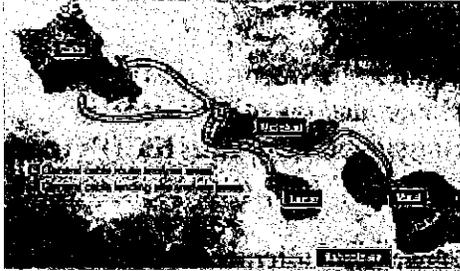


Top Hawaii Officials Say They Doubt HECO Can Do a Cable-Free Energy Plan

By Sophie Cocke 07/10/2013

Getting wind energy from Maui County to Hahaione



Hawaii Department of Business, Economic Development and Tourism

Hawaii energy officials are raising questions about a recent analysis by Hawaiian Electric Co. that says Oahu can meet state renewable energy goals without using undersea cables to tap neighbor island resources.

We “have no evidence that remotely supports that contention, and it is our current understanding that it is not economically feasible,” Richard Lim, director of the Department of Business, Economic Development and Tourism, told Civil Beat by email.

None of the department’s studies, including those conducted by the National Renewable Energy Laboratory and U.S. Department of Energy, show that Oahu could meet its own renewable energy needs, according to Mark Glick, head of the state energy office, which falls under DBEDT.

But HECO’s five-year energy plan, submitted to state regulators last month, concludes that an interisland cable system is not necessary to meet its mandate of generating 40 percent of its electricity from renewable energy by 2030. The utility also says it’s a decade ahead of schedule in meeting the requirement, which is outlined in the 2008 Hawaii Clean Energy Initiative.

HECO spokesman Peter Rosegg said that two of the utility’s computer-assisted energy scenarios indicate that Oahu does have the resources.

Rosegg said the utility is not abandoning the idea of an undersea cable system. HECO still plans to release a bid for renewable energy projects on neighbor islands that would connect to Oahu via interisland cables.

However, HECO’s plan says that “inter-island power is likely not needed” to comply with state energy mandates.

HECO's analysis has caught policymakers off guard. Until now, a major component of state energy policy has been an interisland cable system to support the high energy needs of Oahu, which hosts 75 percent of the state's population.

The utility alone has spent more than \$7 million in recent years on studies for cable systems and neighbor island wind farms. More than half that cost has been picked up by ratepayers. Those are in addition to studies conducted by the state energy office, also at public expense, as well as energy developers.

"It is a problem that we are seeing wild swings in the utility's plans between various action plans," said Doug McLeod, Maui County's energy commissioner and one of 68 people on a community task force convened by the Public Utilities Commission to help with HECO's energy plans. "What we are seeing is dramatic changes from draft to draft."

Much of the doubt about whether Oahu can meet renewable energy requirements centers on the availability of land.

Rosegg said that he doesn't think HECO has estimates of the amount of land needed on Oahu to reach the renewable energy mandate because there are too many technological variables involved.

But McLeod did his own analysis for one of HECO's energy scenarios which includes 600 megawatts of wind energy and 800 megawatts of solar energy. He said it would require 5,000 acres of solar panels and 120 new wind turbines standing 500 feet tall. Oahu currently has two wind farms on the North Shore.

HECO attributes the change in Oahu's energy outlook to a recent call it issued for renewable energy projects on Oahu. The utility received 25 bids and is hoping that the PUC will approve five of them. The bids came in at a combined average of 16 cents per kilowatt hour without factoring in state tax credits, indicating that Oahu could supply large amounts of renewable energy to its grid at a cheaper cost than previously thought.

Lim said that even if Oahu did have enough commercially available technologies to meet renewable energy goals, he doubts that the costs would remain low. He said costs could be prohibitive for projects sited in poor terrain or where there are poor solar and wind resources, as well as projects encountering community opposition due to visual impacts.

<http://www.bizjournals.com/pacific/blog/2013/05/castle-cooke-moving-forward-with.html?s=print>

May 24, 2013, 2:56pm HST

Castle & Cooke moving forward with Hawaii 'Big Wind' project

Castle & Cooke says it's still committed to building a wind farm on Lanai for Hawaii's "Big Wind" project. Seen in this file photo are turbines from First Wind's Kawaihoa Wind Farm on Oahu.

Duane Shimogawa

One half of Hawaii's controversial 400-megawatt "Big Wind" project — in which large wind farms on Lanai and Molokai would pump electricity to Honolulu via an undersea cable — is still moving forward.

Castle & Cooke Inc., which kept the rights to build a wind farm capable of producing up to 200 megawatts of renewable energy when CEO David Murdock sold the majority of the Pineapple Island to Oracle Corp. (Nasdaq: ORCL) CEO Larry Ellison last year has remained mum about its plans until Friday.

A Castle & Cooke spokesman told PBN that the company remains committed to addressing the reduction of foreign oil and that the Lanai wind farm and Mililani Solar Park are projects it continues to pursue.

"Both projects are key components in reaching the state's renewable energy objectives," the spokesman said.

In February, the 200-megawatt Molokai portion hit a huge snag when landowner **Molokai Ranch** decided against having a wind farm on its land.

Hawaii's State Energy Office, which just released an updated list of planned clean energy projects across the state, dropped the 200-megawatt portion of the Lanai wind farm from the list completely.

But it's not because it does not think the project is viable.

Instead, the state Energy Office added new criteria to the most recent list, which no longer ranks projects that may be associated with an ongoing solicitation from a utility or other entity, which is the case for the Lanai wind farm.

Once the final selection of those projects has been made public, they will then be added to Hawaii's Clean Energy Leaders list, the state Energy Office said.

Besides the Lanai wind farm, others that were removed from the list include Ulupalakua Geothermal, Maui Landfill Waste-to-Energy, Lalamilo Wind, Maui County Landfill Gas and Molokai Irrigation System Hydropower Plant.

In January, Castle & Cooke's planned project on Lanai was ranked 13th in Hawaii on the State Energy Office list, which was up five spots from 18th in the previous list.

In March, sources told me that a Hawaii cultural surveying firm, had been doing archaeological surveys in the area where the wind farm is supposed to be built.

But the surveyors were met by protestors and residents nearby denied them from staying at their homes through the proposed four-day stay, sources said.

The "Big Wind" still appears to be a viable endeavor to Hawaiian Electric Co.

Duane Shimogawa covers energy, real estate and economic development for Pacific Business News.

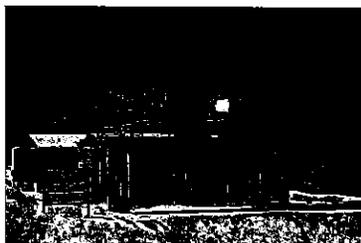
<http://researchmatters.noaa.gov/news/Pages/CarbonDioxideatMaunaLoareaches400ppm.aspx>



Carbon Dioxide at NOAA's Mauna Loa Observatory reaches new milestone: Tops 400 ppm

May 10, 2013

Contact: John Eald, 240-429-6127



NOAA's Mauna Loa Observatory after a snowstorm. Courtesy of Mary Miller, Exploratorium

On May 9, the daily mean concentration of carbon dioxide in the atmosphere of Mauna Loa, Hawaii, surpassed 400 parts per million (ppm) for the first time since measurements began in 1958. Independent measurements made by both NOAA and the Scripps Institution of Oceanography have been approaching this level during the past week. It marks an important milestone because Mauna Loa, as the oldest continuous carbon dioxide (CO₂) measurement station in the world, is the primary global benchmark site for monitoring the increase of this potent heat-trapping gas.

Carbon dioxide pumped into the atmosphere by fossil fuel burning and other human activities is the most significant greenhouse gas (GHG) contributing to climate change. Its concentration has increased every year since scientists started making measurements on the slopes of the Mauna Loa volcano more than five decades ago. The rate of increase has accelerated since the measurements started, from about 0.7 ppm per year in the late 1950s to 2.1 ppm per year during the last 10 years.

"That increase is not a surprise to scientists," said NOAA senior scientist Pieter Tans, with the Global Monitoring Division of NOAA's Earth System Research Laboratory in Boulder, Colo. "The evidence is conclusive that the strong growth of global CO₂ emissions from the burning of coal, oil, and natural gas is driving the acceleration."

Before the Industrial Revolution in the 19th century, global average CO₂ was about 280 ppm. During the last 800,000 years, CO₂ fluctuated between about 180 ppm during ice ages and 280 ppm during interglacial warm periods. Today's rate of increase is more than 100 times faster than the increase that occurred when the last ice age ended.

NOAA's Mauna Loa Observatory in Hawaii. Thursday, levels of the greenhouse gas carbon dioxide at Mauna Loa surpassed 400 parts per million for the first time since measurements began in 1958. Pre-industrial carbon dioxide levels were 280 parts per million. Mauna Kea is in the background. NOAA photo.

It was researcher Charles David Keeling of the Scripps Institution of Oceanography, UC San Diego, who began measuring carbon dioxide at Mauna Loa in 1958, initiating now what is known as the "Keeling Curve." His son, Ralph Keeling, also a geochemist at Scripps, has continued the Scripps measurement record since his father's death in 2005.

"There's no stopping CO₂ from reaching 400 ppm," said Ralph Keeling. "That's now a done deal. But what happens from here on still matters to climate, and it's still under our control. It mainly comes down to how much we continue to rely on fossil fuels for energy."

NOAA scientists with the Global Monitoring Division have made around-the-clock measurements there since 1974. Having two programs independently measure the greenhouse gas provides confidence that the measurements are correct.

Moreover, similar increases of CO₂ are seen all over the world by many international scientists. NOAA, for example, which runs a global, cooperative air sampling network, reported last year that all Arctic sites in its network reached 400 ppm for the first time. These high values were a prelude to what is now being observed at Mauna Loa, a site in the subtropics, this year. Sites in the

Southern Hemisphere will follow during the next few years. The increase in the Northern Hemisphere is always a little ahead of the Southern Hemisphere because most of the emissions driving the CO₂ increase take place in the north.

Once emitted, CO₂ added to the atmosphere and oceans remains for thousands of years. Thus, climate changes forced by CO₂ depend primarily on cumulative emissions, making it progressively more and more difficult to avoid further substantial climate change.

On the Web:

NOAA carbon dioxide data: <http://www.esrl.noaa.gov/gmd/ccgg/trends/weekly.html>

Scripps Institution of Oceanography carbon dioxide data: <http://keelingcurve.ucsd.edu>

NOAA's Mauna Loa Observatory: <http://www.esrl.noaa.gov/gmd/obop/mlo>

ANIMATION (carbon dioxide levels over 800,000 years): <http://www.esrl.noaa.gov/gmd/ccgg/trends/history.html>

IMAGES: http://www.esrl.noaa.gov/gmd/Photo_Gallery/Field_Sites/MLO

Discovery hints at coral's return

POSTED: 01:30 a.m. HST, Aug 08, 2013

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By Marcel Honoré

A coral species that all but disappeared from waters off the main Hawaiian islands thousands of years ago could be making a comeback to the area, a recent surprise discovery off the southern shore of Oahu indicates.

A group of coral ecology scientists with the National Oceanic and Atmospheric Administration stumbled upon what one of them called a "sizeable" table coral colony during a routine training dive last November, roughly a mile from the Ewa Plain. There had been only one other previous sighting of the distinctive plate-shaped coral around the main islands — off Kauai several years ago — but that budding colony swiftly disappeared, said Randall Kosaki, deputy superintendent for research and one of the four scientists who made the recent Oahu discovery.

The table coral colony near Oahu, on the other hand, measured more than a meter across and was estimated to be 10 to 14 years old, Kosaki said. It's about 60 feet below the surface, officials say.

NOAA publicized the discovery in a release this week after it was peer-reviewed and published last month in the *Bulletin of Marine Science*.

Table coral, also known as acropora, is typically found in warmer, tropical waters and grows abundantly at Johnston Atoll, 830 miles west-southwest of Hawaii, NOAA officials say.

It does flourish in the northwestern Hawaiian islands that make up the Papa-haunamokuakea Marine National Monument, but "it's essentially absent in the main Hawaiian islands," Kosaki said.

With the Oahu encounter, "it may be in the process of spreading," he added.

Table coral opens out faster than other species and helps build the reef structures essential to marine life relatively quickly, Kosaki said. Despite its flat top, table coral actually provides plenty of underwater shapes and "structure complexity," as Kosaki described it, for marine animals to use.

Fossilized records suggest table coral last flourished around the main islands tens of thousands of years ago, he said.

A resurgence could help to sustain local reefs as warmer waters and coral bleaching due to climate change threaten coral species, Kosaki said.

However, the table coral could simultaneously be threatened in the tropical regions where it currently thrives if those waters get too warm, he added.

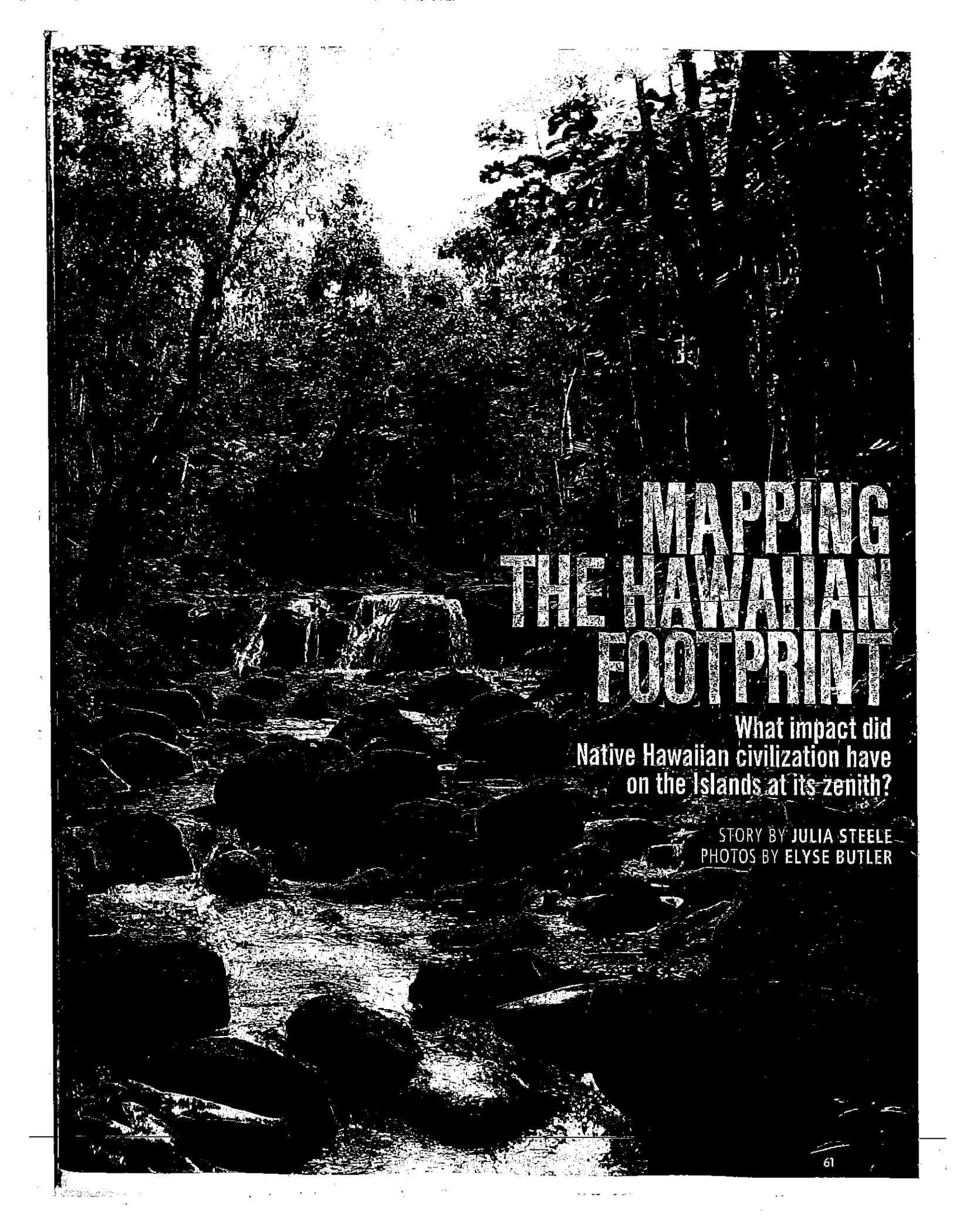
The colony near Oahu was discovered during a dive with closed-circuit "rebreathers," which Kosaki described as "scuba on steroids."

While regular scuba divers exhale bubbles into the water, rebreathers "recycle" those gases and scrub

them of carbon dioxide so divers can reuse the air. The method, which has become more mainstream in the past five to 10 years thanks to technological advancements, allows divers to reach greater depths and stay underwater for hours longer at a time, Kosaki said.

"You're going to find more interesting and unusual things," he said.

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MAPPING THE HAWAIIAN FOOTPRINT

What impact did
Native Hawaiian civilization have
on the Islands at its zenith?

STORY BY JULIA STEELE
PHOTOS BY ELYSE BUTLER

In 1995, Sam 'Olu Gon III, along with a dozen or so other ecologists, set out to create a picture of what the Hawaiian Islands looked like before a single human being had set foot upon them. The scientists knew that history had taken the Islands through amazing change in a relatively short time: Two thousand years ago the Islands had some of the highest rates of endemic biodiversity on Earth; they were home to unique natural wonders and not a trace of *Homo sapiens*—a radically different landscape from the Hawai'i of today.

