

Environment



Hawai'i
a monthly newsletter

A Bombshell Decision

To the surprise of no one who has been paying attention, the Hawai'i Supreme Court found that the state has ignored its duty to monitor the Army's use of some 23,000 acres of land that make up the largest part of the Pohakuloa Training Area, in the Saddle area of the Big Island.

What may be surprising is the fact that the court's decision included a determination that the state's public trust obligations extend to all ceded lands, not just to land in the state Conservation District and to freshwater resources, as conventional wisdom held.

That finding now opens the door to new claims that mismanagement of state land amounts to a breach of the public trust. The motion for reconsideration of the use of ceded land by the Kahala Resort may be the first of these, but certainly not the last.

Plaintiffs Seek More Transparency In Plan To Manage Army's Pohakuloa Training Area

Under a draft, court-ordered plan to manage state lands within the Pohakuloa Training Area (PTA) on the Big Island, observers chosen by the Native Hawaiian Legal Corporation (NHLC) or its clients, Clarence Ching and Mary Maxine Kahaulelio, would be allowed to tag along on site inspections by the staff of the Department of Land and Natural Resources (DLNR). They would not, however, be allowed to photograph or record any part of those inspections and any documentation of the inspection that the observers might make would be confidential.

To NHLC attorney Summer Sylva, those conditions are unacceptable.

In an April 16 letter to 1st Circuit Judge Gary Chang, who must approve the plan before it goes into effect, Sylva wrote, "It is both prudent and reasonable to keep

training or maneuvers implicating national security confidential. It is neither prudent nor reasonable, however, to prohibit plaintiffs from photographing debris or litter observed by them during the inspection, or to prevent them from sharing with third parties observations that have no national security implications. To do so would reduce plaintiffs' role as inspection observers to mere tokenism."

In 2014, the NHLC sued the Board of Land and Natural Resources and its chair (William Aila at the time; Suzanne Case today) after the DLNR failed to provide Ching and Kahaulelio with records demonstrating that the military was complying with conditions of its 65-year lease for the 22,900 acres of state lands, for which the military has paid a single dollar.

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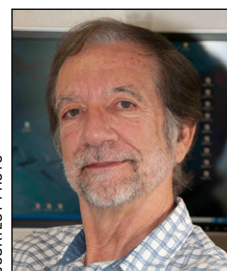
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Water Commission Roundup

Polovina to Discuss Climate Change At Annual Dinner of *Environment Hawai'i*

On November 8, Jeff Polovina will be the featured speaker at our annual benefit dinner. Polovina is the author of the Oceans and Marine Ecosystem section of the Hawai'i chapter of the 4th National Climate Assessment. Until his retirement



COURTESY PHOTO

Jeff Polovina

two years ago, he was senior scientist and chief of the Ecosystem and Oceanography Division of the Pacific Islands Fisheries Science Center, a research arm of the National Oceanic

and Atmospheric Administration. His ecosystem modeling of the food chain, ECO-PATH, has become a standard analytical tool for anyone wanting to understand the interrelatedness of marine organisms.

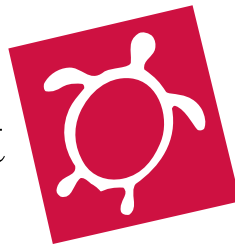
Polovina is also well known for his work studying regime shifts and climate impacts on marine ecosystems. His current research uses climate and ecosystem models and data to identify potential fishing and climate impacts on ecosystems, particularly those in the central North Pacific.

Although most of his work focuses on the central North Pacific and Pacific islands, Polovina has received two Fulbright Senior

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Environment

Volume 30, No. 4



Hawai'i

October 2019

NEW AND NOTEWORTHY

'Aina Le'a Stumbles: On August 26, Robert Wessels, who heads up 'Aina Le'a, Inc., forwarded to the Hawai'i County Planning Department an environmental impact statement preparation notice (EISPN), prepared by Christian Renz, a Waikoloa landscaper.

In the decade since Wessels first appeared before the state Land Use Commission as the developer of a project known as the Villages of 'Aina Le'a, sandwiched between the Mauna Lani resort and the Village of Waikoloa, in the Big Island district of South Kohala, the preparation of an acceptable EIS has been one of the biggest stumbling blocks to development of what Wessels now calls the Town of 'Aina Le'a, consisting of 20 residential villages over the next two decades. Infrastructure

and building lot preparation alone are projected to cost \$246,867,500, Wessels has claimed.

Wessels anticipated publication of the EISPN in the September 8, 2019 *Environmental Notice* and accordingly scheduled the required public meeting for September 26 at the Waikoloa Beach Marriott hotel.

But on September 9, Planning Director Michael Yee notified Wessels that the department had rejected his EISPN. Yee cited numerous problems with the draft EISPN, including zoning designations, claims that a previous, 2010, EIS that was deemed inadequate described the current project, and an increase in the number of units over what had been previously approved by the county and the Land Use Commission.

Undaunted, Wessels still had the scheduled meeting on September 26. No one from the Planning Department attended.

East Maui DEIS: The draft environmental impact statement for a 30-year

license allowing East Maui Irrigation Co. (EMI) to continue to take water from East Maui streams has been released. And, at 2,700 pages, it is as lengthy as it is long awaited.

The action proposed in the DEIS is a continuation of the status quo, subject, however, to the state Commission on Water Resource Management's order in 2018 to restore flows to ten of the previously diverted streams and increased minimum flows in several more. Also, the Department of Hawaiian Home Lands holds a reserved right to some of the water.

Alexander and Baldwin no longer owns the lands in Central Maui that were the rationale for the development of the EMI system, starting in the 1870s. It sold those lands to Mahi Pono in December 2018. But it retains an ownership interest in EMI. According to the DEIS, A&B and Mahi Pono are co-owners of EMI.

In addition to serving Mahi Pono lands, the DEIS states, the diverted water will supply the Kula Agricultural Park and the Maui Department of Water Supply's upcountry system.

"It is estimated that at full operation of diversified agriculture, approximately 85.22 mgd [million gallons a day] of water will be directed to the fields of Central Maui," the DEIS states. "Of this amount, approximately 22.7 percent, or approximately 19.34 mgd, is estimated to be lost through evaporation and seepage in unlined ditches and reservoirs located in the Central Maui agricultural fields. The remaining 65.87 mgd would be used for irrigation...."

A link to the DEIS is available on the Office of Environmental Quality's website. Comments are due November 7.

Environment Hawai'i

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Hilo, Hawai'i 96720

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Environment Hawai'i is published monthly by Environment Hawai'i, Inc., a 501(c)(3) non-profit corporation. Subscriptions are \$65 individual; \$100 non-profits, libraries; \$130 corporate. Send subscription inquiries, address changes, and all other correspondence to

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Environment Hawai'i is available in microform through University Microfilms' Alternative Press collection (300 North Zeeb Road, Ann Arbor, Michigan 48106-1346).

Production: Tim Officer

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ISSN 1050-3285

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Quote of the Month

"[T]hese changes are outpacing our ability to address them with policy and infrastructure and our forecasts of future impacts still are not able to capture the full complexity of the climate system and future damaging impacts."

