 2018 in which she voiced at some length her dissatisfaction with the need to report to the PUC and obtain its blessing for program changes. Indeed, she laid much of the blame for HGIA's dismal progress in distributing GEMS funds at the PUC's doorstep.

The motion filed in July with the PUC recaps many of the gripes that Yamamoto Lau expressed in the annual plan.

"The authority is requesting ... to eliminate the Notification/Modification Process and instead empower HGIA's Board to govern the Authority's loan program, enabling it to react in a nimble and timely manner to market changes and demands." — HGIA

The requirement for program notification, HGIA states in its July motion, "was envisioned as a communication tool to provide updates and inform the commission prior to implementation of any key program component ... and to report and certify information on implementation of key program components." Instead, by having to wait for PUC approval of the notifications, the HGIA is unable to "nimblely" respond to changes in the energy-efficiency market.

"[T]he models and programs originally contemplated in the initial Program Order ... are no longer sufficient to achieve the projected GEMS program impact..." according to the July motion drafted by HGIA deputy attorney general Gregg Kinkley. "Accordingly, the authority is requesting a modification to [the 2014 order] to eliminate the Notification/Modification Process and instead empower HGIA's Board to govern the Authority's loan program, enabling it to react in a nimble and timely manner to market changes and demands."

The motion paints HGIA staff (all employees of the Department of Business, Economic Development, and Tourism) as plucky survivors as the bombs fall around them: "According to Winston Churchill,

'Success consists of going from failure to failure without loss of enthusiasm.' Perhaps a benefit of having a high (employee) turnover is that new employees bring new enthusiasm and perspectives to a struggling program." Elsewhere, the motion describes the turnover: "HGIA, which has only 5.5 authorized positions (3 for programs and 2.5 support staff) has had significant employee turnover (3.1x) during its 33 month history.... (program: 4 executive directors and 9 program officers; support: 1 administrative services coordinator and 3 executive assistants)."

One of the struggles that those employees are said to face is "the risk of being 'raided' and disbanded during every legislative session" and working for what has been labeled a "failed loan program." Whatever else HGIA is, its funding is hardly at risk of being raided by the Legislature, inasmuch as it is not a government fund at all; in addition, HGIA's own operating budget comes not from general funds but from GEMS. As for being disbanded, that, too, isn't going

to happen: the bonds that were issued to fund GEMS aren't going to be paid off for another generation.

In any case, the motion says, "a concerted effort has been made to fill vacant positions with seasoned bankers with demonstrated business development and customer service skills and the technical expertise required to understand the complexities and risks of administering a loan fund."

The Blue Planet Foundation, whose executive director, Jeff Mikulina, sits on HGIA's board, filed comments supportive of HGIA's motion. The ability of HGIA "to nimblely" — there's that word again — navigate around challenges is "frustrated by the dual system of regulatory oversight," referring apparently both to the PUC and to the HGIA board. (Never mind that self-regulation is not really oversight.) It concurs with the claim of HGIA that PUC oversight has erected "barriers that have slowed effective deployment of loans." The Hawai'i Solar Energy Association also supported the move. (Life of the Land did not submit comments.)

The Hawaiian Electric utilities were much more cautious, noting that while the companies "support the continued success

HGIA Disses 'Clean Energy Advocates'

In attempting to advance its case for freedom from the yoke of the Public Utilities Commission, the Hawai'i Green Infrastructure Authority throws shade on "clean energy advocates," who, it would seem, don't understand the real motivation of "low and moderate income consumers (who may need to replace a broken hot water heater)."

An unnamed program officer with HERO PACE, a subsidiary of Renovate America, a private firm that finances energy efficiency technology and other improvements, explained that these consumers "are more concerned about meeting their immediate need quickly, easily, and conveniently with a loan that they can afford than necessarily being environmentally friendly," HGIA says, paraphrasing the officer in its request for relief from PUC oversight filed in July. That program officer is then quoted directly, "Even if a financing option is being offered at a better rate or a product is being offered at a better price, the consumer will opt for another lender or another product (as an example, an electric water heater versus a solar hot water heater) if there are too many hurdles to overcome."

It isn't clear how this observation works into HGIA's argument for relief from the onus of PUC oversight, but it does suggest that HGIA regards clean energy advocates as somehow working against the interests of low and moderate income consumers.

The same HERO PACE program officer credited the company's success to "a reliance on the competitive market economy to drive fair and competitive prices for consumers ... and, most importantly, the elimination of barriers (including well-intentioned but unnecessary regulation and/or program requirements)." Unlike HGIA, HERO PACE is not a government agency, where oversight and regulation might be more appropriate; rather, it issues loans that are secured through future property tax payments. (HERO PACE, it should be noted, has recently come under scrutiny for failure to disclose underperforming loans. It has also drawn fire for not basing loans on consumers' ability to pay but rather on their equity in the property being improved.)

— P.T.

of the GEMS program, ... there may be unintended consequences in eliminating the program notification/modification process."

"In particular, it is unclear whether HGIA's requested elimination of the program notification and modification process can be accomplished given statutory requirements, particularly where financing products have the potential to have significant impact on the companies' customers and electric grid," Hawaiian Electric stated.



Gwen Yamamoto Lau

It went on to note that the statute authorizing the GEMS program "requires the authority to submit an application to the commission for approval of any proposed loan program. ... Commission oversight of the

GEMS program is therefore a foundational aspect of the GEMS statute, especially since the green infrastructure fund is funded through the green infrastructure fee assessed on all customers."

The Division of Consumer Advocacy also weighed in, noting that the 2014 PUC

HGIA proposal, the consumer advocate proposed that the PUC suspend action on the motion to give interested parties time to see if a compromise could be worked out, with a suggested deadline of August 31.

HGIA agreed to this, but objected to the consumer advocate's characterization of its proposal. "While HGIA is requesting the elimination of the notification/modification process, it is not requesting the removal of the PUC's regulatory oversight," the HGIA stated. The existing reporting requirements "would remain intact," it said.