The scientists were ambitious. They wanted to pinpoint the location of every native ecosystem—in essence, to draw a complete map of what the Islands looked like before we all showed up. In the modern landscape, wetlands have been filled in, dryland forests burned and mesic



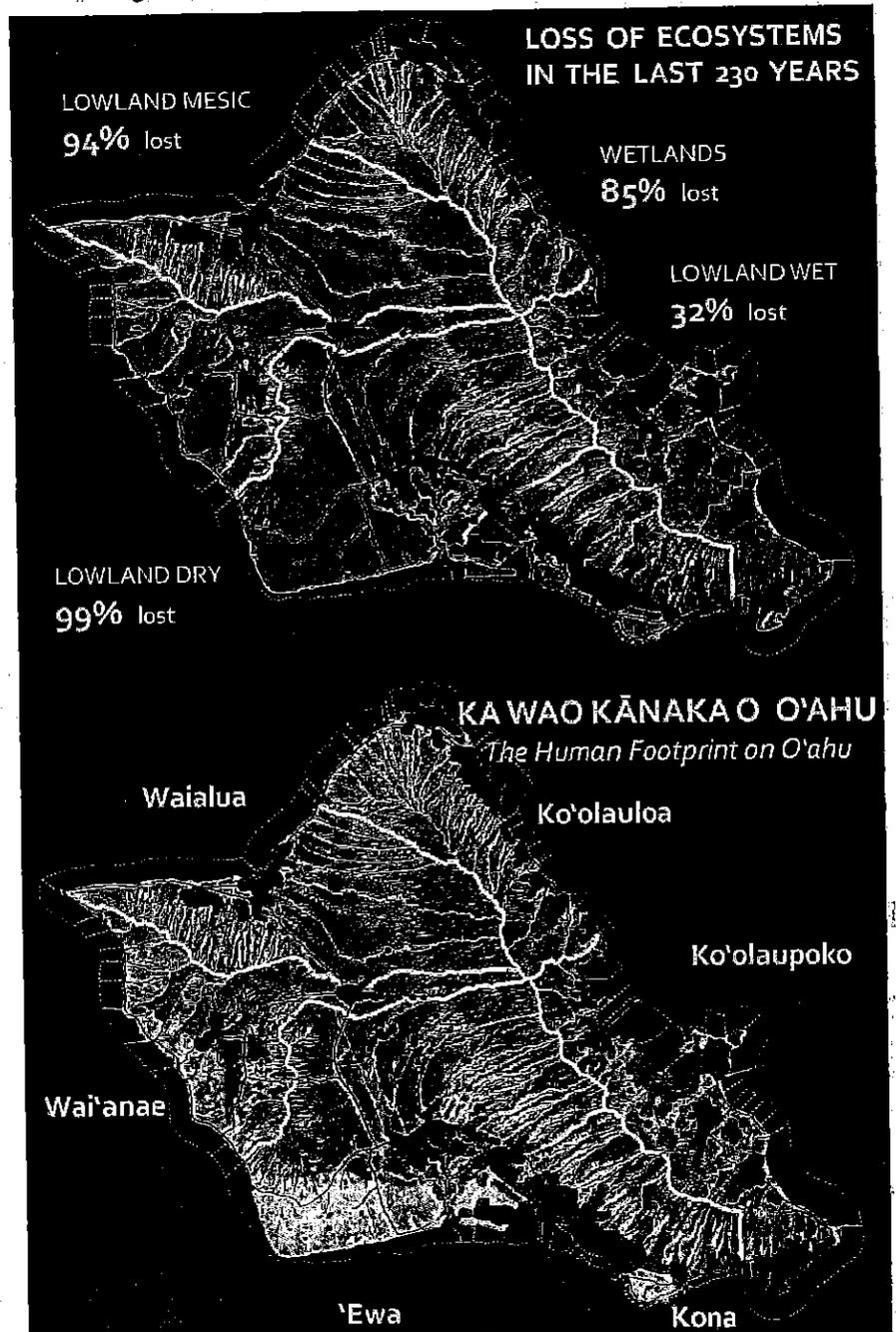
forests cut, but even with all of the change, there are echoes of Hawai'i's original richness. Gon, senior scientist and cultural advisor for The Nature Conservancy of Hawai'i, remembers finding a massive, native lonomea tree on the edge of a subdivision in Niu Valley, a living relic that would itself have been hundreds of years old. Out on rough 'a'ā lava flows, too, there are pockets of plant life that have escaped the ravages of cattle and fire. Old place names offer clues, too, like the fact that Honolulu was once called Kou—in reference to the vast groves of kou trees that once grew there.

The ecologists spent five years researching and refining their map. They honed their ability to discern entire ecosystems from a few tattered remains and trained their eyes to see the signatures of native vegetation. "First you learned to

recognize a tree when you were standing right under it," recalls Gon. "Then you learned to spot it on the ridgeline, then from the air and finally from a satellite photograph." By the end the scientists had mapped some two hundred ecosystems spread across the island chain—terrestrial, aquatic and subterranean—everything from 'a'ali'i shrubland to koa and 'ōhi'a montane forest. And it wasn't enough to simply identify an ecosystem, says Gon: "The challenge was that if you'd described

a vegetation type, you had to say where it was and what islands it existed on."

The first comprehensive map of pre-human Hawai'i was unveiled in 2000, with the two hundred ecosystems condensed into ten broad categories. Placed alongside a contemporary map of the Islands, it showed that across the archipelago much of the original landscape had been displaced by what Gon calls "the human footprint"; on O'ahu, the most changed island, the displacement rate was 85 percent. "We



Then and now. The two maps above show O'ahu as it is today (top) and as it was on the eye of the Hawaiians' first encounter with the West. The pink shadings on both maps indicate the areas where native landscapes have been disrupted by human activity. The Nature Conservancy's Sam 'Olu Gon III (at left) was behind the creation of these and other maps, which illustrate the human footprint on the land.

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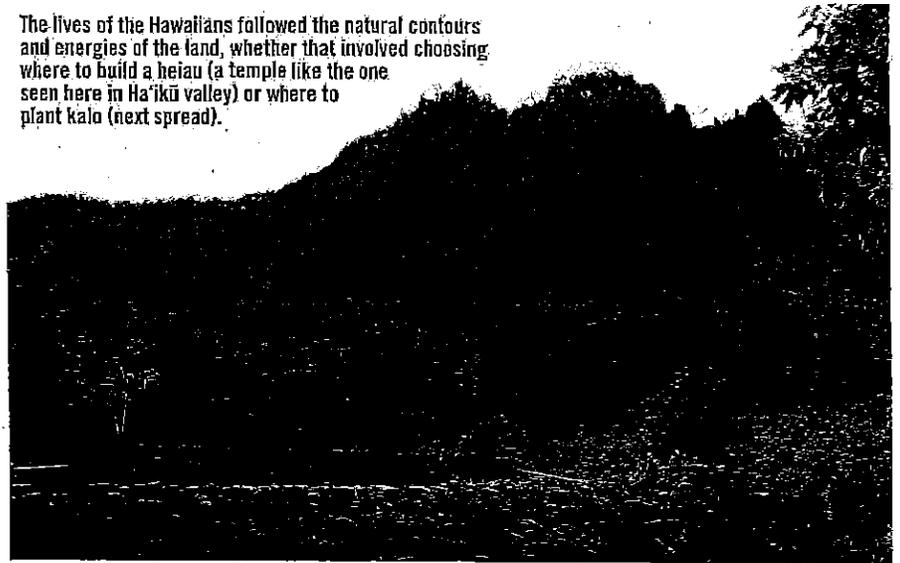
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Mapping the Hawaiian Footprint

went from these shadings of greens and browns" representing natives, "to everything in the lowlands turning pink," representing the human footprint, says Gon. The map quickly became an invaluable research tool—but happy as Gon was with its creation, the project of mapping change was far from over, for him at least. A big part of the picture remained unseen. "For every before-and-after story," he says, "you have to tell the story of what happened in between."

The lives of the Hawaiians followed the natural contours and energies of the land, whether that involved choosing where to build a heiau (a temple like the one seen here in Ha'ikū valley) or where to plant kalo (next spread).



The story Gon wanted to tell—the next map he wanted to create—would illustrate that in-between: the ecological footprint of Native Hawaiian civilization. In 2008 he began mapping the pre-contact Hawaiian footprint on O'ahu. What he wanted to ascertain, did the island look like in the 1700s, on the eve of its first encounter with the West? Where were its mala 'ai (fields) and loko i'a (fishponds)? Its heiau (temples) and hale (houses)? And if modern O'ahu had lost 85 percent of its original landscape, how much of that had the Hawaiians displaced? Once again Gon faced a daunting task: There were no written records from the time to consult because pre-contact Hawai'i was a purely oral society. But Gon was nothing if not creative. "We used multiple sources," he says, adding with a smile, "It was so much fun." Gon employed three key tools: archeology, scientific modeling and traditional sources such as chants, mo'olelo (legends) and the writings of nineteenth-century Hawaiian historians.

Archeology provided clear evidence of kalo (taro) lo'i and 'uala (sweet potato) fields and fishponds. Sites were spread across the island, nestled into valleys and

estuaries: crumbling walls that testified to centuries of labor and livelihood. "Hawaiian systems were semi-wild," notes Gon, "and used natural energies"—stream flow, for example, to irrigate lo'i and tidal changes to flush fishponds—so human endeavors followed the natural rhythms of the land. "Wet, flat-bottomed valleys are perfect for kalo," says Gon. "As the population grew, people began to terrace the valleys, go to more marginal places"

When they arrived on Island shores, the

Hawaiians brought some fifty or so "canoe plants" with them from elsewhere in Polynesia. All of these introductions displaced native growth—so as much as we think of the likes of kalo and 'ulu (breadfruit) as traditional Island plants, they are in fact part of the human footprint. The difference between canoe plants and many more recently introduced plants, Gon points out, is that the canoe plants almost without exception required tending—so the minute an agricultural area was left fallow in pre-contact Hawai'i, native species recolonized it. Today we have about fifteen thousand introduced plants in the Islands, two thousand of which now grow in the wild and two hundred of which are considered noxious weeds that will choke out native species (trees like strawberry guava, shrubs like miconia). By contrast only one canoe plant naturalized into the wild in any sort of invasive way. You can still see its silvery green silhouette climbing the ridges today: the kukui tree.

Where Gon lacked for actual archeological sites, he used modeling to predict where agricultural sites would have been. He looked at the requirements of two major crops, kalo and 'uala—the necessary

temperature, sunshine, moisture, soil—and went looking for those conditions. The reverse engineering was so effective, it even resulted in the discovery of large ancient 'uala fields where no previous archeological work had been done.

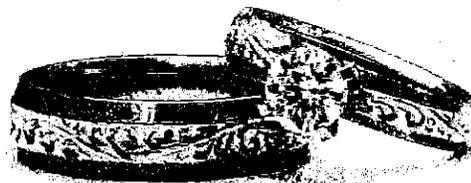
As the years passed and the research accumulated, Gon filled in the agricultural and marine components of the Hawaiian footprint: the vast fishponds at 'Ewa, for example, and the lush lo'i at Waiahole-Waikāne. "From the traditional sources, we identified what were known as the island's 'āina momona, or sweet lands," says Gon. "These were the places that were just amazing resources and celebrated as such—the fishponds of Kāne'one and Pu'uloa, for example, and the fishing grounds of Waimānalo and Waialua."

The map also looked to the political realities of the island. O'ahu in the 1700s was divided into six moku, or districts: Wai'anae, Waialua, Ko'olauloa, Ko'olau-poko, Kona and 'Ewa. As with everything in pre-contact Hawai'i, the lines tracked the land. "District divisions were ecologically determined," confirms Gon. Traditional sources—like the mo'olelo of the exploits of the chiefs—also helped to define the centers of governance and to draw the boundaries of the moku.

The Hawaiian footprint map shows not just the moku, the mala 'ai and the loko i'a, but also three other essential components of life on the island: the ala hele (trails), the heiau and other archeological sites such as houses and shrines. Information on the ala hele—the early ways that people moved about the island—came from archeological remains and also from the writings of historian John Papa I'i, who described walking the ala hele as a child in the early 1800s. "Those trails," Gon notes, "became horse trails and then car trails and then roads and finally major highways." The map details the heiau of the island, one of the most important of which was Kūkaniloko, in the center of the island, where ali'i (chiefs) were born. Today, Gon says, Kūkaniloko is for most just a place you pass on the way to the North Shore; but centuries ago it was the piko (navel) of O'ahu.

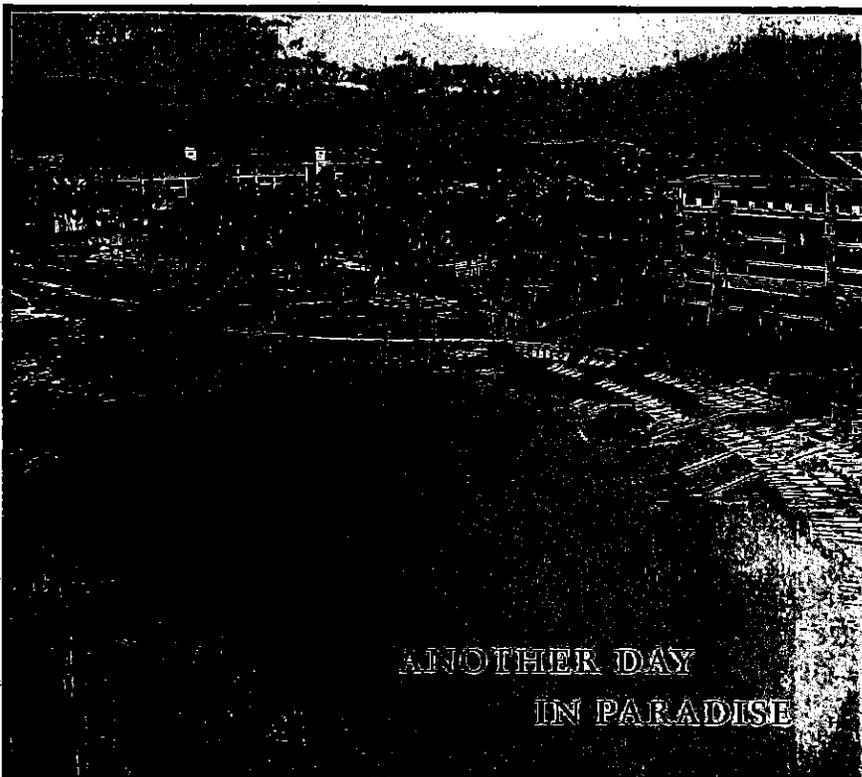
Gon's map conjures an island in balance, a place where people were expert at eking an existence out of the natural world. Gon points to population estimates for pre-contact Hawai'i—"everywhere from two hundred thousand to eight hundred thousand people"—and notes that this, too,

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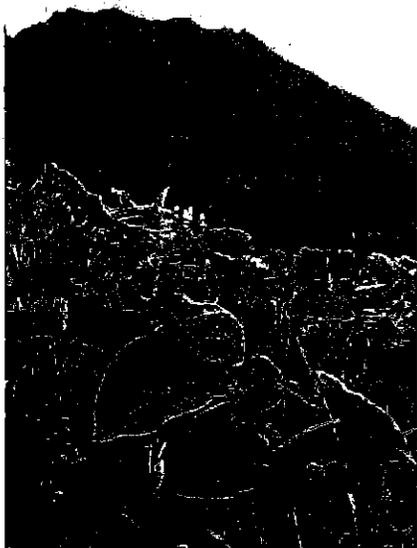
was something he re-examined through modeling: Using the estimates of the United Nations' Food and Agriculture Organization, which has done extensive research on the manpower needed to farm lo'i, Gon and his crew calculated how many people would have been needed to farm the taro lo'i they'd mapped—keeping in mind that not everyone would have been involved (women, for example, were forbidden from doing this work). Gon estimates that the population was closer to the eight hundred thousand figure—certainly it was large and secure enough, he points out, that “the living was easy and the artwork was fantastic. There were so many amazing artistic expressions—exquisite feather work and the finest kapa (bark cloth) in Polynesia. This was not a civilization on the verge of famine. They had all they needed to create amazing expressions of Hawaiian culture.”

So what of the displacement? Gon estimates that the Native Hawaiian footprint displaced about 14 percent of the original O'ahu landscape. That figure, though, is not quite as simple and concrete as it looks. Along with the canoe plants, the Hawaiians brought a number of animals with them that had significant effects upon the landscape: rats, pigs and dogs. Rats, for example, ate the seeds of native loulu palms and decimated the trees' population. Dogs preyed upon native birds. Pigs uprooted native ferns. Even if what was destroyed was subsequently replaced by something native, the transformation had been made. From the moment the first canoe arrived, change was afoot.

When Gon published his completed map, the Office of Hawaiian Affairs immediately took interest: Convinced of the value of mapping out things that were integral to ancient Hawaiian life, OHA decided to sign on to create comparable maps for every island in Hawai'i. The Nature Conservancy collaborated with OHA on the Maui, Moloka'i, Lana'i and Kaho'olawe maps, and then OHA took the lead from there: It is just completing the Hawai'i Island and Kaua'i maps. As each map nears completion, it's checked by local experts—people like Kepa Maly of the Lana'i Culture & Heritage Center for Lana'i and retired state forester Bob Hobby for Maui—and recalibrated as needed. The maps have also been fine-tuned as new information has become available. “Thank goodness for the Hawaiian-language newspapers,” says Gon, referring to the vast

trove of indigenous newspapers published in the nineteenth century. "They are an amazing source, and we can make adjustments as more information comes online. But we think we have a good start."

For Gon the maps are hardly an expression of the past. Rather, they are "a way to use the lessons of the past to guide our future. We have to value the systems that supported us, especially in an island system with finite resources and space." To that end, he is already hearing from organizations that want to know what once grew in



an area so they can restore it. The former Galbraith lands, for example, which include Kūkaniloko, were recently placed into agriculture in perpetuity; people there have looked to Gon for guidance on appropriate crops and growing methods. This, Gon believes, is the real lesson and promise of these maps. How can the modern day be reconnected to the past? Though that, too, is not a simple or concrete question. Even if everything in Hawai'i aligned to revert to earlier realities, the broader forces at work on the Islands might not be the same as they were a few centuries ago. In the Kula uplands, for example, the moisture band around Haleakalā no longer matches the archeology of the 'uala fields—Gon suspects because climate change and deforestation have driven the band farther up the mountain.

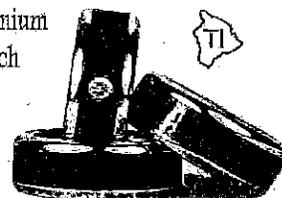
And what of Gon? When he travels around the island now, what does he see? A mix, he says, of pre-human, pre-contact and modern-day: He sees across time and generations, across introductions and extinctions, across the past and, he hopes, into the future. "There's nothing," he says, "like a map to go with a story." HH

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Tradewinds slack off

LAST UPDATED: 03:39 a.m. HST, Jun 04, 2013 By Audrey McAvoy / Associated Press

KIP AOKI / KAOKI@STARADVERTISER.COM

The shifting air currents not only alter humidity, but cause droughts and adversely affect the health of island watersheds



Part of what makes living in Hawaii so pleasant is the gentle breeze. Arriving from the northeast, it's light enough that it is barely noticeable but strong enough to chase away the humidity.

It's a natural draw to the outdoors.

Nowadays, experts say, these breezes, called tradewinds, are declining, a drop that's slowly changing life across the islands.

The effects can be seen from the relatively minor, such as residents unaccustomed to the humidity complaining about the weather and having to use their fans and air conditioners more often, to the more consequential, including winds being too weak to blow away vog.

The winds also help bring rain, and their decline means less water. It's one reason officials are moving to restore the health of watersheds, the mountainous forests that hold the state's water supply, and more aggressively encouraging water conservation. Scholars are studying ways for farmers to plant crops differently.

What's behind the shift in the winds isn't clear.

"People always try to ask me, Is this caused by global warming? But I have no idea," said University of Hawaii at Manoa meteorologist Pao-shin Chu, who began to wonder a few years ago about the winds becoming less steady and more intermittent.

Chu suggested a graduate student look into it. The resulting study, published last fall in the *Journal of Geophysical Research*, showed a decades-long decline, including a 28 percent drop in northeast tradewind days at Honolulu Airport since the early 1970s.