— Jeff Polovina

Fishery Council Struggles to Justify Expenses for 2018 Meeting at Maui Resort

In articles published in February and June, *Environment Hawai'i* reported on expenses related to the Western Pacific Fishery Management Council's meetings held at the Wailea Beach Resort - Marriott on Maui in June 2018. We found that the cost to taxpayers came to around \$300,000, and council costs alone were about \$200,000 above the norm.

In our June article, we pointed out several questionable expenses that council staff had not explained by press time. After the article came out, council communications officer Sylvia Spalding emailed the council's explanations. Follow-up questions were, again, not answered by press time.

Family Perks: *EH* noted that Roy Morioka, an O'ahu-based bottomfish fisherman and a former council chair and committee member, had his airfare and lodging paid for by the council.

Spalding admitted that Morioka was not a current member of any council committee or panel, but was a member of a working group that assisted the federal Pacific Islands Fisheries Science Center in preparing its Main Hawaiian Islands bottomfish stock assessment.

"This working group provided scientific advice to the council at its June meeting relating to the council's action on the MHI bottomfish," Spalding wrote.

Hawai'i Pacific University professor Samuel Kahng was also an O'ahu-based member of the group and attended the council meeting on Maui. The council did not foot his bills, however.

Passing Ships: In addition to holding its meeting at the Wailea resort, the council chose to hold its Scientific and Statistical Committee meeting there, as well. Nearly a dozen committee members — most of whom are from the U.S. mainland or abroad — attended the committee meeting, held June 6-8, 2018.

Spalding didn't offer much of an explanation why the SSC had to meet on Maui. She stated simply, "The SSC convened on Maui because the council convened on Maui to discuss the Hawaii bottomfish action, and the SSC provides scientific advice to the council relating to its fishery management actions."

Even when both the committee and the council meet on O'ahu, SSC members — except for the committee chair — don't

cross paths with the council, since committee meetings are held the week before the council meets. The committee chair, currently Seattle attorney Jim Lynch, holds a seat on the council and is tasked with relaying the committee's recommendations at each council meeting.

In addition to Lynch, the only SSC member to actually attend the Maui council meeting was David Itano and none of the council members attended the SSC meeting.

Also, the council has never held SSC meetings in American Samoa, Guam, or the Commonwealth of the Northern Mariana Islands in advance of council meetings there. As we reported in February, the council has, however, held SSC meetings on Kaua'i and Hawai'i island in the weeks before the council met in Pacific Island territories.

Double Pay: We reported that SSC and AP members received double the compensation they normally receive when their meetings are held in Honolulu. Three AP members received \$800 each and eight SSC members received \$1,500 and SSC chair Lynch received \$2,000.

The compensation summary provided to *Environment Hawai'i* by the council states only that the payments to the AP members and Lynch was for their participation in the 173rd council meeting, and the payments to the rest of the SSC members were for their participation in the 129th SSC meeting.

Spalding, however, stated that they received additional compensation because they "participated in planning sessions, which included interviews with members on future research and changes to management regimes."

"SSC and AP members are paid compensation in accordance with NOAA [National Oceanic and Atmospheric Administration] guidelines for all approved meetings at which they are providing assistance to the council in carrying out its fishery management functions," she wrote.

Environment Hawai'i asked her for more detail on these sessions: Were they noticed in the *Federal Register*? Where were they held and when? With whom? Is there a record of who exactly participated? What were the subjects covered? Is there a record of the outcome of these sessions?

Spalding replied only that all advisory body meetings are publicized. None of these sessions, however, were listed on the council website or noticed in the *Federal Register*, which is where council and committee meetings are formally publicized. She referred the questions to council staffer Mark Mitsuyasu, who did not provide a response.

What's more, the Advisory Panel did not have a regular meeting on Maui, so it is unclear why three of its members would be paid double what they're paid when they actually do meet, and the rest who attended the Maui council meeting weren't paid at all.

Of the 12 SSC or AP members who received compensation for their attendance at the Maui meetings, only one responded to questions about whether or to what extent they participated in any planning sessions held in addition to their normal duties. SSC member Ray Hilborn of the University of Washington, replied, "I don't know of any other meetings other than the regular SSC sessions."

Moral Support: Our June article noted that the council paid to fly in several Advisory Panel members from outside of Maui, even though the panel did not have a scheduled meeting there. Spalding pointed out that AP members contributed significantly to the process leading to an increased Annual Catch Limit (ACL) for Main Hawaiian Islands bottomfish, which was voted on by the council at the June 2018 meeting.

"Maui Nui has historically been the center of Hawai'i's bottomfish fishery for its extensive bottomfish habitat and sheltered waters. For this reason, Maui was the appropriate location for [the council] to take action on the Hawai'i bottomfish ACL because the majority of the fishermen to be affected by the council's action at this meeting are based in Maui. The council relied on the AP members' reports and recommendations to inform its decision on this action. Thus, the council benefited from the presence of the full AP at the June meeting," Spalding wrote.

Staycation? As we reported in June, the council paid for Advisory Panel member and bottomfish fisher Layne Nakagawa to stay at the Marriott, even though he lives on the island. Spalding explained that the council paid for one night for Nakagawa "as he was requested to participate in an evening meeting regarding the bottomfish fishery. This minimized disruption and allowed him to return to normal fishing operations in a timely manner." —*T.D.*

PTA from page 1

After a trial, Chang ruled on April 3, 2018, that the state had breached its trust duties to conduct reasonable inspections to ensure that the lands within the PTA aren't harmed by its lessee. This despite it having good reason to believe those lands were in danger of being or may have already been harmed. He also ordered the state to develop a management plan for the lease area that includes periodic site inspections and more detailed reports, as well as a procedure to improve transparency.

In her April letter, Sylva reminded Chang that her clients' testimony and photographs of the litter at PTA played a large role in his decision to require a management plan.

She offered an amended plan that would allow observers to take photos and record debris on the lands only if the Army does not object. Her plan would also require any public dissemination of those records to receive approval from the NHLC and the state's attorneys beforehand.

Chang did not sign any version of the plan pending the state's appeal to the Hawai'i Supreme Court. On August 23, the high court largely upheld Chang's decision but made a few of the components of the plan recommendations, rather than requirements.

Once Chang approves a final plan, the state must execute it, the Supreme Court ordered. According to a DLNR spokesman, the plan is still under internal review. And Sylva's co-counsel, former NHLC attorney David Kimo Frankel, indicated they will be

meeting with state attorneys this month to discuss possible changes to the plan.

The Bad Old Days

The U.S. military's lease covers three tracts of ceded land at Ka'ohe, Hamakua, and Pu'uana'hulu and expires on August 16, 2029.

The lease requires the military to "make every reasonable effort to ... remove and deactivate all live or blank ammunition upon completion of a training exercise or prior to entry by the public, whichever is sooner."

It must also take reasonable steps to "prevent unnecessary damage or destruction to vegetation, wildlife and forest cover, geological features and related natural resources" and to "avoid pollution or contamination of all ground and surface waters and remove or bury all trash, garbage and other waste materials" resulting from its use of the area.

If required by the state at the end of the lease term, the military would also have to remove weapons and shells from training activities "to the extent that a technical and economic capability exists and provided that expenditures for removal of shells will not exceed the fair market value of the land."

