

Sandbagged!

It's been two decades since homeowners on the north shore of Kaua'i installed a sandbag reverment to protect their lots from coastal erosion.

Last year, the county decided to stop extending the emergency permit issued at the time of installation and forced the owners to obtain a certified shoreline, which is necessary if they hope to ever get the revetment properly permitted.

The state's finding that the structure lies entirely on the public beach, however, has halted all progress. More than a year later, the landowners' appeal is still pending.

We know that these agencies are dealing with many pressing issues. But the presence of an "emergency" revetment some 20 years after it was erected undermines whatever confidence the public may have that institutions tasked with protecting coastal access and public beaches are living up to their responsibilities.

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Whatever Happened To ... The Ha'ena Sandbag Revetment?



In short, it's still there, blanketed in naupaka, just as the abutting landowners want it to be. Efforts to clean up the legal morass surrounding its existence are in limbo.

In August 2015, Environment Hawai'i published a cover story on the apparent lack of state and county enforcement regarding what was supposed to have been a temporary, emergency sandbag revetment installed at Ha'ena, Kaua'i, two decades ago. The revetment had been put in place after large ocean swells ripped away coconut trees and chunks of lawn, creating a steep cliff across the seaward edges of several properties.

A couple of weeks after our story came out, and eight months after the county Planning Department rejected a request from the landowners for yet another time extension on their emergency Special Management Area (SMA) use permit covering the structure, the agency levied fines against the owners of the five lots for violating the permit's conditions.

It's unknown exactly which conditions those were or how much the county fined the owners, since Planning Department staff have failed to respond to our repeated document requests by press time. But it's likely Condition 6 was one of them. It states: "Should the applicant determine that the current measures are to be permanent, an application shall be submitted for SMA and Shoreline Setback Variance Permits through the normal permitting process."

The landowners indicated as early as June 2014 that they wanted the revetment to be permanent but had not applied to the department for any such permits more than

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The sandbag revetment in Ha'ena, Kaua'i as of last month is nearly buried in naupaka.

PHOTOS: CAREN DIAMOND

NEW AND NOTEWORTHY

American Samoa Wins: The government of American Samoa has prevailed in a federal court challenge to the National Marine Fisheries Service and Western Pacific Fishery Management Council executive director Kitty Simonds, among others. The case involved the decision by the council, endorsed by NMFS, to open up nearshore waters of the territory to fishing by longline vessels.

The waters around the territory out to 50 nautical miles had been closed to the larger fishing vessels since 2002, in an effort to reduce any competition and conflict between the smaller fishing boats owned by local residents and the much larger vessels.

But when the longliners experienced reduced catches, increased fuel costs, and overall lower revenues, in 2014, the council voted to open up most of the closed area to the larger vessels. NMFS published a final rule in 2016 that effectuated the action.

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At once, the territory sued, claiming that NMFS did not consider the 1900 and 1904 Deeds of Cession that protected the cultural fishing rights of the people of American Samo?

In March of this year, U.S. District Judge Leslie E. Kobayashi found in favor of American Samoa's claim, declared the rule to be invalid and, what's more, found that NMFS' adoption of it was "arbitrary and capricious." NMFS asked the judge to reconsider, but the court denied the motion on August 10.

On September 20, NMFS published notice in the Federal Register, vacating the 2016 rule in accordance with the judge's order. (For details, see the "New & Noteworthy" item in our June 2016 issue.)

'Futless': That's how Board of Land and Natural Resources member Chris Yuen described his mood last month when the Department of Land and Natural Resources' Land Division requested, yet again, that the board renew a revocable permit (RP) for an area known as the Waiea Tract to McCandless Ranch for pasture use on Hawai'i island.

Last year, when the board faced intense media scrutiny for annually renewing revocable permits — for decades, in some cases — without really evaluating them, it established a task force to examine the problem and has taken various steps to do a better job. But in the case of the McCandless permit, it seems even permits that board members have repeatedly scrutinized remain largely unchanged.

Quote of the Month

"The issue here is whether the protection of public trust stream resources can be jettisoned based upon speculative future offstream uses."

 Isaac Hall, attorney for the Maui Tomorrow Foundation The 1,258-acres covered by the permit was "high quality native forest" that is not supposed to be grazed, Yuen said. He added that he had raised the same point when the division brought the permit to the board for renewal last year, and his concerns date back to when he served on the board in the 1990s.

"I made a motion and it passed, this would not be for pasture use. ... It was supposed to be converted to an RP for access only. I was disappointed and surprised when I come back on the board and it's still for pasture use," he told division administrator Russell Tsuji. Tsuji noted that even though the permit title indicated it was for pasture use, the permit itself states it's for access only.

Even so, Yuen pointed out the division's own spreadsheet states the RP is "to be converted to access only or an access easement."

"I'm huhu this can't get changed in all these years... I'm the one that's asking for it," he said.

The board chose to withdraw the permit from the list of others to be renewed.

A clarification and a correction: In our September cover story, "Arbiter in Maui Water Case Gives Weight to A&B's Tentative Diversified Ag Plan," we stated that the contested case hearing officer in a matter before the Commission on Water Resource Management had found that Hawaiian Commercial & Sugar Co.'s projected water uses for its Central Maui fields were "reasonable and beneficial." Although his proposed decision suggested that's what he meant to do, and at least one attorney for a party to the case seemed to agree that he had done that, attorneys with the Native Hawaiian Legal Corporation pointed out in recent case filings that he did not actually use the words "reasonable and beneficial"—a legal standard for water uses — in describing HC&S's proposals, as he did in a previous iteration of his recommendations.

We also mistakenly included an 'okina in Aupuni (as in Na Moku Aupuni O Ko'olau Hui, the name of the petitioner in this case). We sincerely regret the error.



A school of yellow tang, a species targeted by aquarium fish collectors.

Supreme Court Definitively Rejects Lower Court Rulings in Aquarium Case

Scathing. That may be the single best word to describe the Hawaii Supreme Court's characterization of arguments put forward by the Department of Land and Natural Resources in defense of the department's position that the commercial collection of aquarium fish does not require it to undertake an environmental review. Nor did the court have much positive to say about the lower court rulings that agreed with the department.

The high court's unanimous ruling, published on September 6, overturns the decisions of the 1st Circuit Court and Intermediate Court of Appeals in a case that was first filed five years ago. In a 73-page opinion, it found unequivocally that the DLNR's system of permitting aquarium fish collectors meets the definition of an action that required compliance with the Hawai'i Environmental Policy Act (HEPA), Chapter 343 of Hawai'i Revised Statutes.

In remanding the case back to the Circuit Court, the justices instructed it "to grant petitioners' summary judgment motion to the extent that petitioners are requesting declaratory relief and a prohibitory injunction as to commercial aquarium collection permits issued under [Hawai'i statute] and DLNR's administrative rules." In other words, the lower court must now enjoin all commercial aquarium collection.