Scientists used wind data from four airports and four ocean buoys as well as statistical data analysis for their study. Now they are working to project future tradewinds using the most recent

data from the Intergovernmental Panel on Climate Change, a scientific body of the United Nations.

Luke Evslin is already noticing the dip. The 28-year-old has paddled outrigger canoes for most of his life. In Hawaii this means he rides waves generated by tradewinds. These days, though, there are fewer waves to surf because the winds are arriving less often.

"You show up and the wind is blowing in the wrong direction. So instead of a 3-hour, 45-minute race, it turns into a 5 1/2-hour race," Evslin said. "So instead of testing your surfing ability, it's testing your endurance. It's a different type of paddling."

He's thinking he'll now have to start training for races in canals and rivers to better prepare for flat water conditions.

Sometimes the winds are too weak to blow away the vog created by sulfur dioxide erupting from Kilauea volcano on Hawaii island, leaving a white or brownish haze hanging over Honolulu. This aggravates asthma and other respiratory problems.

For now, Chu said the most important consequence will be declining rainfall and a drop in the water supply, particularly as Hawaii's population grows and uses more water.

Tradewinds bring rain when clouds carried from the northeast hit mountainous islands built by millions of years of volcanic eruptions. This rain, together with rainfall from winter storms, is the state's primary source of water.

On Oahu the rain feeds ground aquifers that supply water to about 950,000 people in urban Honolulu and across the island.

Barry Usagawa, the water resources program administrator for the Board of Water Supply, said residents are reporting streams near their homes are flowing lower than before.

"What we don't know is if this is truly a downward trend or just the lower leg of a long-term cycle. Is it going to go back up?" he said. The agency has contracted Chu to develop rainfall forecasts to plan for the decades ahead.

The board is also encouraging people to fix leaks and buy appliances that use less water to reduce consumption. It's developing recycling facilities so places like golf courses will be irrigated with recycled water. Desalinizing ocean water may also be an option, Usagawa said.

In the meantime the agency supports efforts to improve the health of Oahu's forests so they can absorb as much rain as they get.

The Legislature this year approved a state budget with \$8.5 million for watershed protection steps next fiscal year that include removing invasive weeds and keeping out pigs and other feral animals that dig up forest plants.

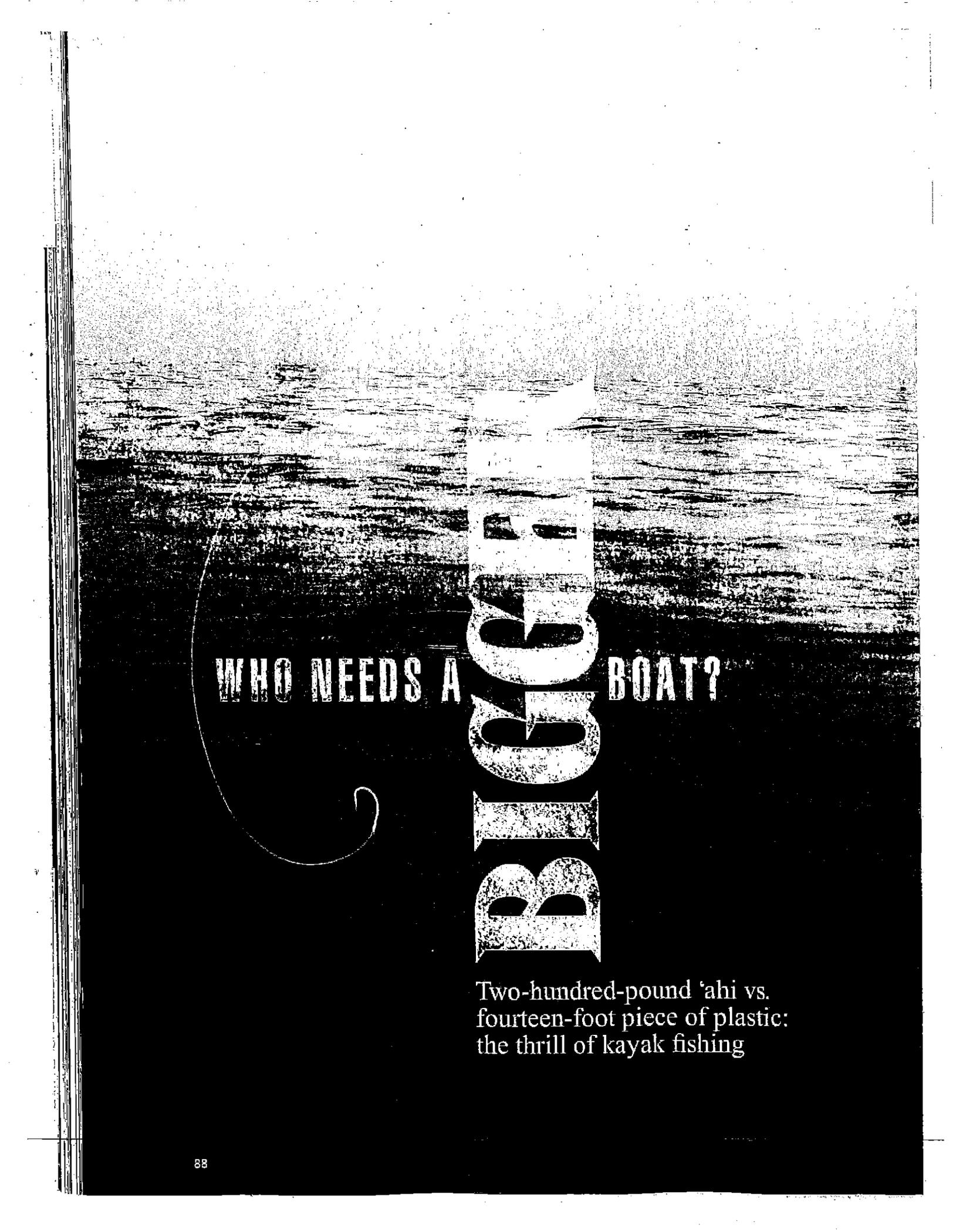
The drop in tradewinds, along with a separate decline in winter Kona storms, is one reason parts of Hawaii are in drought. Maui, for example, just had the driest April on record.

To cope with rainfall decline, University of Hawaii at Manoa agriculture professor Ali Fares said farmers can try to grow crops during the rainy season and avoid months when water availability is uncertain.

Farmers could also plant more drought-tolerant crops and irrigate when crops are under the most stress. "So many people only talk about drought when there's no water, but it's too late then. We have to talk about these before they happen," Fares said.

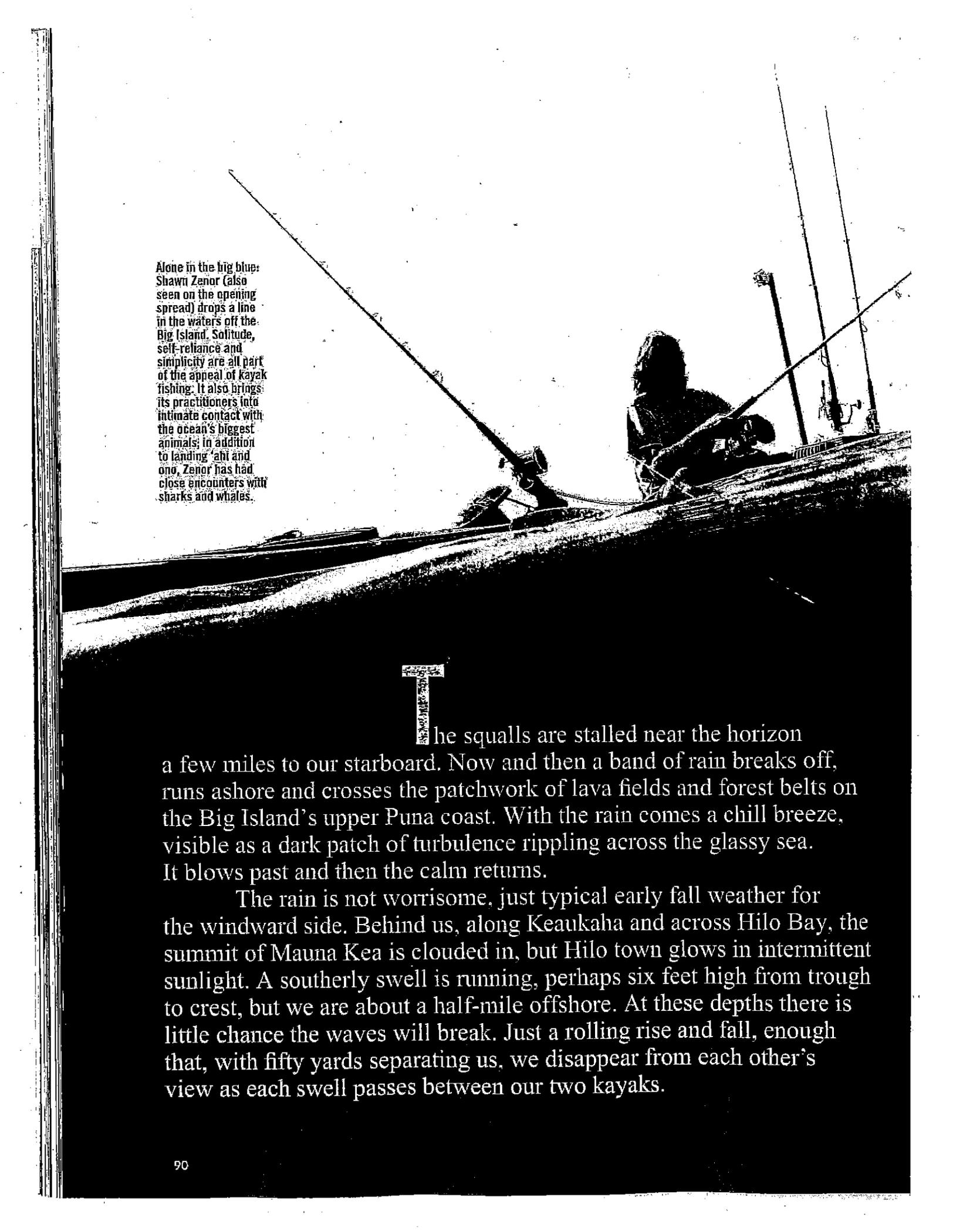
The tradewind decline may be too subtle to affect the state's biggest industry, tourism, and keep away any of the 8 million travelers who visit the islands each year. After all, even without tradewinds, humidity is mild compared with Hong Kong or Tokyo. And the heat here is nothing compared with summer in Texas or Arizona.

"We do have the best weather in the planet. We really do," said Jerome Agrusa, a travel industry management professor at Hawaii Pacific University. "Once you leave to go visit somewhere else, you realize, I go away and I think, 'What did I go for?'"



WHO NEEDS A BOAT?

Two-hundred-pound 'ahi vs.
fourteen-foot piece of plastic:
the thrill of kayak fishing



Alone in the big blue: Shawn Zenor (also seen on the opening spread) drops a line in the waters off the Big Island. Solitude, self-reliance and simplicity are all part of the appeal of kayak fishing. It also brings its practitioners into intimate contact with the ocean's biggest animals; in addition to landing 'ahi and ono, Zenor has had close encounters with sharks and whales.

The squalls are stalled near the horizon a few miles to our starboard. Now and then a band of rain breaks off, runs ashore and crosses the patchwork of lava fields and forest belts on the Big Island's upper Puna coast. With the rain comes a chill breeze, visible as a dark patch of turbulence rippling across the glassy sea. It blows past and then the calm returns.

The rain is not worrisome, just typical early fall weather for the windward side. Behind us, along Keaukaha and across Hilo Bay, the summit of Mauna Kea is clouded in, but Hilo town glows in intermittent sunlight. A southerly swell is running, perhaps six feet high from trough to crest, but we are about a half-mile offshore. At these depths there is little chance the waves will break. Just a rolling rise and fall, enough that, with fifty yards separating us, we disappear from each other's view as each swell passes between our two kayaks.

Shawn has three poles on board. The one mounted directly behind him is for 'ōpeli, or mackerel scad, a favored baitfish for deep-water anglers. Two other poles jut from either side of the kayak at forty-five-degree angles, each trolling a five-inch-long Daiwa "crank bait"—double-hooked lures meant for mid-size pelagic fish: Things like aku and 'ahi, ono and mahi-mahi, which can weigh as little as five pounds or more than two hundred. Challenging prey, especially if you're trying to land them while sitting only a few inches off the water in a fourteen-foot boat that doesn't weigh a whole lot more than the fish themselves.

I, on the other hand, have only one pole—all the better, because I'm no fisherman. The only reason I'm here is because Shawn Zenor is an old friend of mine, and he's agreed to introduce me to the world of kayak fishing. I've already lost two ono this morning. And the only reason I suspect they were ono is because Shawn had told me that they hit hard and take off running. A few months back, just as he was about to land a decent-size 'ahi, Shawn saw a flash of silver shoot up from the deep blue: ono. It swallowed the 'ahi whole and then snapped through the line with its strange jaw, which clamps like a pair of serrated scissors. "That was my lucky lure, too," Shawn says without a hint of the dramatic. This stuff just happens; you deal with it.

At least my line is intact, though my lure isn't looking so lucky—the hooks are bent, the body scarred with tooth-marks.

There aren't accurate numbers as to how many people in Hawai'i are fishing from kayaks these days, but it's generally agreed that the sport is on the rise. Most attribute this to a variety of factors: It's among the least expensive ways to reach offshore fishing grounds; it's rooted in an older, simpler way of doing things and satisfies a certain self-reliance gene present in most of its practitioners; and it's just plain challenging.

Still, among Island anglers kayak fishermen are a minority. The most recent data from the US Fish and Wildlife service dates from 2006, when there were about 114,000 Hawai'i residents who participated in one form or another of recreational fishing. Add another 65,000 fishing visitors, and you have an industry worth more than \$110,000,000. By contrast, aquahunters.com, the best-known online forum among Hawai'i's kayak fishing community, currently logs a few more than a thousand registered members, not all of whom live in the Islands.

This disparity, if accurate, isn't surprising. For all the allure of kayak fishing, there is also the reality: Sitting in a self-propelled, unshaded plastic boat for eight-plus hours isn't for the faint of heart (or

'ōkole). For those who are prone to motion sickness, doing the simplest thing—say, tying a lure—is dizzying when you are being rocked by even the smallest of swells. Watching someone try to stand on dry land after a day on the water is like watching toddlers taking their first steps. And your knees, I can tell you from experience, get really, really sunburned.

Then there's the open ocean: Many prime fishing spots in the Hawaiian Islands are not buffered by barrier reefs that would otherwise separate calm inner from wild outer waters. Paddle for twenty minutes and you're in a completely different environment. Even when they're not breaking, big open ocean swells are challenging, as are the currents invisible to the untrained eye. Also occasionally challenging are the large predators that shy away from coastal areas but do patrol the offshore deep.

You have to deal with all of this before you can even think about what it means to land a deep-water fish from a kayak. A longtime fisherman once told me that 'ahi fight so hard that they can literally cook their own flesh. Ono can swim up to fifty miles per hour and have razor-sharp appendages. Landing these fish in the best of circumstances is never as simple as reeling them in and scooping them out of the water with a net. The standard seated position in a kayak is awkward for most things other than paddling; now imagine

The young man and the sea: Going after big pelagic fish from a tiny kayak miles from shore is risky, but for Isaac Brumaghin, seen here fishing off O'ahu's Waialanae coast, it holds a purity that connects him to his native culture. "When I realized how much we canoe-fished in ancient times," he says, "I felt like I was digging back into my roots, and that felt really special to me."



a desperate fish circling around or under a boat that's rocking and shifting with each run on the line. Once you've worked the fish to the surface, you have to maneuver it within range of a sharp gaff, which is wielded with one hand while holding the fishing rod with the other. Once you land it, there's no stepping aside if it thrashes in your boat.

All of this requires more than a casual level of interest, but those who last seem hooked for life. Take for instance Isaac Brumaghim. Thirty-seven years old, originally from the Big Island but now residing on O'ahu, Isaac was an avid canoe paddler when he found his calling nine years ago. "Canoe racing was a part of my Hawaiian culture, and I really took pride in that," he says. "I tried shoreline fishing, but it was so boring and so tough to catch anything. So I tried fishing off a one-man outrigger, but those canoes are expensive and fragile and there's not really enough room. But I think that's why my passion grew so quickly: When I realized how much we canoe-fished in ancient times, I felt like I was digging back into my roots, and that felt really special to me."

Kayak fishing may seem a far cry from Hawaiian tradition, but not necessarily, at least not in broad outline. Writing in the 1880s, Emma Beckley (then curator of the Hawaiian National Museum) noted that Hawaiian fishermen "often went fishing so far out from land as to be entirely out of

sight of the low lands and mountain slopes." Hawaiian historian Samuel Manaiakalani Kamakau, also writing in the late nineteenth century, noted that Hawaiians went after more than a dozen deep-water fish, including aku (skipjack), kāhala (amberjack), 'ula'ula (red snapper), 'ahi (yellowfin tuna) and uku (gray snapper), among others. Abraham Fornander, a contemporary of Kamakau, describes more than twenty types of canoe fishing techniques used for catching everything from he'e (octopus) to 'ahi, which Fornander describes as "a very ferocious and powerful fish."

That's about where the similarities end; virtually nothing about a modern kayak resembles a Hawaiian fishing canoe. Most fishermen typically get their start by retrofitting standard, molded-plastic ocean kayaks for fishing: bolting on a couple of rod holders for trolling and bungee-cordding a plastic milk crate (pronounced "tackle box") into the aft hold. Beyond these basic modifications, it's open season: There are battery-powered sonar units, more rod holders, camera mounts—go ahead and YouTube "kayak fishing Hawaii" sometime—even sails and outriggers. And while a kayak is far less expensive than a fishing boat, it's not necessarily cheap.