The U.S. military has a history of leaving training grounds in the islands severely, if not irreparably, damaged. To name but a few: The entire island of Kaho'olawe, the 'Ahihi-Kina'u Natural Area Reserve on Maui, Makua Valley in West O'ahu, and Waikane Valley in East O'ahu, which the military leased from the Kamaka family and

later condemned because it was deemed too expensive to clear of ordnance.

During the Circuit Court trial last year, DLNR Land Division agent Kevin Moore testified that since the lease began in 1964, there were records of just three state inspections of the PTA area. While his division tries to inspect leased lands once every two years, the PTA lands are harder to inspect because of their rugged terrain and sheer size.

In its ruling, the Supreme Court took note of the inadequacy of those inspections. There was "one from 1984 that indicated the inspection lasted 'no more than one day,' which Moore acknowledged was not enough time for an inspector to inspect the 22,900-acre property on foot; one from 1994 that was not signed and did not have anything written in the spaces denoted for the condition of the land or the findings of the inspection; and one from December 2014" — well after the NHLC sued the state — "that indicated that the premises were in unsatisfactory condition but did not contain any determination as to whether the United States was in compliance with the lease," the Supreme Court decision stated.

Prior Knowledge

Well before the 2014 inspection, the DLNR was aware of possible contamination of its lands within the PTA. Land Division administrator Russell Tsuji testified to the Circuit Court that his agency's lease file contained letters and reports from the Army documenting a need to clear the area, "including a 2006 report indicating there was debris in the BAX [battle area complex] within the PTA; a 2008 report stating that there may have been munitions on PTA land; a 2013 final environmental impact statement stating that UXO was 'known to exist in impact area' and that 'there [was] also a medium risk of finding [UXO] outside [the construction] area'; and a 2014 report stating that '[t]he military need[ed] to implement some kind of clean-up process as part of their training in PTA' because '[r]emnants of military trash [were] everywhere ... including unexploded ordnance that was carelessly discarded,'" the Supreme Court's decision stated.

It continued, "When asked about the DLNR's response to one of the reports, Tsuji testified that he did not know if anyone at the DLNR 'actually read' the report and



Maneuvers at the Pohakuloa Training Area.

Continued to page 5

noted that there was no record on file that the DLNR ever responded.”

Moore had also testified that “a 2013 memorandum circulated within the DLNR suggested the leased PTA land should be swept for UXO to be removed at the United States’ expense, but DLNR did not ask the United States Army to clean up any ammunition as a result of the memorandum,” the decision stated.

Also in 2014, the Army sent the DLNR an action memorandum stating that “a bazooka range within the PTA was heavily contaminated with explosive hazards, ammunitions, and debris that posed a significant danger to public health and welfare,” it continued.

In addition to these records, Ching, a member of the Pohakuloa Cultural Advisory Committee, testified that during his bimonthly trips to the area, he saw blank ammunition and other military debris strewn around. Kahaulelio offered similar testimony, as did witness Kealoha Pisciotta, a former cultural monitor for PTA’s battle area complex.

‘Reasonable Monitoring’

In its decision, the Supreme Court described the leased area as ceded lands that are part of the public lands trust. And as trustee of those lands, the state had “the highest duty” to preserve and maintain them, it stated.

“[T]his obligation includes an obligation to reasonably monitor the trust property,” it continued. “Reasonable monitoring ensures that a trustee fulfills the mandate of ‘elementary trust law’ that trust property not be permitted to ‘fall into ruin on [the trustee’s] watch.’ To hold that the state does not have an independent trust obligation to reasonably monitor the trust property would be counter to our precedents and would allow the state to turn a blind eye to imminent damage, leaving beneficiaries powerless to prevent damage before it occurs.”

In response to Chang’s order to develop a plan that would establish a reasonable monitoring schedule, the state submitted a draft in December 2018 and an amended version in March of this year. It called for inspections to occur at least once every two years. They “should be supported by appropriate photographic or videographic entries” and would also include live or remote monitoring of training subject to limitations for safety or national security, under the draft plan.

Any recommendations for corrective

action that grew out of those inspections “should include a projected or reasonable estimated time within which to take action,” the March version stated. And if the inspection reveals a lease violation that might adversely affect the land’s condition or the lawful use of the area for cultural purposes, or if it involves unexploded ordnance or other contaminants from military training, the state must investigate and initiate appropriate enforcement actions authorized under the lease and state law.

Factual disputes over whether the lease terms were violated would be resolved by agreement or by the Division Engineer of the U.S. Army Engineer Division.

The state would also support efforts to seek federal funds for any cleanup of ordnance or military-related debris or contaminants.

The March version, while it included amendments to address some of the concerns raised by the NHLC, did not address all of them. In a February request to Chang to reject the state’s December version of the plan, the NHLC pointed out that it lacked maps of the areas to be inspected. Also, given the vast size of the lease area, it recommended that inspections occur annually, rather than every two years, “to better ensure that any needed clean-up or other maintenance is undertaken in a prompt and appropriate manner.”

Transparency

The proposed plan states that any lease termination or enforcement actions “required by law to be the subject of a sunshine meeting shall include the opportunity for plaintiffs or other members of the public with standing to provide input and/participate as allowed by the Chapter 91, Hawai’i Revised Statutes.” It adds that the Land Board will provide reasonable transparency to the plaintiffs and the general public with regard to the plan’s implementation, and comply with all laws regarding the rights of the plaintiffs or the public to contest the board’s decisions regarding its adoption or implementation of the plan.

The NHLC called these transparency provisions illusory, noting that the plan includes no mechanism for informing the public of or eliciting comment on the plan.

It pointed out that the December version of the plan was not approved by the Land Board at a public meeting. Consideration of the plan was on the board’s December

7, 2018 agenda, but no submittal was provided. The board met in executive session to discuss the plan with its attorney, but did not take a vote in public, with chair Suzanne Case later explaining that it was a non-action item, according to the meeting minutes. Nonetheless, the board’s attorneys submitted a plan to the court later that month.

“BLNR was supposed to approve the plan at a public meeting, but never did. ... The process that defendants followed prior to submitting this management plan to the court was inconsistent with both the law and any notion of transparency,” the NHLC wrote.

Whether the March version or a new version of the plan will be brought to the Land Board for approval before Chang signs it remains to be seen. In his March decision on the plan, Chang chose not to rule on whether or not the board should have approved it before it was submitted to him, and left that matter to be resolved “by another tribunal.” —***Teresa Dawson***

For Further Reading

Environment Hawai’i has published several articles over the years regarding the military’s use of lands in Hawai’i and the Pacific. The following is a short list. Check them out at our website, www.environment-hawaii.org.

- “From Fertile Fields to No-Man’s Land: The Transformation of Waikane Valley,” “Use of Islands by Armed Forces Leaves Few Stones Unturned,” “Restoration, not Condemnation: Hawai’i has no Land to Spare,” Editorial, August 1992;
- “Editorial: Army Lays Waste Riches of Makua Valley,” and related articles, November 1992;
- “The Battle at MPRC: How One Woman Took on the U.S. Army, And Won,” and related articles, January 1997;
- “Bombs Old and New Devastate Reefs in the Northern Mariana Archipelago,” August 1998.

