

The Maui News

Backdunes provide a layer of protection

Maui's coastal dunes can be divided into four unique zones: the beach, foredune, trough and backdune. Backdunes are typically more complex than foredunes, with greater biodiversity and more developed vegetation. Backdunes are where you might find wetlands, dune crests and sand plains supporting a host of native plant and animal species like native seabird nesting sites.

In South Maui, UH Sea Grant has participated in helping volunteers develop and restore backdune areas wherever possible. In those areas, we are discovering that over time backdunes can contribute a considerable amount of new sand volume to the dunes after exotic or invasive plants have been removed.

Backdunes provide a secondary layer of safety for our inland developments, serving as a natural buffer from storm and flood inundation. Dune structural integrity is maintained as insurance against beach and landward erosion. Unfortunately, backdune areas have sometimes been used for roadways, parking lots, and developments like residential and condo buildings, making it impossible to ever recapture that important dune area.

The value of backdunes is known science and the Coastal Hazard Specialists from UH Sea Grant are always ready to help delineate dune space suitable for foredune and backdune areas as part of a comprehensive Foreshore Asset Management Plan. With the sea level rising, the passage of time with no plan or direction could make future response and course of action more difficult.

Lis and Bob Richardson

Kihei

Kaunakakai, HI

January 22, 2019, 11:33 am

**MOSTLY SUNNY**
77°F

humidity: 68%

wind speed: 7 mph E

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January 23, 2019



COMMUNITY, COMMUNITY DEVELOPMENT, ENVIRONMENT, ENVIRONMENTAL

Wednesday, May 2nd, 2018

By Audrey Newman

Drawing the Line on Sea Level Rise

By Audrey Newman, Community Reporter



Sea level rise exposure area in Kaunakakai. Map courtesy of Blue Planet Foundation

A team of committed students, teachers and community members participated in the statewide Blue Line Project to “draw the line on climate change” and raise community awareness of sea level rise projections for Molokai last Saturday.

Sust`aina ble Molokai helped volunteers create a temporary blue line of ocean images and climate change messages along Kamehameha V Highway in front of Duke Maliu Regional Park to show the area vulnerable to permanent flooding in the next 40 years.

“We chalked in a blue line to show where the new shoreline will be if we don’t take drastic measures [to address] climate change, sea level rise, and carbon emissions,” explained Vicki Newberry, team leader for Aka`ula School.



Photo by Audrey Newman

The blue line is based on the 2017 Hawaii Sea Level Rise Vulnerability and Adaptation Report, which estimates one meter (3.2 foot) increase in sea level. Projections for the entire Molokai coastline can be viewed at pacioos.hawaii.edu/shoreline/slr-hawaii/. Seventeen communities across Hawaii joined this Earth Day event, organized by the Blue Planet Foundation with local partners, to send a clear message from Hawaii that everyone across the globe must reduce our greenhouse gas emissions and unsustainable reliance on fossil fuels. Look in future issues of The Molokai Dispatch for more information on how climate change and sea level rise will affect Molokai.

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Photo by Audrey Newman

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Hawaii 2040

Fighting Climate Change Will Cost The State Millions

The state Department of Land and Natural Resources says money is urgently needed to protect beaches, watersheds, native species and more.



By Nathan Eagle    / January 18, 2019

 Reading time: 7 minutes.



Fighting the effects of climate change comes with a price tag.

Hawaii lawmakers will be considering over the next few months how much of the state's \$34 billion biennium budget should be spent on a litany of issues facing the islands as a result of global warming.



Rising sea levels are eroding prime money-making beaches, including Waikiki on Oahu and Kaanapali on Maui. Wildfires are costing more to control. And feral goats and pigs are threatening freshwater supplies, native habitats and the recovery of endangered species.

The state Department of Land and Natural Resources is asking the Legislature to approve [millions of dollars](#) to continue ongoing initiatives and beef up other areas related to climate change.



From left, Scott Glenn, director of the state Office of Environmental Quality Control; Suzanne Case, director of the Department of Land and Natural Resources; and Gov. David Ige listen to a presentation at the inaugural Hawaii Climate Conference earlier this week.

Director Suzanne Case presented her department's case for additional funding Thursday before the House Finance Committee, chaired by Rep. Sylvia Luke, though she dipped out after opening the meeting and let Vice Chair Ty Cullen run the show.