Speaking of Reports...

Whether reporting requirements are the equivalent of oversight is debatable, but in any case, on July 31, the HGIA submitted its required (for now) quarterly report to the PUC, for the period ending June 30. As with previous reports, the numbers of loans and their value appear to be fudged somewhat.

For example, in a grid reporting data on residential loans, the number of applications received (328) is nowhere near the number of loans "committed" (1,222). How could the number of loans possibly exceed the number of applications, Yamamoto Lau was asked in an email.

"After looking at it again," she replied,

	Applications Received	In Process ¹¹	Committed ¹²	Funded
# of loans	328	22	1,222	69
\$ value of loans	n/a	n/a	\$10,283,615	\$2,269,422

This table in the HGIA quarterly report shows more loans granted than applications received.

order "was based on a framework that was meant to provide the commission the ability to exercise its fiduciary responsibilities to ratepayers while allowing HGIA to be responsive to market factors."

"Notwithstanding the Legislature's recognition that the state would be best served by a program that [is] subject to regulatory guidelines and approval and the commission's clear statement that a governance structure allowing the commission to exercise its fiduciary duties to utility ratepayers would be reasonable, HGIA, through its motion, seeks the elimination of the notification/modification process, but does not offer any alternative nor narrative as to how ratepayer interest would be protected. The consumer advocate is concerned that, if the motion is granted as is, the interests of the customers and ratepayers of the Hawaiian Electric Companies will not be adequately served."

Instead of filing a formal response to the

"the chart could be confusing, even with the related footnotes." The total amount given for all residential loans is \$10.28 million, which, she added, "includes 22 loans that have been approved and committed with executed loan documents and solar systems in the process of being installed aggregating \$683,615."

So how can the larger figure be explained?

"It also includes \$9.6 million in GEMS funds committed to install up to 1,200 solar hot water systems on Moloka'i rooftops, in which we anticipate receiving an estimated 1,200 applications," Yamamoto Lau replied.

"We are not able to start accepting loan applications until we receive PUC approval of HGIA's on-bill product as well as approval to finance residential energy efficiency," Yamamoto Lau explained. Approval of on-bill repayment (the "on-bill product") has not yet been sought, but HGIA says it is

Who Pays the Vig on DOE Loan?

When Gov. David Ige signed House Bill 957 into law, the Hawai'i Green Infrastructure Authority was mandated to give an interest-free \$46.4 million loan to the state Department of Education. The money is to pay for energy-efficiency improvements to public schools in the Hawaiian Electric service area (the counties of Honolulu, Maui, and Hawai'i).

The fact that the loan is to be interest-free means that it will be ratepayers – not taxpayers – who are on the hook for the interest on the bonds floated when the Green Energy Market Securitization fund was established.

At one of the hearings held on the bill, legislators wanted to know if there might

be a problem with this. Gregg Kinkley, the deputy attorney general giving legal advice to HGIA, allowed as how there “may be policy issues involved,” but, “as long as all the changes are consistent and the bondholders aren’t impaired, and debt service isn’t touched, it’s not unconstitutional. All the rest is policy. In terms of legality, it’s not illegal on its face.”

Luis Salaveria, head of the Department of Business, Economic Development, and Tourism, and also chair of HGIA’s board, said that the measure could yield \$5 million a year in savings on the DOE’s energy bills.

No one at the legislative hearing mentioned the cost to the ratepayer, but the subject did arise as the HGIA’s board discussed it on June 29.

According to minutes of that meeting, HGIA member Kalbert Young, a former administrator of the state Department of Budget and Finance, said he supported the request that HGIA loan the DOE the \$46.4 million, “because the Legislature has effectively compelled the authority to provide an interest free loan to the DOE; however, he

[Young] has reservations because the issuance of an interest free loan is not a sound financial practice when the GEMS bond has interest obligations.”

“Chair Salaveria shared that while it appeared the original intent of [the] bill



Luis Salaveria



Kalbert Young

was for the authority to assess interest to cover its bond costs plus administrative overhead, the argument from a policy perspective on whether the ratepayer pays for the DOE’s requested retrofits via the green infrastructure fee or the taxpayer pays for it as the DOE is a general funded public entity, that the two groups (ratepayer vs. taxpayer) are closely congruent.

“The chair duly noted Member Young’s reservations. He also stated that ... for the record, it is his position that this interest free loan to the DOE should not put pressure on HGIA to burden the remaining corpus of the funds by having to increase interest rates in order to recoup interest not assessed to the DOE.”

So, while HGIA does not intend to increase the interest rates its charges to parties taking out GEMS-backed loans, the portion of interest paid to bondholders by Hawaiian Electric customers will inevitably rise.

— *P.T.*



Facilities Maintenance Branch workers apply liquid coated heat reflective paint to cool more than 360 portables on O’ahu.

working on it. “On-bill repayment (OBR) is a critical tool to enable green infrastructure financing for the underserved (i.e., renters and low to moderate income households) to truly democratize green energy,” the report states. “The authority” – HGIA – “plans to submit a manual for its Green Energy Money Saver (GEMS) on-bill program during the current quarter.” The PUC also has yet to approve GEMS loans being used to finance energy efficiency measures (such as solar water heaters, the subject of the proposed Moloka’i financing).

When you get right down to brass tacks and set aside the projected “commitments,” in the two and a half years since HGIA started up shop, the number of residential loans closed on is 69, with a face value of \$2,269,422. (Of those, as of June 30, three

were in arrears.)

Commercial loans for photovoltaic systems number just six, but have a face value (\$2,798,141) greater than that of the 69 residential loans.

Altogether, the GEMS funds released for residential and commercial loans as of June 30 come to around \$5.07 million. HGIA administrative and program costs since the program’s inception are an additional \$2.77 million (or 35 percent of the loan value).

