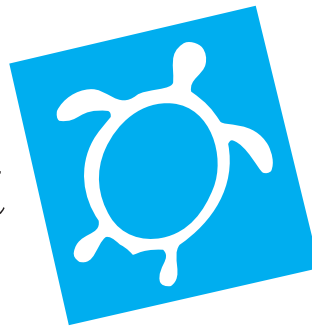


# Environment



# Hawai'i

*a monthly newsletter*

## Sea Changes

While worries abound that federal funding for climate change research under President Trump will fizzle out or that important data will be suppressed, the National Oceanic and Atmospheric Administration has at least been able to prepare and release its latest predictions of sea level rise for coastal areas throughout the country and Pacific islands.

In its report released January 30 NOAA offers sobering — and in some cases, staggering — new scenarios. And for Hawai'i, things don't look so good.

This month's cover story looks at how those projections compare to those being made by preparers of the state's Sea Level Rise Assessment and Adaptation Report, due to the Legislature at the end of the year.

## New Report Suggests Sea Level Rise May Be Worse than Previously Thought

A new technical report by the National Oceanic and Atmospheric Administration (NOAA) suggests that climate change-induced sea level rise over the course of this century, especially in Hawai'i, may be far worse than predicted in the Intergovernmental Panel on Climate Change (IPCC) scenario that has been serving as a guide for

oping the SLR report, required by Act 83 of the 2014 Legislature, have based their inundation scenarios for coastal areas throughout the state on the IPCC's "worst of the worst-case scenarios," according to Dr. Chip Fletcher, University of Hawai'i associate dean for the School of Ocean and Earth Science and Technology, who spoke



With a one-foot rise in sea level, several spots along Kamehameha Highway, pictured here, will be vulnerable to flooding, according to recent projections

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*Mahalo!*

a number of local efforts to address climate change impacts.

As a result, the state's Sea Level Rise Vulnerability Assessment and Adaptation Report (SLR report), due to the Legislature by year's end, may be more useful as a guide for shorter-range planning for non-critical structures that can be moved or replaced relatively easily.

The local scientists and planners devel-

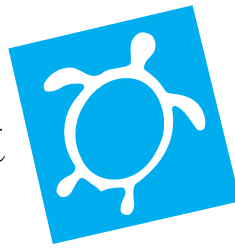
recently at a SLR workshop . In that scenario, sea level rises about half a foot by 2030, a foot by 2050, two feet by 2075, and 3.2 feet (or roughly 1 meter) by 2100.

The NOAA report, however, suggests that the current melting rate of alpine glaciers and glaciers on Greenland and Antarctica as well as the rate of thermal ocean expansion may cause sea levels globally to rise an

**continued to page 8**

# Environment

Volume 27, No. 9



# Hawai'i

March 2017

## NEW AND NOTEWORTHY

**Lead Removal in Kona:** The Hawai'i County Department of Environmental Management has been granted a Conservation District Use Permit to remediate an abandoned metal salvage site in Kealakehe, in the North Kona district of the Big Island. At a recent meeting of the Board of Land and Natural Resources, Department of Land and Natural Resources' Office of Conservation and Coastal Lands administrator Sam Lemmo noted the irony of the project: While the 30-plus acres involved lie within the Conservation District, they're located in the Kona industrial park and are surrounded by the old Kailua landfill and a current solid waste transfer station, a police station, and recycling operations.

"I don't know why it's in the Conservation District. I suspect this whole area was zoned Conservation and gradually lands were lifted out," Lemmo said.

The county plans to remove lead-impacted soil from eight acres, transport it to the West

Hawai'i sanitary landfill, conduct post-excavation monitoring, then backfill and landscape the site.

"The presence of lead in stockpile soils, at concentrations above Hawai'i environmental action levels (EALs), was identified during preliminary environmental sampling performed in 2010 and 2011. Lead-contaminated soil is also present within working surfaces throughout the subject property," an OCCL staff report states.

"We have no problem with what they'd like to do. There is a suggestion they might want to think about eventually lifting these lands out of Conservation. ... It's not something we should be regulating," Lemmo said.

Land Board member Chris Yuen, a former county Planning Director, noted that to amend the site's boundary to a more appropriate land use classification would probably require an environmental assessment and approval by the state Land Use Commission. "It's a big job," he said.

**Fish Facts:** In its 2016 stock assessment of coral reef fishes in Hawai'i, released last month, the National Oceanic and Atmospheric Administration reported that of 27 fish stocks, 11 were subject to overfishing and are in an overfished state. They include those for the bullethead, stayeye and redlip parrotfish; the paletail, sleek, orangespine, and bluespine unicornfish; the blue and whitesaddle goatfish; the ringtail surgeonfish; and the giant trevally.

NOAA based its determinations on data collected between 2003 and 2016. The



A new NOAA report identifies nearly a dozen local reef species that are being overfished.

conclusions regarding parrotfish are in line with conclusions made in 2015 by Hawai'i Pacific University graduate student Cassandra Pardee, who estimated that there was an 89 percent chance that commercial fishers in the Main Hawaiian Islands were catching parrotfish, also known as uhu, at an unsustainable rate.

To protect the recreationally and commercially popular food fish, the state Board of Land and Natural Resources in 2014 adopted regulations banning the take of redlip and spectacled parrotfish, limiting the number of parrotfish that can be taken around Maui

per day, and increasing the minimum size limit of those species that can be taken.

**Maui Energy Conference:** From March 22-24, the annual Maui Energy Conference and Exhibition will be held at the Maui Arts & Cultural Center. This year's event, sponsored by a mix of more than a dozen public agencies, private companies or non-profits, and utilities, is titled, "All Things Energy: Pursuing New Opportunities for Electricity and Beyond."

The program includes a conversation with Public Utilities Commission chair Randall Iwase and a keynote address by Guillermo (Gil) Penalosa, an expert advisor on how to "create vibrant cities and healthy communities," according to the website for 880 Cities, a non-profit he heads and founded. Panel sessions topics range from energy storage to food security to emerging trends in energy policy.

For more information or to register, visit [mauienergyconference.com](http://mauienergyconference.com).

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### Quote of the Month

*"If you wage war with water,  
you will lose."*

— Chip Fletcher,  
University of Hawai'i

## 'Aina Le'a Update: A Settlement, An Overdue Note, and a Possible Suitor

Not much has been happening on the land proposed for the Villages of 'Aina Le'a, consisting of about 1,100 acres lying between Waikoloa town and the Mauna Lani resort in the South Kohala district of the Big Island.

In the courts and in the world of finance, however, there's been a flurry of action in recent months.