Also at issue in the lawsuit was the

question of whether recreational aquarium collection permits would need to undergo the same level of review. On that question, the Supreme Court punted, tossing it back to the Circuit Court to determine in further proceedings "consistent with this opinion."

The Players

The challenge to aquarium fish collection was brought on October 24, 2012. Petitioners were four individuals (Rene Umberger, Mike Nakachi, Kaʻimi Kaupiko, and Willie Kaupiko), and three nonprofit organizations (the Conservation Council for Hawaiʻi, the Humane Society of the United States, and the Center for Biological Diversity). Representing them were Paul Achitoff and Summer Kupau-Odo of the environmental law firm Earthjustice.

Under the DLNR permit system, commercial aquarium collectors are allowed to take an unlimited number of marine animals each year. The only requirement imposed on them by the DLNR is that they show they have the means to keep the collected animals alive and pay a nominal fee. Recreational permit holders may take up to 1,825 animals a year.

The DLNR had established a web-based system for issuance of collection permits that removed any discretion from the permit-granting process, as Alton Miya-

saka, of the DLNR's Division of Aquatic Resources, described in court filings. "Miyasaka averred that '[a]nyone who applies for a permit ... and who goes through the [online filing] process receives a permit," the court noted. The department "does not have and does not exercise discretion with respect to the permits," the court quoted Miyasaka as saying.

And because no discretion was involved in issuing the permits, the DLNR argued, there was no agency action initiated by an applicant that required agency approval. Without that "applicant action," the state said, there was no trigger for environmental review.

The Circuit Court agreed and granted the state's motion for summary judgment.

The lower court judgment was entered in June 2013 and less than a month later, an appeal had been filed with the Intermediate Court of Appeals.

The ICA Decision

According to the decision reached by the three judges of the Intermediate Court of Appeals, the dispute before it "concerns whether DLNR must require each applicant for an aquarium fish permit to comply with the environmental review procedures set forth [in Chapter 343] before DLNR issues a permit."

By describing it in this way, the onus for preparing an environmental disclosure document fell not to the department, but to the individual applicant – a prospect that, the court argued, was unrealistic.

In its analysis, the ICA looked at what constituted an "action" under Chapter 343, which defines action as "any program or project to be initiated by any agency or applicant."

"The issue of whether aquarium collection pursuant to a DLNR-issued permit constitutes a program or project is a question of statutory interpretation," the ICA found, noting that the law itself did not define these two terms. The ICA went on to review a number of past Supreme Court cases involving questions of the applicability of Chapter 343 to various developments and undertakings around the state.

"The projects or programs described in these cases ... exemplify the essential nature of HEPA's intended reach and ... the definition of 'action' as 'any program or project' – as opposed to, for example, 'any activity whatsoever' – reflects that not every level of regulated activity is meant to be swept into HEPA's reach," the ICA found. These cases identified projects, it continued, that "stand

in stark contrast to the activity of aquarium fish collection ... which includes a parent netting one or two fish from a stream for his or her child's fish tank, as well as larger scale commercial operations. It would be unprecedented to apply HEPA to require individual Hawai'i citizens to undertake the EA process for such an activity."

In any event, the ICA continued, a "panoply of other regulatory tools" exists to regulate the taking of aquarium fish. The DLNR, for example, could impose limits on the length and height of small mesh nets and bag limits, could ban the take of certain species or set size limits. "Hawai'i law provides DLNR with numerous powers and duties to manage aquatic life and resources, comprehensively and systemically, rather than based on a separate environmental review for each fishing permit or license," the ICA wrote.

One key point of the DLNR's argument was, however, clearly rejected by the ICA: its claim that, because it had automated the award of aquarium collection permits through an online process, it no longer had any discretion over them.

"[B]y its plain language," the ICA wrote, Section 188-31 of Hawai'i Revised Statutes "gives DLNR discretionary authority over whether to approve a[n] aquarium fish permit." The online form "is simply the means by which DLNR has determined to exercise its discretion.... Accordingly, we reject DLNR's argument that a lack of discretionary approval provides a separate ground for denying appellants' requested relief."

The High Court

Undaunted, the plaintiffs appealed the ICA decision to the state Supreme Court. In its order last month, the high court was unsparing in its criticism of the analyses provided by the lower courts.

It took exception to the determination that the action was not a "program" or "project" and rejected the ICA's statement that aquarium collection "includes a parent netting one or two fish from a stream ... as well as larger scale commercial operations."

The "defined activity authorized under an aquarium collection permit," the justices found, involved at least four components: "the extraction of an unlimited number of fish or other aquatic life for profit or other gains ... or of 1,825 fish or other aquatic life for non-commercial purposes (in the case of recreational aquarium collection);" doing so by using "fine meshed nets or traps;" by persons who can "satisfy DLNR that they

possess facilities" to keep the aquatic life alive; and with the intention of holding the captured animals as pets, as subjects of scientific study, for public exhibition, or for sale for these purposes.

As such, the actions allowed under the permits and the administrative scheme adopted by the DLNR "encompass activity that qualifies as a 'program' or 'project," the Supreme Court found. "The activity is a 'specific plan' or 'a planned undertaking' – and, therefore, a 'project'—because it involves the systematic and deliberate extraction of aquatic life using procedures, equipment, facilities, and techniques authorized or required by [statute] and related administrative rules..."

The justices took note of the ICA's effort to determine whether aquarium collection was subject to HEPA review by comparing it to other activities at issue in previous court cases involving HEPA. They faulted the ICA for doing so, noting that "the class of activities and courses of action that HEPA covers is broad so as to successfully effectuate the intent and purpose of the statutory scheme. Additionally, there has been no HEPA case in which this court determined whether an activity is a HEPA 'action' by evaluating its similarity to the challenged activities in other HEPA cases. Doing so would unreasonably delimit HEPA's application in a manner inconsistent with its purpose."

The Supreme Court similarly had few kind words for the ICA's reductio ad absurdum argument that if it found commercial aquarium collection was subject to HEPA, then parents collecting one or two fish for a home aquarium would have to do a HEPA analysis as well. "This analysis is flawed because the properly defined activity for the purposes of the HEPA analysis must encompass the outer limits of what the permits allow and not only the most restrictive hypothetical manner in which the permits may be used," the justices wrote. In any event, "a parent netting one or two fish for a home aquarium may not even be within the ambit of [Hawai'i Revised Statutes Section 188-31] because aquarium collection permits are required only if the applicant intends 'to use fine meshed traps, or fine meshed nets other than throw nets...." Thus, the netting of one or two fish wouldn't even qualify as aquarium collection under the DLNR's rules, the court noted.