But, according to the report, the really big loan that HGIA is getting ready to disburse is to the state Department of Education, which, thanks to Act 57 of the Legislature, is to receive \$46.4 million in an interest-free loan to finance energy-efficiency measures at public schools in the Hawaiian Electric service area (O’ahu, Maui

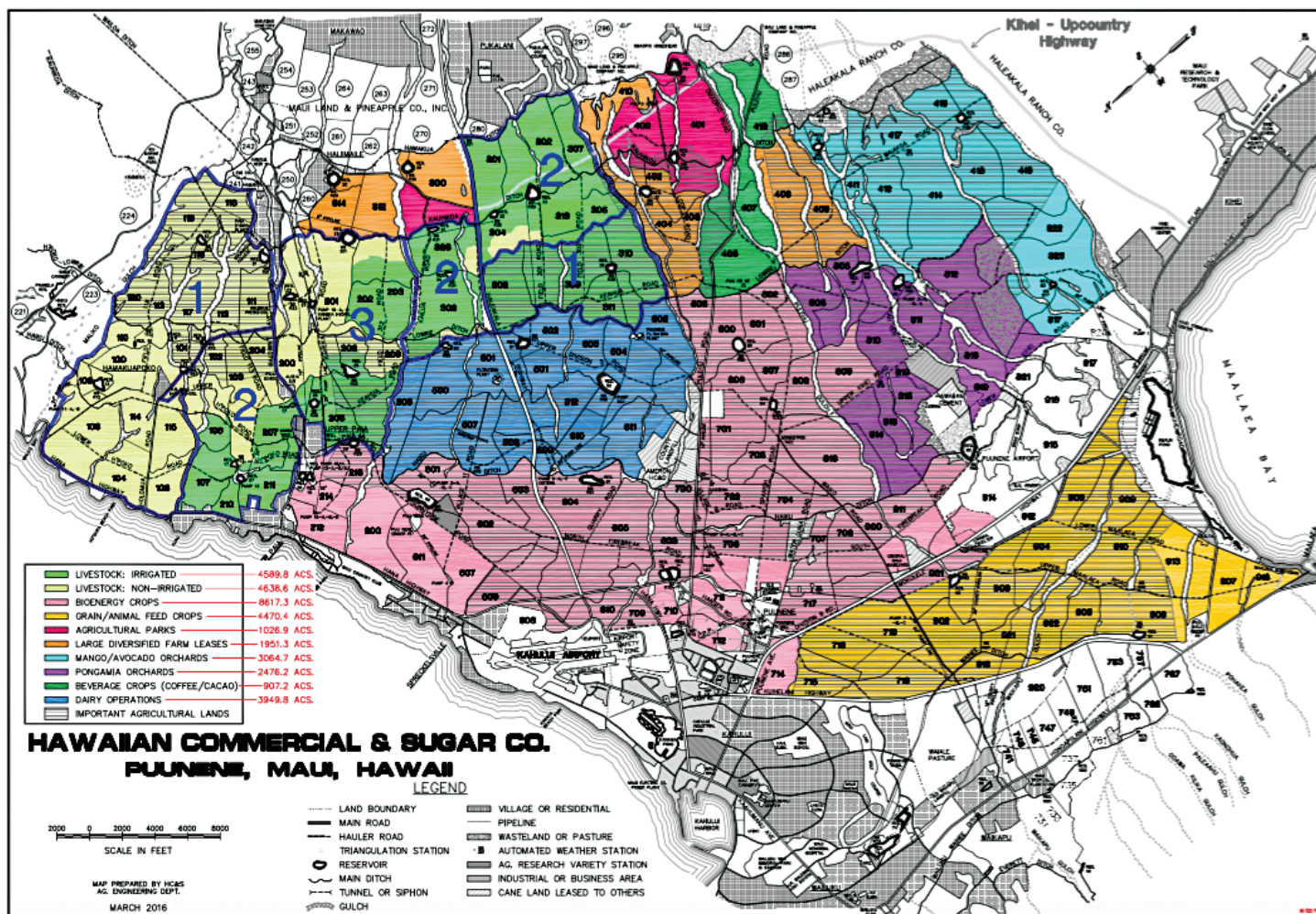
County, and Hawai’i island). According to the quarterly report, “the loan is currently being documented.”

Yamamoto Lau was asked how much interest will be foregone as a result of the DOE loan.

So far, HGIA appears to be receiving around three-tenths of a percent interest (.345 percent, or \$471,932) on the \$136.7 million it has in the bank, so perhaps foregone interest on the DOE loan is not a consideration.

She replied that foregone interest was not an issue, “as the funds won’t be released in bulk.” Instead, “HGIA will be paying the DOE’s contractors directly for milestones achieved and/or work completed based on their contract with the DOE.”

— *Patricia Tummons*



Water from page 1

who made up Na Moku, and would also restore habitat for stream animals. That amount would also provide HC&S and the Maui Department of Water Supply (DWS) enough water to meet all of their needs most of the time.

Because Miike had based his 2016 recommendations on evidence presented well before HC&S announced that it would cease its sugarcane operation, there was immediate pressure on him and the Water Commission to re-evaluate off-stream water needs given that the largest user of the diverted water was soon no longer going to need most of it.

In the months that followed, to appease those (including Na Moku) calling for the end of all of A&B's diversions, the company committed to fully and permanently restore all of the petition streams that supplied water to taro fields in East Maui. The Water Commission incorporated that commitment into an interim order. In the meantime, Miike held more hearings to determine how his 2016 recommendation should be amended given current uses of and potential needs for the diverted water.

Water Needs

In its opening brief, HC&S submitted a March 2016 Diversified Agriculture Plan for its former sugar cane fields. The plan identified 26,600 acres that required irrigation, some of which also had access to well water. Those lands would be used for pasture; a dairy; orchard, beverage and bio-fuel crops; and an agricultural park, among other things. Those uses were estimated to need a total of about 115 mgd.