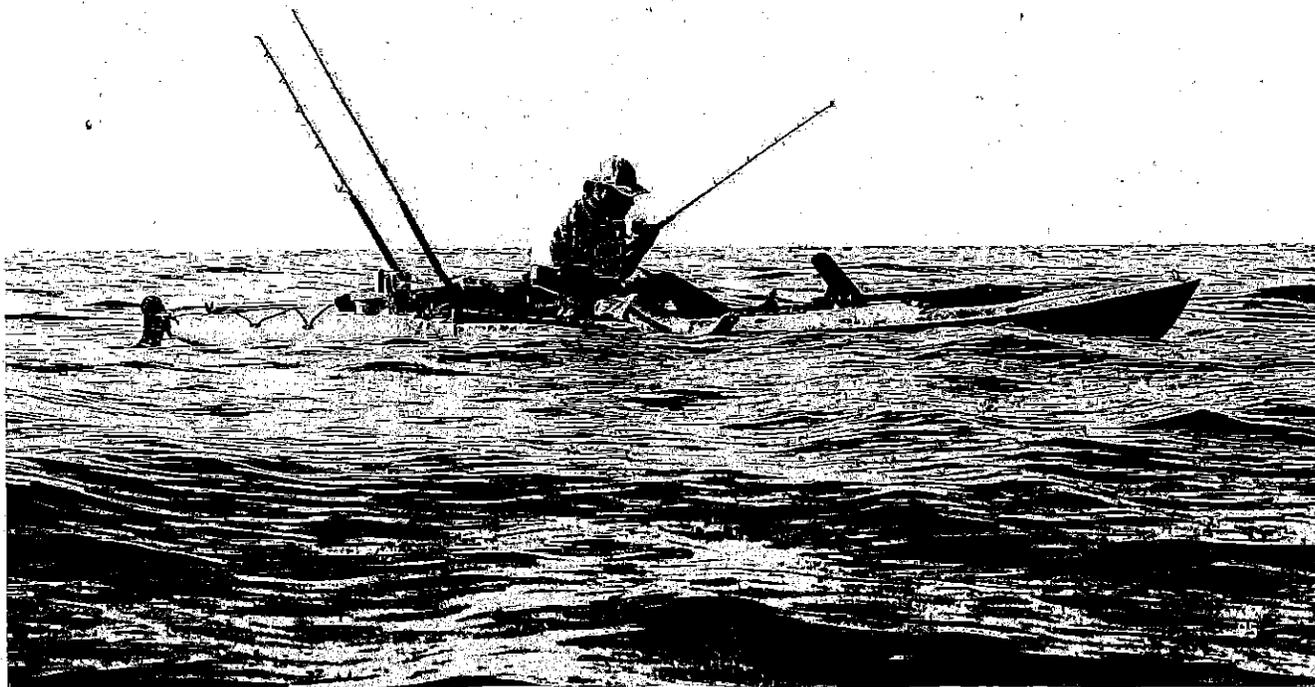
"Even if you start with a used kayak, you're looking at a minimum of about \$600 to rig it for basic fishing with one or two poles," says Shawn. "If you want to achieve some level of safety and improve your chances—GPS, marine VHF radio,

sonar and so forth—it's more like \$1,500 for a fully outfitted yak. And you can easily double these numbers if you buy a new kayak that is designed for fishing."

While Hawai'i has a fairly substantial industry producing streamlined racing kayaks and modern one-man outrigger canoes, no one in the Islands is making kayaks that are pre-modified for fishing. Instead the most popular brands in Hawai'i—Hobie and Ocean Kayak—are the worldwide giants, both of which have had a well-established place in the Islands for years. Shawn is among a cadre of local fishermen who receive industry sponsorship, but Jackson Kayak (his sponsor) hasn't yet cracked the Hawai'i market—too risky for local dealers to import a shipping container full of kayaks without knowing whether they'll sell.

As part of the push to build the sport, Isaac founded Aquahunters in 2005. The site's online forum has grown into a tight-knit community where members share stories, impart information and deliver the occasional smackdown to those who unwittingly violate Hawai'i fishing etiquette. You don't, for instance, want to go online, identify a specific fishing ground by name and then gush about how good the 'ahi are biting. This is common sense, but it also has roots in long-standing Hawaiian tradition: One doesn't fish another's area without permission. "The community has become so strong, and we've been able

"You're definitely at the mercy of the fish when you're on a kayak," says Andy Cho, pictured here fishing off South Kona. Cho is legendary for landing some of the biggest catches from a kayak in the Islands. He regularly cleans up in competition, leading some of his peers to call him the "Kelly Slater of kayak fishing."



to push it forward together," says Isaac. "Like anything, we require that people show respect, but that's the way Hawai'i is: You give respect and you'll get respect, too. That's just how we operate."

In 2008 Aquahunters sponsored its first Makahiki tournament, which has developed into an eight-month-long statewide fishing competition in which participants operate on the honor system, claiming the fish they catch up to forty days within the cycle. More recently, Isaac has been offering eco- and kayak-fishing tours to educate potential new converts rather than leave them to learn it all on their own.

Today, Aquahunters is the closest thing to an official body in terms of tracking catches. The website's "trophy room" includes two world records: Devin Hallingstad's 176.5-pound 'ahi and Andy Cho's 225.5-pound blue marlin. Other fish, though not world records, are equally impressive: Devin has also caught a 102-pound uha, while Andy Cho's brother Steve landed a 132.5-pound black marlin. These large-scale catches have elevated Hawai'i from relative unknown to one of the world's premier kayak fishing arenas. Andy in particular has achieved a somewhat mythical status; Isaac calls him "the Kelly Slater of kayak fishing," in reference to professional surfing's multi-time world champion. With good reason: Andy dominates the Aquahunters pro division, having won every Makahiki tournament since its inception, and this is now much more than a hobby for him. Fishing four to five times per week, usually off the South Kona coast, he makes his living selling his catch.

"I didn't start kayak fishing to do it commercially," Andy says now, recalling how he'd first paddled out to keep Steve company. At the time he was a landscaper. "But the years went by, and I started getting better and better, and when I started selling fish it got pretty lucrative. I was making more money than going to work, so I just started fishing full time." By targeting mainly 'ahi and ono, which sell at market for \$4 to \$5 per pound, he can make anywhere from \$300 to \$500 a day. Of course, sometimes other fish get on the line. That blue marlin, for instance, which took him longer than two hours to land and during which time he and his kayak were pulled across roughly two miles of open water. "You're definitely at the mercy of the fish when you're on a kayak," says Andy when asked about the difference between kayaks and other boats. "If the

fish is pulling against a boat, it's basically working against a fixed object. But when you're on a kayak and they go on a good run, you're going with them. Once I clocked myself using my GPS, and I was being dragged seven or eight miles per hour across the water."

Even as Hawai'i has gained in worldwide recognition, the local community remains close. Each winter, Makahiki competitors gather from throughout the Islands for a post-competition awards banquet. Without fail, the top guys all show up with food to share ... fish, of course. "We're supposed to be there to celebrate the pros," says Isaac, "but this is just the way it is here. We're here as a whole to show the world that we rank among the best."

Meanwhile the sport continues to evolve, leading one to wonder: Just how big a fish can one catch from a kayak? "As the sport has progressed we've been pursuing bigger and stronger fish, like marlin," says Isaac in answer. "Recently I hooked up to one that was somewhere

in the range of three hundred pounds. I lost it, but just seeing it launch out of the water and realizing how much power and danger there was in this one fish, it made me check myself, like, "Wow, am I ready for this?"

Isaac clearly doesn't lack confidence when it comes to being on the water, but at the same time what he's talking about is a common theme among the fishermen I've met along the way ... and, really, among most of Hawai'i's more extreme watermen and women: You need to be trained and prepared to deal with situations for which you can neither train nor prepare.

"You don't have the security blanket a boat would give you when you run into big problems in the ocean, but you just have to know what to expect out there. Fish are big and fish are dangerous; there are sharks involved, there are whales involved. There are days out there when it might not have anything to do with a fish; the conditions are what might worry me, where I ask myself, 'Can you handle? Can you get in through these waves? Can you



To the paddler go the spoils: Andy Cho with a forty-one-pound 'ahi caught from his kayak off South Kona. This is small kine for Cho, though, who's landed a world record-setting 225.5-pound marlin.



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Who Needs a Bigger Boat?

get back through this current and these winds?" There are all kinds of things out there that remind you that this is a dangerous sport."

Shawn knows about the danger. After a couple of hours of trolling back and forth through a fifty-yard patch of water that looks slightly glassier than its surroundings—a nutrient-rich upwelling where pelagics tend to congregate—we take a break, drifting near enough to talk as the deep ocean swells pass beneath us. I lean forward and try not to capsize while fumbling with the hatch between my feet, looking for something to drink. Meanwhile Shawn recalls a day last whale season. He was out at this same spot and realized that the hull of his kayak was acting like an amplifier for the humpbacks' eerie song. He couldn't see them anywhere, only hear them. So he pulled out his cellphone and started recording. And then there they were. "At the height of the season, when whales are breaching all around you," he says, "it can be like dodging bombs."

But that's nothing compared with what happened in the summer of 2011, when a shark came up from behind, chomped the back third of his kayak and lifted it out of the water. Shawn's usually fairly reserved when it comes to talking about himself. But this is how he recounted the event on his blog, *Drifting Son*: "[It] almost knocked me out on impact and then again while he pushed me around. I let out a man-scream and whaled on it with my paddle, and he let go before I got to my gaff. He was way longer than my kayak (a 14.5-foot Aquaterra), and his head was easily three feet wide. Big gray head is all I could really see to ID it—either a tiger or great white, and I'm leaning towards the latter. . . . I was so scared I sprinted to the shallows and just sat for a while to calm down. Kayak has tooth-marks, my nerves were shot, and I came home with no fish, but at least I came home."

I ask whether this experience made him think twice about going out to sea. "I truly have not been more scared in my life," he says, "but I think I'm able to accept the humility of not being the apex predator out there. I got over it that day by paddling back out there after the shaking stopped and continuing to fish without incident. I figure it's a once-in-a-lifetime event, and I survived mine. I've since caught and released tiger sharks and hammerheads up to eight feet long, so I've become somewhat acclimated to their presence, but

there is really no way to prepare yourself for a twenty-foot tiger shark clamped onto the back of your boat. So why bother?"

That all happened a mile or so farther out to sea from where Shawn took me fishing, and it was on my mind when the squalls finally found us that day—nothing too heavy, but enough to limit visibility to maybe fifty feet. At just about the moment when the rain began to obscure Shawn from my view, he hooked into another one. I heard him swear, then laugh: The handle had snapped off his reel and dropped into the depths. I squinted into the rain, watching as he tried to hand-line the fish.

Only when it was far too late did I realize that I had somehow clipped the pick-up on my own reel, which was allowing my line to spool out, creating a spaghetti-like mass on the surface of the water. It was too much of a tangle to reel in, so I just hauled the whole ugly nest into the boat, at which point one of the hooks on my lure embedded itself in the crotch of my surf shorts, dangerously close to making its first bona fide catch of the day. How quickly things could go wrong. Not that we were in any real danger, but ... in other circumstances this could get real. And quick.

A few days after our fishing trip, having returned to O'ahu with my back still aching and my knees beginning to peel, I emailed Shawn to ask what keeps him returning to sea. Lately he's picked up a commercial fishing license and a few equipment sponsors, but this is still largely a labor of love for him, and a fickle one at that.

"I suppose," he replied, "that the kind of person drawn to kayak fishing is one who seeks a more participatory experience. One not content to sit on shore waiting for something to swim by or to just passively troll all day on a powerful boat with reels so big they're more like winches. But despite all the clever sayings like 'a bad day fishing is better than a good day working' and 'it's called *fishing*, not *catching*,' there have definitely been days when I wished I had just gone to work. When it's cold, windy and raining and it doesn't let up, it's simply no fun. Those are days of humility and a reminder that we are merely bit players in the game. But even at those times, before I fall asleep that night, I'm already thinking about making the next trip better. Every trip is a learning experience, and in your head the next one will always be better." **EM**

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The mysterious killings of monk seals in Hawaii have all the makings of a fictional drama. But they're very real — and very much embroiled in political intrigue.

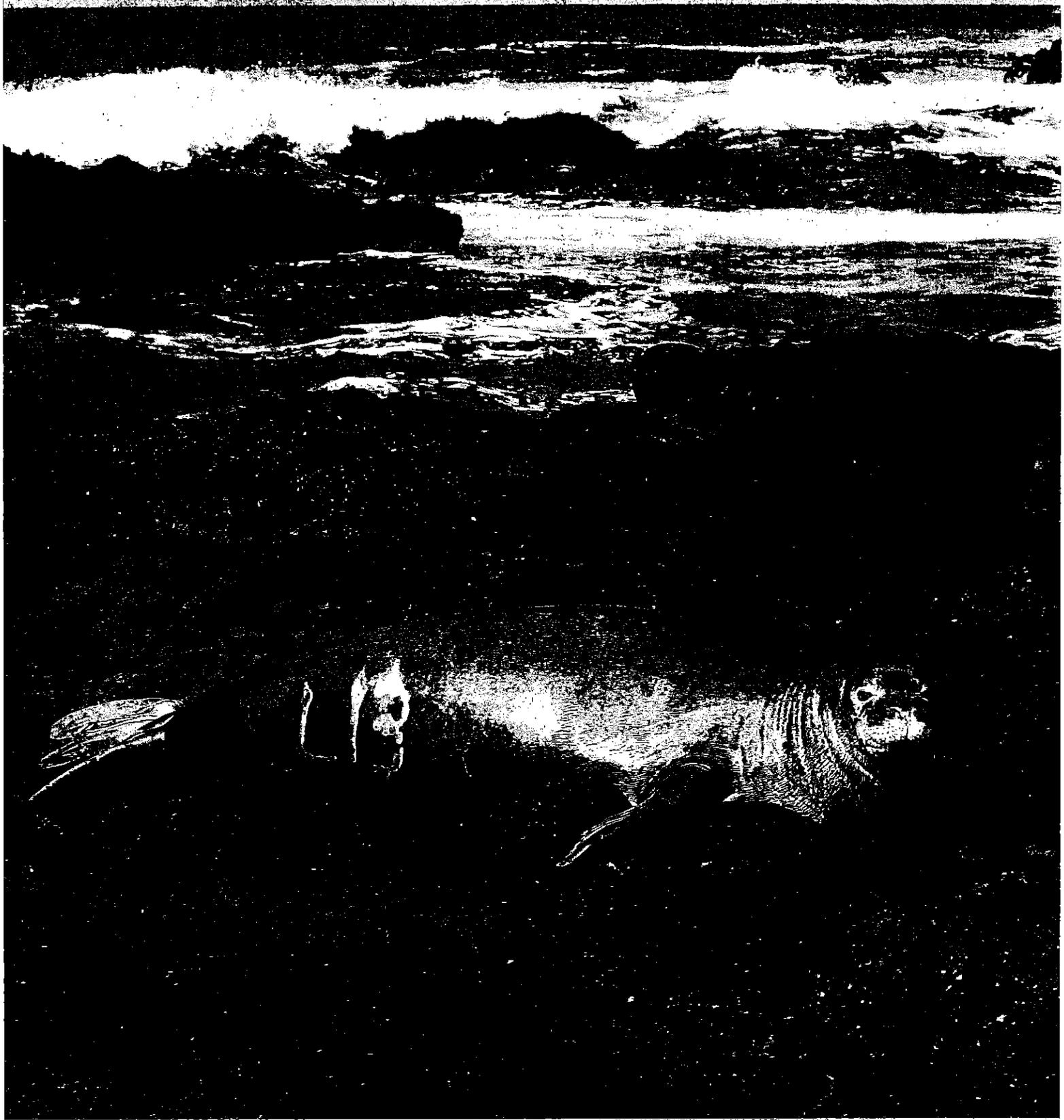
By JON MOALLEM

Photographs by Peter Bohler

Ihe Hawaiian monk seal has wiry whiskers and the deep, round eyes of an apologetic child. The animals will eat a variety of fish and shellfish, or turn over rocks for eel and octopus, then haul out on the beach and lie there most of the day, digesting. On the south side of Kauai one afternoon, I saw one sneeze in its sleep: its convex body shuddered, then spilled again over the sand the way a raw, boneless chicken breast will settle on a cutting board. The seals can grow to seven feet long and weigh 450 pounds. They are adorable, but also a little gross: the Zach Galifianakises of marine mammals.

Monk seals are easy targets. After the Polynesians landed in Hawaii, about 1,500 years ago, the animals mostly vanished, slaughtered for meat or oil or scared off by the settlers' dogs. But the species quietly survived in the Leeward Islands, northwest of the main Hawaiian chain — a remote

LAW & ORDER



archipelago, including Laysan Island, Midway and French Frigate Shoals, which, for the most part, only Victorian guano barons and the military have seen fit to settle. There are now about 900 monk seals in the Leewards, and the population has been shrinking for 25 years, making the seal among the world's most imperiled marine mammals. The monk seal was designated an endangered species in 1976. Around that time, however, a few monk seals began trekking back into the main Hawaiian Islands — “the mains” — and started having pups. These pioneers came on their own, oblivious to the sprawling federal project just getting under way to help them. Even now, recovering the species is projected to cost \$378 million and take 54 years.

As monk seals spread through the mains and flourished there, they became tourist attractions and entourage-encircled celebrities. Now when a seal appears on a busy beach, volunteers with the federal government's “Monk Seal Response Network” hustle out with stakes and fluorescent tape to erect an exclusionary “S.P.Z.” around the snoozing animal — a “seal protection zone.” Then they stand watch in the heat for hours to keep it from being disrupted while beachgoers gush and point.

But the seals' appearance has not been universally appreciated. The animals have been met by many islanders with a convoluted mix of resentment and spite. This fury has led to what the government is calling a string of “suspicious deaths.” But spend a little time in Hawaii, and you come to recognize these deaths for what they are — something loaded and forbidding. A word that came to my mind was “assassination.”

Ihe most recent wave of Hawaiian-monk-seal murders began on the island of Molokai in November 2011. An 8-year-old male seal was found slain on a secluded beach. A month later, the body of a female, not yet 2 years old, turned up in the same area. Then, in early January, a third victim was found on Kauai. The government tries to keep the details of such killings secret, though it is known that some monk seals have been beaten to death and some have been shot. (In 2009, on Kauai, a man was charged with shooting a female seal twice with a .22; one round lodged in the fetus she was carrying.) In the incident on Kauai last January, the killer was said to have left a “suspicious object” lodged in the animal's head.

Killing an endangered species in Hawaii is both a state and federal offense. Quickly, the State of Hawaii and the Humane Society of the United States put up a reward for information. “We're all in agreement that somebody knows who did this,” one Humane Society official told me. The islands are close-knit but also loyal, particularly the native Hawaiian communities. In January, when I met with the state wildlife agency's chief law-enforcement officer for Kauai — a man named Bully Mission — he confessed that, after a year, Kauai's tip line hadn't received a single call. In fact, there was still a reward out from a seal killing in 2009.

A quick aside about Bully Mission: I went to Hawaii thinking I'd write a straight-up police procedural — you know, “CSI: Monk Seal.” When I heard that Kauai's top wildlife cop was named Bully Mission, I figured I'd found my hard-boiled protagonist. But for one thing, Bully Mission isn't

anything like the detectives on TV. He's a small, wide-smiling man, who seems to inner-tube through life on currents of joy and amusement. (His real name is Francis.) Wildlife crime-solving doesn't fit the network-drama formula, either. The wilderness is a big, unwatched place. The ocean is a violent environment. Sometimes it's tough even to determine a cause of death. (A seal with skull fractures may have been beaten, or it may have died miles out at sea of natural causes, then knocked around in the surf.) When your victim is a seal, one federal agent points out, “you can't interview the seal; you can't interview its friends.” Often, you can only pile up a reward and wait.