### *The Bridge Lawsuit*

Perhaps most important from the perspective of the state of Hawai'i, a long-simmering legal dispute over the right to develop the land has been settled. Back in 2011, Bridge 'Aina Le'a, which then owned almost all the land as well as another 1,900 acres surrounding it on three sides, sued the state Land Use Commission following the LUC's decision to revert the 1,100 acres from the Urban District to the Agricultural District in the wake of failures by Bridge and/or its development partners to meet deadlines for affordable housing on the property.

In a federal lawsuit brought in 2011, Bridge claimed an unconstitutional taking as well as damages in the tens of millions of dollars. Named as defendants were the individual commissioners in addition to the state.

Last summer, the Department of Attorney General and Bridge reached an out of court settlement, but it wasn't until February that the deal was signed, sealed, and delivered to the court.

As *Environment Hawai'i* reported last

August, terms call for the state to pay Bridge \$1 million and for the Department of Attorney General to support any "legally sufficient" petition that Bridge or its successors might bring to the LUC to reclassify the 1,900 acres surrounding the Villages of 'Aina Le'a area into the Rural District from the Agricultural District.

Other provisions of the agreement are that the state agrees that the land that was the subject of the LUC reversion in 2010 "cannot be reverted to its former land use classification."

The Legislature must still appropriate the funds, but otherwise, the Bridge lawsuit seems to be a settled matter.

### *The 'Aina Le'a Foreclosure*

The company that now owns the bulk of the land in the Urban District is 'Aina Le'a, Inc. It and its predecessor company, DW 'Aina Le'a, have devised several innovative ways of raising money to pay for the infrastructure and construction costs associated with carrying out plans to build nearly 400 units of affordable housing and also financing the purchase of land from Bridge.

One means of raising funds has been through the sale of undivided land fractions, or ULFs, to Asian investors. In return for a promised high rate of return (12 percent), the investors were granted undivided percentage shares in two parcels having a total area of about 60 acres. More than 1,000 investors ended up owning a piece of the action, each having invested a minimum of around \$9,600.

In addition, 'Aina Le'a took out loans amounting to several tens of millions of dollars from, among others, a Chinese investor named Libo Zhang. That \$6 million loan was secured in November 2015 by a mortgage on a 23-acre parcel where the company has said it plans to build Whale's Point village, a luxury condominium development. The

note held by Zhang came due on November 12.

On December 30, with 'Aina Le'a having failed to pay back the loan or extend the terms, Zhang brought a foreclosure action in 3rd Circuit Court. 'Aina Le'a and Emerald Hawai'i Services, which represents the interests of the Asian investors (whose collective share of the parcel comes to about 15 percent), were served in January but had not filed a response with the court by press time.

### *A Merger Agreement*

In its search for financing, 'Aina Le'a had attempted a public offering of up to 2 million shares, hoping to raise at least \$17 million. When the hoped-for sales had not materialized by the end of last July, 'Aina Le'a withdrew the offer and set its sights on another means of raising capital.

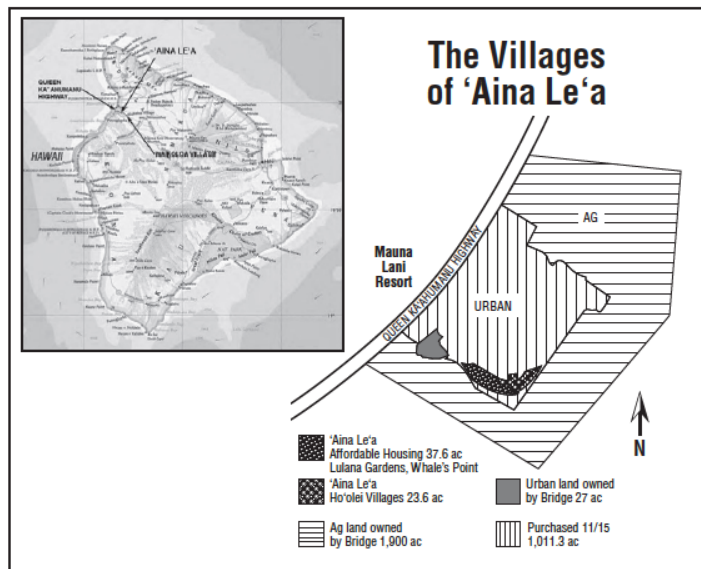
In December, the results of that effort were heralded in a press release the company issued, announcing that it had entered into a merger agreement with Origo Acquisition Corporation, a company based in the Cayman Islands. The advantage for 'Aina Le'a in such a merger is that it will allow company shares to be publicly traded. Following the merger, Origo would cease to exist, with its investors now becoming holders of shares in 'Aina Le'a. Origo's cash holdings, of roughly \$43 million, would then become available to push the 'Aina Le'a project forward.

Origo, formerly known as CB Pharma Acquisition Corporation, was organized in 2014 as a "blank check" company and has no business activity of its own, other than to identify a company for acquisition. It originally sought to acquire a bioscience firm, but that fell through and the company changed its name. The company was to dissolve by December 12, 2016, if another acquisition target was not identified by then.

Days before that deadline rolled around, and with the 'Aina Le'a merger agreement on the horizon, Origo shareholders approved extending the acquisition deadline to March 12, 2017. Following that, on December 19, the merger agreement was announced.

On February 16, Origo informed the Securities and Exchange Commission that the merger would not be completed by that deadline and that it would be calling a shareholder meeting on March 10 to seek approval for yet another extension. This time, the extension would be indefinite, for as long as the company directors determine it is warranted. If the extension were not to be approved by two-thirds of the shareholders, the company's SEC filing states, then the company will liquidate.

— *Patricia Tummons*





## Hawai'i County Takes Renewed Interest In Keaukaha Seawall After DLNR Signs Off

About a year ago, architect Robert Iopa rebuilt a crumbling seawall in front of property he owns in the Keaukaha area of Hilo. He did not ask for, nor did he receive, permission from either the state Department of Land and Natural Resources' Office of Conservation and Coastal Lands (OCCL), which oversees activity in the shoreline area, or the Hawai'i County Planning Department, which has authority over nearshore lands.

He did get the approval of the then-director of the county Department of Parks and Recreation. Under an executive order nearly a century old, the DPR administers state-owned land shoreward of Iopa's lot. The DPR, however, has no legal authority to unilaterally permit the kind of work Iopa then undertook.



A county inspection photo of backfill behind the illegally built seawall in Keaukaha.

Iopa rebuilt the wall and backfilled it in connection with his larger plans for the lot he owned, where he was intending to build a house. Extending from the house to the wall would be an expanse of lawn where before existed a rocky shore, ironwood trees, tidal pools, and springs.