To give a sense of how close it was to securing or identifying actual tenants for the lands, HC&S stated that it had received 60 promising inquiries about using its lands. If those projects were to come to fruition, they would occupy 19,500 acres, it stated. As of the close of the hearing, the company was in active discussion with only 15 of those prospects.

To Na Moku and the Maui Tomorrow Foundation (MTF), an intervenor in the case, HC&S had not provided sufficient evidence backing up its projected water needs.

"HC&S essentially asks the CWRM to accept, on their word alone, that uncertainty over the availability, quality, and

cost of water to irrigate its former sugar cane lands is preventing third-party persons and entities from signing leases under the company's diversified agricultural plan," Na Moku stated. MTF added that if the Water Commission simply accepted the company's claimed need of 115 mgd for reasonable and beneficial uses, it would be a "gross over-allocation."

What's more, MTF pointed out, potential agricultural users in other parts of the island designated for agriculture — in Hana, Paia-Haiku, and Makawao-Pukalani-Kula — had not been given an opportunity to participate in the Water Commission's re-opened proceedings and discuss their potential water needs.

"It would constitute a breach in the management of these public trust water resources to include within the class of potential reasonable and beneficial users (other than the MDWS) only those who may execute a lease from A&B for portions of the 36,000 acres of former plantation lands," MTF stated.

Projected uses aside, MTF argued that all of A&B's current "bona fide needs" could be met by the 20 streams diverted by the

irrigation system that are not subject to Na Moku's petition.

The group went on to accuse A&B of keeping its lands in agriculture only "as a temporary holding strategy along the path to profit from sale or development of land."

It continued that A&B had sold 339 acres of its former cane lands after it had submitted its Diversified Agriculture Plan to the Water Commission. "Despite selling the 339 acres, HC&S' speculative future need for water stayed about the same when logic would have dictated that the need for irrigation water would have been reduced."

HC&S cannot be allowed to retain as much diverted stream water as it can, based upon "vague, cursory and unsupported descriptions of conjectural future agricultural uses of its currently fallow lands," MTF stated, adding that the Hawai'i Supreme Court found in a previous water case that the Water Commission may consider projected water needs that "are real and supported by evidence." The group said documentary evidence must be required to substantiate claims to potential uses of water.

Given the vast reduction in HC&S's actual water needs, "the 'maximum benefit' can now be realized by fully restoring stream flows and eliminating diversion structures," MTF concluded. A&B had already committed to fully and permanently restoring seven streams used by taro farmers. For the maximum benefit for stream species and habitats, the remaining 16 petition streams "shall also be fully restored and all diversion works fully and completely removed within one year," MTF recommended.

The group determined that reasonable and beneficial present irrigation requirements for diversified agriculture were only 3 mgd plus reasonable system losses of 22.7 percent. For the DWS, reasonable beneficial uses totaled 7.1 mgd, it found.

Na Moku recommended a slightly more conservative restoration scenario. It proposed limiting diversions to two of the four A&B license areas in East Maui, Huelo and Honomanu. For streams in the Huelo license area, Na Moku noted that A&B had committed to fully restore Honopou and Hanehoi/Puolua streams. For the Honomanu license area, the group notes that Honomanu Stream is undiverted. It recommends that Waikamoi, Puahokamoa, and Haipuena streams have their IIFS set to support minimum habitat or 64 percent of median base flows. For Alo, Wahinepee, Punalau/Kolea, and Nuaailua streams, 100 percent of median base flow should be restored, it stated.

Miike Decision

On August 2, Miike issued his own recommendations. In short, he pretty much accepted all of HC&S's projected water uses as reasonable and beneficial.

"The public interest includes not only protecting instream values but also preserving agricultural lands and assuring adequate water supplies for Maui. The Commission needs only to reasonably estimate instream and offstream demands, and may base the IIFS not only on scientifically proven facts but also on future predictions, generalized assumptions, and policy judgments," he stated.

He found that the aggregate irrigation requirement for HC&S's 26,996 acres was 3,305 gpad, or an average daily requirement of 89.21 mgd. With reasonable irrigation system losses of 26.22 mgd, Miike determined that the company would require a total of 115.43 mgd to fulfill its diversified agricultural plan.

"Additional reservoirs, recycled wastewater, and [water from] Maui Land and Pine are not reasonable alternatives based on analyses of costs, technology, and logistics. In the future, 2.95 mgd to 4.2 mgd — and up to a capacity of 7.9 mgd — might be available from the Kahului Wastewater Reclamation Facility," he stated.

The facility must be upgraded to treat wastewater so that it can be applied to all manner of crops. Such an upgrade was estimated in December 2010 to cost nearly \$5 million, Miike noted. He added that the water would also need to be piped to the airport and then to East Maui fields.

HC&S could use up to 23.09 mgd of brackish well water, thereby reducing its stream water needs to 92.34 mgd, he found. Because the company already receives 8.59 mgd of stream water from A&B's lands, Miike determined that HC&S would need only 83.75 mgd from streams listed in Na Moku's petition.

With regard to the DWS's needs, Miike wrote, "use of 7.1 mgd of water from the Wailoa Ditch would seldom compete with the amended IIFS's increased needs, and if such competition occurs, it would be for only a few days a year." If the DWS eventually receives the maximum amount allowed for under its agreement with East Maui Irrigation Co. (an A&B subsidiary) —16 mgd —the agency could have a deficit of about 8 mgd or more, he stated.

Miike noted that six of the petition streams have had 14.32 mgd restored to their base flows: Makapipi Stream, Wailuanui Stream, Waiokamilo Stream, Palauhulu Stream, Hanehoi/Puolua Stream, and Ho-

nopou Stream. He recommended that flows to those streams, as well as four others, be increased to provide for "sufficient habitat for the full growth and reproductive cycles of stream animals." Compared to existing diverted flows, Miike recommended that 12.15 mgd be restored to those streams.