Pohakuloa Ruling Spurs Motion For Reconsideration in Kahala Case

On October 1, 1st Circuit Judge Jeffrey Crabtree was scheduled to hear arguments on David Kimo Frankel's latest motion in his fight against a revocable permit the Board of Land and Natural Resources issued in November 2018 to ResortTrust Hawai'i, LLC for use of a beachfront parcel fronting the Kahala Hotel & Resort.

Despite holding a permit that allowed for recreational and maintenance purposes only, the hotel had for years been conducting what most would consider to be commercial uses on the property: renting beach cabanas and other equipment, placing a portion of a restaurant in the area, and hosting weddings.

Last month, *Environment Hawai'i* reported on how Judge Crabtree largely rejected Frankel's arguments that an environmental review would need to be done and a Special Management Area use permit obtained in advance of the Land Board's award of the permit. The judge also disagreed with Frankel's claim that the board needed to draft better rules to govern the issuance of its revocable permits.

With regard to Frankel's claim that the board had breached its public trust duties in issuing the permit — which allowed for the setting and possible renting of cabanas, loungers and other equipment

on the parcel — Crabtree stated that the Hawai'i Supreme Court has only applied the public trust doctrine to water and lands in the Conservation District, which this parcel was not.

"[T]here is no recognition under Hawai'i law that the public trust doctrine applies to this urban parcel," Crabtree wrote in a July minute order.

But in its August 23 ruling in a case involving the Land Board's management of its lease for the Pohakuloa Training Area (PTA) on Hawai'i island, the state Supreme Court held that under the state constitution, "all public natural resources are held in trust by the state for the common benefit of Hawai'i's people and the generations to come. Additionally, the constitution specifies that the public lands ceded to the United States following the overthrow of the Hawaiian Monarchy and returned to Hawai'i upon its admission to the Union hold a special status under our law. These lands are held by the State in trust for the benefit of Native Hawaiians and the general public. Accordingly, our constitution places upon the State duties with respect to these trusts much like those of a common law trustee, including an obligation to protect and preserve the resources however they are utilized."

The court also held that the state had a duty to reasonably monitor "a third party's use of the property, and that this duty exists independent of whether the third party has in fact violated the terms of any agreement governing its use of the land."

The court's ruling led Frankel, an attorney for the plaintiffs in the Pohakuloa case, to ask Crabtree to reconsider his ruling regarding the application of the public trust doctrine to the Kahala parcel.

Frankel's motion for reconsideration, filed September 6, is one of the first motions — if not *the* first motion — relying on the high court's decision, which found that the Land Board had breached its trust duty to protect lands leased to the U.S. military as part of the PTA (see related story in this issue).

The area covered by ResortTrust's revocable permit has been identified by the Department of Land and Natural Resources (DLNR) as ceded land.

"The Supreme Court's recent decision in the Pohakuloa case demonstrates that the BLNR defendants do in fact have trust duties in managing the beachfront parcel," Frankel argued.

He pointed out that Russell Tsuji, administrator for the DLNR's Land Division, stated in a declaration that the Land Board had never authorized commercial use of the permit area. Despite the fact that ResortTrust admitted that at certain times between July 1, 2016, and June 30, 2018, it rented clamshell lounge chairs and cabanas, sold and served food and alcohol, and hosted weddings (for which it charged thousands of dollars), the state's attorneys refused to concede that commercial use occurred on the property during that time.

The hotel has since removed all cabanas and clamshell loungers and its restaurant from the parcel and no longer holds weddings there. Even so, Frankel argued that the Land Board allowed a "multi-million dollar corporation to illegally profit off of public land with impunity. It was unreasonable, and a breach of its trust duties, for the BLNR defendants to ignore obvious commercial uses of Lot 41 and fail to collect additional rents and fines for the unauthorized uses."

In light of the Pohakuloa decision, Frankel asked the judge to grant his motion for summary judgment with regard to his claim that the Land Board breached its trust duties. If the motion is granted, the Land Board will either have to initiate an enforcement action or justify to the court why it did not pursue one. —T.D.



Cards stating, "Reserved," sit on tables set between beach chairs on the state parcel.

State, County Agencies Struggle With Transition to Electric Fleets

It wasn't long ago that transitioning to hybrid gas-electric vehicles was seen as a better way to reduce greenhouse gas emissions on O'ahu than going purely electric.

Unlike the neighbor islands that generate more of their electricity from renewable sources, O'ahu is still heavily dependent on fossil fuels, including coal, for its electricity. "Until O'ahu substantially transitions towards greater penetration of renewable sources for electricity, it may be too early to tout EVs [electrical vehicles] on O'ahu as a GHG emissions reduction strategy. ... O'ahu's electricity generation mix must become similar in carbon intensity to that of Kaua'i and Maui to make high performing EVs at least comparable to high performing HEVs [hybrid electric vehicles] in GHG emissions," states an executive summary of the University of Hawai'i Economic Research Organization's 2016 Electric Vehicle Greenhouse Gas Emission Assessment for Hawai'i. UHERO prepared the assessment for the Hawai'i Natural Energy Institute (HNEI).

How quickly things have changed.

In a presentation last month to the state Climate Change Mitigation and Adapta-

tion Commission, HNEI's Electrification of Transportation project leader Katherine McKenzie reported that as of 2018, an EV on O'ahu already had a miles per gallon equivalent (MPGe) of about 50, which is roughly that of a hybrid such as a Toyota Prius. She projected that the MPGe for O'ahu EVs would only increase, albeit slightly, in the next couple of years.

McKenzie's findings mirror those presented at the same meeting by Blue Planet Foundation's clean transportation director Lauren Reichelt. Both presentations provided the backdrop to the commission's discussion of how and to what extent the state should transition its fleet of thousands of vehicles from gas to electric.

Despite their findings, however, some state officials were clearly wary about making any significant changes to their fleets and expressed concerns over the reliability of EVs and inadequate charging infrastructure.

Hierarchy

In 1997, the state Legislature established a state policy to encourage the use of EVs. And a decade ago, it passed a law requiring all state and county agencies, when