And if that didn't put paid to the matter, the justices added this: "Lastly, the situation postulated by the ICA – a parent netting one or two fish or other aquatic life

for recreational purposes – is not present in this case and DLNR's own evidence in fact showed that, from 1999 to 2010, millions of aquatic life were harvested under aquarium collection permits" issued by the department. (Finally, in a footnote, they wrote: "Petitioners also emphasize in their application for writ of certiorari that this scenario is not part of the record in this case.")

As to the ICA's statement that the DLNR had other means apart from Chapter 343 compliance to regulate aquarium collection, the Supreme Court justices noted that this contradicts positions staked out by the ICA itself in other cases: "As the ICA itself recognized in 'Ohana Pale Ke Ao v. Board of Agriculture, ... where HEPA overlaps and is consistent with another chapter of the HRS, both would be given effect."

If other laws and rules that appear to bear upon the environmental effects of an activity "would exclude the activity from HEPA's purview," the justices went on to say, "then this would frustrate HEPA's purpose of requiring agencies to appropriately consider environmental concerns in their decision-making process."

"In other words," they continued, "under the ICA's analysis, an agency would be able to bypass the protections provided through HEPA by promulgating administrative rules that appear to address or bear upon the possible environmental effects of an activity that the agency regulates without actually engaging in the informed and deliberate decision-making process that HEPA requires."

The justices went on to find that aquarium collection involves the use of state lands and the use of the state Conservation District, pulling two of the triggers for Chapter 343 analysis.

Finally, they analyzed whether the activity could conceivably be considered exempt. To be exempt, an activity must be determined to "probably have minimal or no significant effects on the environment," they wrote, quoting the Environmental Council's administrative rules. "The most relevant exemption—'[m]inor alterations in the conditions of land, water, or vegetation'—… has no application because a permit for extraction of an unlimited number of aquatic life cannot be said to constitute only a '[m]inor alteration' in the condition of state waters and submerged lands."

The determination as to the potential exemption of recreational collection was not as clear in the justices' opinion, and so this was remanded to the Circuit Court, "using the analytical framework discussed herein."

— Patricia Tummons

Fish Collectors, Claiming Property Rights, Now Ask Court to Let Them Intervene

Five years after the Department of Land and Natural Resources was sued over its practice of indiscriminately awarding permits for aquarium fish collection, four years after the lower court ruling was challenged in the Intermediate Court of Appeals, and more than a year after the case was brought before the state Supreme Court, a group representing the interests of commercial aquarium fish collectors is only now wanting to intervene to protect what it says are the rights of its members.

The group, the Pet Industry Joint Advisory Council, jumped into the fray on September 12, when it filed a motion to be granted status as an intervenor-defendant. The filing was made just six days after the Supreme Court remanded the case back to the Circuit Court.

Under instructions from the Supreme Court, the lower court is to enjoin all commercial aquarium fish collection pending the DLNR's compliance with the state's environmental review law and also is to determine whether recreational as well as commercial aquarium collectors should be subject to the injunction.

The deputy attorney general representing the DLNR, William Wynhoff, has filed a motion supporting the intervention.

Attorney Summer Kupau-Odo, with the Earthjustice law firm representing the plaintiffs, has filed a motion in opposition. "The Supreme Court remanded the case for entry of that injunction and we're working to expedite that," she told *Environment Hawai'i*. As to the Pet Industry council's efforts to intervene at this late date, she said: "The circuit court cannot review or alter the Supreme Court ruling. Their [the industry's] intervention is moot. Aside from that, it's too late."

A hearing on the motions was scheduled for October 1 before Circuit Judge Jeffrey P. Crabtree.

'A Constitutional Property Interest'

In its motion, the pet industry council argued that the current permit holders who would be affected by an injunction have a property interest in their permits and that to suspend them, even temporarily, would deprive them of their constitutional rights to due process. Representing the organization is the law firm of K&L Gates (among

its other clients is the Hawai'i Longline Association).

The group describes itself as a trade organization for the pet industry "whose members includes Hawai'i fishers who currently hold aquarium collection permits issued" by the DLNR. According to its motion, "the council seeks to intervene in this action to [sic] as a party interested in the pet industry generally, in the ability of Hawai'i fishers to continue to collect aquarium fish under their existing permits, and specifically to preserve the continued validity of its members' already-issued aquarium collection permits, and its members right to renewal of those permits during the remedy phase of this litigation."

Although the Supreme Court instructed the Circuit Court to issue an injunction against further commercial aquarium collection, the council argues that the lower court has discretion to determine the scope of the injunction. "While the Supreme Court determined that the issuance of commercial aquarium collection permits is an action that requires HEPA review and that some form of injunctive relief is appropriate, it did not and could not, issue an order as to the scope of any such relief," it argued.

A broad injunction "will have a profound economic affect on all permit holders, none of whom were sued by plaintiffs and none of whom have previously participated in this action, even those plaintiffs specifically identified in their complaint. In short, if relief is shaped and ordered without the participation of the intervenor, the voices of the pet industry generally and the very commercial permit holders whose permits have been challenged by plaintiffs will not be heard despite the profound potential impact of these proceedings. Current permit holders have a constitutional property interest in the permits that have already been issued, the temporary enjoining of which would require individual due process notice and opportunity to be heard prior to revocation," it stated.

As to the delay in its involvement in the case, the council argues that involvement at this point is indeed timely. "Timeliness of a motion to intervene is determined by looking at the totality of the circumstances," wrote K&L Gates attorney Geoffrey M. Davis. In this instance, he added, "the council seeks to intervene with respect to the remedy

portion of this case...; the council does not seek to relitigate the merits of the issues decided by the Supreme Court."

The motion argues that the commercial aquarium permit holders represented by the council have "existing, legally cognizable property interest in, and a right to the use and renewal of those permits."

"The time it takes for DLNR to conduct such a HEPA review is far from certain. In the meantime, if plaintiffs' requested relief is granted, current holders of commercial collection permits [would be prevented] from collecting pursuant to those permits, potentially destroying their businesses. Moreover, permit holders whose permits are set to expire would be unable to renew their permits, again potentially destroying longstanding businesses in which individuals and Hawai'i families have invested over many years," Davis argued.

Responses

On September 15, deputy attorney general Wynhoff filed a short (less than two-page) memorandum supporting the council's intervention. "This case ... presents issues of major importance that affect personal, financial, and philosophical interests and concerns of many Hawai'i citizens," he wrote. "The state does NOT agree with all of intervenor's arguments," he continued. "But the state supports intervenor's right to have those arguments fully and fairly considered by this court."

The plaintiffs' response to the motion to intervene was not as sympathetic as the state's and, at 16 pages (excluding attachments) was far more expansive.

"Almost five years after this lawsuit was filed ... Pet Industry Joint Advisory Council seeks to intervene as a defendant to interject defenses irrelevant to the matters the Supreme Court directed this court to address on remand," wrote Kupau-Oda. "Now that a substantial remedy plaintiffs requested — a prohibitory injunction enjoining commercial aquarium collection — is about to take effect, PIJAC raises purported due process claims to challenge the injunction's application to existing commercial permits."