After complaints from neighbors and a stop-work order from the Planning Department, the OCCL got involved. Last May, DLNR director and Board of Land and Natural Resources chairperson Suzanne Case and Iopa executed an agreement requiring Iopa to remove the repairs to the wall and the backfill within 180 days (by November 20).

In late November and early December, workers hired by Iopa took out much of the rebuilt wall. In a letter to Iopa dated December 16, 2016, Sam Lemmo, OCCL administrator, stated, "the offending repaired portion of the seawall has been removed to the department's satisfaction."

### County Concerns

Hawai'i County was not so easily appeased.

In December, after learning of Lemmo's letter indicating his agency was satisfied with Iopa's work to remove part of the rebuilt wall, many of the residents living near Iopa's parcel were outraged. They had expected the state to insist on removal of the fill as well as dismantling of the new construction.

County agencies, now under the leadership of newly elected Mayor Harry Kim, responded to the complaints with the formal notices of violation from both the Department of Public Works and the Planning Department. In addition, the landowner to the west of Iopa, the Louis J. and Helene C. Deetman Trust, also was put on notice that Planning Department inspectors had found unauthorized work on the trust's lot, including newly built walls and newly placed fill.

The first notice came on January 18, when the county Department of Public Works sent Iopa a notice of violation of the Hawai'i County ordinance concerning floodplain management.

On March 9, 2016, and January 10, 2017, wrote DPW director Frank DeMarco, "our construction inspector did a site inspection ... It was found that fill (including stone walls) was brought onto the property sometime between the two inspection dates."

Because the property where the work was done lies in a special flood hazard area, DeMarco stated, Iopa was in violation of the Hawai'i County Code's prohibition on placement of fill in a zone of special flood hazard, Hawai'i County Code Section 27-18(c)(3). In addition, Iopa is also "potentially in violation" of Section 27-18(c)(5) of the County Code if he were to build on the fill, DeMarco wrote.

Iopa was ordered to remove "all fill and stone walls" by March 1, 2017, or, as an alternative, "provide a certification by a professional civil engineer licensed in the state of Hawai'i," attesting, "with supporting data, that the encroachment would not cause any increase in base flood elevations during the occurrence of the base flood discharge," as provided in the County Code.

Three weeks later, the county Planning Department issued a notice of violation and order to Iopa. Planning Director Michael

Yee took note of correspondence Iopa had sent to the department in December, informing the department that his plans to build a house on his Keaukaha lot had changed and that now he was proposing to proceed with a much smaller two-story studio structure, with its expansion into a much larger house at an unspecified date.

The larger house had been the subject of a Special Management Area Use Permit Assessment Application submitted in December 2015. Initially, the Planning Department had approved the application, but once the reconstruction of the seawall — specifically not approved by the department — came to the department's attention, Iopa was told to submit a shoreline survey and stop work on the property makai of a dry stack wall he had built landward of the rebuilt wall.

It was at this point that the DLNR became involved, ordering Iopa to remove the wall by the end of November. Once the DLNR intervened, the county pulled back.

On February 8, however, Yee informed Iopa that he was in violation of county Planning Commission rules "due to the unpermitted land alteration activity within the shoreline setback area within the Special Management Area without first obtaining the proper approvals and/or permits from this department."

Yee then laid out two options for Iopa.

Option A involved immediate implementation of Best Management Practices (BMP) to prevent any loose soil, rock, or sand on Iopa's lot from entering the marine environment; payment of a \$1,500 fine for SMA violations; payment of a \$1,000 fine for Shoreline Setback Area violations; restoration of the setback area to the condition it was in at the time the permit application for the house was approved, following a plan submitted and approved by the department before restoration work is undertaken; and notification of the Planning Department at the time the corrective work is completed.

Option B also involved the implementation of BMPs and the payment of fines. In addition, Iopa would need to secure a certified shoreline by April 7, submit an SMA use permit assessment application for land alteration activities within a year of the certified shoreline date and detail "all uses and proposed uses of the parcel and structures thereon," and also submit a shoreline setback variance application for any work proposed in that area as well.

By press time, neither the Planning Department nor the Department of Public Works had received a response from Iopa. Iopa did not respond to a request for comment.

— Patricia Tummons

# TMT Hearing: Protesters' Witnesses Speak to Hawaiian Culture, Practices

The Thirty Meter Telescope contested case hearing continued its no wake-dead slow progress into uncharted waters last month. While retired judge Riki May Amano was nominally at the helm, it was the band of protesters who seemed to have control of the throttle.

With time appearing to be on their side, the dozen or so opponents of the TMT who remain engaged in the drawn-out proceeding put on their cases in chief. After testimony ends—Amano has expressed hope this phase will wrap up in March—all the parties will be given several weeks to draft proposed findings of fact, conclusions of law, and decision and order. Drawing from them, Amano will draft her own recommended FOF, COL, D&O, to guide the Board of Land and Natural Resources' decision to approve or deny of the Conservation District Use Permit needed before the telescope can be built at a site near the summit of Mauna Kea.

Should the board approve the permit, that action will almost certainly be challenged in court. Thanks to a law enacted in 2016, the appeal can be taken up at once by the state Supreme Court, bypassing the Circuit Court and Intermediate Court of Appeals.

The TMT International Observatory Corporation (TIO), which has been raising funds and planning the \$1.4 billion facility for more than a decade, has indicated it needs a green light to build in Hawai'i by early 2018. Otherwise, it will give up on Hawai'i and seek to build the telescope elsewhere, with the Canary Islands now being identified as Plan B.

## Winnowing

Among Amano's earliest decisions was whom to admit as parties to the contested case. By the time the testimony began in October, the number stood at around 24 (depending on who is counted: for example, Kealoha Pisciotto represents Mauna Kea Anaina Hou, one of the parties, but she also says she individually has been admitted as a party, though others dispute this). Some have withdrawn formally. Some have withdrawn for all practical purposes, having failed to make an appearance for months.

About a dozen parties opposed to the TMT were still engaged when, in January, Amano set the schedule for presentation of witnesses for the remainder of the proceedings, asking that four a day be produced.

That schedule has proven to be wildly optimistic, thanks in no small part to a decision Amano made early on to allow objections to questioning to be lodged only by the presenting party. Although she has repeatedly admonished those parties to rein in the questioning whenever it strayed from the witness's direct testimony, they have rarely done so. Instead, the witnesses, often encouraged by leading questions, have engaged in narrative testimony, providing extended exegetical responses. Discussion has occasionally veered toward personal traumas, transforming the hearing into a something akin to a therapy session, with tears all around: Pisciotto's battle with Mauna Kea rangers over the placement of a family stone on the mountain; Mehana Kihoi's life-defining moment of being arrested, in the presence of her daughter, while in pule [prayer] with other wahine [women] during the course of a vigil; Hank Fergerstrom's encounter with Marines during an effort to worship at Mokapu, site of the Marine Corps base in Kaneohe.