Contact Key Lawmakers

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808-586-6200

Senate Ways and Means Chair

Donovan Dela Cruz

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808-586-6090

Senate Water and Land Chair

Kai Kahele

senkkahele@capitol.hawaii.gov

808-586-6760

Lawmakers will be balancing these funding requests against a laundry list of other pressing needs facing the state, such as homelessness and public education. But land officials highlighted how many impacts of climate change affect all of the state's 1.4 million residents and the soaring number of visitors.

DLNR already receives less than 1 percent of the state's overall budget.

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For fiscal year 2020, which starts July 1, the department's total budget request is \$171.3 million, which is about a 7.6 percent increase and includes about 1,000 positions. For FY 2021, DLNR is seeking \$168.8 million, about 6 percent more than this year.

And that's only what Gov. David Ige agreed to include in his budget that he [submitted in December](#) to the Legislature. DLNR asked for much more, but its requests were whittled down to balance the overall spending plan.

When it comes to money directly relating to climate change, DLNR wants to keep Hawaii's fledgling [state climate commission](#) running for starters.

Funding lapses in June for its sole coordinator position, currently filled by Anukriti Hittle.

The 20-member commission, which the Legislature created in 2017, has started to gain traction. It completed a monumental [sea level rise report](#) that shows how more than \$20 billion in coastal buildings and roads are threatened by rising seas and increased flooding in the coming years. Now, the commission is looking at how it can put that science into management decisions.

And on Monday, the commission held the inaugural Hawaii Climate Conference, an all-day event at the East-West Center featuring expert panels and speakers.



The state wants to continue eradicating erosion-causing goats, like those in Waianae. DLNR sees it as essential to protecting watersheds.

The department is asking for \$65,000 to \$75,000 annually to make the climate coordinator position permanent and another \$110,000 for planning and administration costs for the commission.

Sam Lemmo, who heads DLNR's [Office of Conservation and Coastal Lands](#) that oversees the commission's work, said the work that's being done would be "severely impacted" if lawmakers don't approve the funding.

He said it's possible the effort would be picked up by some other entity if money isn't appropriated, but it's unclear who would take it up.

The House has the first stab at the overall budget, which it's expected to draft by March and then send over to the Senate. The final differences will be negotiated in April before the legislative session wraps up May 4.

DLNR is also asking for \$5.6 million in fiscal 2020 and \$5 million in 2021 for watershed protection statewide.

"Immediate action is needed to secure Hawaii's water supply," DLNR says in its budget request. "Hotter, drier conditions and damaged watersheds are

escalating the costs and conflicts over water.”

The money largely goes toward fencing that keeps hooved animals — goats, pigs, deer — out of forests and other areas important to Hawaii’s freshwater supply. The animals eat native vegetation and root around, loosening soil and increasing erosion.

Some lawmakers expressed concern over DLNR doing aerial eradication — shooting goats from helicopters — in some areas, particularly the west side of Oahu.



Wildfires, like this one along Kunia Road, are becoming more of a problem on Oahu, the result of a changing climate. DLNR is seeking money from the Legislature to bolster firefighting capabilities.

Rep. Cedric Gates, whose district includes Waianae, said some of his constituents had complained and that it had become quite a controversy.

Brian Nielsen, of the Division of Aquatic Resources, said the department has heard those concerns and worked to increase hunting seasons for residents and stopped shooting in certain areas.

But he said the environmental threat posed by thousands of goats remains serious and some aerial shooting will continue in remote areas that are hard to access otherwise.

“We’re seeing unprecedented amounts of erosion out there,” he said.

Gates was also worried about wildfires on the west side.

DLNR has asked for \$300,000 for fire and emergency response because the cost of controlling wildland fires is trending upward with climate change. The Division of Forestry and Wildlife is responsible for 1 million acres of forested watershed (25 percent of the land in Hawaii) and works with the feds and counties for another 30 percent.

“Wildfire is increasing with climate change,” Case told lawmakers.



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Rep. Nadine Nakamura, whose district includes the north and east side of Kauai, asked Case what’s being done about the rise of rapid ohia death, a fungal disease that has destroyed native forests on the Big Island and recently spread to the Garden Isle.

Some effects of climate change, such as stronger storms and more hurricanes, make it easier for such diseases to spread.

The governor’s budget included \$500,000 to help DLNR respond to rapid ohia death. The department had wanted another \$1.25 million for research and outreach about rapid ohia death but Ige did not include it in his request.

The restoration of beaches, a fundamental part of life in Hawaii and crucial to the visitor-based economy, was a big-ticket item in DLNR's proposed budget.