And so, as the deaths kept coming after that initial murder on Molokai, environmental groups chipped in more money, bringing the total reward to \$30,000, or \$10,000 per seal. Then, in April 2012, a fourth seal was killed on the east side of Kauai. This particular seal was well-known in the neighborhood; it frequented an inlet under a scenic walking path. Locals nicknamed it Noho, Hawaiian for “homebody.”

Mary Frances Miyashiro, a retired teacher and social worker who patrols that coastline as a volunteer monk-seal responder, arrived on the scene first. She sat with Noho's body for an hour, waiting for others to come and heft the seal into an insulated body bag so it could be driven into town for a necropsy, or animal autopsy. “My heart sank,” Miyashiro told me. “I didn't know what to do with those feelings, so I picked up trash.” It felt hopeless, like the killings might go on forever.

Two days later, a uniformed law-enforcement officer from the National Oceanic and Atmospheric Administration (NOAA), the federal agency responsible for monk seals, flew to Kauai from Honolulu to open the U.S. government's investigation. This officer's name was Paul Newman.

Newman went to the crime scene — the beach — and photographed whatever seemed notable. Not much, really. There was one lead — someone had overheard a man badmouthing the monk seal — but it went nowhere. So that night, Newman hopped a commercial flight back to Honolulu. He had a cooler with him, packed with ice, sealed with official tape. Inside was Noho's wounded head. The head was the only evidence.

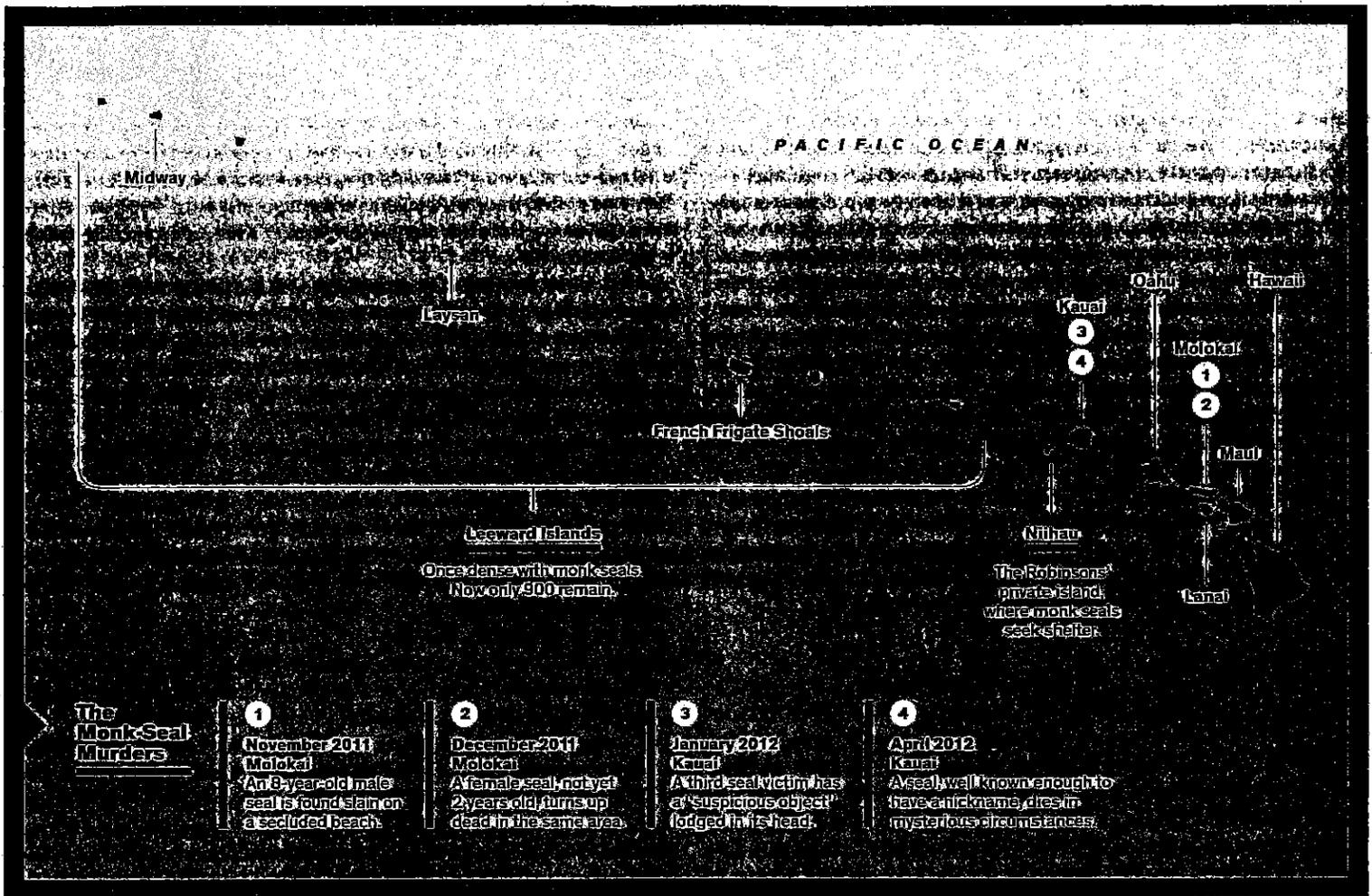
The reward ticked up to \$40,000.

We live in a country, and an age, with extraordinary empathy for endangered species. We also live at a time when alarming numbers of protected animals are being shot in the head, cudged to death or worse.

In North Carolina, for example, hundreds of brown pelicans have recently been washing ashore dead with broken wings. The birds, nearly wiped out by DDT in the 1970s, are now plentiful and often become semi-tame; they're known to land on fishing boats and swipe at the catch. One theory is that irritated fishermen are simply reaching out and cracking their wings in half with their hands. In March, in Florida, someone shoved a pelican's head through a beer can.

Around the country, at any given time, small towers of reward money sit waiting for whistle-blowers to come forward. This winter four bald eagles were gunned down and left floating in a Washington lake (reward: \$20,250); three were shot in Mississippi (\$7,500); and two in Arkansas (\$3,500). Someone drove through a flock of dunlins — brittle-legged little shorebirds — on a beach in Washington, killing 93 of them (\$5,500). In Arizona, a javelina, a piglike mammal, was shot and dragged down a street with an extension cord strung through its mouth (\$500), and in North Carolina, 8 of only 100 red wolves left in the wild were shot within a few weeks around Christmas (\$2,500).

'So put this down in your notes,' Kapuniai told NOAA representatives. People are getting fed up with the monk seals, he said, and 'they're going to kill them. Bottom line.'



Seven dolphins died suspiciously on the Gulf Coast last year; one was found with a screwdriver in its head (\$10,000). Sometimes, these incidents are just “thrill kills” — fits of ugliness without logic or meaning. But often they read as retaliation, a disturbing corollary to how successful the conservation of those animals has been.

Since the passage of the Endangered Species Act 40 years ago, so much wildlife conservation has been defensive at its core, striving only to keep animals from disappearing forever. But now that we’ve recovered many of those species, we don’t quite know how to coexist with them. We suddenly remember why many of us didn’t want them around in the first place. Gray wolves, sandhill cranes, sea otters: species like these, once nearly exterminated, are now rising up to cause ranchers, farmers and fishermen some of the same frustrations all over again. These animals can feel like illegitimate parts of the landscape to people who, for generations, have lived without any of them around — for whom their absence seems, in a word, *natural*. As Holly Doremus, an environmental legal scholar at the University of California, Berkeley, writes, America has saved so much without ever asking “how much wild nature society needs, and how much society can accept.”

The monk seal is not one of these success stories. The species, as a whole, is still slipping toward extinction. But the situation in Hawaii follows the same script: there used to be zero monk seals living around the main Hawaiian islands; there are now between 150 and 200. And I heard story after story from fishermen about seals stealing fish from their nets

or hooks, or lurking at favorite fishing spots and scaring away everything else. A lot of fishing in Hawaii is done for subsistence — a way for working-class people to eat better food than they can afford to buy. The monk seals are perceived as direct competition, or at least an unnecessary inconvenience. “They’re troublemakers,” a young spear fisherman told me one morning at Kauai’s Port Allen pier.

Also, as often happens with endangered species, many of the people asked to coexist with the monk seal see the animal less as an autonomous wild creature than as an extension of the government working to save it. There has been frustration with the federal government among fishermen and other “ocean users” in Hawaii since at least 2006, when President George W. Bush turned the water around the Leewards into the Papahānaumokuākea Marine National Monument, barring a small number of fishermen who had permits to work there from 140,000 square miles of the Pacific, an area larger than all of America’s national parks combined. Now various agencies are bandying about so many other proposals — to protect corals, humpback whales, sea turtles — that several people I met on Kauai seemed to be making second careers of attending the government’s informational meetings to keep watch over their rights. It’s unclear if these proposals might lead to new fishing regulations, but the sheer volume of environmental strategizing, and the bureaucrats’ sometimes inelegant ways of communicating their plans, have led some people to presume that it’s all one big, aquatic land grab. A commercial fisherman named John Hurd told me that he believed the feds wanted to make the

ocean "a fishbowl." "Divers can't go in there, fishermen can't go in there," he said. "It's going to be an aquarium."

That skepticism is compounded for native Hawaiians. After all, they now walk beaches that their families have used for centuries and find tracts of sand literally roped off by NOAA monk-seal responders — men and women who, on Kauai, are almost exclusively white, wealthy retirees from the mainland. (It's these *haole*, as Hawaiians call white outsiders, who have the luxury of standing watch over a sleeping monk seal all day.) Even the idea that a wild animal needs such coddling strikes some locals as absurd. "The seal needs to rest!" one man, Kekane Pa, told me sarcastically. "The seal needs to rest because it's been swimming in the water."

Pa is 49 years old and gigantic, with a voice that's somehow both hoarse and totally overpowering. He'd picked me up at my hotel, found a nice spot to park his truck at Waimea Beach and proceeded to shout his side of the story at me for nearly two hours, popping a Heineken at one point and rolling down his window whenever he fogged the windshield.

Pa works construction and is also the speaker of the house of the Reinstated Hawaiian Government, a grass-roots shadow government trying to reclaim

Hawaii from the United States, which, it maintains, annexed the islands unlawfully in 1898. Like others I met, Pa saw the monk-seal controversy within this historical context. He brought documents to show me and delivered a scathing people's history of the islands, from the overthrow of the Kingdom of Hawaii in 1893 to the "Apology Resolution" signed by President Clinton in 1993. He felt the same imperial indifference coming from the government now: Hawaiians are second-class citizens, he said; the tourists come first. Now Hawaiians were being skipped over again — for a seal. "There's issues here that have never been resolved since the time they stole Hawaii," Pa told me.

He shouted all of this with a mix of exasperation and righteousness; his eyes never stopped saying, *Can you even believe this is happening?* He was asking for recognition for his people — these living, breathing afterthoughts that so-called civilization had long ago pushed aside. It was the same cry the monk seal, or any endangered species, might make if it had a voice. And yet the seal was now getting all the help and money it needed without ever having to ask.

I asked Pa if more seals would be killed. "I hope not," he said. "But I can tell you this: it's just starting to heat up, brah."



Seal Protection Zone
Volunteers and tourists observe a monk seal (RK31) resting on Poipu Beach, in Kauai.

A

s monk seals became more visible in recent years, this umbrage and suspicion stacked up like kindling. Then, in September 2011, when NOAA officials toured the islands to hold a series of public meetings, it ignited.

A meeting was required by law to hear public comments about NOAA's new "programmatic environmental-impact statement" for Hawaiian monk seals, or PEIS. As a hundred or so locals arrived at an elementary school on Kauai one Saturday evening, they were offered USB drives loaded with the document. It was 462 pages long, not including appendices.

The PEIS outlined new ideas for helping the monk seal, which, despite how things looked around Kauai, was in a dismal tailspin as a species. Young seals in the Leewards seem to be having trouble getting enough to eat. Pups are being picked off by sharks, which have learned to slither toward them while they're nursing, in as little as six inches of water. Also, for a long time, there have been more male seals than females on some of the Leewards, and pups had been bitten or drowned by sexually frustrated males trying to get to their mothers, or crushed when those rippling bulls tried to have sex with them instead. Females have been smothered when multiple males tried to mate with them simultaneously in so-called "mobbing" attacks.

The scientists working in the Leewards were trying everything they could to protect the female pups especially—the future breeders. They used wooden shields called "crowding boards" to break up fights, or swatted the belligerent bulls away with palm fronds, or ran down the beach screaming at them. Now the PEIS was proposing an elegant workaround to the problem: NOAA wanted to move a number of young female monk seals out of the Leewards every year and into the friendlier waters around the mains. They would mature there for a few years, then be captured and moved back once they were able to fend for themselves. NOAA called this process "translocation." Ecologically speaking, the idea made sense; it bordered on ingenious, even. But sociologically—if you focused on Hawaiian people, and not just Hawaiian monk seals—it was hopelessly tone-deaf.

For one thing, many in Hawaii were convinced that, as one attendee put it at the elementary school, the entire "history of the monk seal is based on a lie." Because the species was eradicated in the mains so long ago, people have lived on Kauai their entire lives without seeing a single monk seal until recently. Traditional Hawaiian knowledge carries great authority on the islands, and in every cranny of the culture where you'd expect to see monk seals, people saw none: no mention of the seals in traditional chants, no wood carvings. People often point out that they don't even know of a Hawaiian word for the animal. (NOAA believes the ancient word *iliiholoikauaua*, "dog running in rough water," refers to the seal, though that has been resisted; at one public forum, a man called applying that word to monk seals a "defamation of my language and my culture.") The logical explanation, for many, was that the seal wasn't actually native to Hawaii, that the government had brought the animals, in secret, to create jobs for scientists and push its environmentalist agenda. (This conspiracy theory may have grown from a bit of misunderstood truth; in 1994, NOAA brought 21 monk seals to the mains from one Leeward island in an earlier attempt to even out the genders there.) It seemed arrogant for NOAA to announce that it wanted to bring more now.

Another objection was rooted in an equally uncooperative set of coincidences; namely, the situation with the birds. It was Kauai's mayor, Bernard P. Carvalho Jr., who filled me in about the birds. A towering, debonair man in an earth-toned aloha shirt, Carvalho met me in his office to talk monk seals. But it was obvious that, as far as he was concerned, I was asking about

the wrong animal. He explained how seabirds called Newell's shearwaters come to Kauai to mate and nest every spring. In the fall, the fledglings leave the nest and become disoriented by bright lights. They will drop from the sky and freeze up. For as long as Carvalho can remember, he said, when you find a dazed shearwater, you simply pick it up and bring it to the firehouse, where it's tucked in a pigeon box and tended to until it recovers.

The shearwater fledgling season happens to coincide with the high-school football season. One local described how little kids have always raced around the sidelines, under the Friday-night lights, collecting the paralyzed birds. But the Newell's shearwater is a federally protected species. In 2010, the U.S. Fish and Wildlife Service informed the County of Kauai that each downed shearwater would be considered a violation of federal law. Fines, the mayor was told, could reach \$25,000 per bird. "So that was kind of a big... what?" he said.

Friday-night football became Friday-afternoon football. Working parents had trouble seeing their kids play, and the island lost one of its central forms of entertainment. There was anger, incredulity and T-shirts that read "Buck the Firds." The mayor, a former high-school football star on Kauai, told me: "Friday night is football night. Don't even go there!" Now, more than two years later, the county was still working with the federal government to retrofit the lights and get in compliance. In part, the mayor explained, this involved keeping track of the relative brightness of the phases of the moon.

There were other birds too, he went on: like the Hawaiian nene goose, which was once within a few dozen birds of extinction. Now many congregate on a golf course next to the airport, where the mayor worries—"God forbid"—that one might bring down a flight. Conservation is important, he said, "but where does it end? How far does it go?"

A version of this question was raised at the elementary-school hearing again and again. As one man put it, "Nowadays, it seems that wildlife has more support than the people." The government was focused so narrowly on helping monk seals survive an immediate threat, but it wasn't communicating any cohesive vision of the future. How many monk seals in the

Ecologically speaking, the idea made sense. But sociologically — if you focused on Hawaiian people, and not just Hawaiian monk seals — it was hopelessly tone-deaf.

water around Kauai would be enough? What would coexistence with that many seals look like? One speaker asked, for example, whether he'd be fined for striking a seal if the animal threatened his little cousins while they were swimming. But the NOAA officials holding the meeting couldn't answer his question—or anybody's. There had been town-hall meetings held throughout the year, but federal law required that this hearing be a "listening session" only. The panelists were barred from speaking to anyone who testified. It was meant to be respectful—we're all ears—but it came off as insulting. ("Silence," one participant, a construction worker named Kimo Rosa, told me. "Silence!") And so, one by one, people rose to delineate their conspiracy theories or plead for respect, until a timekeeper flashed a red sign and their three minutes were up.

Near the end of the hearing, a man named Kalani Kapuniaia noted that if the government were here to ask for the community's input on translocation, then "from what I gathered over here, you guys, the answer is no... So put [this] down in your notes," Kapuniaia said. People are getting fed up

Niihau may be the last surviving community of native Hawaiian speakers.) The scenery was spectacular, in an illicit, "Jurassic Park" kind of way. The beaches looked like screen-saver beaches. Every so often, we saw a monk seal and stopped, rising from our seats in the truck to observe the animal doing nothing. Robinson had not been on Niihau for many months, and was disturbed by how few seals we were spotting. "There are no monk seals here!" he kept saying. He blamed fishermen from Kauai who've been turning up to fish Niihau's pristine reefs. He claims these fishermen are disturbing, and even occasionally shooting, the monk seals. I sensed that these "marauders," as Robinson called them, were also an affront to the isolation and privacy that his family has always cherished. Robinson described these Kauai fishermen the way the fishermen described the monk seals: as an invasive species, barging in to threaten the natives' survival.

"Damn it, this is not good," he huffed as we crossed another empty beach. "This is a catastrophe. This is disastrous." His shock and concern were quickly phasing into sulking.

Relatively speaking, Niihau is actually packed with monk seals. At its peak, about a decade ago, the population there may have reached 200—about a fifth of the world's current population. Returning from their millennium-long exile in the Leeward Islands, the seals found, in Niihau, a landscape that not only looked remarkably the way it did when they left it behind, but that was also governed by two eccentrics willing to make room for them. It turns out that the Robinson brothers are devout conservationists. "I'm right-wing extremist," Keith told me, and this means feeling an obligation to use the earth wisely and replenish it, just as God instructed in the Bible. "If they want to shoot monk seals on the other islands, that's fine," he said. "But Bruce and I like having them around."