He further recommended that the IIFS for Piinaau and Kulani streams remain at status quo, since Kulani has never been diverted and Piinaau converges with Palauhulu Stream, which A&B plans to fully restore. The IIFS for nine other streams would also remain the same as they were when designated on October 8, 1988.

If the Water Commission adopts Miike's recommendations, it would "increase flows for 12 of the 22 streams that have been diverted by the EMI Ditch system, adding approximately 26.49 mgd to the streams from their diverted base flows, including six streams that will have their flows returned to their undiverted, natural flows. An undetermined amount of rainwater would also be returned to these six streams," Miike wrote.

Between 2011-2014, EMI diverted an average of some 108.89 mgd from state lands. IIFS at the time dictated that 13.95 mgd was to remain in the petition streams during the wet season and 5.61 mgd was to remain in the dry season. "If we assume that these amounts would be included in the 26.49 mgd of base flows that will be returned to the streams, the additional restoration over [IIFS set by the Water Commission in 2008 and 2010] would be 12.54 mgd to 20.88 mgd, leaving 88.01 mgd to 96.35 mgd of the 108.89 mgd that was diverted. Compared to the maximum requirements for HC&S of 83.75 mgd and MDWS of 16 mgd, the total of 99.75 mgd is 3.4 mgd to 11.74 mgd short of the estimated surface water that would be available and well within what might be reasonably expected to be actually required in the future," Miike concluded.

— ***Teresa Dawson***

For Further Reading

Environment Hawai'i has published many articles over the years providing additional background on East Maui water issues. All are available on our website, <http://www.environment-hawaii.org>.

BOARD TALK

Constant Flooding Hampers Tenant's Ability To Pay Rent for Mapunapuna Demo Business

By now, anyone who watches the local evening news knows that Mapunapuna floods dramatically during high tides and heavy rains. As local scientists and government agencies have ramped up their work to address the potential impacts of sea level rise, the low-lying inland industrial area has been repeatedly held up as an example of what low-lying areas around O'ahu could expect as a result of climate change. During the king tides earlier this year, local news outlets reported on sightings of fish swimming in the streets there as seawater flooded stormwater systems.

"Everybody wears rubber boots. All our phone lines are flooded out. Nothing works. Everything smells like mildew."

— John Leary, Island Demo

The fact that the flooding in Mapunapuna will probably not end anytime soon and will likely worsen with sea level rise had members of the state Board of Land and Natural Resources wondering recently whether or not it should continue to lease out lands there. At its July 28 meeting, the Land Board got an earful from one of its tenants who cited the constant flooding as the main reason why he had fallen behind on his rent.

At the meeting, the Department of Land and Natural Resources' Land Division recommended that the board authorize its chair to extend the amount of time Island Demo, Inc., had to cure its rent default of \$25,050. The company's owner, John Leary, testified that he has noticed that

every month for the past two decades or so, there is water on the road, and "the water is getting deeper and deeper. ... They had a guy paddle boarding down the middle of the street." Rusting caused by the flooding has forced him to get rid of six of his 12 work trucks, he added.

"I have 22 employees. They gotta drive their private cars through this stuff. ... This is just getting nuts," he said, adding that after 18 years on the property, he no longer believes it's worth the \$54,600 a year in rent. "It wasn't like this. Now, it's just terrible. Everybody wears rubber boots. All

our phone lines are flooded out. Nothing works. Everything smells like mildew," he said.

He pointed out that his lease promises "quiet enjoyment" of the property.

Land Board member Sam Gon said he completely sympathized with Leary. "It does seem to be coming to a point where the land uses for that area may no longer be appropriate," he said.

As bad as things were at the property, Leary suggested the effort that would be required to relocate his business — which involves the recycling of construction and demolition waste — would be harder than simply sticking it out where he is.

"I have a conditional use permit to operate a transfer station. That process, I did that in 1998, that was \$40,000 [for] consulting, an environmental impact statement ... To get another piece of property, to go through the conditional use permit process, would take two to three years," he said.

Board chair Suzanne Case asked the Land Divi-

sion's Kevin Moore whether the periodic flooding was being considered during regular rent re-openings. Moore said that in the last one, the appraiser gave a 10 percent discount because of the flooding, but he had also based the rent on comparable properties that don't have similar issues.

Board member Stanley Roehrig urged the department to investigate ways to reduce Leary's rent. "We have an issue that we are not providing a safe, quiet ... enjoyment of the leasehold premises because of matters outside of the control of the tenant," he said.

"If this were a kingdom and I were the king, I would reduce your rent drastically," Roehrig told Leary.

Board member Keone Downing, however, suggested that if human health is being put at risk because of the flooding, the property should be closed. "You haven't been paying your rent. You're delinquent as of today. ... There really shouldn't be a business there," he told Leary.

While Leary agreed that the flooding does cause hazardous conditions, he added, "It doesn't stop us. We overcome. We've adjusted and overcome." He noted that his office building floods only a few times a year, but the last time, around Christmas, the water level was around 18 inches.

Leary indicated that he still wanted to stay on the property, but that he wanted the rent reduced at the next re-opening in 2019.

Downing replied that even with a rent reduction, the flooding and resulting damages would continue. "It's sounding like the area should be closed and the businesses should be out," he said.

"It's not as easy as you think," Leary said, noting that the state Department of Transportation has a baseyard in the area and there are other "major businesses" there.

Given the expected rise in sea level due to climate changes, Case said Leary's situation is "a look into the future." Contrary to Downing's position, she said the businesses in the area can make their own decisions about whether or not to stay.

"It's not like we can go in and close businesses down," she said.

With regard to future rent determinations for Leary's property, as well as others, Case said the flooding problems may have to be considered and that she expected the value of everybody's properties affected by sea level rise are going to go down. "That's something we're going to have to think about," she said.