Ige wants to add \$10.4 million in fiscal 2021, including \$3 million in private contributions, for the Waikiki Beach Master Plan improvements.

The Office of Conservation and Coastal Lands has completed a draft environmental assessment to replace the Royal Hawaiian groin at Waikiki Beach, and used hotel tax revenues to initiate a major project to conduct beach improvements at Waikiki Beach.

Case and her division heads will be making a similar budget pitch Friday morning before the Senate Ways and Means Committee, headed by Sen. Donovan Dela Cruz.

See the full presentation below.

To print the document, click the "Original Document" link to open the original PDF. At this time it is not possible to print the document with annotations.

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Fred_Garvin 2 hours ago

Let's say we reduced Hawaii's carbon footprint to zero. What impact would that have on climate change? Zero. It's the external stuff that we should be focusing on, like all the planes crisscrossing the Pacific to bring tourists and all that they "need" to Hawaii.

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CousinRusty 5 hours ago

As much as we talk about how special our environment is, we should be ashamed that DLNR is expected to do all they do for less than 1% of the state budget.

Respect  Reply 

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Keala_Kaanui 4 days ago

We can do things that are basically symbolic (switching to solar, electric cars) in the grand scheme, or we can do things which have local but large impacts (figuring out how to save waikiki beach, increasing shoreline setbacks, etc). The questions is do we have enough money to do both, and how do we allocate limited funds?

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LourdesKealoha 4 days ago

Cost \$millions?

As if

Once the diktat to end combustion engines & a carbon tax is forced down our throats,

it will cost \$Billions.

In fact , it already has.

That eco-friendly train to nowhere is already \$6Billion over the initial claimed cost.

This will only get worse.



Respect  1 Reply 

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Kalli 4 days ago

Hawaii is one of the worst polluters in the country. Coal and garbage fired boilers when there is plenty of geothermal and solar available. No vehicle smog checks. We don't seem to mind our own pollution because it quickly blows away to someone else's place making climate change their problem.



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Keala_Kaanui 4 days ago

But we have been making great strides in switching to renewable energy.
really though, the biggest source of pollution are the airlines.

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Environment

Massive Flood Risks Don't Deter Kauai Homeowners From Rebuilding

Kauai has tightened requirements for shoreline development, but they don't take into account more alarming recent predictions of the impact of climate change and rising seas.



By Brittany Lyte    / About 11 hours ago

 Reading time: 9 minutes.



The owners of multimillion-dollar homes ravaged by record-breaking rainfall last April are flooding county planners with applications to rebuild their residences in place on the soft sands of Hanalei Bay.



It's not yet known how many of the pending permit applications will win approval. Some homeowners face stricter regulations now than when they first raised their houses. Others will need to prove that the fluctuating shoreline hasn't encroached onto their property, pushing the residence into a no-build zone.

Kauai County Planning Director Kaaina Hull said just one application to repair a residence has won approval so far. There are seven homes with

applications pending for permits to stabilize, repair, rebuild or demolish with the intent to rebuild.



Historically, the primary source of flooding in Hanalei is the Hanalei River. It drains Mount Waialeale, which has an astonishing average annual rainfall total of 394 inches.

The homes in question are on Weke Road — or, at least, they were.

The east end of the iconic road that skirts Hanalei Bay collapsed last April under the pressure of floodwater produced by [a giant amount of rain that broke a national record](#). Reconstruction of the road, which services a smattering of houses and the storm-damaged Black Pot Beach Park, began earlier this month. It remains closed to traffic.

Highly visible, the homes here on a crux of sand between Hanalei River and Hanalei Bay are symbols of the area's notable flood danger — and focal points of the debate over allowing development in hazardous areas.

None of the homeowners could be reached for comment.

Kauai has historically allowed development in areas next to coastlines and rivers vulnerable to flooding. But in recent years county planners have buckled down on this laissez-faire approach as scientific research related to climate change has made clear a need for more stringent policy protections from natural disasters, sea level rise and intensifying storms.

Planners statewide are collaborating with climate change experts to arrive at new data on which to base building policies that more accurately reflect the risks associated with the state's changing weather patterns. But so far Kauai County's policies do not take into account the [alarming new numbers](#).

Some of the homes on Weke Road were raised prior to 2005, when the county adopted a stricter shoreline ordinance that requires structures to be set back 60 feet from the highest wash of the waves. (The state's setback mandate is 40 feet). New erosion data will also come into play as homeowners make bids to rebuild in an at-risk corner of the floodplain abutting the ocean and a river prone to flooding.