For decades, the brothers have done their best to foster and protect the seals on Niihau, organizing the Niihau people to monitor them along the coastline. That is, they've cultivated acceptance of the seals among the Niihau people—exactly what NOAA has failed to do elsewhere. Robinson told me that, in the early days, he heard the same grumbling about monk seals from the Niihau people that I encountered on Kauai. "But Bruce and I just said: 'Look, let's tolerate these seals. You may have to work a little harder for your fish, but the fish will still be there, and the seals will have a chance.'" When I asked how they managed to pull this off, Robinson noted that, for one thing, there truly are more fish to go around on Niihau. But also, he added, well, we're the nasty, old feudal landlords." The Niihau people are the Robinsons' tenants and their employees. No messy public hearings on his island. Robinson told me that he would happily host as many more monk seals as NOAA wanted to relocate from the Leewards, as long as he could manage the animals his way. He has no stomach for the tyrannical regulations and regional spending that he feels the government uses endangered species to justify. As we drove, he laid out his case against America's "eco-Nazis," an epithet he uses tirelessly and, I would learn, without hyperbole. (Robinson later gave me writings outlining his belief that environmentalism is a liberate conspiracy to install totalitarian government in America while distracting its citizens with cuddly, vanishing animals, just as Hitler's rise to power in Germany was cloaked by nationalism.) But look at Niihau, he said: "We've done all this quietly, on our own, and with our own money. It hasn't cost the government a cent." On the other Hawaiian islands, people are sticking it to the government by murdering the seals it was working to save; Robinson was sticking it to the government by actually saving them. Robinson has always imagined his conservation work as this sort of principled, guerrilla resistance to the eco-Nazi regime. A gifted horticulturist, he started growing many imperiled, native Hawaiian plants on his family's land on Kauai in the 1980s. This included a particular subspecies of *Caesal-*



Bernard Carvalho Jr.
The mayor of Kauai, who wonders if conservationists don't sometimes go too far.

pinia kawaiensis, a Hawaiian hardwood, which was coming close to extinction in the wild; Robinson managed to produce a single tree from surviving seeds. But in the mid-'90s, he discovered a draft document from the U.S. Fish and Wildlife Service expressing the agency's wish to "secure" and "manage" the tree on his land. He jumped to the conclusion that this meant seizure by eminent domain. (John Fay, a former botanist for Fish and Wildlife, told me, "Basically, it was a misunderstanding." Deeper in the document, the agency asserted that Robinson's work should be "supported and assisted.") Robinson called the agency in a rage. He recounted the phone call to me several times, always in a single, Homeric run-on: "I also stated that if they wanted to take my reserve over, they would probably have to engage in a gun battle with me, and kill me, and I said that coming after the debacle at Ruby Ridge and the debacle at Waco, which had just happened a few months before, if the government's next heroic exploit was to attack and murder a conservation worker in his own reserve to take over work that the government was too lazy and incompetent to do itself, that might look a little strange to the public." Seventy-two hours after he hung up the phone, Robinson told me, his *Caesalpinia kawaiensis* tree was dead. The implication was, he killed it. He felt sick about it, he added, but freedom comes first.

Now, Robinson explained, he and his brother were being threatened again. With monk seals flourishing in the main Hawaiian islands, environmental groups are pressuring the federal government to designate the water around Kauai and Niihau "critical habitat" for monk seals under the Endangered Species Act. It's an abstruse legal move that wouldn't directly affect most fishermen, but would subject the Navy to a review process that could ultimately force it to alter or (Continued on Page 46)

with the monk seals, and "they're going to kill them. Bottom line."

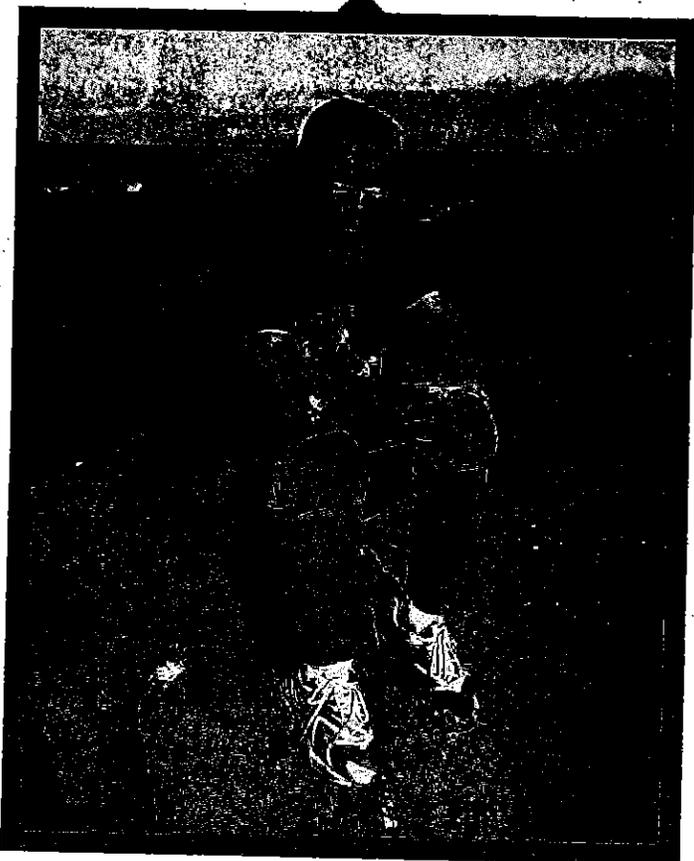
There was applause. All the moderator could do — all she was allowed to do — was say, "Thank you." Eight weeks later, a beachgoer found the 8-year-old seal slaughtered on the Molokai beach, the first of the four killings that winter.

Many of the monk seals slipping back into the main Hawaiian Islands in the early '70s landed first on the shores of Niihau, the island closest to the Leeward. Niihau is plainly visible from the west coast of Kauai but also, in a sense, completely invisible, since it has been privately owned since 1864, when a family named Sinclair bought the island from King Kamehameha V for \$10,000 in gold.

Niihau is 72 square miles — the size of Brooklyn, roughly, or one and a half San Franciscos. While the 20th century was happening to the other Hawaiian islands, the Robinsons (the Sinclairs' heirs) pugnaciously kept outsiders away from theirs, preserving it, like a diorama, for the family's old-fashioned ranching operation and a small community of natives who still live in a village at one end. Even after a two-way radio was installed on Niihau in 1959, information was still regularly relayed to Kauai by messenger pigeon — when information was relayed at all. Mostly, the Robinsons and the Niihau people wanted to be left alone. An irresistible scrim of secrecy still hangs around the island. In 1957, a journalist seemingly went so far as to crash-land a small airplane on Niihau so he could look around.

Walter Ritte

A local activist on Molokai, who believes Hawaiians and monk seals can peacefully coexist.



Pristine and mostly empty, Niihau has been a perfect gateway for Hawaiian monk seals as they have recolonized their species' ancestral habitat. It's no secret that lately the federal government's recovery effort has been mired in a fair amount of desperation. (In March, NOAA indefinitely postponed the translocation from the Leewards, not because it lacked public support, says Jeff Walters, the agency's monk-seal-recovery coordinator but because NOAA "needs more time and resources to grow our capacity to better manage and protect the seals already living in the mains before bringing down any new animals, even temporarily.") And so the scientist involved can get a little breathless when they speculate about the fantastic number of monk seals that must be living happily on Niihau. But no one knows for sure: Keith and Bruce Robinson, the aging brothers who, along with their mother, inherited control of Niihau in 1969, haven't given the government the kind of access or data it would like. Walters described the island as both one of the real "hopes for monk seals in the main Hawaiian islands" and as a giant "black box" at the center of the story.

What a horrible-looking sow!" Keith Robinson bellowed as a scraggly black hog materialized from the bushes and scampered alongside our truck. Robinson seemed somehow uplifted by its hideousness. It was the jolliest I'd see him all day.

I'd managed to talk Robinson into giving me a tour of his family's island. He is 71 and bracingly direct. He lives on Kauai — neither Robinson brother has ever lived on Niihau for longer than a few months at a time — and within seconds of our meeting there, he handed me a copy of his self-published book, "Approach to Armageddon: One Christian's Speculation About the End of the Age." The cover showed a wasteland of mushroom clouds and twisting pillars of smoke. At the bottom, standing like a solitary figure in a Japanese landscape painting, was an old man in work clothes and a green hard hat, carrying a rifle. The man in the hard hat was Keith Robinson. He was wearing the same outfit, including the hat, when I met him in the doorway of his office.

The Robinson brothers have made Niihau a marginally more open place than it once was. They started allowing a small number of tourists, though they barely advertise, don't run tours on any discernible schedule and permit outsiders to visit only certain parts of the island. Keith Robinson presented himself and his brother as wretchedly cash-poor — he spent the 20-minute helicopter flight over from Kauai badgering the pilot to fly in a straight line, so as not to waste fuel — and the island as a cherished grandparent to whom they're devoted to keeping alive, no matter the cost or aggravation. The Robinsons have been able to afford this largely through partnerships with the U.S. Navy, which operates tracking stations on the island for aircraft and missile testing offshore. The Navy also holds exercises in the channel between Niihau and Kauai — which, Robinson explained, can be used as a proxy for the Strait of Hormuz, the link between the Persian Gulf and the Arabian Sea, off the coast of Iran. Years ago, the Navy also ran downed-pilot drills on Niihau's interior. A pilot would be tasked with finding his way off Niihau, as if after a crash, while bands of Niihau people pursued him. The Niihau are solidly built and fast; one of the few native women I was able to talk with described how they hunt hogs on the island: by running the animals down on foot and grabbing an ankle. They took to the downed-pilot drills enthusiastically — their only extramural sport. The poor pilots never had a chance, Robinson explained.

We trundled around the northwestern portion of the island, looking for monk seals in a battered, Korean War-era weapons carrier, a kind of truck, with wooden planks for benches. Our chauffeur was a silent, barrel-chested Niihau man. He pushed the truck over the sand, or on primitive dirt trails, while Robinson issued him quick, clipped instructions in Hawaiian. (The

SEALS

(Continued from Page 37)

even abandon its work there. This would cut off the income that has allowed the Robinsons to protect the seals' habitat in the first place. And so recently, in an uncharacteristic move, the brothers approached NOAA about including Niihau's coastline and near-shore waters in a national marine sanctuary instead. One of the Robinsons' central conditions would be to ban the Kauai fishermen. (A NOAA spokesman confirmed that the agency is in discussions with the family but that if the waters around Niihau "are proposed for inclusion [in the sanctuary], NOAA will then embark, with the State of Hawaii, in a public process to consider any regulatory changes or restrictions." In February, during a trip through the Pacific, the director of NOAA's National Marine Sanctuaries system, Daniel Basta, visited the Robinsons on Niihau.)

As Robinson explained all this to me on Niihau, his sporadic bleats of indignation and alarm

began to sound more nuanced. After all, in his eyes at least, our difficulty finding monk seals was the appalling proof of the damage those Kauai fishermen were doing, of how urgent the sanctuary deal had become. His panic was genuine, but I wondered whether this was why he allowed a journalist on his family's so-called Forbidden Island in the first place: not to see monk seals, but to *not* see monk seals.

"This place should be crawling with monk seals!" Robinson said as we got out to explore one bluff. "Something's awfully wrong here. Awfully wrong."

Dana Rosendal, the pilot for the family's helicopter company, was unfazed. We'd covered only a quarter of the island, he told Robinson, and we'd already seen 10 seals.

"Dana," Robinson cut in, "we've only seen five or six, plus one lousy turtle."

Rosendal ticked off each sighting, then counted up his fingers. Ten, exactly.

"Well, whoop dee do!" Robinson shot back. "Ten seals!" Then he stepped into the shallow tide, in his work boots and hard hat, and walked down the beach by himself. Suddenly, his island must have felt too crowded.

I spent my last morning in Hawaii at a coffee shop on Molokai, waiting for an anonymous monk-seal murderer to show up, or not show up, for an interview.

Molokai is the small island just to the west of Maui. It's a poor and rural place, defiantly resistant to large-scale tourism, with a single hotel and a higher percentage of native Hawaiians than any other island except Niihau. Monk-seal politics have been particularly fierce on Molokai, where unemployment is high and the rights of subsistence fishermen feel even more sacred. A local activist, Walter Ritte, described how elders on Molokai have fostered a feeling among the island's youth that monk seals are not actually Hawaiian and should be gotten rid of.

I met Ritte the previous week in Honolulu, where he was spending the day. He is soft-spoken and slight with a knotty beard and a fearsome reputation as an agitator. (Lately, he has been battling Monsanto, which grows genetically modified crops on Molokai.) On the monk-seal issue, however, Ritte has tried to be a voice of tolerance for the seals — a native voice that can carry that message with more credibility than the government. Everyone knows him as "Uncle" Walter, a Hawaiian term of respect.

In Honolulu, Ritte told me that he knew who killed the first of the four monk seals in 2011 — the big male on Molokai's southwestern shore. When he heard the news, he said, he made a point of finding out — Ritte commands that sort of unofficial mayoral power on Molokai — and went to speak with the person. By the time they were done talking, he said, "I don't think that person was really happy with what they did. The

'THIS PLACE SHOULD BE CRAWLING WITH MONK SEALS!' ROBINSON SAID AS WE GOT OUT TO EXPLORE ONE BLUFF. 'SOMETHING'S AWFULLY WRONG HERE. AWFULLY WRONG.'

remorse was really, really deep."

I kept after Ritte while I was on Kauai the following week. The people I was meeting there were so angry and entrenched. It was comforting to know that at least one person — the Kid, as Ritte referred to him — seemed to have changed his mind on the issue. Eventually, Ritte called to say that the Kid agreed to have breakfast with me the following morning on Molokai. I flew over. But minutes before our meeting, the Kid called Ritte to back out.

I told Ritte I'd be at Coffees of Hawaii, reading a book, if the Kid changed his mind. Three hours later, for reasons I couldn't have imagined, he did.

The Kid was nothing like what I expected. He's in his mid-30s but projected such bashfulness that he seemed 10 or 15 years younger. He'd asked to meet on the porch of a more private location and, with Ritte looking on for support, he explained how, one day shortly after the incident, Uncle Walter simply knocked on his door unannounced and said, "I want to talk to you about the seal."

The Kid had mustered an enthusiastic defense. He told Ritte that he believed what the elders said: that monk seals didn't belong here and were upsetting the natural balance Hawaiians depended on. Ritte listened, then told him about his first experience with monk seals — back in 2006, while Ritte was campaigning to stop a developer from building luxury housing on a remote Molokai coastline called Laau Point. Laau Point is a prime fishing and hunting ground, and Ritte and his troops believed that losing access to it would degrade Hawaiians' ability to provide for themselves, driving them and their traditions even closer to extinction. Hundreds of protesters occupied the point for three months, sleeping on the

(Continued on Page 51)

SEALS

(Continued from Page 46)

beach. And there, in the quiet, monk seals began to appear on the sand — the first that some protesters had ever seen. Ritte told me that, sleeping side by side — Hawaiians and Hawaiian monk seals — it was just so clear to him: “I was there for survival, and the seals were there for the same reason. I saw myself in the seals.”

“Uncle Walt is a well-respected man,” the Kid now said. Ritte’s appearance on his doorstep that day was itself a rebuke. So the Kid kept listening as Ritte explained that monk seals had actually lived in Hawaii long before Hawaiians did, and that Hawaiians — a people who know displacement and disregard — should feel kinship with the animals, rather than resentment. The seal was here first, and we have no right to push it out, Ritte told him. This hit the Kid hard; he still sounded crushed under the weight of this truth: “I actually killed another Hawaiian,” he told me.

Outside the Kid’s house that day, Ritte hadn’t actually asked him for any details. He didn’t need to hear; the two sides of the monk-seal debate had become so predictable that it was easy for him to fill in the rest. When we first met, Ritte told me that the Kid was presumably “doing what the elders had said. It was like killing a mongoose that ate his mother’s chickens. I mean, he thought nothing of it.” And now, I

caught myself making the same assumptions. Until I asked.

The Kid seemed relieved to walk me through the story. He and his friends had hiked out to fish but kept finding monk seals at all their favorite spots. Finally, at one location, they encountered the 8-year-old bull, a huge animal with a deformed jaw, sprawled out as though it were waiting for them. One of the Kid’s friends was fuming by now — they’d walked so far — and he goaded the Kid to do something: “I guess it was out of anger, frustration,” the Kid told me, “and kind of like peer pressure.” In retrospect, so much about what happened next surprised him: how impulsively he reached for a rock and threw it; how, though he only intended to scare the animal off and was standing a fair distance away, the rock somehow struck the seal squarely in the head, and some force inside the monk seal instantaneously shut off.

His friends clammed up. The Kid was the smallest, gentlest guy in the group, and “that was the first time I ever did something like that,” he said. At first, they assumed he only knocked the animal out. But eventually it sank in, and they steeled themselves and turned to walk home. “Already,” the Kid told me, “it was eating me up.”

Later, a federal investigator told me that key details of the Kid’s story were consistent with the necropsy report. (“The animal was hit on the head,” he said. “It was a blunt trauma to the

**RITTE TOLD ME
THAT HE KNEW WHO
KILLED THE FIRST
OF THE FOUR MONK
SEALS. ‘I DON’T THINK
THAT PERSON WAS
REALLY HAPPY WITH
WHAT THEY DID.
THE REMORSE WAS
REALLY, REALLY DEEP.’**

head.”) A government scientist familiar with the case was more circumspect; he explained that it would be possible to kill a resting monk seal by throwing a very heavy rock — maybe on impact, or more likely by causing internal bleeding — but extremely difficult. Frankly, I don’t know what hap— (Continued on Page 57)

SEALS

(Continued from Page 51)

pened. The Kid seemed so vulnerable that I believed his story on the spot. I've had moments of skepticism since then — moments when I've wondered if, say, the Kid hadn't actually stood over the animal and dropped a 20-pound boulder on its head, and was now trying to distance himself from that act. But either way, he acted impulsively and now regretted what he had done.

It was only a few weeks after the incident that the second murdered monk seal was found on Molokai. "Then after the second one," the Kid said, "they had the one on Kauai, and I was thinking like, Oh, no, what did I start? Even Uncle Walter told me that it might have set off some kind of chain reaction." The Kid had never really been a churchgoer, he said, but recently his wife decided they ought to start. And a couple of weeks ago, he prayed about the monk seal for the first time. "I kind of just prayed and asked for forgiveness," he explained. He wanted to come clean but worried his family would suffer if he did. "I know what I had done was wrong, and I just basically asked Him for guidance," he said — a safe way to confess. "And lo and behold," the Kid told me, "here you are."

It was sad — every bit of it, and in so many freakish ways. NOAA was focused on saving an endangered species by repairing the ecology around it. But more and more, the success of conservation projects relies on a shadow ecology of human emotion and perception, variables that do not operate in any scientifically predictable way. Looking back, I was astonished by how the pieces just kept snapping together, and stubbornly locking in place, in exactly the worst way: how, at the public hearings, the government's attempts to show respect and empathy were read as just more imperiousness; how reasonable the conspiracy theory about the monk seal's origins actually seemed in context; how the one safe place the monk seals *had* found was under erratic Robinsonian rule. There was so much terrible serendipity. The

story of monk seals was pocked with black swans.