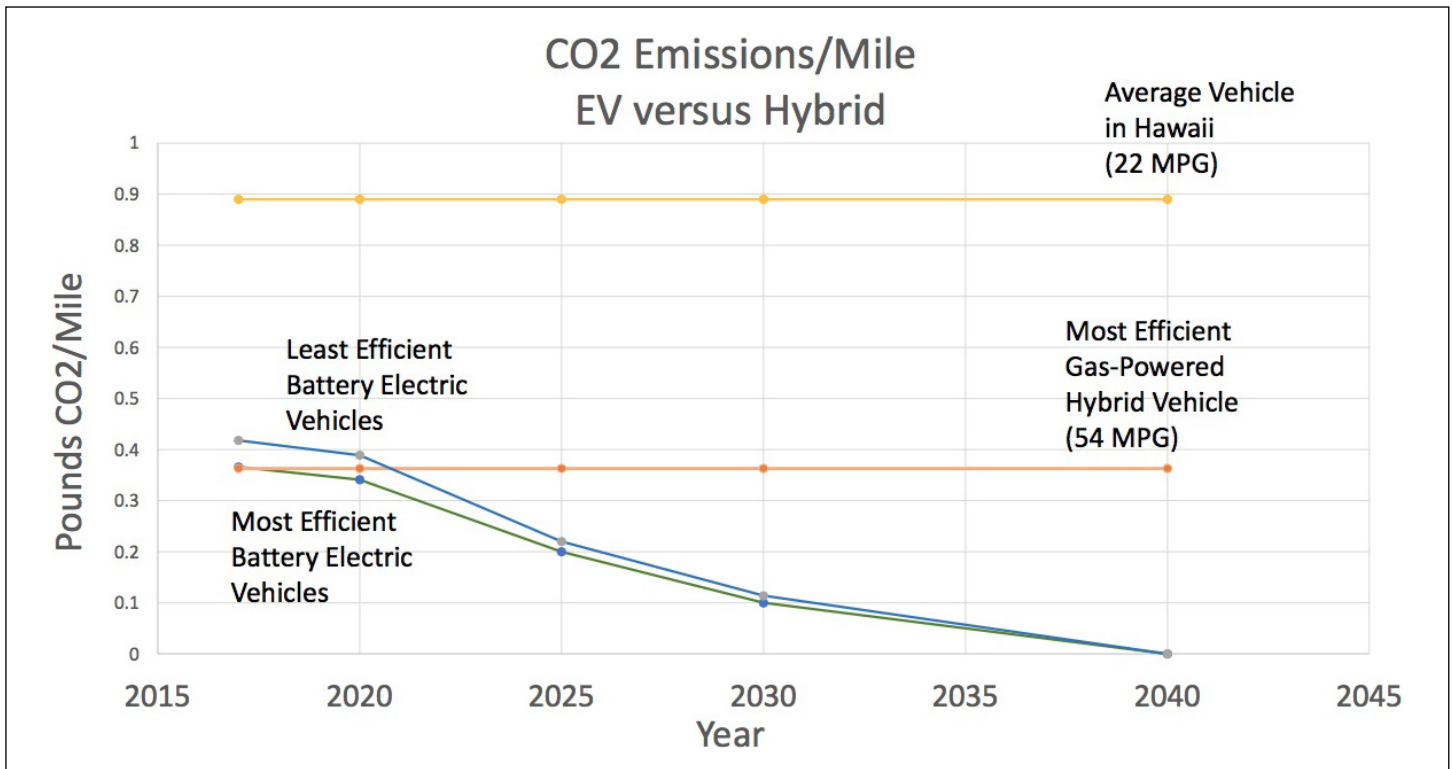
purchasing new light-duty vehicles, to "seek vehicles with reduced dependence on petroleum-based fuels that meet the needs of the agency." It also established a hierarchy of those types of vehicles, with the most-preferred being electric or plug-in hybrid vehicles.

Since then, however, state and county fleets remain largely gas-powered. The state alone has 1,333 light-duty vehicles, according to an inventory by commission staff.

At the commission's meeting, Brian Saito, head of the Department of Accounting and General Services' Automotive Management Division, attributed his reticence to EV adoption to the poor performance of a slew of Nissan Leafs he purchased for his department in 2011. The batteries never delivered the range they were supposed to, dropping from a starting range of 100 miles down to 50, he said. "People refused to drive it, so we started going with Priuses," he said.

However, he added that 2019 is the first year he believes the mileage delivered by EVs should be good. He's acquired one new Nissan Leaf so far, but is waiting to see how it performs before ordering more. "I don't want to do a whole slew of them and it doesn't work out again," he said. (It should be noted that as part of its warranty, Nissan would have replaced the poorly

Continued on next page



performing batteries of those old models, free of charge.)

Saito said managers of fleets for other agencies are probably not even thinking about buying electric vehicles and that it's important to educate them about what EV's can do. The lack of charging infrastructure might frighten them, he said.

Department of Health administrator and commission member Bruce Anderson was certainly one of those worried about that. His department has 118 light-duty vehicles, according to the inventory. Anderson said some of his staff are in their cars all day long and make 15 to 20 stops a day, doing a variety of activities. Nurses, for example, drive 150 miles a day, he said. He argued that the driving patterns of DOH workers would push "the limits of what an EV can accomplish."

"Reliability is huge for a lot of our staff," he said.

Reichelt suggested that Anderson should have a consultant take an inventory of what's actually driven by his staff. She pointed out that some of the new EVs have a range of 240 miles on a fully charged battery. "You can drive around the island twice," she said.

Still, Anderson worried about the lack of charging infrastructure in places such as Puna on Hawai'i island and the rural island of Moloka'i.

According to the Hawai'i State Energy Office, Moloka'i has no public charging ports, and Hawai'i island has 43. Even so, there are 35 and 508 registered EVs on those islands, respectively.

Department of Land and Natural Resources director Suzanne Case, who said she owns a 2013 Nissan Leaf, said that the charging infrastructure doesn't have to be perfect. She pointed out that EVs can be charged using a regular outlet. "You don't have to have Level 2 or 3 [standard 240-volt and fast-charging EV ports, respectively] in your garage for this to work," she said.

Reichelt added that people will be uncomfortable driving EVs at first, but once they change, they'll like it. In her presentation, she noted that by about 2024, the upfront cost of an electric car will equal that of a gas-powered car.

The Department of Transportation's

Highways Division, at least, has embraced the notion of transitioning to EVs and is working with the state Energy Office on a study assessing charging infrastructure needs for its current fleet of more than 60 light-duty vehicles, as well as needs of medium and/or light duty EV trucks that may be purchased in the future.

Charging Infrastructure

While, as Case said, charging infrastructure doesn't have to be perfect to ensure that government employees driving EVs won't run out of power while working, commission members acknowledged that more needs to be done to at least maintain the infrastructure that exists.



The Hawai'i Climate Change Mitigation and Adaptation Commission has called for a lead agency to help state and county fleets transition to electric vehicles.

In 2009, the Legislature passed a law requiring parking facilities with at least 100 spaces to designate one percent of them for EVs by the end of 2011, and also required them to provide an EV charging unit. That percentage would increase, to a maximum of 10 percent, as the number of registered EVs in the state increased.

While the law established penalties for people who parked non-electric vehicles in designated EV parking stalls, it did not set penalties for developers of parking facilities who failed to install chargers as required, nor did it designate an enforcement agency. Since charging units can cost a few thousand to tens of thousands of dollars or more to install, many parking facilities have ignored their obligations.

"On Maui, we're having collapsing infrastructure," said one meeting participant, who called for greater accountability

among those required to provide chargers to make sure they actually function. She said the various charging stations on the island are operated by a variety of different companies, which sometimes makes them difficult to use. She recommended that there be a statewide vendor "so there isn't a public perception that charging is difficult."

For the 9,360 registered EVs in the state, there are 495 public charging ports, fewer than 10 percent of which are fast-chargers. To improve the EV charging infrastructure statewide, the Legislature this year passed a law that establishes a rebate program for parties willing to install new chargers or upgrade old ones. The state Public Utilities

Commission, which will administer the program itself or through a third-party contractor, will provide \$4,500 for the installation of two or more new Level 2 ports, \$35,000 for a new fast charging system, \$3,000 for the upgrade of two or more Level 2 ports, and \$28,000 for the upgrade of a fast charger. Total annual rebates would be capped at \$500,000.