Only time will tell if these stricter rules will provide homeowners with adequate protection from future environmental disasters.

"Indeed, there's a desire to push back farther away from these inundation zones," Hull said. "But how far we can push legally under the United States Constitution will always be at the forefront of the discussion. There's a constitutional right to build on the property you own."

Uncertain Future on Weke Road

Last April, a national record-setting storm dumped 49.7 inches of rain on some parts of Kauai in 24 hours. The extraordinary rainfall has left behind damaged homes, cost people jobs and temporarily crippled [the local tourism industry](#).

The lone road to the farthest reaches of Kauai's North Shore is not expected to [reopen to normal vehicular traffic](#) between Waikoko and Wainiha for

several more months. Construction crews are working on a short-term fix by stabilizing landslides and combatting erosion. In the long-term, state transportation officials say large portions of Kuhio Highway will need to be rerouted away from areas expected to be hardest hit by the rising sea level due to climate change.

While many of the most alarming scars of the storm remain out-of-bounds to the public due to the extended road closure, the flood-torn homes on Weke Road, looking like the casualty of a wrecking ball, are in view of surfers on waves and tourists on beach towels.



The before pictures of a portion of Hanalei Bay were taken by Google's GeoEye-1 satellite a week before the record flooding started on April 14, and the after pictures were taken a few days later on April 18.

Some of the homes are in a foot of water. Small fish swim in the pools, making a home where residents have fled due to battered foundations, splintered walls and caved-in roofs.

The crooked homes are magnets for gawking tourists with camera phones. So are the giant holes in the earth carved by fast-moving floodwaters. But locals have grown accustomed to the contrast of this temporary blight against a backdrop of world-class waves and waterfall-strewn mountains.

Jogging with a surfboard tucked under his arm on the strip of sand that separates the battered homes from the howling surf, 35-year island resident Jeff Weiss surveyed the dilapidated buildings and declared: “If there was ever a time to make a change, it’s now.”