And now, here was the Kid: not the angry, musclebound fisherman that environmentalists tended to imagine when they pictured the monk-seal killers — not even really a fisherman, it turned out. He'd gone fishing only twice that year, and the second time, when his companion started threatening a monk seal in the vicinity, the Kid said that he de-escalated the situation by telling his friend that NOAA now implanted tiny security cameras in the animals' eyes and would be watching them. He flashed a hang-loose sign at the seal's eyes and urged his friend to do the same — to tell the bureaucrats hi. "You should have seen the face on that one guy," he told me on the porch. "So gullible." Then he paused a second and said, "I wish I could be there for everybody, and tell them the same thing."

The Kid wasn't technically a kid at all, and yet what he'd described felt like a classic coming-of-age story — something out of a novel you'd read in middle school about a boy who, in a moment of recklessness, shoots a robin with his BB gun to impress his friends, then weeps over the corpse. Except it wasn't a robin; it was a federally endangered Hawaiian monk seal, and so, the Kid worried, his transgression had set off a killing spree. In fact, the night before we met on Molokai, news broke that a 7-month-old female seal had been found speared on an island off Oahu. It survived, and in a photograph that NOAA released, the animal stared into the camera with narrowing eyes, one prong of the metal fishing implement still stuck through her forehead. She looked like a guileless horse that had been ridden into battle and lanced.

In Hawaii, so many circumstances had knotted together to snare this species. In a way, they snared the Kid too. But he wouldn't allow himself to see it that way. At one point, he mentioned again that he only wanted to scare the monk seal away, not kill it, and I tried to say something sympathetic, lamenting his bad luck. He was quick to correct me: "Mostly, bad decision," he said. "Stupid decision. You got to accept what you did." ♦

RESEARCHER TRACES ISLE ROOTS Research traces lineage of sea life to Hawaii waters

The discovery could lend extra weight to efforts to protect remote coral habitats

By Marcel Honoré
mhonore@staradvertiser.com

Scientists typically view Hawaii's lush, underwater environment as both an ecological treasure trove and a dead end.

It's considered a remote oasis in the middle of the Pacific whose unique marine species never branch out anywhere else.

However, new peer-reviewed research published this month from the University of Hawaii at Manoa's Hawaii Institute of Marine Biology challenges that idea.

In the June edition of the biology journal *Trends in Ecology and Evolution*, UH researchers announce they've found coral-dwelling species of fish and sea cucumbers across the ocean whose lineage can be traced back to the Hawaiian Islands through genetic tests and sampling.

"The surprise was, we looked at some of these organisms, and their ancestors are from Hawaii," said Brian Bowen, a professor at the university's marine biology institute. "For the most part people have regarded Hawaii as a closed system. This surprise shows that the health of Hawaii's ecosystems matter to everyone."

Please see **MARINE, A6**

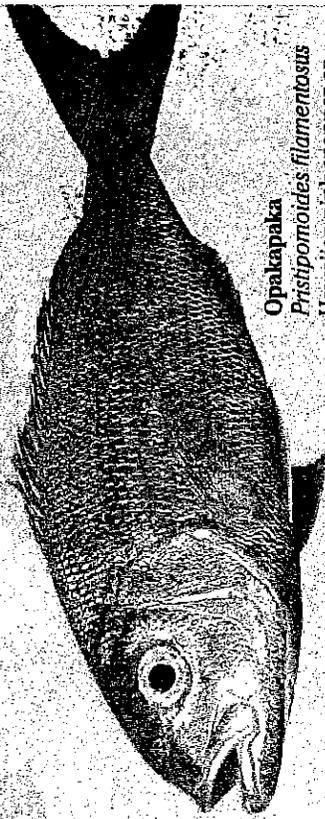
Loli
Holothuria atra
Lollyfish sea cucumber

A FRESH LOOK AT MARINE LIFE

University of Hawaii researchers say they've found five coral-dwelling species of fish and sea cucumbers whose genetic ancestors came from Hawaii. Those findings could change how scientists view the local archipelago. The report, its authors say, builds on previous research suggesting some Pacific green turtles also branched off from nests in Hawaii.



Honu
Chelonia mydas
Pacific green turtle



Lauipala
Zebrasoma flavescens
Yellow tang



Uhu
Scarus rubroviolaceus
Parrotfish (male)



Uhu
Scarus rubroviolaceus
Parrotfish (female)

Opakapaka
Pristipomoides filamentosus
Hawaiian pink snapper or crimson jobfish

Green sea turtles bask on one of the islands of French Frigate Shoals in the Papahānaumokuākea Marine Monument. Research showing some of Papahānaumokuākea's marine life feeds into the oceans' larger systems is "critically important," said Andy Collins, the monument's education coordinator.

MARINE: Efforts to protect species date back to 1909

Continued from A1

The report, he says, supports earlier findings that some sea turtle species

abroad originally branched out from nests in Hawaii.

For the latest study, a team of about a dozen graduate students and postdoctorate researchers from UH and the private San Francisco-based California Academy of Sciences examined marine life far west of Hawaii, near Japan; and to the south, near the Johnston Atoll and Line Islands, Bowen said.

THE DISCOVERY that the Hawaiian Islands are "radiating" their unique marine biodiversity back out into the ocean's larger coral networks — not just hoarding it locally — could give extra weight to protecting the remote region's coral habitats, Bowen and others say.

It also lends urgency to stopping the mysterious bacterial disease that has killed large swaths of coral on Kauai's North Shore at a worrisome pace in recent years, Bowen said. Federal biologists, who examined

the problems on Kauai last month, plan to update the public soon on what they've found.

During the past six years, the UH-based team looked at 25 marine species, examining them in distant waters around the Pacific and back in the laboratory, Bowen said. They found five species with genetic ancestry stemming from Hawaii: the yellow tang, ember parrotfish, bullethead parrotfish, Hawaiian pink snapper (also known by its Hawaiian name, opakapaka) and lollyfish sea cucumber (or lolu).

Trends in Ecology and Evolution had the UH research peer-reviewed by the journal's own list of experts in February, Bowen said.

THE FINDINGS, he added, bolstered his studies in the early 1990s that linked eastern Pacific green sea turtles to ancestors that had nested in Hawaii.

"That was the first hint and that was 20 years ago," he said.

In 2006 federal officials created the Papahānaumokuākea Marine Monument, protecting 139,797

square miles stretching northwest of the main Hawaiian Islands from fishing, direct pollution and other human effects in an area larger than all of the U.S. national parks combined, according to the monument's website.

"It adds a whole new dimension to the reasons to protect the monument," Bowen said Thursday. "Nobody had dreamed of that when they created (it)."

EFFORTS TO HELP marine life at Papahānaumokuākea date back to 1909, when then-President Theodore Roosevelt sent troops to protect the archipelago's bird species from being wiped out by feather hunters, said Andy Collins, the monument's education coordinator. Since then federal agencies have gradually buttressed the protections there with stronger designations, he said.

The latest research showing some of Papahānaumokuākea's marine life feeds into the oceans' larger systems is "critically important," Collins said. The findings could influence what research projects local biologists do, including those at the monument, which is managed by seven different state and federal agencies, he said.

UH's findings could also boost the significance of other remote island chains and ring-shaped atoll coral reefs scattered across the oceans, Collins added.

THE UH STUDY shows Hawaii sending distinct marine species westward toward the "Coral Triangle," a hot spot between New Guinea, the Philippines and Indonesia which is recognized as "the pinnacle of marine biodiversity," Bowen said. That system is one of the oceans' most important engines generating marine life, including the seafood caught all over the world, he added.

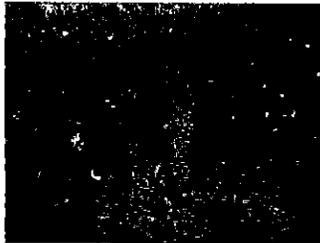
The UH Institute of Marine Biology plans to expand its research on species origins to include marine mammals such as dolphins, Bowen said.

"In order to solve this definitively, we want to get up to 50 species," traced back to Hawaii, he said. "The fact that it's published now means it's real."

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Could coral reefs become sponge reefs in the future?

May 07, 2013



A sponge-dominated reef in Western Australia, depth 45 metres. Credit: Dr David Abdo

International research has suggested that many coral species won't survive beyond the end of this century, but marine biologists at Victoria University are offering an alternative scenario.

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Dr James Bell, who specialises in sponge ecology, is the lead author of an article published in *Global Change Biology* which suggests that sponges may become the dominant organisms inhabiting coral reefs when the effect of climate change and ocean acidification sets in.

"Coral reefs face an uncertain future as a result of [global climate change](#) and other stressors which have a negative impact on reefs," says Dr Bell.

"It has been predicted that many reefs will end up being dominated by algae rather than corals, which will have negative effects on biodiversity and ultimately on the ability of humans to derive protein from reefs."

"However, we propose an alternative scenario—as sponges and corals respond differently to changing [ocean chemistry](#) and environmental conditions, we may actually see some coral reefs transforming into sponge reefs."

As part of the study, the group of scientists from Victoria University, the University of Auckland and the Australian Institute of Marine Science considered evidence from a range of sources including the geological record. Paleontological evidence from over 200 million years ago suggests past ocean acidification events were followed by a [mass extinction of coral species](#) and subsequent proliferation of sponges.

The scientists have also observed several sites, including places in the Caribbean, Atlantic and Indo-Pacific, where sponges have already increased in abundance as corals have declined.

Despite the important functional roles sponges play on coral reefs including filtering nutrients and providing a habitat for other species, Dr Bell says most research to date has focused on the future of corals.

"[Coral reefs](#) provide a home for around one quarter of the world's marine species, so understanding their future is incredibly important."

"Further research on the impacts of ocean acidification and ocean warming on coral reef sponges is urgently required, so that we can help better protect reefs and understand how they might function in the future," says Dr Bell.

Dr Bell has carried out research on the Indonesian island of Sulawesi, which has some of the most extensive and diverse coral reef systems in the world.

Explore further: [Low calcification in corals in the Great Barrier Reef](#)

More information: The full article 'Could some coral reefs become sponge reefs as our climate changes?' can be viewed on the *Global Change Biology* website: onlinelibrary.wiley.com/doi/10.1111/gcb.12212/full

Journal reference: [Global Change Biology](#)

Provided by [Victoria University](#)

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<http://news.yahoo.com/big-brother-mother-nature-allies-143150046.html>

Big brother, Mother Nature allies in sea wall bout



One of several homes which have lost their yard hang over the edge of a cliff in Solana Beach, Calif., Monday, May 20, 2013. The base of the cliff below the home is without a sea wall to hold back the ocean and support the cliff. Time limits for sea wall permits are at the center of court battle. (AP Photo/Lenny Ignelzi)

AP

Elliot Spagat, Associated Press May 28, 2013

SOLANA BEACH, Calif. (AP) -- Atop the ocean bluff are the homes of those fortunate to own a piece of land overlooking the dramatic California coastline. Down on the beach are the surfers, swimmers and beachcombers lucky for a sliver of sand that skirts caves and coves in this paradise north of San Diego.

Dividing the two is a crumbling 80-foot cliff that forms a battle line between homeowners who built concrete walls to prevent their houses from sliding into the sea and those who want to put limits on how long they can fend off the waters.

The powerful California Coastal Commission is imposing 20-year caps on permits to build sea walls, setting up a classic debate over public beach access and property rights as sea levels continue to rise and relentless surf threatens to erode a way of life along 1,100 miles of shore.

Since 2010, the agency has set 20-year expiration dates on a private tennis club in Pebble Beach, a 13-unit apartment building in San Diego, two houses in Santa Cruz, a 19-unit apartment building in nearby Capitola, a 260-unit apartment complex in the San Francisco-area town of Pacifica and several homes in Solana Beach and neighboring Encinitas.

While the limits aren't edicts to tear down walls in two decades and wouldn't necessarily prevent shoring up fortifications later, they have alarmed homeowners who see a threat to their property.

"There's going to be a huge dark cloud whether the home can still exist when the period is over," said Jon Corn, an attorney for homeowners who sued Solana Beach after the city adopted a similar 20-year limit for all new walls on its 1.7 miles of coast.

Three lawsuits are pending in state court to overturn the city's policy.

Solana Beach could become a model for 75 other cities or counties required to run plans by the Coastal Commission. Environmental groups who fear that beaches could disappear under rising seas fueled by global warming if huge swaths of coast are allowed to be armored forever hope California sets an example for coastal states such as North Carolina and Florida.

"We're going to need to step back," said Mark Rauscher, Surfrider Foundation's coastal preservation manager. "We can't beat the ocean forever."

The commission is years from deciding what to do when the first permit expires. It will depend on how sea levels or other conditions play out.

"It's simply saying you'll be re-evaluated in 20 years," said Diana Lilly, an analyst at the commission's San Diego office.

Courts are likely to weigh in beforehand.

In one skirmish this year, a judge struck down a 20-year limit on two nearby Encinitas homes, saying the cap was arbitrary. As a Superior Court ruling, it does not set a precedent for other cases.

There is no precise tally of seawalls in California or nationwide, but they are common in Malibu, San Francisco and other places. They tower over the shores of Solana Beach, a suburb of 13,000 people that has long been one of the San Diego region's most coveted places to live. Houses and condominiums crowd the oceanfront, with one 1,300-square-foot home listed at \$2.4 million.

Solana Beach is cursed by a layer of sand about 30 feet from the ground that, when exposed, makes homes highly vulnerable to sinking. The city's main beach, Fletcher's Cove, opened in 1924 when workers sprayed a hose to loosen bluff and shoveled dirt to make room. Five people have been killed by falling bluffs at nearby beaches since 1995, most recently a tourist who died in 2008 at Torrey Pines State Beach.

Tom DiNoto considers himself lucky for having built his wall about four years ago without an expiration date, though he worries limits on new construction will hurt home values. He paid about \$500,000 for a 40-foot-high concrete wall that stretches along 50 feet of shore and is colored and sculpted to blend with natural surroundings. About \$250,000 more went for engineering and other fees, including the cost for bringing in sand to fortify beaches.

Last year, San Diego's regional planning agency pumped 1.5 million cubic yards of offshore sand to Fletcher's Cove and seven other area beaches. Surfrider objected to an Army Corps of Engineers plan to dump even more sand in Solana Beach and Encinitas as detrimental to surfing conditions, but DiNoto echoes other homeowners who say it is a sensible way to protect homes without sacrificing beach.

"It's the public's beach but that doesn't mean we should be penalized," he said.

Signs below warn of unstable cliffs and lifeguards tell people to keep a distance.

On a recent Sunday, visitors saw the debate both ways.

Aaron Bert of Encinitas said the walls blight the landscape but that homeowners were entitled to protect their property.

Erik Marquez, who often takes his children to the beach from suburban Los Angeles, agreed.

"It's not like they're big developers bringing in their cranes," he said.

But Marquez said he would lose sympathy for homeowners if it meant surrendering public beach.

Jet packs stoke fears of impact on ocean life

POSTED: 01:30 a.m. HST, Aug 11, 2013

StarAdvertiser.com

The water-powered devices merit a closer look, an official says

By Audrey McAvoy / Associated Press

Want to fly like George Jetson or Iron Man?

Thrill-seekers eager to try the next new water sport are rushing to strap on jet packs that propel people into the air with the help of pumped water. But the devices are meeting calls for regulation in Hawaii, where fishermen, scientists and state officials are questioning their safety and how they may affect fish and coral in the state's heavily trafficked tropical waters.

A device called the Jetlev can lift a person 30 feet high by pumping water from a backpack through a hose connected to a small, unmanned boat. Another contraption called the Flyboard, which looks like a small snowboard attached to a hose, can propel riders 45 feet in the air. Promotional videos racking up millions of YouTube views show riders shooting out of the ocean into the sky, then diving back in the water like dolphins.

The devices are starting to show up for recreational rental in San Diego, Key West, Fla., and Cancun, Mexico.

But some in the Aloha State are far less enthusiastic about the machines. Complaints from fishermen and other ocean enthusiasts prompted the state Department of Land and Natural Resources to call a public meeting about the devices last month. The department's top enforcement officer, Randy Awo, expressed alarm about unsafe maneuvers, such as riders dive-bombing into the water next to moving boats.

University of Hawaii coral scientist Bob Richmond told officials he was concerned about the noise the devices make, as fish avoid areas that are too loud. He's also worried fish and coral larvae could get pumped through some of the equipment the watercraft use and die.

Fisherman Carl Jellings said watercraft already scare fish away from Oahu's bays, and he worries these new machines will just add to the problem.

"More and more and more these bays are being run over, taken over by other activities. The marine life that depend on these places — they're being displaced," he said.

The state may find a way to accommodate the devices, perhaps in selected places, said William Aila Jr., chairman of the Board of Land and Natural Resources. But Aila said studies are needed examining how such water sports may affect fish and coral.

"When you look at it, it looks fairly exciting," he said. "But you got to look beyond the excitement."

Thom Hall, whose Salt Lake City company Rocky Mountain Flyboard has the rights to distribute the boards in Hawaii, said he wouldn't object to regulations, as long as he has input.

"There's room for this device to be used and be used in a responsible way," Hall said.

Jeffrey Krantz, owner of the company that operates the sole Jetlev in commercial use on Oahu, suggested the state set aside areas for jetpack use. His company, H2O Sports Powered by Seabreeze, takes about 10 people on Jetlev rides daily, at a rate of \$179 for 15 minutes.

"Put it out all on a big map and say: 'OK, this new technology could be something very useful for Hawaii, for its tourism, its residents and so on. Where would it be best to put it?'" Krantz said.

Victor Verlage, a 51-year-old corporate executive who donned a Jetlev jetpack while visiting Honolulu from Mexico, compared it to kite surfing but said it's "10 times better."

"You feel the adrenaline rush," he said.

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State blamed for wasted water

POSTED: 01:30 a.m. HST, Jul 25, 2013

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The resource is being diverted needlessly from the Waimea River, Kauai groups say

By Rosemarie Bernardo

A community group has filed a complaint against a state agency, claiming that water diverted from Kauai's Waimea River is being wasted, contrary to Hawaii law and policy that fresh water resources are a public trust, which the state is obligated to protect and restore.

Earthjustice, on behalf of Po'ai Wai Ola/West Kauai Watershed Alliance, filed the complaint Wednesday with the Commission on Water Resource Management against the state-run Agribusiness Development Corporation and its tenant, Kekaha Agricultural Association.

The complaint contends the two entities, which operate the plantation ditch system created by the now-defunct Kekaha Sugar Co., are continuing to divert large amounts of water from the river even though they don't need it.

The commission is accused of failing to establish stream flow standards to protect the Waimea River from excessive diversions.

Po'ai Wai Ola claims the current agricultural tenants cultivate only a fraction of the former plantation land and with less water-intensive crops. The excess water, instead of being returned to the river, is dumped in gullies and over cliffs, they say.

"It's killing the river, basically," said Earthjustice attorney Isaac Moriwake.

Agribusiness Development was established in 1994 to manage large agricultural land and water projects in Hawaii.