The Land Board ultimately approved the Land Division's recommendation. It



King tides in Mapunapuna, Oahu.

also indicated that it wanted the division and the state Department of Health to assess the impacts of sea level rise on the quiet enjoyment of the property and determine any potential rent adjustments that need to be made.



Legacy Land Projects Secure Full Funding

As promised, the DLNR's Division of Forestry and Wildlife sought and won Land Board approval of full funding for the Legacy Land Conservation Commission's top-ranked projects for 2017. At its July 28 meeting, the Land Board approved Legacy Land Conservation Program grants for the fee purchase of 2,209.207 acres of culturally rich coastal land in Waikapuna on the island of Hawai'i, and a conservation easement over 6.12 acres encompassing the iconic taro fields in Ke'anae, Maui.

In May, at DOFAW's request, the board voted to award most of the DLNR's 2017 land conservation funds to the division for the acquisition of Kuka'iau Ranch lands. Division administrator Dave Smith said at the time that the purchase could be jeopardized if it did not receive full funding quickly. Although the Land Board also granted \$100,000 to the Waikapuna project, the amount fell far short of the \$2 million requested by the Ala Kahakai Trail Association and Trust for Public Land.

Before the May board meeting, the chair and other members of the Legacy Land Conservation Commission had expressed concern over the fact that DOFAW's project, which the commission had ranked below the Waikapuna project, would be receiving full funding at the expense of the other projects. DOFAW promised to seek board permission to use 2018 funds to fulfill the funding requests for the Waikapuna and Ke'anae projects.

With the Land Board's approval of grants totaling \$2,210,000 for two projects and the \$1.5 million that must be paid out of the Land Conservation Fund to pay the debt service on the bond used to protect lands at Turtle Bay, only about half a million will be available to grantees next year.

(For more on this, see our July 2017 "Board Talk" column.)



Roehrig Vows to Oppose Future Coastal Easements

Land Board member Stanley Roehrig has had enough. On July 28, for what seemed like the millionth time, the Land Division sought board approval to expand an easement for a coastal structure so that it covers an area subsequently found to be encroaching onto the state land. This time, the easement covered a seawall and stairs in Kahala, for which the original landowner paid \$83,020 in 2009. Last year, a state survey found that the structures encroached beyond the shoreline and outside the 773-square-foot easement area by about 200 square feet. Extending the easement to cover that area would cost \$20,513, the division reported.

Despite concerns expressed by board member Keone Downing that the current landowner, R&I Hawai'i, Inc., may have committed Conservation District violations in making unauthorized improvements to the area, the board ultimately approved the amendment. Before the vote, however, Roehrig reiterated his longstanding concern that the division's shoreline easement process was flawed and unfair.

"Has the Legislature ever passed legislation identifying who owns what [when] somebody builds a wall and global warming and whatever cause the sea to rise so the wall is in the ocean now? ... By what lawful right do we have to charge the landowner one penny?" he asked the Land Division's Kevin Moore.

"I sincerely believe we should submit a bill to the Lege to get lawful authority, or we should pay these people rather than saying they owe us money," Roehrig continued.

He added, "I'm willing to approve this one, but I vote 'no' from now on on these unless we go to the Lege to resolve this issue."

To this, Moore reminded Roehrig that the department has tried and failed for years to get legislation passed to allow the easements to be granted at less than market rates. With regard to questions about the department's authority to require easements over seawalls found to sit seaward of the shoreline, he added that the state Department of the Attorney General has taken the position that such authority has been established by case law.

"Is there a written opinion to this effect?" asked Roehrig, who is also an attorney.

"We can certainly revisit it with them," Moore replied.

"We're not here to take peoples' money just because we're a board," Roehrig stressed, adding, "I think we should not continue to put our head in the sand and take peoples' money. Do something so each side gets a fair deal."

Board chair Suzanne Case noted that in the meantime, "if you're using public property, you have to pay for it." After the board approved the easement amendment, she assured Roehrig that she would work with the Land Division and AG's office on the form of an appropriate legal review of the state's authorities.



Shoreline Hardening Policies For Old and New Structures

Another glimpse into the future with rising sea levels: On August 11, the Land Board issued a right-of-entry permit to allow the Kahana Sunset residential condominium in West Maui to conduct emergency seawall repairs along a 340 square foot section.

"Similar to other shorefront properties on the coast of West Maui, Kahana Sunset has suffered from erosion related problems in recent years. Presently, the undermining of the seawall in close proximity to building A has progressed to a point that the building foundations may be in danger of collapse or major failure," a staff report states. The repairs are expected to include the temporary placement of "jumbo" sandbags in front of the seawall and the filling of cavities with concrete.

Maui Land Board member Jimmy Gomes confirmed that the seawall was in dire shape, noting that at one section, the ocean "shoots like a blow hole right into the yard."

Generally, the Land Board and DLNR frown on shoreline hardening, as it exacerbates erosion of the beach and neighboring properties. In the case of the Kahana Sunset condos, the complex was built in 1971, before the department's current coastal management policy had been developed, and simply allowing one of the structures to fail would pose a serious public health hazard, the Land Division found.

To prevent future situations like Kahana Sunset's, the DLNR's office of Conservation and Coastal Lands has started to include in Conservation District Use Permits for single family residences a condition prohibiting shoreline hardening.

— T.D.

NARS Commission Grants Permit For Ecological Station at Pu'u Maka'ala

On July 31, the Natural Area Reserves System Commission approved a special use permit to the National Science Foundation (NSF) to establish a National Ecological Observatory Network (NEON) field site within the Pu'u Maka'ala Natural Area Reserve (NAR) on Hawai'i island.

NEON sites across the country have been established to collect data needed to study climate change, land use and invasive species impacts on natural resources and biodiversity. The Hawai'i site "would provide data for NEON's Pacific Tropical domain (Domain 20), and would be the only site representing this domain for the network," according to NEON staff.