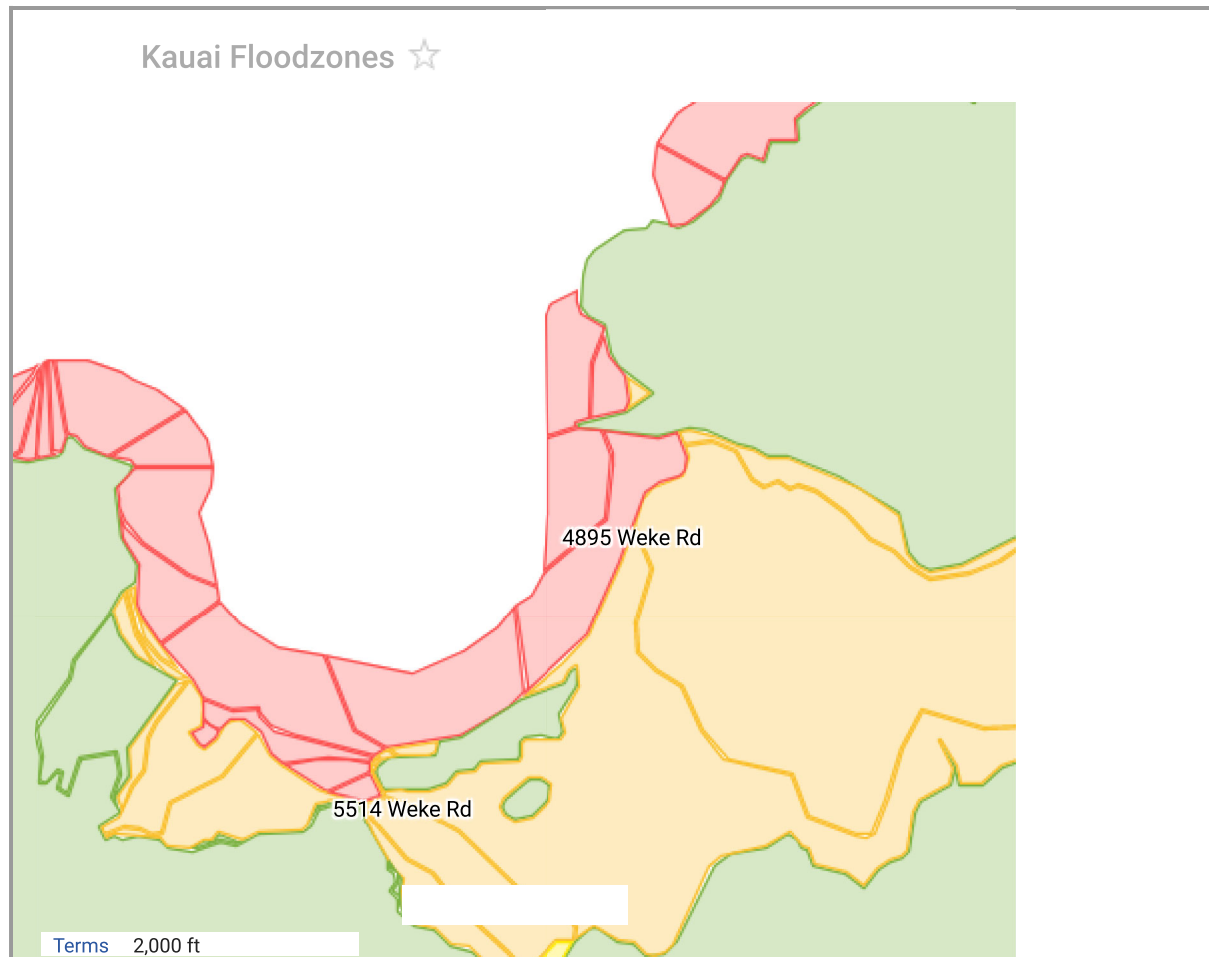


Scientists say the historic floodplain is not a safe bet for rebuilding multimillion-dollar homes.

If nothing else, Weiss, a Kauai County fire captain, said the drastic change in precipitation on Kauai last year alone should prompt a new way of assessing climate risk.

“I guess it’s between those people and their bank accounts if they want to build back up again — as long as they don’t go getting insurance that will be knocking on the door of the taxpayers later on to go and bail them out,” Weiss said.

“It’s a hard conversation,” he added. “But now’s the time to make changes.”




This map shows the houses along Hanalei Bay whose owners have applied to rebuild their residences. The houses on the northwestern edge of the bay are located in a VE flood zone, which FEMA defines as “areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action.”

The Guidebook Is Broken

It’s impossible to definitively determine whether climate change contributed to the rain storm that deluged Hanalei town.

But it's apparent to scientists that the continued use of historical climate information as [the basis for determining flood risk](#) and building requirements is a broken method, said Thomas Giambelluca, a professor of geography and environment at the University of Hawaii Manoa.



**“Indeed, there’s a desire to push back farther away from these inundation zones...(But) there’s a constitutional right to build on the property you own.”
— Kauai County Planning Director Kaaina Hull**

“There’s an underlying assumption that the past provides a good guide for the future, and this assumption has been used for a century or longer to design and permit the building of bridges and culverts and buildings that are affected by water flows,” Giambelluca said. “The consensus among scientists is that that assumption is dead. It’s no longer valid to use the past as a guide for the future.”

“At the very least,” he said, “we need to build in a larger margin of error, which could mean building stronger structures or restricting development in larger areas within a floodplain so we have more of a buffer.”



A home along Hanalei Bay's shoreline that was pushed off its stilts by floodwaters.

Hawaii has conducted extensive research that defines [how we can expect our islands to change](#) in the coming years.

Here's the basics: Sea levels had been expected to rise up to 3.2 feet globally by 2100, but the latest projections say this could happen as soon as 2060. In Hawaii, the value of imperiled land and infrastructure expected to be inundated is [\\$20 billion](#).

There is a desire within government to use the growing data around climate change and shifting weather patterns to rewrite zoning and building codes. But questions linger about which of the new numbers can be trusted to hold up in court if, for example, a homeowner sought to challenge the legal rationale behind a building permit denial.

There is hesitancy to rewrite the rules to the game even on the heels of a disaster of epic proportions, such as the April flood on Kauai.



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Bradley Romine, a coastal geologist with the UH Sea Grant College Program, said building regulators will fare best by implementing new restrictions on development in anticipation of a painful loss of property due to a climate or weather event — not in reaction to it.

Romine is heading up a team that's drafting post-disaster reconstruction guidelines for the state's counties to follow after future destructive storms.

The study, focused mainly on sea level rise, is funded by the National Oceanic and Atmospheric Administration's [Coastal Resilience Grants](#) program and is due out in April.

“One of the main points of our guidance is to have these conversations before disaster strikes, because it's always a frenzied and very stressful time for the homeowners and the planning and regulatory agencies in the aftermath,” Romine said. “We're trying to help the counties develop some plans and protocols and that means there's a need to identify where there may be some areas in our communities that may be too vulnerable to build back up again in the same way.”