The motion to intervene now "would be pointless," she argued, "as this court is not authorized to hold further proceedings addressing commercial aquarium collection – it cannot afford PIJAC the relief it seeks."

"At bottom, PIJAC's motion to intervene is a backdoor challenge to the Supreme Court's decision, which this court legally cannot change," she wrote. — *P.T.*

Ha'ena Sandbag Revetment from page 1

a year afterward.

Another condition that may have been violated is Condition 2, which prohibits the revetment from extending beyond the shoreline as defined in Hawai'i Revised Statutes, Chapter 205A. Under that law, the shoreline is defined as the reach of the highest wash of the waves, other than storm and seismic waves, at high tide during the season when the highest wash of the waves occurs, "usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves."

Regardless of what conditions the Planning Department found to have been violated, the landowners' attorney, Randy Vitousek, contested the fines and quickly convinced the department to not only agree to a settlement and compliance plan, but to also walk back its earlier refusal to extend the emergency SMA use permit.

Marching Orders

In a September 30, 2015, letter to Vitousek, Planning Department director Michael Dahilig wrote that his agency agreed "in principle that SMA Use Permit, (E)-97-03 be considered active to date."

Dahilig continued that the department also conceptually agreed to the context and timeline laid out in a compliance plan Vitousek had offered on behalf of his clients, Norman and Melissa Neal; Matthew and Judith Malerich; the Carroll-Downs Family Trust; Zibo, LLC; and Ohanahale, LLC. Dahilig noted that the timeline and permitting path depend on when and whether the landowners obtain a certified shoreline from the state Department of Land and Natural Resources (DLNR).

The Planning Department, Dahilig added, agreed to hold off on imposing the fines unless the applicants "fail to reasonably perform pursuant to the agreed upon compliance plan concerning actions under their direct control (e.g. applying for permits within a certain time)."

Perhaps anticipating a need at some point to obtain a Conservation District Use Permit (CDUP) and/or an easement from the Board of Land and Natural Resources for any portion of the revetment that may now, after 20 years, lie within the public beach area, Vitousek had apparently sought confirmation that the revetment had been legally built. Under state law, the chairperson of the DLNR cannot certify the shoreline when an unauthorized improvement encroaches on state land or



These photos showing the landowners' proposed shoreline were submitted by surveyor Brian Hennessy as part of their shoreline certification application.

interferes with natural shoreline processes. In his letter, Dahilig confirmed that the revetment "is considered conforming" at the time the emergency permit was issued in 1996. However, he added, "As you are aware, shorelines are subject to erosion and a shoreline certification is required for any proposed development." That being the case, he stated that the landowners' proposal to leave the revetment in place would require a new certified shoreline, "current to within six months of any permit application."

Whether the landowners need an SMA use permit, a CDUP, or both may depend on where the shoreline is determined to lie. Anything seaward of the shoreline will likely require a CDUP as well as an easement from the state. (It should be noted that in 2008, the DLNR certified the shoreline for one of the Ha'ena lots involved to lie at the top of the revetment, rather than at its toe. It did the same for another parcel in 2010. While the DLNR has sought and received fines for violations of Conservation District rules based on less, and has charged landowners thousands of dollars for easements to cover exactly this type of shoreline encroachment, its Office of Conservation and Coastal Lands and Land Division have chosen to hang back in this case following a 2008 letter from the county asserting that the 1996 emergency SMA and shoreline setback variance permits were still in effect.)

Dahilig required the landowners to apply for a certified shoreline within 60 days of his letter, which they did. Despite the 2008 and 2010 determinations that the shoreline was located above the revetment, they asserted in their application that the shoreline was located about 20 feet seaward, at the revetment's toe.

Digging In

On March 2, 2016, DLNR shoreline specialist Andy Bohlander and state land surveyor Reid Siarot — accompanied by some of the landowners, their surveyor Brian Hennessy, Planning Department staff, and concerned citizens Caren Diamond and Beau Blair — set out to identify any physical evidence of the shoreline. "Historical certified shorelines were also reviewed," Siarot stated in an August 12, 2016, letter to Land Division administrator Russell Tsuji.

"Considering both current and historical evidence, the shoreline for certification was determined to be a combination of the top bank and shorelines certified on September 29, 2008, and December 23, 2010. Also, a geotextile sandbag revetment was identified on the makai side of the shoreline. The applicant's surveyor was instructed to revise the map and photos and to resolve the shoreline encroachment," he wrote. Hennessy never did so.

Because of the unresolved encroachment, Siarot stated that the shoreline could not be certified by the deadline of September 17, 2016, and recommended that Tsuji reject the application, which he did.

A month later, Vitousek appealed the rejection on behalf of the landowners, arguing that it was erroneous under Hawai'i Administrative Rule (HAR) 13-222-16 and Hawai'i Revised Statutes sections 205A-41 and 42.

HAR 13-222-16 does not dictate where the shoreline should be set. It states only that when the shoreline is located at a revertment, the toe "shall be marked and identified on the map."

HRS 205A-41 includes definitions of several terms, including "shoreline area," which includes all land between the shoreline and the shoreline setback line "and may include the area between mean sea level and the shoreline, provided that if the highest annual wash of the waves is fixed or significantly affected by a structure that has not received all permits and approvals required by law or if any part of any structure in violation of this part extends seaward of the shoreline, then the term 'shoreline area' shall include the entire structure."

HRS \$205A-42 describes how the Land Board must adopt rules prescribing procedures for shoreline determination and appeals, "provided that no determination of a shoreline shall be valid for a period longer than twelve months, except where the shoreline is fixed by artificial structures that have been approved by appropriate government agencies and for which engineering drawings exist to locate the interface between the shoreline and the structure."

Vitousek pointed out that the county and DLNR gave their permission to install the emergency structure and that the county, through Dahilig's latest letter, had confirmed that the county permit, at least, was still active.

"The sandbag revetment is a legal, permitted structure and the shoreline is properly located at the toe of the revetment [which] fixed and established the shoreline," he wrote.

Divergent Views

For many years, the DLNR used to simply set the shoreline at the seaward edge of a seawall, but it abandoned that practice in 2010 after consulting with the Department of the Attorney General (AG), according to the Land Division's Kevin Moore. "The position is based on case law and interpretation by the AG," he told the Land Board earlier this year.

Now, the department takes into account all evidence of the highest wash of the waves, regardless of whether a seawall or revetment blocks the sea directly in front of it. The result has often been that the shoreline is determined to be behind or partway up the structure. In those cases, the Land Division usually seeks Land Board approval for non-exclusive easements for the structures, so long as they were legally built.