The Legislature also passed a bill requiring all agencies to identify and evaluate vehicle fleet energy efficiency programs "that the agency may implement using vehicle fleet performance contracts."

Even so, state Rep. Nicole Lowen, who chairs the House Energy and Environmental Protection Committee, said that there needs to be more discussion of how to make sure charging stations are working and the infrastructure benefits the electrical grid.

Speaking to the commission's overall discussion on EVs, Case said, "This is all about us groping our way forward. This is what I call participating in the mess. ... This discussion of is going on at the governor's office level."

In the end, the commission unanimously called for a lead entity to identify and undertake activities that will help state and counties agencies to transition their fleets to "clean, renewable fuels," including coordinating any necessary implementation, serving as a technical resource and reaching out to fleet managers, and regularly updating the commission. —T.D.

Hydrogen Buses May Finally Make Debut on the Big Island

The Big Island is on the verge of testing three hydrogen-fueled buses.

It's been sitting on that verge for more than five years, but, according to Riley Saito, with the Hawai'i County Department of Research and Development, just a few more tweaks are all that's needed before the hydrogen buses are added to the county's Hele-On fleet.

At least two of them, anyway.

Those two are 19-passenger vehicles that were supposed to be used as shuttles for visitors to Hawai'i Volcanoes National Park. In August, the Hawai'i County Council approved resolutions authorizing the mayor to accept the donation of the two buses – “2012 F550 ENC Aero Elite” buses, outfitted to run on hydrogen – from the state's surplus property office.

Although the Department of Energy's National Renewable Energy Laboratory (NREL) noted that in 2018, the cost of a hydrogen bus averaged \$1.92 million, the county is getting them practically for free through the state's Surplus Property Office. That agency received the buses from

the National Park Service as a donation. All the county pays is \$500 per bus as a “service and handling fee” to the Surplus Property Office.

Just what the county will pay to put these vehicles on the road is uncertain. The only hydrogen filling station on the Big Island is at the Natural Energy Laboratory of Hawai'i Authority (NELHA), on the Kona side. Saito told *Environment Hawai'i* that the NELHA hydrogen station was not yet permitted to operate by the county Fire Department.

While hydrogen buses are touted as zero-emission, the process of generating hydrogen uses energy. The NELHA facility relies on power from the HELCO grid and the HELCO power station closest to NELHA is an oil-fired plant.

In June, the Hawai'i County Council held an informational hearing on the status of hydrogen buses. Council members were told then that a third hydrogen bus – a 29-passenger, brand new Ford F550 Eldorado – was on O'ahu and ready to be delivered to the county. That cost of that vehicle was



PHOTO: NELHA

The hydrogen filling station at NELHA.

\$707,500, paid to US Hybrid by the Hawaii Center for Advanced Transportation Technologies (HCATT), a state agency run through the High Tech Development Corporation.

Margaret Larson, the transportation specialist at the Department of Business, Economic Development, and Tourism's Energy Office, could not identify any facility that routinely uses hydrogen buses in Hawai'i. Some had been proposed for shuttles at the Honolulu airport, but none is operating there yet. Alan Yonan, with the Energy Office, said that HCATT “has retrofitted several military vehicles with hydrogen fuel cells for use at Hickam Air Force Base.”

—P.T.

Polovina from page 1

Research awards for work in Kenya and the Galapagos Islands. He holds faculty appointments in the Oceanography and Marine Biology departments at the University of Hawai'i and also serves as senior fellow at the Joint Institute of Marine and Atmospheric Research in Hawai'i. He is a recipient of the 2010 Wooster Award from the North Pacific Marine Sciences Organization.

Fun fact: Polovina is also the author of two children's books, *The Case of the Fish with the Curious Bite* and *The Case of the Outlaw Dolphins*.

In anticipation of Polovina's talk, *Environment Hawai'i* editor Patricia Tummons posed several questions to him:

In recent weeks, the news from Greenland and the polar regions has been grim, with both land and sea ice showing signs of melting at rates faster than anything anticipated by the Intergovernmental Panel on Climate Change in its most recent report. Are changes in the global environment outpacing not only our ability to deal with them – through changes in policy and funding of new infrastructure – but also our ability to grasp their full implications?

Yes. The IPCC, in its attempt to be as

rigorous as possible with the best available models, conveyed climate change as a gradual change. However, what we are seeing is that many of the models and IPCC projections underestimated the rate of change we are now observing. But now, with all the wildfires, heat waves, stronger and wetter storms, etc., people are becoming more aware of how serious a crisis climate change is. The challenge remains. As you've stated, these changes are outpacing our ability to address them with policy and infrastructure and our forecasts of future impacts still are not able to capture the full complexity of the climate system and future damaging impacts.

Another recent event, Hurricane Dorian, practically leveled the Bahamian islands where it sat for several days. Those flat islands differ from the populated islands of Hawai'i but the prospect of more numerous and more severe hurricanes, fueled by warming ocean waters, is still one that Hawai'i needs to take seriously. Should the state now be preparing for hurricanes that match Dorian in intensity?

That would be prudent and hopefully that is being done.

Following up on that, is it possible that ever-stronger storms and hurricanes could render the atolls of the Northwestern Hawaiian

Islands unable to support the wildlife assemblages found nowhere else? Hurricane Walaka caused East island in French Frigate Shoals to disappear in 2018. Should we expect to see more of this type of storm in the future?

In the past the NWHI was exposed to hurricanes and strong North Pacific winter storms/waves and in the past coral reefs have recovered from the damage. Now they face additional stressors – bleaching, acidification, and sea level rise – all making recovery more difficult.

2015 and 2016 were the warmest years on record in Hawai'i. But this summer, weather stations across the islands were reporting record-high temperatures or record-matching temperatures. Over the 30-day period in Kahu-lui from August 17 to September 16, records were set or tied on 29 days. Reported temperatures at all four airport weather stations showed daily highs and lows higher by several degrees from historical average highs and lows. Across the state, from August 24 through September 17 (today), a high temperature record was set or tied somewhere in Hawai'i every single day. In August, the maximum temperature at the Honolulu airport exceeded 90 degrees on 27 days – which is 20.3 days more than the normal value of 6.7 days. In the same period,

Continued on next page

Waimea, 'Anaeho'omalu Aquifers Remain Separate in Updated Water Resources Plan

After more than a decade, the Commission on Water Resource Management finally updated its Water Resources Protection Plan (WRRP) earlier this year. As adopted, the plan seems to put the brakes on a proposed 1,200-unit residential development on 1,500 acres in the South Kohala district of West Hawai'i. The new town, to be called Nakahili, would be built by Maui-based Work Force Developers, LLC, and draw its water from the Waimea aquifer.

Before the WRRP update, that aquifer had a sustainable yield (SY) of 24 million gallons a day. The update, however, reduced the SY to 16, based on recharge estimates from a 2011 report by the U.S. Geological Survey.