In Hawaii, the influence of climate change on rainfall is still being studied. Research suggests the islands could start to experience fewer but more intense storms.

Luke Evslin, a member of the Kauai County Council, said it's a "crazy" environmental and financial risk to re-raise a structure that has just been clobbered by a natural disaster when it's located in a vulnerable flood zone.

He noted that even if a wealthy homeowner desires to take on the risk, the taxpayer also absorbs the financial blow when federal insurance policies pitch in to fund the repair work.

"We know that this wasn't a one-off storm," Evslin said. "Our climate has changed, but our infrastructure hasn't. We need to move quickly to work back some of the density on our shoreline and, for sure, when a home gets destroyed because of a storm event, we need to recognize that nature is trying to tell us something."

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kimlen 1 hour ago

One question that needs to be answered if it is one's Constitutional right to build on one's land is whether the county is required to provide services, i.e. water lines, electric lines, sewer lines, etc? or if the owner has to provide their own services if they want to build in areas subject to a high potential of flooding...



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Fred_Garvin 4 hours ago

The sad truth for Hawaii is that tourism equals climate change.

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Hawaii 2040

We Have To Move Our Homes And Businesses Away From The Shoreline. But How?

Hawaii lawmakers will confront major policy questions this session as they grapple with looming problems from a warming planet.



16

By Nathan Eagle    / January 28, 2019

 Reading time: 9 minutes.



Rising seas and crumbling shorelines are staring lawmakers in the face as they consider more than a dozen bills dealing with climate change this session.



Where should the state armor its shoreline against rising seas and where should residents and businesses retreat?

Should Hawaii start setting money aside now to relocate coastal highways that are forecast to be underwater in the coming years?

Should the state institute a carbon tax or some other fee on fossil fuels to incentivize burning less greenhouse gases while creating a fund that helps residents adapt to a changing climate?

Should homeowners have to disclose to prospective buyers that their property is expected to be inundated by water within the next couple decades?

Should future developments have to plan for this new reality or be prohibited from building so close to the shore altogether?

How does Hawaii get everyone to quit driving gas-powered cars and trucks? And should coal be banned as an electricity source?

Those are some of the big questions lawmakers will need to grapple with before the session ends May 2. Some have been discussed in previous years but the issue has not been a priority, especially because finding the money to pay for bold changes has been difficult.

But experts say decisions on how Hawaii moves forward in the face of environmental change must be made now. There really is no more important issue, they argue. Climate change is intertwined with and overshadows virtually all matters up for consideration.



The Hawaii Legislature will consider a dozen or more bills related to climate change this session.

A Carbon Tax?

The carbon tax will likely be the most controversial and difficult of the measures. Politicians and the public have generally rejected the idea in other states because taxes are unpopular and can be regressive.

But the Intergovernmental Panel on Climate Change, International Monetary Fund, [Hawaii's own state climate commission](#) and others have deemed it an essential strategy in the global effort to reduce emissions fast enough to ward off the worst effects of climate change.

There are a couple versions of a carbon tax up for debate.

Sen. Karl Rhoads and six of his colleagues in the 25-member chamber have put forward [Senate Bill 1463](#). It would replace the environmental response, energy and food security tax with a carbon emissions tax while repealing state fuel taxes.



Sen. Karl Rhoads and several other lawmakers have introduced bills to tax carbon emissions.

In this revenue-neutral proposal, the bill calls for a tax that equates to \$6.25 per ton of carbon dioxide emissions.

Under the bill, Rhoads said the state gasoline tax of 16 cents per gallon would fall to about 5.5 cents and county fuel taxes would remain unaffected. But more money would come in from the barrel tax, which is applied to jet fuel, natural gas, coal and two dozen other sources, meaning the price of electricity or airplane tickets could go up.

The bill also would end the tax credit for commercial fishermen on fuel for their boats, possibly resulting in higher costs for seafood.

Rhoads anticipates opposition from the aviation and electricity industries. But he said the key is to create as broad a base as possible. And, he said, fairness created by lower gas taxes is important for commuters who drive long distances and can't afford new cars.

"When you start exempting people, the whole thing falls apart," he said, adding that the state will need all the money the carbon tax would generate and then some.

On the House side, Reps. Amy Perruso and Chris Lee have introduced a different version of a carbon tax bill.