Although the shoreline certification process was never intended to also determine property boundaries, court decisions over the years seem to have led the department to use the information gathered through that process to assert state ownership of lands extending seaward of the shoreline.

Vitousek testified to the Land Board earlier this year that the department's approach was flawed.

"There is a process to determine a boundary. It's different from certifying a shoreline," he said, arguing that the state should have to prove that it owns the land below the shoreline in a land court proceeding or some other proceeding.

"Right now, when there's a sloped sea-

wall, if the water splashes part-way up the wall, they require an easement for the part of the wall that's seaward. ... The county doesn't like that," he said before urging the Land Board to address this situation.

To this, the Land Division's Tsuji reminded the board, "the shoreline certification rules are clear: if we can't resolve [an encroachment], we can't move the shoreline certification process forward."

Board member Chris Yuen acknowledged that some type of legal action may be required to change property boundaries, but added, "from staff's position, they feel obligated to do something about [encroachments]. The path of least resistance is to agree to settle this encroachment. ... It would be possible for the state to turn its back on this encroachment. It's not what they want to do."

Vitousek wasn't buying it.

"If you use an easement, you're conceding someone else owns the land, ... that their boundary has been surrendered just based on a shoreline certification. ... There's tremendous creep of how far shorelines go," he said. Perhaps alluding to his clients' situation, he then suggested that if the state can certify a shoreline at the bottom of a wall (or the toe of a revetment, in this case), the state could enter into an encroachment agreement with the landowner, rather than require an easement.

"Generally, if you have a boundary dispute with your neighbor, you have to go to court," he said.

Over the past several years, the DLNR has charged landowners thousands of dollars - sometimes tens or hundreds of thousands of dollars — for shoreline encroachment easements. For a structure the size of the sandbag revetment in Ha'ena, the market value of an easement could easily be hundreds of thousands of dollars, given that the five abutting properties have a total market value of nearly \$12 million. Despite Vitousek's suggestions to the Land Board, it seems doubtful that the state can simply choose to revert to past practice and set the shoreline at the toe given the physical evidence that the high wash of the waves extends past it.

Diamond says that at the state's site visit to the structure in March 2016, there were signs of "a really large swell that had just washed to the top of that. ... It was really clear."

She added that surfers and lifeguards have reported seeing loose sandbags in the water and that she has photos of that as well.

In an April 2015 letter, Diamond and

Ha'ena resident Chipper Wichman pleaded with the DNLR to have the revetment removed, as "it was never intended to be a structure that would be kept in place for nearly two decades." They claimed that the sandbags were compromising the integrity of the beach dune, the nearshore marine environment and the county's nearby beach park, and they included photos of the revetment blocking lateral public access. They also argued that all of the current owners were aware of the erosion problem when they bought their properties.

The two homes built on shoreline setbacks that were based on shorelines set at the top of the revetment sit far enough away from the ocean that they shouldn't experience any problems if the revetment is removed, Diamond told *Environment Hawai'i*. She added that at least one of the older homes is "really small" and could be moved inland. "Things can be moved back, as long as it's done before an emergency," she said.

"The one house that has been there since 1958, it's a concrete house. ... I don't see it going anywhere," she said, suggesting that the state could condemn it.

"Pay people fair market value. It shouldn't be that high if there's such an erosion problem," she said.

She added that the DLNR's Office of Conservation and Coastal Land has indicated that it would support some sand pushing to protect the properties if the revetment is removed.

"It gives them a little protection. That seems like some middle ground," she said.

Whatever path the landowners or government agencies take will depend in large part on where the shoreline is ultimately determined to be. It's been more than a year since Vitousek appealed the rejection of his shoreline certification application. Land Division staff has said there is no deadline by which the DLNR must respond. The agency's rules only state that once the Land Board chairperson determines that the appellant has standing, a briefing schedule must be set. Once all briefs are received, the board or chairperson must make a decision within 60 days. If that doesn't happen, the appeal is deemed denied.

The Land Division's Ian Hirokawa said that given his department's backlog of appeals, he had no idea when an order might go out to determine standing and a briefing schedule.

(For more on this, see our August 2015 issue, available at www.environment-hawaii. org.) — *Teresa Dawson*

Revised Shoreline Setback Ordinance Is a Step Backward, Says Kaua'i Activist

id the 2014 amendments to Kaua'i County's shoreline setback ordinance weaken what was once considered to be one of the strongest laws of its kind in the state?

Unlike O'ahu, where shoreline setbacks are 40 feet from the certified shoreline, Kaua'i was an early adopter of the view that historical erosion rates should be considered when determining how far from the shoreline structures can be built. Whereas O'ahu's maximum shoreline setback distance is 40 feet, Kaua'i's minimum distance is 60 (in addition to 70 times the historical annual erosion rate).

But a few years ago, the county amended its ordinance, No. 979, to include exemptions allowing landowners to simply bypass the shoreline certification process altogether if they can persuade the Planning Director that their proposed improvements won't "affect beach processes, impact public beach access, or be affected by or contribute to coastal erosion or hazards, excluding natural disasters."

This, says Wainiha resident Caren Diamond, has opened the door to all kinds of shenanigans. After reviewing the dozens of exemption requests submitted to the county since the new ordinance went into effect, she's found that the Planning Department has denied only a couple of them. While the vast majority of the applications were for projects located 100 or more feet away from the estimated shoreline, a few have raised red flags.

In one case, a landowner received an exemption because the proposed work merely included repairs, even though Diamond said she has photos proving that the house itself lies well within the high wash of the waves.

"For years, we used this house to see debris lines. The ocean washes almost threequarters into the house. We had fabulous pictures. The house wasn't really set up on a good structure. The ocean is under that house," she said. But when the owners got an exemption for their repairs, "they rebuilt every single thing," and even added a deck, Diamond said.

"Half of that, especially the deck, is seaward of the shoreline," she said.

Basically, under the amended ordinance, "people are setting their own setbacks," she said, noting that applicants can simply write in how far from the shoreline their proposed improvements will be.

She expressed concerns about those projects where exemptions have been given for interior repairs or renovations, but then the landowners proceed to do much more than that.

"Interior repairs are not interior repairs. This other example that I found out here, they failed to get building permits ... They are re-footing an entire house. ... Nobody's really even checking," she said.

In another case, interior renovations for a Wainiha house located within an area estimated to be 45 feet from the shoreline received an exemption. In addition to whatever interior work had been done, she Hanalei Watershed Hui, and Carl Imparato, argued that the county ordinance conflicts with the state coastal zone management

The county lacks the statutory authority to exempt development from the state Coastal Zone Management Act, which "mandates that the development obtain a shoreline certification prior to determining a shoreline setback line," Bronstein wrote in an April 4 appeal.

Despite Bronstein's arguments, Diamond seemed to think some exemptions might be reasonable, especially for those properties that are located hundreds of feet away from the shoreline.