As *Environment Hawai'i* reported in February, 13.83 mgd, or approximately 86.4 percent of the sustainable yield, is already being used. With a SY of 16 mgd for the Waimea aquifer, "the full build-out of Nakahili may not be realized and alternative plans may be pursued," the draft environmental assessment for the project states.

At a meeting held in Waimea in June,

members of the Water Commission were briefed by staff on isotopic evidence that suggests that the Waimea and adjacent 'Anaeho'omalu aquifers are connected. Groundwater program manager Roy Hardy told the commission that his agency and "a group of professionals" — including hydrologists and representatives from the state Department of Health, the U.S. Geological Survey, the University of Hawai'i's Water Resource Research Center, and consultants who work in the area, among others — are proposing to combine the two aquifers into one. "It appears more consistent with hydrogeologic data and it's a simple management change to address a perceived threat to the Waimea area," he said, according to minutes of the meeting.

Merging the aquifers would result in a sustainable yield of 46 mgd.

Commissioner Neil Hannahs asked Hardy whether merging the aquifers might mask the need to temper growth or optimize recharge.

"It might," Hardy replied, but added that

was more of a concern for Hawai'i County's Leeward Planning Commission.

Commissioner Kamana Beamer noted that only a single isotope study was being offered as justification for the merger and also expressed concern about "treating water like a bank account, and I'm just going to borrow from our neighbor next door, 'Anaeho'omalu, without thinking of these larger issues like [groundwater management area] designation, planning, and prioritizing."

Hardy explained that those were "end of the pipe" issues, which are separate from characterizing the aquifer. He added that water levels in the Waimea aquifer have been steady, suggesting that it is not at risk of overuse.

Beamer suggested that Hardy get input from people who have lived in the area on how the climate has changed. "My great-grandparents were seeing the misty rain come into Waimea almost daily around this time; it has changed where we have periods of drought and some intense periods," he said.

Hardy said he thought the commission's low recharge estimates for Waimea reflect some of those changes.

Continued on next page

Polovina from page 9

Kahului saw 24 90-plus degree days, 19.7 more than the normal value of 4.3. At Lihue, the 10 90-plus degree days was 100 times the normal value of 0.1. As a layperson, I'm alarmed by these records. At what point do we say this isn't just the weather, but it's a dramatically, and quickly, changing climate?

Yes. I've been tracking these developments closely as they resemble those of 2015. I'll talk about the large-scale ocean and atmosphere changes that appear to be contributing to this 2019 heat wave. There's a perception that temperature will slowly and gradually increase over time but the climate system is complicated and tipping points occur that can give rise to large shifts. For example, coral reef bleaching is a classic example of a tipping point where temperature increases gradually and not much happens then suddenly, with just a little more warming, widespread bleaching occurs. The recent heat wave may be the result of such a tipping point in the jet stream impacting mid-latitude ocean temperatures with links to Hawai'i trades and sea surface temperatures. I'll explore this in my talk.

Coral bleaching has been given quite a bit of attention with the movement of warm ocean water coming down from the north to

Hawai'i. A website set up by Greg Asner's lab allows citizens to report locations of bleached coral around the islands and note the severity of bleaching, and bleached corals have been reported on all inhabited Hawaiian islands, from Hilo to Ni'ihau, and on up the Hawaiian chain all the way to Kure. It's known that repeated episodes of bleaching make it difficult for corals to recover. But when you add the increasing acidity of ocean waters to the mix, won't that exacerbate the problem?

Yes, the recent repeated bleaching is really stressing many corals and it is unclear if some can adapt quickly enough to adjust. Some species or some locations may prove resilient. However, the evidence is not comforting as the 2015-2016 bleaching off West Hawai'i resulted in substantial mortality to corals. Adding to the thermal stress is the long-term decline in pH that increases coral mortality and reduces growth adding to the thermal stress.

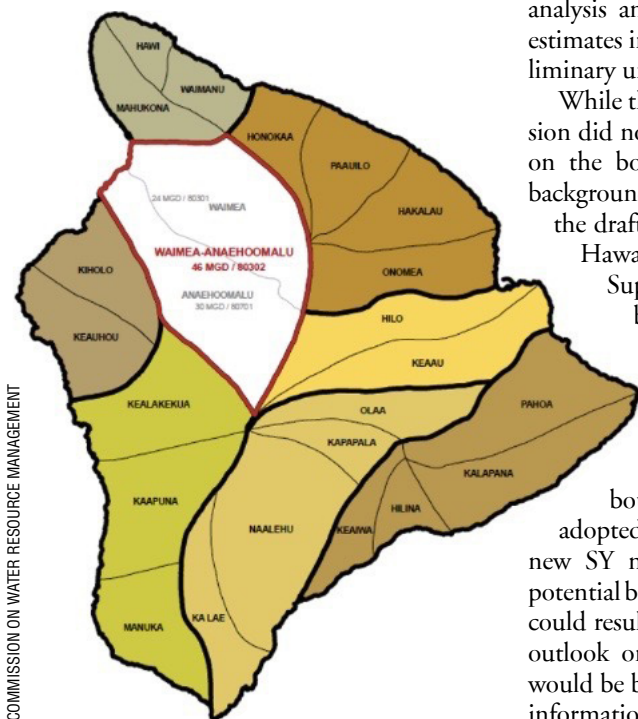
A study published earlier this year by Phoebe Woodworth-Jefcoats and others concluded that "a decline in Hawai'i's longline fishery yield may be inevitable" as a result of both fishing pressure and climate change, but the effect of climate change on fish populations can be lessened if fishing pressure is reduced. The Hawai'i longline fleet has grown in recent years, as have efforts by vessel owners

and the Western Pacific Fishery Management Council to increase the allowable catch of bigeye in the Western Pacific. Do you see any encouraging signs that both the industry and its regulators may curb their short-term interests in the hope of protecting the resource over the long term?

So far I haven't seen any evidence that the two Regional Fisheries Management Organizations, Inter-American Tropical Tuna Commission and the Western and Central Pacific Fisheries Commission, have developed climate-informed reference points in their management. Part of the challenge is that there is so much we don't know about how the entire food web and highly mobile fishes at the top will respond to climate change. For example, virtually all the studies project declines at the base of the food web but changes in the food web structure, and/or the species mix in the middle of the food web could greatly impact the energy flow to apex species.

Polovina will speak at Environment Hawai'i's dinner, November 8, 5:30 p.m., at the Imiloa Astronomy Center in Hilo. Reservations are \$75 per person and may be made by calling our office at 808 934-0115. (The cost includes a \$35 donation to Environment Hawai'i.) Please make your reservations by November 5.

CWRM from page 10



CWRM chair Suzanne Case suggested that rather than merging the aquifers, Hardy might consider just adding a little cushion to the Waimea SY number and monitoring it. “[I]t seems like if you’re close to over-pumping in one area, you don’t want to pump more because it might not be a sustainable number,” she said.

Hardy acknowledged that was a concern, but cited data provided in 2015 by hydrologist Tom Nance that indicates the proposed 16 mgd sustainable yield for Waimea did not take into account about 10 mgd of possible recharge from the Kohala mountains.

Case then asked whether the merger proposal originated with CWRM staff or was a request from the county or developers.