[House Bill 1287](#) imposes a tax of \$20 per ton of carbon dioxide emitted starting Jan. 1, steadily increasing to \$55 per ton by 2034. The tax starts at the distributor level and is passed down to the consumer.

The money raised would go 25 percent into the environmental response revolving fund, 25 percent into the energy security special fund and 50 percent goes back to every taxpayer who files an income tax return.

“The fact that you’ve got more than one carbon tax bill says I’m not the only one thinking about it,” Rhoads said. “That’s important in a body where you’ve got to have majority vote.”

A 10,000-Word Solution?

Beyond carbon taxes, there is a 10,000-word bill to implement the recommendations made in the [Hawaii Sea Level Rise Vulnerability and Adaptation Report](#), a comprehensive study published in December 2017.

[Senate Bill 690](#), introduced by Sen. J. Kalani English and 16 other senators, would require government agencies to integrate sea level rise into the planning and permitting process. It would promote managed retreat from the shoreline where feasible, protection of coastal areas and beaches from development due to potential sea level rise and incentivize people to avoid flood risks.

The measure would task the state Office of Planning with creating an inventory of lands suitable for future development outside of sea level rise exposure areas, which the study clearly identifies.

The report was the first major work produced by the state climate commission, which the Legislature created in 2017. The bill would further empower the 20-member commission, co-chaired by the heads of the



Cory Lum/Civil Beat

Sen. J. Kalani English wants to fully implement the recommendations of the state's Sea Level Rise Vulnerability and Adaptation Report.

Department of Land and Natural Resources and Office of Planning, to address climate change adaptation and mitigation strategies.

English said some state officials were surprised by just how serious he was about implementing the report's

recommendations, given how many studies often sit on government shelves.

"We're all in this together," he said, noting that he has met with the state's top landowners and businesses to discuss managed retreat.

"I don't think they realize the magnitude of what it means." — Sen. J. Kalani English

In some cases, residents or businesses will need to move back from the shore onto land they don't own and in other cases he said companies have not fully appreciated how vulnerable their coastal properties and facilities are.

"People are starting to talk about it more but I don't think they realize the magnitude of what it means," English said.

On Maui, which includes his district, there are power plants and wastewater treatment plants that need to move, he said.

And with a long permit approval process, there's no time to waste.

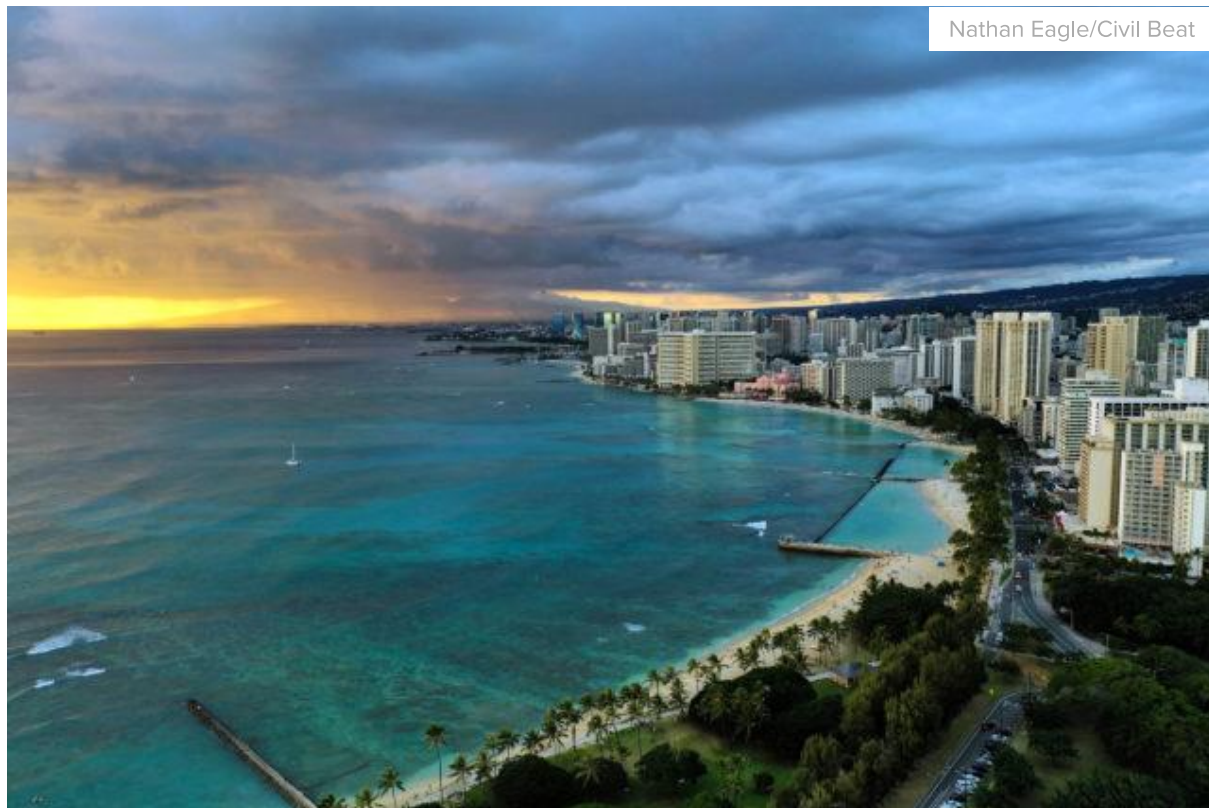
"I hear people talking about climate change in the future tense," English said. "I'm telling them no, we're in it already and we have to deal with it very quickly."