'A lot of these, sure, it seems fair enough to give exemptions for interior repairs or if they're really far back. When we're talking about 500 feet, there's leeway. ... There probably is some room for an exemption

"Interior repairs are not interior repairs. ... Nobody's really even checking." ."

— Caren Diamond

said the owner proceeded to build a rock wall and outdoor shower. With Diamond's prompting, the county inspected the site and later required the new improvements to be torn out.

She added that the property is a place that she and other public shoreline access advocates have used as an example of "very successful beachfront vegetative armoring."

"It has had really extensive armoring with naupaka and heliotropes," she said, noting that the Department of Land and Natural Resources (DLNR) had at one time forced the landowner to clear some of the vegetation, but it still remains.

"I was tracking the vegetation line over time. You could see it kept moving seaward, seaward, seaward. They said they have a 45 foot setback ...," she said.

Diamond said she's also keeping an eye on one Ha'ena property, owned by Fredrick Kleinbub, where the county has granted an exemption for interior repairs to a house located about 40 feet from the shoreline. "That one has a really definitive shoreline. At the moment, the beach is scarping there ... It remains to be seen whether he tries to armor it," she said.

To date, Diamond has tried to appeal two of the exemptions granted: one for the Wainiha renovations, and another for the Princeville Lodge development that had been proposed in Hanalei.

While neither appeal is still active, the one filed by attorney Harold Bronstein on behalf of Diamond, the Limu Coalition, the that's well founded, but not within the first 40 feet of the shoreline," she said.

Staff with the state Coastal Zone Management program could not say by press time whether or not Bronstein's argument holds water. Staff with the Department of Land and Natural Resources' Land Division, which processes easements for shoreline encroachments discovered during the shoreline certification process, notes that counties have always had the ability to waive shoreline setback requirements, including obtaining a certified shoreline. A formal opinion on the question Bronstein raised isn't likely to happen anytime soon, since the owner and developer of the Princeville project withdrew their shoreline certification application to allow the county to develop rules governing an appeals process for shoreline setback decisions.

In some of these exemption cases, a state shoreline survey might have revealed encroachments into public areas that could require a Conservation District Use Permit and/or an easement from the DLNR. In fact, in the case of the Princeville project, an exemption was specifically sought to avoid having to deal with a seawall that a May 2016 site inspection by state surveyors found to be seaward of the shoreline.

County planning director Michael Dahilig did not respond to questions by press time about Bronstein's arguments, how or whether the exemptions are being abused, and how the ability to grant exemptions has helped the Planning Department fulfill its duties.

New Stock Assessment Models Suggest Bigeye Tuna May No Longer Be Overfished

Every year, the Western and Central Pacific Fisheries Commission (WCPFC) holds its annual meeting in December mainly to hash out how to best manage tuna stocks that have been depleted over the years by purse seiners and longline vessels. With delegates often refusing to budge from positions that protect their countries' economic interests, it often happens that they struggle for days to reach agreements on how to best relieve the pressure on stocks that are overfished and/or subject to overfishing, only to have nothing to show for it by the meeting's end.

This year, there have been early indications that the participating commission members are still far apart on what they believe is the best way to manage the bigeye tuna stock targeted by Hawai'i's longline fleet. But, for now, the pressure to severely cut back on fishing effort may not be as great as it has been in the past.



Bigeye tuna at Honolulu fish auction.

At the WCPFC's Scientific Committee meeting held in the Cook Islands this past August, scientists with the Oceanic Fisheries Program of The Pacific Community released their most recent stock assessment for bigeye throughout the area of the commission's

jurisdiction. They found that in most of their computer model runs, the current spawning biomass of the stock appeared to have improved since the last stock assessment in 2014, which determined that the spawning biomass was merely 16 percent of what it is calculated to have been when the stock was unfished.

Although the stock was still more depleted than most other tuna stocks, the scientists wrote, when new growth rates were factored in, all models indicated that the spawning biomass was well above 20 percent of the unfished spawning biomass. That suggests that the stock is no longer overfished under the commission's definition, although it would still be subject to overfishing.

"If recommendations are to be made based solely on models with the new growth function, then the bigeye stock in the WCPO [Western and Central Pacific Ocean] appears not to be in an overfished state although several model runs are at the boundary of the designation of overfishing," they wrote.

However, if models with the older growth rates are considered, stock status estimates are less clear-cut, they continued. In addition to using newer growth rates, the scientists revised the way they evaluated fishing impacts by region. The older growth models, when combined with the new regional structure, yielded more optimistic results than when evaluated under the 2014 regional structure. In the former case, the estimated spawning biomass level would indicate that the stock is no longer overfished; in the latter, it would still be considered overfished.

"The 2017 regional structure led to significantly more optimistic results, which can be attributed to the model redistributing the stock biomass from the more heavily exploited equatorial regions to the northern temperate regions, which are less exploited. Consequently, the depletion trajectories for individual regions for the 2014 and 2017 regional structures are relatively similar among regions (higher in equatorial regions, lower in northern temperate regions), though because more of the population is assumed to be present in the northern regions under the 2017 regional structure, the net depletion estimated for the WCPO is lower," they wrote.

"Given the critical nature of the growth assumptions on the assessment, it may be worthwhile to consider further investment in research to improve the existing growth data set and its analysis," they wrote, suggesting that more work be done to improve age distribution estimates and to better characterize any regional differences in growth between the WCPO and the Eastern Pacific.

Finally, the scientists cautioned against simply assuming that the stock was no longer overfished based on the model results, especially given that bigeye recruitment spiked relatively recently.

"The significance of the recent high recruitment events and the progression of these fish to the spawning potential component of the stock are encouraging, although whether this is a result of management measures for the fishery or beneficial

environmental conditions is currently unclear," they wrote.

They pointed out that similar recruitment events have also been estimated for skipjack and yellowfin tuna in the region, and bigeye in the Eastern Pacific, "which may give weight to the favorable environmental conditions hypothesis. Whether these trends are maintained in coming years will help tease these factors apart and will likely provide more certainty about the future trajectories of the stock."

Bridging Measure

The WCPFC's Conservation and Management Measure (CMM) for tropical tunas expires at the end of this year. Hoping to avoid repeating the lackluster results typical of previous annual commission meetings, representatives from several member countries met in Honolulu in late August to draft a new measure to be adopted when the full commission meets in Manila in early December.