The adversarial questions from attorneys for the University of Hawai'i, which is the applicant for the permit, and for the TMT take up limited time relative to the questions of the petitioners. Under the direction of Lincoln Ashida, the attorneys for the only Hawaiian group in the proceedings to favor telescope construction — PUEO, or Perpetuating Unique Educational Opportunities — have been far gentler in their cross-examinations of witnesses.

Among the other things to fall by the wayside has been courtroom decorum. A gallery packed with supporters of the protesters now regularly applauds as witnesses for the protesters conclude their time on the stand.



## Cultural Practices

The objective for many of the protesters as they present their cases in chief has been to demonstrate that the telescope would interfere with their traditional cultural practices at or near the summit of Mauna Kea and that this runs counter to the eighth of eight identified criteria that the Land Board is to apply when evaluating the propriety and suitability of a proposed use Conservation District land.

Those criteria are identified in the Department of Land and Natural Resources' administrative rules. Criterion 8 states, "The proposed land use will not be materially detrimental to the public health, safety, and welfare." The telescope opponents have argued that the TMT will pose a threat to public health and safety (by polluting the groundwater, among other things), but most of all, by jeopardizing the welfare of Hawaiians inasmuch as its very existence will be an affront to their culture and religion.



Gregory Johnson

One of the witnesses who addressed this was Gregory Johnson, a professor of religious studies from the University of Colorado at Boulder called as a witness by William Freitas. As part of his scholarly research, Johnson had been on the mountain during protests in 2014 and 2015 and had struck up a sort of friendship with Freitas, a stone mason and one of the protesters participating in the contested case.

Johnson was also an observer when Freitas spearheaded the construction of two ahu, or stone shrines, built in 2015 in the center of the road leading to the proposed TMT site.

Johnson said that he was convinced of the sincerity of the people he saw protesting, and because of this, the environmental impact statement and all other relevant documents made part of the Conservation District Use Application should be rewritten.

"The ahu constructed ... now stand as material focal points of living Hawaiian tradition and also as dense symbols of Mauna Kea's sacredness to members of the native Hawaiian community," Johnson stated.

"My opinion is that the altars constructed on the TMT site ... are expressions of living Hawaiian tradition and deserve protection as such." They are, he added, "sincere religious belief at a moment of crisis."

"Based on my understanding of the facts, the hearing officer and BLNR appear to be faced with a choice: either disregard the ahu ... and thus allow the EIS and CDUA to stand mute with reference to them, or acknowledge the ahu as significant expressions of traditions ... relevant to this proceeding." In the latter case, he said, the "demands of due process" require rewriting of the EIS and the Conservation District application.

## Historical Trauma

Another witness brought to address the potential health impacts that Hawaiians



would suffer if the TMT were built was Maile Taulii, a professor of public health at the University of Hawai'i. Taulii described her research that, she said, showed real physical harm to cultural practitioners when their sacred spaces are desecrated, even after all other factors (poverty, education, and the like) are removed from consideration.

Deborah Ward asked her how, specifically, the TMT would be detrimental to health. "Those who are practitioners ... will feel and have reported feeling ill health effects as a result of the building of the telescope," Taulii replied.

Petitioner Pua Case, who has testified that she receives instruction from the spiritual world, asked Taulii if she was aware "of near-death experiences reported by patients, including children, following cardiac arrest, coma, or other life-threatening experiences?"

After Taulii responded that yes, she was, Case pressed further: "Are you aware of reports of out-of-body experiences, white light, meeting deceased persons, spiritual beings," and so forth?

Again, Taulii responded that she was aware of these.

Case asked: "Would you agree that, generally speaking, health care providers do not fully understand near death experiences?"

"I would say allopathic medicine, a term I prefer over western medicine," Taulii answered, "does not provide for an explanation of spiritual health as well as physical explanations associated with near-death experiences."

Case asked if Taulii had seen research into the subject of Hawaiian spirituality. No, Taulii said.

Then Case asked her if, in her experience, she knew "of individuals who reported receiving instructions from their ancestors or the spiritual realm for responsibility of protecting sacred spaces."

"Absolutely," Taulii replied. Under further questioning, she identified health outcomes that might devolve onto an individual who had received such instruction but was unable to carry it out.

"There are grave health effects when one is not able to respond to their responsibilities and I could look at from a perspective of pure science," Taulii said. "The physical manifestation of guilt, of pain and anguish of loss of connection can result in poor health outcomes, stress in the body, and that can cause many health impacts. And that's just the physical. We could do a blood study, we could measure someone's physical manifestation, but that's not nearly as harmful as some of the mental ramifications. Talk

about depression, we have huge depression problems in the Hawaiian community. And associated with depression, high suicide rates — substance abuse is a way people handle depression. There's a lot of downstream effects of not being able to address those issues.

"I'm a scientist and I draw models that connect one thing to another. I could draw you a model that shows how not being able to fulfill one's personal responsibility, through a dream, through an elder, through generational knowledge passed down ... can cause physical health effects. Downstream effects of those initial effects of not being able to practice that kuleana."

Kihoi, who sees Mauna Kea as a place of personal healing, asked Taulii what the effects of TMT construction would be on someone who, like her, has already been traumatized by domestic violence and by her arrest while protesting on the mountain. Taulii solemnly suggested that death was a possible outcome:

"I believe that words have mana, so I would rather not direct it specifically at you. I know that there are grave effects from statements made by people who are no longer

questioned Taulii — who now asked that she be addressed as "Doctor" — on her use of the term desecration, establishing that she was not using it in a legal sense. He then proceeded to ask her about particular aspects of her research as related to the TMT.

"Would you agree in any type of research that the collection of data is important?"

"Yes."

"And that can come from a variety of sources?"

"Yes."

"You oppose the building of the TMT telescope, is that correct?"

Taulii did not want to answer, replying instead: "Can I ask how that's related to the first question about the collection of data?"

"Well, that's my question, and I'm asking whether you oppose it or not?" Ashida said.

Taulii asked Amano whether she had to answer, and Amano directed her to do so.

"Yes," she finally replied.

"Going back to my question regarding data, are you aware of any native Hawaiians who support the building of the TMT telescope?"



An artist's rendering of the Thirty Meter Telescope.