In 2009, NEON and the U.S. Forest Service took the NARS Commission by surprise when they announced that they planned to establish a site within the Laupahoehoe NAR, also on Hawai'i. Commissioners expressed grave concerns about proposed construction in the NAR and encouraged the agencies to look elsewhere.

When NEON approached the commission this year to establish a site at Pu'u Maka'ala, its proposal was much better received, even though some construction is still proposed. The organization plans to build a 105-foot research tower fitted with various sensors, an instrument hut, and two-foot-wide walkways within the forested area, among other things.

At the commission's July meeting, former NARS Commission member John Stinson told NEON representatives that when the organization and the Forest Service first informed the commission of its Laupahoehoe proposal, "we beat 'em up

pretty badly. ... You have to convince us that this has to be inside the NAR. I can see the advantage to NEON to have it in Pu'u Maka'ala, but what's in it for NARS?"

Steve Ellis of the NSF replied that one of the missions of the NARS is to understand its natural resources. NEON helps serve that need, he said.

Hawai'i island NARS manager Nick Agorastos said that while monitoring NEON's work in the NAR will be a huge responsibility for him and his staff, he hopes the project will help him meet a laundry list of research needs. "We don't have the capacity to do this kind of science. I am in favor of this," he said. In addition to climate data, NEON is planning to collect information on bird abundance and diversity, mosquito and ground beetle presence, various soil properties, and how plant species vary seasonally, according to its permit application.

Commissioner Sheila Conant also pointed out that the Laupahoehoe NAR was unsuitable for a number of reasons, including the fact that there was no electricity to the site and a road in would have to be bulldozed. That's not the case at Pu'u Maka'ala, where there is electricity as well as already disturbed areas where some of NEON's infrastructure can be built.

The commission chose to grant the NSF a 30-year permit on the condition that it be annually reviewed. The project still needs a Conservation District Use Permit from the state Board of Land and Natural Resources. The board is expected to vote on the matter at its September 8 meeting.

Construction of the tower is expected

to take about six months. No trees taller than 15 feet will be trimmed.

(For background on this, see "Commissioners Lambast NEON Reps for Surprise Selection of NAR Site," from our October 2009 issue.)



Commission Refrains from Granting HECO a Permit to Remove Power Line

The Hawaiian Electric Company will have to wait a while before the NARS Commission is ready to grant the utility a special use permit to relocate nearly two miles of 70-year-old 11.5 kV power line that cut across the Ka'ala NAR on O'ahu. At the commission's July meeting, HECO sought a permit to prepare the area ahead of the actual removal. Prep work included vegetation trimming to access trails to new power pole locations and to create a helicopter landing pad and staging area.

Although HECO's permit application stated that there would likely be no significant environmental impacts from the project, commissioner Sheila Conant wasn't so sure. The Ka'ala NAR has such pristine, sensitive native habitat that boardwalks were installed long ago to prevent trampling.

"There's a boardwalk for a reason," she told HECO's representatives, adding that she needed much more detail on the planned work and the kind of vegetation and native fauna (i.e., snails, shearwaters) that could be affected.

Hoping to avoid deferring permit approval to a future NARS meeting, DOFAW's Emma Yuen asked whether the commissioners could get the details they desire from HECO representatives at that meeting. Although NARS staff had been working closely with HECO on the project, commissioners expressed their discomfort with the level of detail that had been included in the permit application, as well as their confusion as to whether the permit would cover just the prep work or the line removal, as well.

If it were the latter, the commission would definitely need more information, given the potential for serious damage during line removal. HECO representatives explained that in a best-case scenario, the poles are in good shape and remain upright while the line is slowly retracted using a pulley system. Should the worst case happen — a pole fails and the line falls to the ground — the line would immediately coil up, dragging the surrounding vegetation with it.

Given the lack of detail and the fact that the company still has to prepare an environmental assessment and habitat conservation plan for the \$2 million project, the commission voted to defer the matter. — T.D.

PHOTO: NATIONAL SCIENCE FOUNDATION



This kind of research tower is proposed to be constructed just off an access road in the Pu'u Maka'ala NAR.

Department of Ag Stalls, But Finally Yields On Permit for Lehua Rodenticide Drop

The state Department of Land and Natural Resources' (DLNR) effort to rid its Lehua Island bird sanctuary of invasive rats got off to a rocky start last month. The agency did not receive notice from the National Oceanic and Atmospheric Administration (NOAA) until August 21 that the DLNR's plan to kill the rats by aerically applying an anticoagulant rodenticide would not jeopardize any threatened or endangered species on or around the island, located about a mile off Ni'ihau.

The day after NOAA's "no jeopardy" determination, the state Department of Agriculture (DOA) granted the DLNR a permit allowing it to broadcast diphacinone-laced bait pellets via helicopter. By then, the DLNR had already staged its operation on Ni'ihau and was ready to drop the bait as soon as the permit was signed and winds permitted.

Keen to complete its project during the dry summer months, the DLNR originally planned to start dropping bait on August 8, with subsequent drops on August 18 and 29. By dropping the bait when there is the least amount of vegetation on the island, the agency increases the odds that rats will 1) eat the bait rather than the vegetation, and 2) be less able to counteract the anticoagulant effects by eating vegetation (The antidote to diphacinone is vitamin K, which is found in plants).

The permit the DOA granted on August 22 expired on August 27 and allowed for just a single bait application, which occurred on August 23. A new permit will be required for each subsequent drop.

In the weeks leading up to the permit being signed, many expressed concerns over potential adverse impacts to non-target spe-



A helicopter dropping rodenticide-laced pellets on Lehua Island last month.