With regard to longline catch limits for bigeye, the group identified three options:

- Maintain the current catch limits (for the United States, that's 3,345 metric tons):
- Representatives from the United States proposed that catch limits apply only to fishing that occurs between 20 degrees North latitude and 20 degrees South. This approach would target the area where fishing pressure is heaviest and also allow the Hawai'i longline fleet to fish unfettered across a large portion of its historic fishing grounds.
- In stark contrast to the U.S. proposal, Japan suggested setting hard caps for all participating members. Notably, while Japan proposed that its cap, as well as those for China, Taiwan, Korea, and Indonesia remain as they are, it recommended cutting the United States' cap from 3,345 to 2,508 metric tons. The Hawai'i longline fleet in recent years has consistently met or exceeded its annual catch limit, forcing it to enter into quota transfer agreements with Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. The fleet would likely hit an annual limit of 2,508 metric tons before mid-year considering its catch rates over the last few years.

Given the great divergence between the latter two options, it's possible the commission — which tends to adopt only those measures that have full consensus — may again fail to reach an agreement or simply agree to maintain the status quo.— *T. D.*

Native Hawaiians, Conservationists Balk At Reserving Stream Water for HC&S Plan

ver the past year, Hawaiian Commercial & Sugar Co. went from cultivating tens of thousands of acres of one of the thirstiest crops, sugarcane, to raising cattle, experimenting with biofuel crops on a tiny fraction of that land, and working toward securing lessees willing to be a part of its diversified agricultural plan for the area. So when hearing officer Lawrence Miike recommended last August that a mere 6.7 percent of the roughly 117.59 million gallons of water a day (mgd) HC&S's parent company Alexander & Baldwin, Inc. (A&B), had in recent years diverted from East Maui streams be restored, it didn't go over so well with the native Hawaiians and environmentalists who'd been fighting for the water's return for decades.

Predictably, HC&S and the Maui Department of Water Supply, which receives a portion of the diverted water, raised no objections, since the proposed decision would provide them with nearly everything they're seeking.

Miike's recommendations would leave 109.7 mgd available for continued diversion to HC&S's former plantation lands in Central Maui and to the Maui Department of Water Supply, noted Isaac Hall, attorney for the Maui Tomorrow Foundation (MTF), in his exceptions to Miike's recommended findings of fact, conclusions of law, and decision and order in the contested case hearing before the Commission on Water Resource Management on the interim instream flow standards (IIFS) of two dozen East Maui streams.

"[A]t first blush, this may seem to demonstrate that there are still plentiful amounts of water available for offstream uses and users. Instead, what this actually demonstrates is that there is a grave imbalance between instream and offstream uses and that the determination of instream reasonable and beneficial requirements were erroneously determined and balanced," he wrote.

Hall stressed the imbalance by pointing out that the East Maui area that A&B rents from the state to divert water via its extensive East Maui Irrigation Co. (EMI) system includes 20 other streams that are not subject of the IIFS amendment petition filed 16 years ago by Na Moku Aupuni O Koʻolau Hui, a group of native Hawaiian residents and farmers in East Maui. Those 20 streams, "although equally protected

under the State Constitution, are receiving absolutely no protection and no reliable restored flows through the Commission process. ... At the very least, every one of the diverted streams listed in the 2001 IIFS petition should receive as much restored flow as possible to compensate for the lack of ecosystem management in the additional streams diverted by the EMI system," he wrote.

Native Hawaiian Legal Corporation attorneys Summer Sylva and Camille Kalama, representing petitioners Na Moku Aupuni O Koʻolau Hui, highlighted the injustice their client would continue to suffer if the Water Commission adopted Miike's recommendations.

They pointed out that Na Moku filed its petition 16 years ago and in the meantime has had to fight through three contested case hearings before the commission and the state Board of Land and Natural Resources to remedy the harms they believe A&B's diversions have inflicted on stream life and on Na Moku's ability to perpetuate traditional and customary practices.

After all that waiting, Miike's proposed decision essentially allows A&B/EMI to treat the streams as reservoirs, choosing to leave streams undiverted or decide on its own when increased diversions are needed to meet HC&S's expanding irrigation requirements, they wrote. Hall raised a similar issue, as well. In fact, MTF and Na Moku joined in each others' exceptions, which together totaled more than 100 pages.

"In speaking directly to petitioners — fifth and sixth generation East Maui taro farmers, fishers, and gatherers, all of whom were robbed of natural stream flows for over 140 years — the proposed decision orders them to 'develop a system of reasonable sharing' among themselves and 'for [the] resuscitation of stream life' with leftover flow amounts not required to meet HC&S's expanding irrigation requirements," Sylva and Kalama continued.

They argued that treating the streams as reservoirs for private, offstream use "offends the public trust and the spirit of the instream use protection scheme," and warned that the Hawai'i Supreme Court has repeatedly invalidated decisions where public trust duties were delegated to private entities.

The groups leveled a slew of other arguments against the proposed decision.

Among other things, they reiterated their complaint that HC&S's claimed water needs for its diversified agriculture plan were far too speculative to be deemed "reasonable and beneficial," suggested that some of the recommended IIFS failed to meet minimum habitat requirements, and argued that the proposed decision improperly based its balancing analysis on the status quo, rather than on a scenario where the streams were undiverted.

Both MTF's and Na Moku's exceptions dedicated significant attention to Miike's decision to delete an entire section on the public trust doctrine that was included in a previous iteration issued late last year.

"This literal abandonment of 'the Public Trust Doctrine' in its appropriate place evidences a change in attitude towards public trust beneficiaries — here, intstream uses and users," Hall wrote. He then cited the Hawai'i Supreme Court's 2014 decision on the Kaua'i Springs v. Planning Commission of the County of Kaua'i case, which he said found that "private commercial use, including private commercial agricultural use, is not protected by the public trust."

"The issue here is whether the protection of public trust stream resources can be jettisoned based upon speculative future offstream uses," he wrote.

Both Hall and the NHLC attorneys stated that the proposed decision failed to apply a "higher level of scrutiny for private commercial uses," as is required under the public trust doctrine, which is part of the state constitution.

"The overarching nature of the public trust doctrine is also significant because there was disagreement, throughout the contested case hearings, about whether cases dealing with water permits could be applicable to IIFS cases. In most instances, the cases were decided based upon public trust principles that are equally applicable to IIFS and water permit cases. The overarching nature of the public trust doctrine is made clear by the Hawai'i Supreme Court in Kaua'i Springs." In that case, the court found that the planning commission was obliged to determine whether or not zoning permits allowing a water bottling company to take water from a stream complied with the public trust doctrine.

The NHLC attorneys said Miike's decision to delete the public trust doctrine section of his proposed decision was "inexplicable" and made a point of reiterating all of its guiding principles. (The list included a principle Miike used to justify his proposed decision: "In requiring the Commission to establish instream flow standards at an early

planning stage, the [State Water] Code contemplates the designation of the standards based not only on scientifically proven facts, but also on future predictions, generalized assumptions, and policy judgments.")

The Other Side

The Maui DWS had no exceptions. HC&S's totaled all of three pages and merely posed a question and made one suggestion regarding the circumstances under which the contested case hearing would be deemed closed. Its opposition to Na Moku's and MTF's exceptions, however, were much more extensive.