RENDERING: TMT

with us today, who have stated, 'over my body they will build the telescope,' who have left us. I don't wish any ill harm on any of us who are connected to places, but our health is in grave danger if those places are not available to us. Our health is directly connected to them and the health of those places and if they are not healthy it will have grave effects on our health."

Research done by Taulii that she said confirmed the intergenerational trauma of loss of sacred sites has not yet been published — a result, she said, of the slow peer-review process.

Lincoln Ashida, attorney for PUEO,

After some hemming and hawing, she replied that they had not made themselves known to her.

"My question is not do you know them personally but are you aware there are native Hawaiians who support the building of the TMT?"

"Am I aware of it? I'm a scientist, so I need to understand the question better. Are you asking me to quantify my awareness of these people?"

"No, I'm just asking if you're aware or not."

"Yeah."

"How are you aware?"

"I'm sure television, newspapers, general public information. Like I said, I'm not sure I understand your question."

"Through your research is it safe to say you've spoken to people who oppose the construction of the TMT telescope?"

Taulii replied that she had.

"And through that same research, did you speak to any people who conversely support the building of the TMT telescope?" Ashida then asked.

"That wasn't the intention of the research," was Taulii's answer.

"The intention of my question is to ask if you had spoken to any persons who supported the TMT?"

"You asked earlier if data is collected, and it's important. My research is done in a way that is scientifically –"

At this point, she was interrupted by Amano. "Dr. Taulii, you need to listen to the question," Amano said, instructing her to respond to the question.

Taulii then said her "research intention" was not to interview Hawaiians who might support the TMT."

Ashida then gave her a copy of a report on a scientific poll of Hawaiians on the Big Island.

"I draw your attention to the second page, specifically the item that I've highlighted for you. ... The poll found that support for TMT is split among native Hawaiians and part Hawaiians on Big Island: 46 percent support, 45 percent opposed. Were you aware of these numbers?" Ashida asked.

"Not till now."

The hard questions for Taulii continued during cross examination by the attorneys for the University of Hawai'i and the TMT — Pete Manaut and Ross Shinyama, respectively.

Manaut elicited the statement from Taulii that she had originally requested to be a party to the contested case, but that her time "would not allow it."

Taulii then stated that she had been opposed to the TMT "since we were made aware" of it.

Was your opposition to the project formed before you started doing research? Manaut asked.

The research questions, Taulii answered, "were formed after my decision not to support — never to support" the TMT.

### ***'Changed Frequency of Consciousness'***

Another star witness for the protesters was Manulani Aluli Meyer, director of indigenous education at the University of Hawai'i-West O'ahu, who declared that she was giving her testimony "through the

trilogy of what is now known as holographic epistemology within indigenous scholarship and philosophy."

Referring to herself in the first-person plural, Meyer described how "now we go throughout the world and talk about a process of knowledge called holographic epistemology. It is synergistic with the post quantum reality world of science that is now coming to the fore. It is synergistic with the ideas that are deconstructing capitalistic priorities and our thought processes."

The hologram, she stated, was a metaphor for "ancient systems around the world that are still in progress, in evolution of consciousness. Physical, mental, and spiritual reality exists on the planet. The physical, predictable empirical world. Mental is our thinking, subjective side. And then the spiritual side. The spiritual side is the quantum."

One after another of the petitioners cross examining her seemed puzzled, yet made no secret of their respect for her position and accomplishments.

There's now a "changed frequency of consciousness," she stated. "A heightened awareness of what aloha really means. Kapu in this instance means reverence. Reverence for aloha."

She was describing, she said, a world post-science: "The advancement of physics has gone into the super small... We're now in post-quantum. The idea of love would have a more beneficial impact to the movement, this aloha 'aina movement, than any form of anger or resistance."

The pules (prayers) of the protesters have had real impact, she said. "That's our science. And science is now walking toward indigenous scholars, walking toward indigenous sensibilities because we can make sense of things in a multiple dimensional way that actually bares its truth through time. It's very difficult for mundane trained scientists to understand that idea, but, yeah, hang around the post-quantum-physics scientists and they're now recognizing 11 dimensions in the universe. Uncle Leroy Littlebear said he had to collapse the 21 dimensions of the Blackfoot people just so that the quantum scientists could understand."

Aluli's testimony invoked shamans, educators and philosophers—everyone from the Dalai Lama to Gandhi to an obscure Hawaiian mystic, Hale Makua; from Paulo Freire to Martin Heidegger.

"Our science is a type of profundity that goes beyond mundane understanding," she said.

"Paulo Freire said conflict is the midwife of consciousness. Heidegger said the pur-

pose of conflict is unity. Conflict for me, is actually, I say to my students, my job is to put you in a place of discomfort ... so that you can grow. So I believe conflict is actually a very vital ingredient for our own evolution."

When it came to the specifics of the Conservation District Use Application that is at the heart of the contested case, Meyer was dismissive. Petitioner Hank Fergerstrom attempted to get her take on the eight criteria the Land Board is to consider in deciding whether to grant the permit.

Meyer said she had no knowledge of them, but also she did not need to know them. When Fergerstrom attempted to present her with a copy of the Land Board's rules, she waved him away.

"I don't know the document you're referring to as far as the subzoning. But what happens with clashing cosmologies, Hank, is that no matter what you read to me, it will be a clash. ... What continues in life is the thing that does not cost money. ... What capitalism teaches me is that those who will stop getting paid for their duties, jobs and their own excellence will stop fighting for their truth. And so that's why our continuity — you can read me anything you want to and it's still going to be a statement of polemics, so that's what I have to say for any more reading. Clashing cosmology is happening here, that's obvious."

In response to petitioner Tiffnie Kakalia's question about whether another telescope on the "wao akua" (realm of the gods) was consistent with the University of Hawai'i's statements elsewhere on indigenous education, Meyer referred to her job as indigenous education coordinator.

"Is the application that the university is seeking in alignment with that philosophy?" Meyer said, paraphrasing Kakalia's question. "Absolutely not. ... That's my job to keep saying, it's not, it's not. And to be effective in my job, I have to say why. That's the harder part. ..."

"That's my life's work. Why building another telescope is not appropriate for these times. Get the knowledge from different ways. We know there are different knowledge ways to get information about stars. Explore that. As a professor in a university setting that values science, especially now that STEM is rolling into the world now... You know, it's a huge movement. I'm not swayed by that. I believe there are technologies that are yet to be fulfilled in our world of indigenous understanding. ... So no, it's not extending indigeneity."

— *Patricia Tummons*

*SLR from page 1*

average of 0.3 m (about a foot) in the low-consequence/high-probability scenario but up to an average of 2.5 meters (about 9 feet) in its extreme-consequence/low-probability scenario by 2100. Static-equilibrium effects will cause some regions around the globe to experience even higher sea levels, the report states, and the tropics is one of them.