Hardy replied that others had proposed to modify the aquifer boundaries, “but the justification for that is ... it’s an opinion. CWRM has combined aquifers in the past.” In 1993, to address similar concerns, the Ewa and Kunia aquifer boundaries on O‘ahu were combined, as were the Waipahu and Waiawa aquifer boundaries, a commission report states.

At its July meeting, the Water Commission was asked to approve the WRRP update, which maintained the 16 mgd SY for Waimea and a 30 mgd SY for 'Anaeho'omalu.

However, a two-sentence footnote in the plan indicates that commission staff is “considering amending the boundaries of the Mahukona, Waimea, and ‘Anaeho‘omalu Aquifer System Areas based on observed behavior of existing wells within those areas. Changes in boundary conditions amongst

these areas will affect and change recharge analysis and quantities; therefore, the SY estimates in this version of the plan are preliminary until further confirmation.”

While the staff submittal to the commission did not ask for an immediate decision on the boundary merger, it included as background information comment letters on the draft plan from hydrologists and the Hawai'i County Department of Water Supply (DWS) that supported the boundary merger.

In a March letter, the DWS asked the commission to refrain from reducing the Waimea aquifer's sustainable yield to 16 until the aquifer boundary changes are ready to be adopted. "DWS believes that adopting new SY numbers without incorporating potential boundary changes at the same time could result in an unnecessarily misleading outlook on resource capacity and that it would be better to include all the pertinent information available to provide the most accurate determinations for sustainable yield," wrote the department's manager and chief engineer Keith Okamoto.

Don Thomas of the Hawai'i Institute of Geophysics and Planetology stated in a May 12 comment on the plan that results of a drilling project in the Humu'ula Saddle of the island, between Mauna Loa and Mauna Kea, have led him to believe that the boundary line between the Waimea and 'Anaeho'omalu aquifers doesn't serve its intended purpose. "I ... am strongly of the opinion that water flow across currently designated aquifer boundaries is far more common than has been generally recognized: this would include the

Kohala/Waimea aquifer boundary as well as the 'Anaeho'omalū/Hualalai boundary and many others where aquifer boundaries reflect the intersection of volcanic deposits of younger volcanoes covering their older sister volcanoes," he wrote.

At the July meeting, Beamer said he thought it would be premature to vote on any aquifer boundary changes given the short briefing at the commission's previous meeting. Commission staffer Lenore Ohye assured him that any changes to the sustainable yields for either aquifer would be done in a separate action.

The commission unanimously approved the plan, with a few amendments not related to the proposed aquifer merger. A hearing on that proposal, however, was scheduled for October 3 in Waimea. Commission staff set a deadline for public comments of November 3, and planned to bring the matter to the commission for decision making on December 17.



Sparse Reporting

Water Commission staff can tell a lot about the health of aquifers from deep monitoring wells, which allow for the tracking of water and chloride levels. But knowing how much water is actually being pumped from an aquifer helps managers understand what's going on underground, as well. What's more, "when actual ground water withdrawals or authorized planned uses may cause the maximum rate of withdrawal to exceed 90 percent of the aquifer's

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sustainable yield, CWRM may designate the area as a water management area and regulate water use through the issuance of water use permits," the WRPP states.

The commission, however, has never had a good grasp of how much water is actually being pumped from wells throughout the state, even though well owners and operators are required to provide pumping data to the Water Commission.

A chart in the plan shows that groundwater use is well below the sustainable yields of each major island, but that conclusion is based mainly on reported pumpage. And according to the plan, only 46.4 percent of well owners or operators comply with the requirement to report their monthly water use. Of the 2,699 production wells statewide, the commission has water use reports for only 1,251 of them.

Still, county water departments are able to provide considerable information on groundwater use. Data on surface water, however, is lacking, the plan states.

Owners and/or operators of stream diversions are also required to report their monthly water use, but often don't. The only surface water use data in the plan is a 12-month moving average for 2016 for each island, and it clearly does not reflect what's actually being diverted from streams. Reported surface water use for Moloka'i, for example, was zero. But according to a petition filed with the commission in July

by Earthjustice, on behalf of Moloka'i No Ka Heke, Moloka'i Ranch diverts about a half-million gallons of water a day from four streams on the island.

The petition estimates the ranch could have accrued more than \$23 million in fines for failing for more than a decade to report its water use.

The WRPP suggests a number of ways the commission can improve reporting, including the use of the Civil Resource Violation System established for the Department of Land and Natural Resources, to which the commission is administratively attached.



Wet Water For DHHL

In its deliberations on whether to approve the WRPP update, Jonathan Scheuer, a consultant for the Department of Hawaiian Home Lands (DHHL), asked the commission to ensure that the plan explain how the department's water reservations will be developed, since it is "the keystone document" in the Hawai'i Water Plan.

Under state law, the DHHL is allowed to reserve water in systems under the Water Commission's jurisdiction to meet the needs of its beneficiaries. To date, the department has reservations totaling nearly 30 million gallons a day across more than two dozen hydrologic units statewide. The vast majority of those reservations were made in September 2018.

But DHHL officials and representatives, including Scheuer, have complained in recent years that they have improperly faced resistance from government agencies when trying to make use of its reservations. Rather than treating the DHHL like any other municipal customer and providing water through county water systems, some county water departments believe the DHHL should develop its own water.

The updated WRPP presented to the commission did state that existing and

future needs of DHHL protected through water reservations, as well as those identified in the State Water Projects Plan (SWPP), "must be incorporated and recognized in the components of the Hawai'i Water Plan. Additional reservations for DHHL are planned based on the 2017 SWPP future demands." And the Water Use and Development Plans (WUDP) prepared by each county are also components of the Hawai'i Water Plan.

Even so, Scheuer wanted the plans to include more direction from the commission. The county water plans need to agree with the WRPP, and "it's not enough for Water Use and Development Plans to say DHHL has this reservation," he said, arguing that the plan must also explain how those reservations will be developed.

He said he understood that the commission was treating the WRPP as a living document that could be amended at any time. However, he added, "we don't have a sense of what the triggers are," which is worrisome since it took ten years to update the plan.

Commission deputy director Lenore Ohye suggested that it might be more appropriate to include the kind of language Scheuer was asking for in the commission's framework for updating the Hawai'i Water Plan, rather than in the WRPP.

However it's done, Scheuer told the commission, "Counties are subdivisions of state. Just as every other state agency is obligated to help fulfill the Hawaiian Homes Commission Act, counties are as well."

"Getting from paper water to wet water is part of the public trust. It's about us setting policies to enable that," commissioner Kamana Beamer added.

"That's a big statement. Certainly bigger than this meeting," commission chair Suzanne Case said. Some commissioners also expressed skepticism about the duties being ascribed to them. Still, Case said the Department of Land and Natural Resources, which she also heads, is trying to do what it can to facilitate delivery of water to the DHHL. "I do support that. ... How it fits into the legal framework is a bigger discussion," she said.

—T.D.

Island	Total # of Production Wells	# Production Wells Reporting
Kaua'i	288	139
O'ahu	818	491
Moloka'i	89	40
Lana'i	10	10
Maui	567	240
Hawai'i	927	331
TOTAL	2,699	1,251