PHOTO: DLNR

cies, including humans. Local news outlets detailed worries voiced by some Ni'ihau fishermen about impacts to fish; Kaua'i state Rep. Dee Morikawa called for the project to be delayed, and the DOA's former Pesticide Branch chief, Robert Boesch, beseeched multiple government agencies to consider the possibility that the rodenticide could bioaccumulate in pelagic fish, not just reef fish, and the potential dangers to humans that posed. Much of their concern stemmed from the DLNR's 2009 aerial rat bait drop on Lehua.

A large fish kill around Ni'ihau and a couple of humpback whale calf deaths occurred shortly after the bait was dropped, leading the DOA, where Boesch worked at the time, to put an end to any further aerial bait drops before all rats could be eradicated. Out of concern for marine species,

the DOA's permit for that effort had also prevented the DLNR from aerically applying any bait along the island's coastal areas.

Although testing found no traces of diphacinone in the dead fish, Boesch has said he believes the fish tissues contained a chemical signature that could have been a metabolite of the rodenticide. (The U.S. Fish and Wildlife Service, a partner in the eradication effort, disputes this. It states in its environmental assessment for the project that there is "a total lack of supporting evidence" that diphacinone killed the fish.)

While the results of inert bait trials on Lehua in 2015 suggest that any pellets that fall into the water will disintegrate within 30 minutes and disappear altogether within 24 hours, the DOA included a number of permit conditions to reduce the likelihood that bait will enter the ocean, and to ensure that any birds, fish, or federally listed marine mammals found dead following the bait application are properly tested to determine cause of death.

For example, the DLNR and FWS proposed to allow helicopters to drop bait only when wind speeds were 35 miles per hour or less. The DOA permit, however, reduces that maximum wind speed to 25 mph. Also, any samples of dead fish, birds, or marine mammals must be collected and stored in accordance with a "proper chain of custody maintained by USDA, and shall be provided to the [DOA] Pesticides Branch," according to the permit. Also, any death of ten or more birds, 25 or more fish, any endangered or threatened birds or marine mammals, or any human illness or injury



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PHOTO: DEPARTMENT OF LAND AND NATURAL RESOURCES

Seabirds at Lehua Island.

suspected of being related to pesticide exposure must be immediately reported to the DOA Pesticides Branch.

For now, the DLNR is only planning to drop diphacinone, but should those applications fail to fully eradicate the rats, the agency may switch to a more potent rodenticide, brodifacoum. Because brodifacoum is also known to kill a wide range of non-target species, it's possible any DOA permit, if one is issued, would include additional conditions.

As the U.S. Environmental Protection Agency noted in its comments on the FWS's draft environmental assessment for the project, "If brodifacoum is used, rodenticide residues in seafood could persist much longer [than a week]. Masuda *et al.* (2014) tested for brodifacoum residues in fish and shellfish after an aerial broadcast project and detected residual concentrations of brodifacoum in three of ten species of coastal fish or shellfish sampled 43-176 days after bait application commenced. The proposed Farallon Island mouse eradication project that would use brodifacoum proposed a two-month closure of all non-essential access in the National Wildlife Refuge."

The state Department of Health's Hazard Evaluation and Emergency Response (HEER) branch expressed similar concerns. HEER program manager Fenix Grange stated in his comments, "Reviewing the literature, detections of brodifacoum in game fish associated with local applications is a potential human health concern." Given the uncertainty, he recommended expanding the notification and fishing restrictions to "at least 30 days after brodifacoum use or until fish tissue and sediment data demonstrate no hazard."

In their final EAs, DLNR and FWS did not propose any fishing moratorium around the island following the bait applications of either diphacinone or brodifacoum. The FWS noted in its final EA that when fish and invertebrates have been found to be exposed to bait, "brodifacoum residue levels are at

UH Climate Expert to Speak at Environment Hawai'i Dinner

Thomas Giambelluca, a professor of geography at the University of Hawai'i, will be the featured speaker when *Environment Hawai'i* hosts its annual dinner, to be held this year on October 20 at the 'Imiloa Astronomy Center, 5:30 to 8:30 p.m.

Giambelluca is perhaps best known for his work on the *Rainfall Atlas of Hawai'i*, an online, interactive map of precipitation in the state based on a review of decades of rainfall records. He and colleagues at his Ecohydrology Lab at UH have followed that up with similar data bases showing evapotranspiration, solar radiation, and climate for each and every location in the state.

"Humans face no greater challenge than that of global environmental change," Giambelluca has said. "Addressing the human, biological, and physical dimensions of this complex problem is paramount for this and future generations. If we are to be up to this challenge, we must arm ourselves with knowledge. I want to do my part in bringing about the change necessary to reduce the magnitude of global warming and adapt to



Thomas Giambelluca

the inevitable changes we will face."

Giambelluca is now putting together maps that predict rainfall patterns. Based on the latest forecasts from the Intergovernmental Panel on Climate Change and other models, the predictions will be used by the state Commission on Water Resource Management and other agencies in updating models of sustainable yield throughout the islands.

The evening will also include live music, a silent auction, and a cash bar. Cost per person is \$75; which includes a \$35 donation to *Environment Hawai'i*, Inc., a 501(c)(3) nonprofit organization. To make a reservation, call 934-0115.

or below the NOAEL [no observed adverse effect level] for the most sensitive mammals tested, which would be protective of humans (i.e., a dose or exposure level of a toxicant that produces no measurable toxic effects on the test group of animals)."

However, given the public's concern over potential impacts to fish, "we would place greater emphasis on fish sampling than in the 2009 effort," the FWS stated. The agency plans to try to collect samples of reef fish around the island that had in the past been

observed interacting with placebo pellets; black triggerfish, which is the species that showed up dead on the coast of Ni'ihau after the 2009 eradication attempt, and "prized near-shore game fish, particularly higher trophic level predators more likely to bioaccumulate toxins."

(For more information on this project and other efforts to control rodents via the aerial application of pesticide, see our April 2017 cover story and sidebars, available at www.environment-hawaii.org.) — T.D.