"Hawai'i is sitting in the worst region of all," Fletcher said.

He and others working on the state's SLR report had believed when they started that a one-meter rise in sea level was an extreme scenario, which he said is appropriate for long-range planning of long-lived, expensive, critical structures or infrastructure such as a nuclear power plant or a hospital in the coastal zone. But under NOAA's new projections, Hawai'i is expected to see a 1.3 m rise in sea level by 2100 under its intermediate case, he said. Under its most extreme, but least probable case, the state would see a 3.3-meter (nearly 11 feet) rise.

In light of NOAA's new scenarios, Tetra Tech's draft predictions for the SLR report are now far less speculative and much more reliable than they were before. Under a 3.2-foot rise in sea level, Tetra Tech as of press time had estimated that inundation impacts on O'ahu alone could cost \$11.8 billion, impact 9,400 acres and 3,800 structures, and displace 13,300 residents. The firm's planner Kitty Courtney stressed at the workshop that the economic impact reflects the potential cost if nothing is done to mitigate impacts.

***'Planning Envelope'***

The NOAA report, titled "Global and Regional SLR Scenarios for the United States," is the result of work begun in August 2015 for the Sea Level Rise and Coastal Flood Hazard Scenarios and Tools Task Force, a joint task force of the National Ocean Council and the U.S. Global Change Research Program. Using the best available science, the task force is charged with developing future relative sea levels, associated coastal flood hazard scenarios, and tools to "serve as a starting point for on-the-ground coastal preparedness planning and risk management processes, including compliance with the new Federal Flood Risk Management Standard (FFRMS)," the report states.

The report describes six global mean sea level (GMSL) rise scenarios: Low, Intermediate-Low, Intermediate, Intermediate-High, High and Extreme, ranging from

most likely to least likely to occur.

In setting the upper bounds of its SLR projections for 2100, the scientists who produced the report assessed the latest literature on "scientifically supported upper-end GMSL projections, including recent observational and modeling literature related to the potential for rapid ice melt in Greenland and Antarctica."

"The projections and results presented in several peer-reviewed publications provide evidence to support a physically plausible GMSL rise in the range of 2.0 meters to 2.7 m, and recent results regarding Antarctic ice-sheet instability indicate that such outcomes may be more likely than previously thought," the report states.

Despite the low probability that sea levels will actually rise to 2.7 m by the end of the century, the report's authors warn against planners discounting this.

"For decisions involving long planning horizons and with a limited adaptive management capacity, the high degree of uncertainty in late-21st century GMSL rise looms large. Failure to adequately account for low-probability, high-consequence outcomes significantly increases future risks and exposure," the report states. "For many decisions, it is essential to assess worst-case scenarios, not only those assessed as the scientifically 'likely' to happen."

The report recommends that to assess a system's overall risk and determine long-term adaptation strategies, planners should define a "scientifically plausible upper-bound (which might be thought of as a worst-case or extreme scenario) as the amount of sea level rise that, while low probability, cannot be ruled out over the time horizon being considered."

For shorter-term planning, such as for adaptation strategies within the next 20 years, the report suggests that planners define a "central estimate or mid-range scenario (given assumptions about greenhouse gas emissions and other major drivers)."

"This scenario and the upper-bound scenario can together be thought of as providing a general planning envelope," the report states.

***Local Impacts***

Although NOAA's intermediate SLR scenario clearly anticipates a rise of more than 1 meter, the state's report isn't likely to include a robust analysis of a rise higher than that.

Fletcher, however, made it clear that NOAA's higher-consequence scenarios would devastate certain coastal areas of the state. Under NOAA's high scenario, he said,

inundation would rise to the point where it would permanently drown 'Ewa Beach on O'ahu's south shore, which is home to tens of thousands of residents.

Tetra Tech's Courtney, who also spoke at the workshop, presented several preliminary maps and charts indicating that even an increase in sea level of between 1 and 3 feet could cause significant and widespread damage, especially when combined with increased erosion, annual high wave flooding, and a 1-percent annual chance of a coastal flood (also known as a 100-year flood).

A couple of the maps she displayed showed the numerous spots along O'ahu's coastal highway, including areas on the windward side and along Honolulu's impending rail transit alignment, that would be vulnerable to inundation due to sea level rise. Another map highlighted the more than two dozen schools, hospitals and clinics, police and fire stations, and wastewater treatment plants within the Honolulu area that would be flooded by a 100-year flood under a 3.2-foot rise in sea level. And yet another showed that that flood area would extend a mile or more inland from the current FEMA VE zone boundary, where landowners are required to have flood insurance.

With regard to the potential impacts on the Honolulu rail transit system, Courtney noted, "Transit-oriented development is probably what we do really need to do ... but on the other hand, we gotta make sure we're taking into consideration some of these long-term impacts of sea level rise."

Referring to some of her maps showing projected inundation on O'ahu's west and north shores, Courtney said that beaches are going to be lost and many of them are state parks or recreation areas. She also noted that increased erosion will also likely unearth or damage historic cultural sites, such as those at Kawela Bay.

"What do we need to do to protect a beach? ... How do we continue to have beaches in the state?" she asked.

So far, no inundation charts for any of the outer islands have been presented. When the report is complete, Courtney indicated that the most thorough inundation and economic impact assessments in the report will be for the islands of Kaua'i, Maui and O'ahu, for which there is a rich amount of historical data. "For Moloka'i and Lana'i, we have some limitations in historical records for coastal erosion and annual high wave flooding," she said. An assessment for the Big Island will also be included.





## Changes to Honolulu Codes Propose Addressing Climate Change Impacts

The state's SLR report isn't the only effort that has been largely based on modeling that projects a rise of about 1 meter by 2100. Structural engineer Gary Chock of Martin & Chock has been working for the past couple of years under a contract from the state Office of Planning to find ways to make buildings less vulnerable to natural hazards that may occur as a result of climate change. Ultimately, he plans to draft amendments to Honolulu's building codes, standards and regulations that can be adopted by all counties throughout the state. He also is hoping to determine the approximate cost and net benefits for those revised requirements. Chock has based his work so far on the same assumptions the SLR report team is using.

In addition to assessing how building regulations need to be overhauled to create structures that can withstand the effects of rising sea levels, Chock is also evaluating the potential impacts of more frequent and stronger hurricanes and more intense rainfall, both of which are expected as a result of climate change.

In a recent power point presentation to the OP's Marine and Coastal Zone Advisory Group, Chock noted that sea level rise will account for about 75 percent of the future economic losses due to expected hurricane flooding damage in the Honolulu area from Waikiki to Kaka'ako.