The company didn't refute MTF's and Na Moku's argument that under the proposed decision, a private entity would seemingly be allowed to use the streams as reservoirs. In fact, it seemed to agree: "It is anticipated that the diversions will only resume incrementally as implementation of the Diversified Agricultural Plan progresses, which could take years to reach full scale," HC&S's attorneys David Schulmeister and Elijah Yip wrote.

They pointed out that A&B has already agreed to restore water to all taro-feeding streams included in Na Moku's petition and stressed that the diversions have already been "dramatically reduced" to about 20-25 mgd in the Wailoa Ditch at Maliko Gulch. Given that, "the familiar themes sounded in Na Moku/MT's exceptions regarding the past 'dewatering' of these streams therefore ring hollow. ... The full restoration of taro streams nullifies Na Moku's/MT's complaints that appurtenant rights are not adequately protected," they wrote.

Regarding Na Moku's and MTF's complaints that Miike had given too much weight to HC&S's "speculative" plans, which they argued were supported by scant evidence, Schulmeister and Yip reiterated their position that such an approach is not only legal, but in this case, warranted.

"The purpose of this proceeding is to set IIFS. Unlike a proceeding for decision-making on Water Use Permit Applications" — which the Water Commission requires for designated water management areas — "this proceeding does not call upon CWRM to allocate specific quantities of water to any particular user. Thus, it is improper for Na Moku and MT to characterize the proposed decision as 'allocating' water and attempt to apply standards in a WUPA proceeding to this IIFS proceeding." (The East Maui watershed is not a designated water management area.)

They argued that the Water Commission need only establish IIFS that "protect

instream values to the extent practicable" and "protect the public interest," which it can do by "forecasting water needs for future offstream uses." They then cited the Water Code, which states that when considering a petition to adopt an IIFS, the commission must weigh "the importance of the present or potential instream values with the importance of the present or potential uses of water for noninstream purposes, including the economic impact of restricting such uses ... (emphasis added)."

Holding future offstream uses to the "exacting evidentiary standard" sought by Na Moku and MTF "would render the Diversified Agricultural Plan stillborn, terminating its viability before it is given a realistic opportunity to be implemented," they wrote.

"A&B is not presently asking CWRM to determine its entitlement to withdraw a specified amount of water from the subject streams; it is simply requesting that CWRM consider the water requirements of the Diversified Agricultural Plan in the balancing analysis so that enough water will be available for diversion when the plan is operational," they concluded. (Given that the East Maui watershed is not a designated water management area, it's unclear when the commission would ever allocate to the company a set amount of water to be withdrawn.)

MDWS

Both Na Moku and MTF took issue with

the county's claimed water needs for the Upcountry area. Based on the Department of Water Supply's filings, Miike estimated its needs to be about 16 mgd and recommended IIFS be set to accommodate almost all of that. MTF argued that the department had ample alternative sources that vastly reduced its stream water requirement. Na Moku had a problem with the fact that Miike had simply set MDWS's water needs equivalent to the amount available under agreements with EMI. Maui corporation counsel, representing the DWS, wrote in their opposition to the exceptions. Given Na Moku's concern, the department stated that it would not object to adjusting Miike's findings to "reflect demonstrated needs rather than capacities. ... This would amount to the present use of 7.1 mgd from the Wailoa Ditch, an additional need for 1.65 mgd based on population growth through 2030, and the 7.5 mgd additional demand represented by the Upcountry Water Meter Priority List, for a total of 16.25 mgd."

With regard to MTF's arguments regarding alternative sources, the county noted, "The sources identified by *Maui Tomorrow* are not alternative sources, but are sources that already exist and, as recognized by the hearings officer, are already being used in some capacity. Water that is already being used cannot, somehow, be used again to address future needs." It added, "[C] oncerns that actual needs are being over estimated are immaterial: if MDWS needs less water, it will take less water." — *T.D.*



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Abby Frazier: To Forecast Drought In Hawai'i, Look to the Distant Past

Abby Frazier, the guest speaker at *Environment Hawai'i*'s annual dinner, is a post-doctoral researcher with the USDA's Forest Service. Last month, we spoke with her about her work and the import it has for planners and land managers.

Could you talk a little about your back-ground:

I finished my Ph.D. last year in the Department of Geography at the University of Hawai'i at Manoa, working closely with Tom Giambelluca. Before that, I did a master's at UH Manoa as well and worked as a GIS [geographic information system] analyst in Seattle for about a year. I did my undergraduate work at the University of Vermont, in math and geography.

What prompted you to work in Hawai'i? My advisor in Vermont knew Tom. While I was working in Seattle, he told me Tom had an opening for a grad student, and that's how I ended up in Hawai'i. I've now been working with Tom for eight years.

Were you involved in preparing the Rainfall Atlas of Hawai'i?

I was. It was a big part of the work I did for my master's. A lot of what I do is understanding historical rainfall patterns, analyzing them retrospectively.

Part of our plan is to work with climate modelers to arrive at future drought probabilities.

What we're doing now is an in-depth analysis of drought events back to 1920. We realize that we don't have a great baseline to assess future changes and we need to better understand the past to get to that point. We're working on that piece right now.

What are the sources of the data you're using?

In Hawai'i, we have an incredible network of rain gages that go back to the late 1800s, including a lot that were set up by plantations. So we have a great source of on-theground data we can use.

With all that rain gage station data, since it is only in point locations, we've had to interpolate the data to get it spatially complete. Now we have rainfall maps back to 1920 at 250-meter resolutions—high resolution data sets that are spatially continuous.

How does this work into your forecasts?

The data set we have, data from gages and spatial interpolation, gets used by modelers to establish relationships with current-day climate trends and projections based on global models. We can use the baseline data in calibration to get to future projections.

Has your work also involved resource managers or planners?

Yes. We've been having workshops and calls with folks from the National Parks, the Department of Land and Natural Resources, the USGS, and others. We're collaborating with them on a book chapter as part of a national effort to understand management responses to drought.

What will you be speaking about in your talk in Hilo?

One of the things I'll be talking about and showing maps for is the newest study I've published of spatial patterns of rainfall trends for the entire state.

The western parts of the Big Island have experienced the most severe drying trends in the entire state, especially in summer months. This long-term drying trend in Kona has been linked with declines in forest canopy volumes. That's just one of the ways we're connecting changing rainfall patterns with what's happening on the ground.



Abby Frazier

ANNUAL DINNER

October 20, 2017

Imiloa Astronomy Center in Hilo, Hawaiʻi from 5:30 to 8:30 p.m.

In addition to Frazier's talk, there will be live music, a buffet dinner catered by the Sky Garden restaurant, nohost bar, and a silent auction.

Tickets are \$75 per person, which includes a \$40 donation.

To make reservations, call 808 934-0115 by October 16.