Some of the components of his broad bill, which unanimously passed the Senate last year but died in the House, are also contained in other bills.

Ambition Or Retreat? Homebuyer Disclosure Or Not?

[House Bill 565](#), introduced by Rep. Nicole Lowen and 19 other House lawmakers, would require property owners to disclose at the time of sale if a property is located within a sea level rise exposure area, as identified in the state report. Rhoads has a similar measure, [Senate Bill 1126](#).

The report has an online tool that lets the public see exactly where coastal areas will be inundated with water at 1 foot of sea level rise, 2 feet and 3 feet, which is expected within the next 30 to 70 years.



Nathan Eagle/Civil Beat

One bill would task the state climate commission with compiling of list of areas to armor or retreat from, such as Waikiki.

[Senate Bill 644](#), introduced by Rhoads, would require the state climate commission to determine areas in each county to designate for either armoring or managed retreat.

“We have some very difficult decisions to make on that score,” Rhoads said.
“This will be the next step on figuring what to do.”



“I think the answer to Waikiki is you probably let it go.” — Sen. Karl Rhoads

“Do you armor Waikiki or do you let it go? Do you armor the harbor or do you let it go?” Rhoads said. “I think the answer to the harbor is you armor it. I think the answer to Waikiki is you probably let it go.”

Honolulu Mayor Kirk Caldwell has vowed to protect Oahu’s south shore, which includes Waikiki, downtown Honolulu and the developing neighborhood of Kakaako. He said last month that there’s just too much at stake to let such a major economic driver go.

While acknowledging the taxes the state has collected from the region, Rhoads said he wouldn’t necessarily object to the private sector armoring Waikiki but said government is in no position to put out that kind of money.

“It’s an enormous amount of money,” he said.

Climate Vulnerability Assessments? Relocation Programs?

There is also a measure, [House Bill 311](#), introduced by Rep. Ty Cullen and four other members, to dedicate portions of the general excise tax toward protecting the state highway system from the threat of inundation and damage caused by climate change.

[House Bill 549](#), introduced by Lowen and other House members, would require new developments to plan for the impacts of projected sea level rise and prohibit development in areas significantly affected by projected sea level rise.

Sen. Donovan Dela Cruz and two colleagues have put forward a similar measure, [Senate Bill 393](#).

[Bills](#) were introduced in both chambers to continue [funding the state climate commission](#) and a coordinator position. Funding is set to lapse in June.



Hawaii is already phasing out coal but a proposed law would ban it permanently.

Sen. Russell Ruderman and four colleagues introduced [Senate Bill 434](#) to mandate state agencies to require climate vulnerability assessments for permit applications for projects involving building, transportation or land use change that may generate significant greenhouse gas emissions.

The same crew also introduced a measure, [Senate Bill 435](#), to direct the state climate commission to assess the effects of tourism on climate change.

Rep. Sean Quinlan has introduced [House Bill 461](#) to establish a Sea Level Rise Relocation Program and a position to coordinate mitigation measures, relocation and site planning for public infrastructure and other facilities.

Some of the measures are starting to get hearings, such as [House Bill 563](#). The “coal-free Hawaii” measure and others related to energy will get their [first hearing](#) Tuesday morning before the House Energy and Environmental Protection Committee.

See all the [House](#) and [Senate](#) bills introduced this session, track their progress and submit testimony on the Capitol website [here](#).

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