"The effects of climate change and sea level rise increase the future expected hurricane flooding damage in Waikiki to Kaka'ako from \$0.76 billion to \$3.623 billion, or about a 475 percent increase," his presentation stated.

The increased flooding will be due more to overtopping of the Ala Wai Canal's embankments and its tributary than to coastal wave run-up, his presentation stated. It added that to preclude the increased flooding of the urban core of Honolulu over the next 75 years, "a master-planned flood control project involving the Ala Wai Canal and the adjacent tributary stream from Manoa to Palolo would become necessary. A \$22.5 million present day additional investment would be justified for sea level rise considerations."

Some of his recommended amendments to the Honolulu codes are:

- **"The shoreline setback line** shall be established 25 feet inland from the certified shoreline plus a distance of 50 times the historical annual erosion hazard rate from the shoreline established by county maps. Where the lot has average depth of less than 160 feet, the shoreline setback need not exceed 40 feet. Accretion rates shall not be considered." Other counties already have a similar requirement, but the current shoreline setback requirement in Honolulu is only 40 feet.

- **No development in the Special Management Area** shall be approved unless the City Council has first found that for developments exceeding \$10 million, "the adverse effects of climate change and sea level rise as defined by the Coastal Construction Control Zone have been minimized to the extent practicable and

clearly outweighed by public health and safety, or compelling public interest." (The Coastal Construction Control Zone is also a new amendment he proposes. It would be a map of the area subject to coastal inundation by a 500-year flood. It would take into account the effects of expected climate change by the year 2100, including a sea level rise of two feet above the year 2000 mean high water.)

- **For critical and essential facilities**, the minimum elevation of the lowest horizontal structural member is to be based on a 500-year flood elevation and take into account two feet of relative sea level change.

- **For Risk Category III and IV structures** (those that pose a substantial hazard to human life in the event of failure or are essential, respectively), foundation systems to maintain support of the structure must be provided and take into account 80 years of shoreline erosion "projected forward from the year 2020 using the historical rate and further including two feet of sea level rise."

- **For Risk Category III and IV structures**, "require main power equipment and metering placement, switchgear, control centers, transformers, distribution and power or lighting panels to be above the 500-year coastal flood inundation limit including the effects of two feet of sea level rise, or locate in a waterproof enclosure."

Chock's other recommendations encompass a wide range of areas, from plumbing to building energy conservation. According to Justine Nihipali, planning program manager for the state Coastal Zone Management Program, he has not yet completed his final recommendations.

— *Teresa Dawson*

From the NOAA report on global and regional sea level rise scenarios, this chart shows median projected global mean sea level (GMSL) rise heights in meters.

| GMSL Scenario (meters) | 2010 | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 | 2080 | 2090 | 2100 | 2120 | 2150 | 2200 |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Low                    | 0.03 | 0.06 | 0.09 | 0.13 | 0.16 | 0.19 | 0.22 | 0.25 | 0.28 | 0.30 | 0.34 | 0.37 | 0.39 |
| Intermediate-Low       | 0.04 | 0.08 | 0.13 | 0.18 | 0.24 | 0.29 | 0.35 | 0.4  | 0.45 | 0.50 | 0.60 | 0.73 | 0.95 |
| Intermediate           | 0.04 | 0.10 | 0.16 | 0.25 | 0.34 | 0.45 | 0.57 | 0.71 | 0.85 | 1.0  | 1.3  | 1.8  | 2.8  |
| Intermediate-High      | 0.05 | 0.10 | 0.19 | 0.30 | 0.44 | 0.60 | 0.79 | 1.0  | 1.2  | 1.5  | 2.0  | 3.1  | 5.1  |
| High                   | 0.05 | 0.11 | 0.21 | 0.36 | 0.54 | 0.77 | 1.0  | 1.3  | 1.7  | 2.0  | 2.8  | 4.3  | 7.5  |
| Extreme                | 0.04 | 0.11 | 0.24 | 0.41 | 0.63 | 0.90 | 1.2  | 1.6  | 2.0  | 2.5  | 3.6  | 5.5  | 9.7  |

## BOARD TALK

## Board Reconsiders Granting Rent Discount to Non-Profits

Last August, the Board of Land and Natural Resources approved the continuation of all the revocable permits issued by the Department of Land and Natural Resources' Division of Boating and Ocean Recreation, except those for the Honokohau small boat harbor in West Hawai'i.

On January 27, DOBOR planning and development manager Dana Yoshimura once again presented those permits to the board for approval. The division had proposed increasing the rent for all of them, including those for three non-profit organizations: the Hawai'i Big Game Fishing Club, the Kona Sailing Club, and the Hawai'i Island Paddle Board Association.

Land Board member Stanley Roehrig, a longtime member of the state's paddling community (his online bio states that he's paddled for the Keaukaha Canoe Club since the 1980s), bristled at the notion of the increased rents.

"The Hawai'i Island Paddle Board Association is the one-man paddlers at the harbor. They have a halau there and they store their canoes. They're all volunteers. ... I'm not particularly enthusiastic about tripling their rent," he said.

State law allows the DLNR to charge non-profits nominal rent for leases. There may also be some leeway with regard to revocable permits, rent for which must "serve the best interests of the state." Yoshimura

said that within DOBOR, however, there is no policy directing the division on how to deal with non-profits.

Roehrig said that he would be fine if, at least at Honokohau, DOBOR wanted to charge all three of the community service groups the same reduced rent, but he would not agree to charging them at the same rates paid by retail operations.

Yoshimura said he appreciated Roehrig's concern about the non-profits at Honokohau, but then noted that his division has issued permits to at least a dozen other non-profits whose rents the board approved without question last year. Those non-profits range from small paddling clubs that rent 800 square feet to the Waikiki Yacht Club.

While Roehrig continued to insist that the one-man paddler group, which works with children to make them better paddlers, was worthy of a rent discount, Land Board member Chris Yuen expressed some skepticism about the worthiness of the Kona Sailing Club.

"Generally, I'm super in favor of helping out the non-profits," he said. But with regard to the Kona Sailing Club, he noted that the bulk of the property covered by its permit is "being used to store people's very nice sailing boats. That's fine, but you gotta pay money to store your sailboat next to a harbor. Just because you and a group

of people make a non-profit and then get a RP (revocable permit) or lease on state land and do some nice public [services] ..." Yuen trailed off. "The fact that the bulk of it is used to store boats suggests we ought to charge a commercial rate to store boats," he said.

Land Board chair and DLNR director Suzanne Case added that the Hawai'i Big Game Fishing Club is making money from renting out space, and so is the paddle board group, which rents out lockers. She also questioned how much the paddle board group's work involved working with children.

"We have to be careful what's the public purpose here. These are basically benefiting the users. You mentioned the Waikiki Yacht Club. Do we not charge them rent because they're a non-profit?" she asked. "If the benefit is primarily the user group ... it does not fall into the category of a public purpose," she said.

When it comes to charging rent to non-profits, she said, "we need a consistent policy."

In the end, the Land Board approved the permits, with the rent increases intact, but gave the non-profits three months to offer an explanation to the board of why their rents should not increase to market rates. Case said that the explanation should include proof of the organization's non-profit status, an income statement, its charter, and a statement about its public benefits, as opposed to benefits for their own members.

Such an approach may be applied in the future to those non-profits with permits outside of Honokohau, Yuen said.

— T.D.

## Bills Facilitating Shoreline Easements Fail For Fifth Year at Legislature

For the fifth year in a row, bills intended to make it easier and cheaper for landowners to retain legally built shoreline structures that, through shoreline erosion, are now on public land have either been stalled or deferred.

Senate Bill 986 relating to special shoreline encroachments passed first reading, but has gone nowhere since. Its companion, House Bill 1120 was deferred on February 3. Once again, the main proponent of the bills has been the state Department of Land and Natural Resources, which has been required

by statute to secure fair market rent for the easements (which require approval from the Board of Land and Natural Resources) that allow shoreline encroachments to remain.

In recent years, in light of decisions by the state Supreme Court that indicate that the state owns all lands within the high wash of the waves, the DLNR's Land Division has sought easements for any structures that are discovered through the shoreline certification process to be within that zone. Some of those easements cost tens of thousands of dollars and in at least one case, a landowner

who paid for his easement had to pay again when a newer shoreline certification revealed that the high wash of the waves had retreated further inland.

The shoreline encroachment bills, if enacted, would allow landowners to pay less than market rates for their easements. In testimony, DLNR directors have indicated that the department is more concerned with securing insurance and indemnity protection for the encroachments than it is with collecting fair market rent.

"Many of these structures are now situated within or seaward of the shoreline and are a liability concern," DLNR director Suzanne Case wrote in her testimony on HB 1120.

"Enactment of this measure will not

negatively impact beach resources or proliferate shoreline hardening," she continued, adding that before presenting a shoreline encroachment easement request to the Land Board for approval, "all such requests are subject to review by the Department's Office of Conservation and Coastal Lands (OCCL). As part of their review criteria, OCCL examines whether the continued presence of the encroachment will detrimentally impact the existing coastal resources."

Despite the DLNR's assurances, the state Office of Planning has consistently submitted testimony warning that the bill "opens a door to private property owners to maintain their existing shoreline structure, and likely requests for repairs, as well as emergency repairs of their existing shoreline structures." As OP director Leo Asuncion noted in his February 3 testimony, "HB 1120 encourages the preservation of the existing shoreline structures, which is opposite to the increasing efforts to deal with the threats of coastal hazards on Hawai'i's coasts."

Dr. Chip Fletcher, associate dean of the University of Hawai'i's School of Ocean and Earth Science and Technology, expressed a similar sentiment at a state-sponsored workshop on sea level rise days earlier. He pointed to the "rule of thumb" adopted by the Dutch, who he said have been living below sea level for centuries. Their motto: "If you wage war with water, you will lose." With that in mind, he said that his advice to those with shoreline structures threatened by inundation is to "yield and elevate."

Apparently, the state Legislature has been more sympathetic to Fletcher's and Asuncion's positions. As DLNR Land Division administrator Russell Tsuji explained to Land Board members wondering why the bills have never passed, "some of the comments by certain legislators, they don't believe structures should be along the shoreline. They think they should be removed. Period."

### Surge Protection

When it comes to the DLNR's efforts to obtain shoreline encroachment easements, there's no proactive effort to identify offending structures. The department has only sought easements when the shoreline certification process, often triggered by a landowner's desire to maintain a seawall or build within the county Special Management Area, identifies an encroachment.

Over the years, the Land Board has been seeing more and more requests for such easements. Most recently, at its January 27 meeting, it approved an easement for a

portion of the Ka'anapali Beach Walk on Maui. Although it was legally built within the SMA, 80 to 90 feet of it is now considered to be within the shoreline. Upon the recommendation of the OCCL, some of the encroachments will be removed; only those that facilitate safe lateral access by the public will be covered by the easement.

While some individuals, including former DLNR director Peter Young and land use attorney Randy Vitousek, have argued that the agency is improperly jumping to conclusions of state ownership based solely on a shoreline certification, Land Board member Chris Yuen has said that the easement route is the "path of least resistance" to settle encroachments. As the DLNR's Tsuji pointed out, the state's shoreline certification rules are clear: "If we can't resolve [encroachments], we can't move the shoreline certification process forward."

Land Board member Stanley Roehrig seemed to want the controversy over shoreline easements to be dealt with quickly.

"We have this discussion over and over again with OCCL. We talk about the North Shore during the winter time. Whose fault is it the waves washes into your property?... It's all part of global warming. The boundary lines or whatever you want to call it are slowly, slowly, slowly making everyone's property smaller," he said, lamenting the fact that there is "no overall technique to be applied."

"This really needs to be addressed on a regional basis," he said.

And it should be done sooner than later, if recent erosion modeling is correct.

Recent modeling to determine future erosion with rising sea levels confirms that

the number of homes that will be threatened by ocean inundation will spike in the next decade and a half, according to Fletcher. As of 2006, erosion threatened 20 homes along Sunset Beach, he said at the workshop. "By 2030, under half a foot of sea level rise, this jumps to 144 homes threatened by erosion. A little more rise in sea level, a little more erosion exponentially increases the number of homeowners looking to protect themselves from erosion," he said.

— T.D.

### For Further Reading

- "Board Talk (Land Board Rejects Conservative Approach to Setback at Ha'ena)", November 2006;
- "Board Talk: Erosion, Kapa'a Lease, Coral Settlement, Turtle Bay," July 2015;
- "Letter: UH Expert Urges Protection Of Beaches, Not Seawalls," and "Board Talk: Shark Cull Permit, Palolo Violation, and Another Seawall Problem," June 2015;
- "DLNR, Land Board Seek Improvements to Handling of Shoreline Erosion Impacts," May 2015;
- "Board Talk (After Board Orders Seawall Removal, Landowner Agrees to Easement Terms)," June 2012;
- "Board Talk (Standoff Over Seawall Nears Resolution)," March 2012;
- "State Dings Beachfront Landowner for Encroaching, but 'Legal,' Wall," February 2010.



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