About the complaint, Executive Director James Nakatani said, "We need to do our due diligence and look into the matter."

He added, "I agree water shouldn't be wasted. If we are wasting water, we need to make the necessary corrections."

The Kekaha association, comprising farmers and companies that help manage the irrigation and lands in Kekaha, could not be reached for comment.

According to the complaint, the lack of stream flow is causing silt to build up in the river, creating flood risks for residents and harming river life.

There has been a noticeable drop in o'opu, freshwater fish native to Hawaii that were once abundant in the river, said Po'ai Wai Ola member Kaina Makua. He said the river needs to flow in its natural form for freshwater fauna to return.

The legal action includes a petition requesting that the commission restore stream flow to the river, as well as a complaint and petition against Agribusiness Development and the Kekaha association for wastefully diverting water.

Deborah Ward, spokeswoman for the state Department of Land and Natural Resources, said the complaint has yet to be filed with the commission, which in any case does not comment on legal pleadings.

Despite Kekaha Sugar plantation's closing in 2001, Po'ai Wai Ola contends, the two enterprises "are continuing large-scale diversions of the Kekaha and Kokee ditches and are committing unlawful waste, including outright dumping of diverted river water."

The ditch system was created to divert 50 million gallons of water a day from the river to irrigate canefields. It was unclear how much is currently being diverted.

Waimea River has the highest average annual flow of all streams in the state. The river also is legendary in Hawaiian culture, Moriwake said.

"It's prime time that we start taking care of this natural and cultural treasure," he said.

Po'ai Wai Ola is an organization established by Waimea residents and farmers, including native Hawaiian cultural practitioners, dedicated to protecting the Waimea River and conserving water resources in general.

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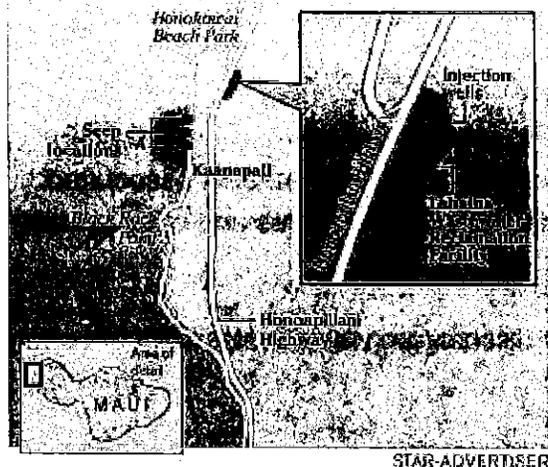
Ocean pollution traced to county

POSTED: 01:30 a.m. HST, Aug 11, 2013

StarAdvertiser.com

Waste water from a Maui sewage plant is killing Kaanapali reefs, studies find

By Gary T. Kubota



Maui resident Lance Collins remembers more than 20 years ago swimming as a youth in waters off the old airport beach in north Kaanapali before the reef began to change for the worse.

"There was a lot more reef fish," he said. "The reef in terms of color just looked more alive, vibrant white as opposed to dead bone white."

Collins says environmental and community groups are close to solving and stopping a major source of ocean pollution in north Kaanapali as federal scientific findings confirm waste water from a Maui County sewage treatment plant is flowing

underground into nearshore waters.

He said studies have tied the excessive nutrients from the sewage to algae blooms that have been killing the reefs.

A lawsuit filed in 2012 in U.S. District Court sought to halt the county's practice of injecting millions of gallons of treated sewage into deep wells at the waste water treatment plant in Lahaina.

The lawsuit said the county receives about 4 million gallons of sewage a day and what it can't sell for re-use after treatment is injected into the wells.

The groups filing the lawsuit include Maui Tomorrow, the Surfrider Foundation, Sierra Club-Maui Group, and the West Maui Preservation Association.

Earthjustice attorney David Henkin, representing the groups, said Friday he was in settlement talks with the county but declined further comment.

The county has also declined comment.

For more than 20 years and through Republican and Democratic mayoral administrations, Maui County has argued that there was no connection between the sewage injection wells and nearby ocean problems, including algae blooms and dead coral.

During a resort building boom in the early 1990s, then-Maui Mayor Linda Lingle's administration proposed expanding the number of injection wells from four to 12 at the plant.

Resistance from federal officials forced the county to turn to treating and redirecting waste water for irrigation purposes at golf courses.

Major algae blooms occurred in the north Kaanapali area in the early 2000s.

In 2009, the state Department of Land and Natural Resources banned catching certain kinds of herbivore fish in waters off Kahekili Beach Park and other parts of north Kaanapali, in hopes that an increase in the number of fish could control the algae and create a healthier reef environment.

A Lahaina Groundwater Tracer Study, released in June, showed tracer dyes put into the injection wells at the waste water treatment plant eventually rose up in seepage holes from submarine springs in north Kaanapali.

Collins, the spokesman for the West Maui Preservation Association, said earlier University of Hawaii studies showed the algae blooms were associated with the excessive presence of nutrients associated with sewage but the county argued the source could be from fertilizer from golf courses and other ground runoff.

Collins said the study in June proves the county has been illegally discharging waste water into the ocean from its Lahaina treatment facility's injection wells.

"The study confirms what we've been saying for years," he said.

Collins said the recent study puts a different perspective on free-diving in waters off Kahekili Beach.

"It's a beautiful place," he said. "You can find warm underwater springs. If you know what it is, you feel like you shouldn't be in the water."

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App teaches folks to use care when around spinner dolphins

POSTED: 01:30 a.m. HST, Aug 12, 2013

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By Nina Wu



The spinner dolphins are probably best known for their powerful acrobatic displays, leaping and spinning from the ocean. But did you know dolphins also spend the night foraging offshore and return to sheltered bays and coastlines to rest during the day?

During a month of research off the coast of Kona on Hawaii island last summer as part of the Spinner Dolphin Acoustics, Population Parameters and Human Impacts Research project, Duke University graduate student Demi Fox noticed people were disturbing the dolphins while they were trying to

rest.

While tracking how many swimmers and boaters were out on the bay, she noticed visitors from tours would surround dolphins, grab their dorsal fins or try to ride them.

These have long been issues of concern in Hawaii, but now there's an app — The Nai'a Guide (iTunes, free) — to raise awareness of how these human interactions affect dolphins.

Fox, 24, who was at the time studying coastal environmental management, developed the app as part of a project to complete her master's degree.

Passionate about everything related to the ocean, she continues postgraduate research for the Lenfest Ocean Program in Beaufort, N.C.

"Mobile technology is growing so rapidly," she said. "This allows us to put science directly in the hands of people that are going to see the dolphins. It's a way to empower people to learn more and to make more responsible decisions."

She calls it "an ecological conscience for tourists seeking to experience Hawaiian spinner dolphins."

Much of this information is also available from the National Oceanic and Atmospheric Administration (NOAA), which does not recommend swimming with wild spinner dolphins because it disturbs their critical rest period. Regular disturbance could force the dolphins to move to a less favorable location with predators.

NOAA recommends tour operators stay at least 50 yards away from dolphins and limit viewing times to half an hour. Approaching a dolphin and touching it could be considered harassment, a violation of the federal Marine Mammal Protection Act.

The Nai'a Guide offers information on dolphin biology and ecology in a simple, straightforward way, along with tips on responsible viewing.

Dolphins are conscious breathers, so they still need to swim and surface for air while resting.

Most people don't intend any harm, but might not realize the dolphins are trying to rest, Fox said.

She equated the situation to having boatloads of observers coming by your bedside at night.

The app will be updated with new scientific information, Fox said, and her goal is to make it available on more platforms. She's also looking at whether similar apps can be developed for other species of marine mammals.

On the Net:

» The Nai'a Guide: www.naiaguide.org

» Hawaii Viewing Guidelines: www.nmfs.noaa.gov/pr/education/hawaii

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Quick Review: Who Board Members Can Talk To and When (Part 1) (July 23, 2013)

OIP often is asked whether board members can talk to the board's staff, members of the public, or one another in various situations when not in a meeting. To help board members understand what they can talk about outside a meeting, and with whom, OIP has put together a three-part Quick Review.

1. Topics that Are Not 'Board Business'

The Sunshine Law applies whenever board members are discussing board business, i.e., specific matters within the board's authority that are on a board's upcoming agenda or reasonably likely to appear on an agenda in the foreseeable future. When board members are discussing matters that are not board business, the **Sunshine Law does not apply** to restrict the discussion. Thus, board members could discuss with one another, or with anyone else:

- Matters **unrelated** to what the board does, such as the weather, sports teams, personal news, vacation plans, world events, or similar topics beyond the scope of the board's responsibilities;
- Matters related to what the board does, but that are **not being considered by the board** as whole or a committee of the board at a meeting because they are ministerial (i.e., handled by staff) or within the Chair's sole purview, such as scheduling of meetings, including which items will appear on which meeting's agenda, members' travel arrangements, logistical arrangements for an award ceremony, or similar topics; or
- Matters that the board considered in the past but **does not expect to reconsider** in the foreseeable future because the **matter has concluded**, such as dedication of a completed baseball field that the board gave approval to at an earlier stage, or a report that the board was required to and did submit to a legislative body by a now-past date.

These sorts of matters can be discussed by board members in any number, and need not be discussed in a meeting, because they are **not board business** at the time they are being discussed and, thus, the discussion is not controlled by the Sunshine Law.

Board members may also attend lunches, social and ceremonial events, or board retreats, without violating the Sunshine Law, **so long as board business is not discussed, deliberated, or decided upon.**

2. Staff, Lobbyists, and the General Public

The Sunshine Law only applies to boards and their discussions, deliberations, decisions, and actions. Because the Sunshine Law does not apply to a board member's communications with people who are not members of the covered board, **a member may discuss board business with people who are not board members** outside of a meeting, without needing to fall into one of the permitted interactions. Board members, therefore, can freely talk or otherwise communicate with:

- Citizens concerned about a particular issue
- Reporters
- Lobbyists
- Board or agency staff
- Other government officials, and
- The general public.

It is possible that in some of those cases, the information from one board member will be transmitted to other board members. For instance, a lobbyist may be going from one county council member's office to the next to talk about a piece of board business and may carry information over, as in, "Councilmember A said she'd be willing to support us on this if the bill is amended to cover frogs as well. Could you support that?" However, this would not be considered a discussion directly between the council members. Similarly, a reporter might speak to multiple council members and say something like, "Member B told me that the Board expects to reconsider the motion next month. Can you confirm that?" Again, even though information was passed on, **because the actual communication was through a third party, it would not be considered a discussion between the board members.**

Note: If board members would like to discuss board business with individuals who are not board members, **members should be mindful not to improperly disclose information that was part of an executive meeting closed to the public,** and may wish to consult with the board's attorney in such situations.

Information and materials provided by members to the staff may be incorporated into the staff's own analysis or report on a board matter and may be distributed by staff to the board members in advance of a meeting. The staff's report should not identify individual board members' positions on an issue, but can recognize and discuss the various viewpoints in general and provide recommendations for actions.

Board members should also refrain from using staffers as mere go-betweens to carry messages between board members, as that could be found to be a discussion directly between board members, depending on the circumstances. Telling a staffer, "I have concerns about the direction we're taking on this issue and I'd like you to do some research on this aspect of it," is fine, even if the staffer tells other members, "Member C asked me to research this topic because of her concerns about the way the board is handling the issue." But telling a staffer, "Please go tell Members D and E that I have concerns about the way we're handling this issue," would be inadvisable, as it could be construed as a serial communication with members D and E.

3. Other Board Members

As discussed above, the Sunshine Law applies whenever board members are discussing board business. **When board members communicate to one another about board business, they need to do so either in (1) a properly noticed meeting, or (2) in circumstances where the discussion is specifically permitted by one of the Sunshine Law's exceptions.** When board members are prohibited by the Sunshine Law from discussing or communicating about board business face to face, they also cannot do so by telephone, e-mail, letters or memoranda, social media such as Facebook and Twitter, or any other means of communication.

Before communicating with other board members outside a meeting, a board member should check whether one of the Sunshine Law's permitted interactions applies. **Permitted interactions are specific circumstances in which**

the law permits board members to discuss board business outside a meeting, so long as the statutory requirements are met.

The most frequently used permitted interaction, section 92-2.5(a), HRS, allows **two board members to discuss any board business, without limitation, so long as they do not make or seek a commitment to vote.** This limitation on making a commitment to vote does allow discussion of the two board members' views and inclinations on an issue, but prohibits, for example, horse-trading of votes such as, "If you'll agree to vote my way on this issue, I'll give you my vote on your pet project next month."

The two-person permitted interaction does not require any prior arrangement on the part of the two members using it; they can run into each other on the street, e-mail each other, or telephone each other, so long as only two members are part of the discussion. Other people who are not members of the board can be present, as their discussions with board members are not regulated by the Sunshine Law.

Permitted interactions cannot be used to circumvent the requirements or the spirit of the law to make a decision or to deliberate towards a decision upon a matter over which the board has supervision, control, jurisdiction, or advisory power. Specifically, where two members have discussed an issue using the two-person permitted interaction, they cannot then extend the discussion out to other board members through **serial use** of the permitted interaction. If Member X called Member Y to talk about the feral cat issue on the upcoming agenda, Member Y cannot then stop in the hallway to talk to Member Z about it, as there would then be three members who were privy to the discussion. Both Member X and Member Y must refrain from discussing the feral cat issue with other members until after the board has next discussed it at a meeting, which essentially clears the slate as to members' previous discussions.

The other permitted interactions listed in section 92-2.5 generally require prior planning, or apply only in certain circumstances, or both. OIP will discuss them in the forthcoming Parts 2 and 3 of this Quick Review series.

Quick Review: Who Board Members Can Talk To and When (Part 2) (August 1, 2013)

Hawaii's Sunshine Law, Part I of chapter 92, Hawaii Revised Statutes (HRS), generally requires board members to discuss all board business in open meetings that have been properly noticed to allow for public participation. OIP often is asked whether board members can talk to one another in various situations when not in a meeting. To help board members understand when they can talk to each other outside a meeting, OIP put together a three-part Quick Review. This Quick Review is the second in the series. Part 1 concerned discussions of matters that are not board business, and Part 3 will follow and explain "permitted interaction groups" ("PIGs"). The entire series, along with other educational materials, will be posted on the [training page](#) of OIP's website at oip.hawaii.gov.

What constitutes board business was discussed in Part I. There are, however, a number of exceptions and "permitted interactions" that allow board members to have discussions outside of a meeting, even on matters that constitute board business. A few of these exceptions and permitted interactions are described below.

1. Selection of Board Officers (HRS § 92-5(2))

The selection of the board's officers may be discussed between two or more board members, but less than a quorum, in private without limitation or subsequent reporting.

2. Members May Accept Testimony When a Meeting Must be Cancelled or Terminated (HRS § 92-3.5)

When a meeting must be cancelled for lack of quorum or terminated when quorum is lost during the meeting, the board members present may receive testimony and presentations on agenda items, and may question testifiers or presenters.

When a board is holding a meeting by interactive conference technology (i.e., any form of audio or audio and visual conference technology, including teleconference, videoconference, and voice over internet protocol, that facilitates interaction between the public and board members) and an audio connection cannot be maintained at all locations, the meeting must be terminated, even if a quorum of the board is physically present in one location. However, members present at one location may continue to receive testimony and presentations on agenda items and may question testifiers or presenters, but cannot discuss, deliberate, or decide such matters.

For both cancelled and terminated meetings, board members' discussion, deliberation and decision-making on agenda items for which testimony or presentations are received must occur only at a subsequent, properly noticed meeting held after the meeting at which the testimony and presentations were received.

And, members who received the testimony at a cancelled or terminated meeting are required to create a record of the oral testimony or presentations in the same manner as would be required for testimony or presentations heard during a meeting of the board. In other words, the members must keep notes of the receipt of testimony and presentations in the same manner that the board would keep minutes of testimony and presentations received at a meeting.

Before deliberation or decision-making at a subsequent meeting, the board must provide copies of the testimony and presentations received at the cancelled meeting to all members. The members who were present at the cancelled or terminated meeting must also report about the testimony and presentations received.

3. Informational Meetings (HRS § 92-2.5(e))

Two or more members of a board, but less than a quorum, may attend an informational meeting or presentation on matters relating to official board business, including a meeting of another entity, legislative hearing, convention, seminar, or community meeting; provided that the meeting or presentation is not specifically and exclusively organized for or directed toward members of the board.

The board members in attendance may participate in discussions, including discussions among themselves, provided that the discussions occur during and as part of the informational meeting or presentation and that no commitment relating to a vote on the matter is made or sought.

At the next board meeting, the members who attended the informational meeting are required to report their attendance and the matters presented and discussed that related to official board business at the informational meeting.

4. Discussions with the Governor (HRS § 92-2.5(f))

Discussions between the Governor and one or more board members may be conducted in private without limitation or subsequent reporting; provided that the discussion does not relate to a matter over which a board is exercising its adjudicatory function.

Some boards that have adjudicatory powers include the: Hawaii Labor Relations Board; Labor and Industrial Relations Board; Hawaii Paroling Authority; Civil Service Commission; Employees' Retirement System Board of Trustees; Crime Victim Compensation; and State Ethics Commission.

5. Discussions with Department Head (HRS § 92-2.5(g))

Discussions between two or more members of a board and the head of a department to which the board is administratively attached may be conducted in private without limitation; provided that the discussion is limited to matters specified in section 26-35, HRS.

Section 26-35, HRS, provides that:

- department heads shall represent attached boards in communications with the governor and the legislature, unless otherwise requested by the legislature;
- a board's financial requirements from state funds shall be submitted through the department head and included in the department's budget;
- rules adopted by the board are subject to approval of the governor;
- employment, appointment, promotion, transfer, demotion, discharge, and job descriptions of officers and employees of or under a board must be determined by the board subject to approval of the department head, and subject to applicable personnel laws;

- purchases of supplies, equipment, or furniture by a board are subject to approval by the department head;
- the department head has the power to allocate the spaces available for the board to occupy;
- quasi-judicial functions of a board are not be subject to the approval, review, or control of the department head; and
- the department head shall not have the power to supervise or control the board in the exercise of its functions, duties, and powers.

Finally, members should note that the **Sunshine Law expressly states that no permitted interaction shall be used to circumvent the spirit or requirements of the Sunshine Law to make a decision or to deliberate toward a decision upon a matter over which the board has supervision, control, jurisdiction, or advisory power.**

Quick Review: Who Board Members Can Talk To and When (Part 3) (August 8, 2013)

OIP often is asked whether board members can talk to one another in various situations when not in a meeting. To help board members understand what they can talk about when they are not in a meeting, OIP put together a three-part Quick Review. The entire series can be found online on [OIP's Sunshine Law training webpagepage at oip.hawaii.gov](http://oip.hawaii.gov).

Boards subject to the Sunshine Law, Part I of Chapter 92, Hawaii Revised Statutes (HRS), are generally required to conduct all business in open meetings that have been properly noticed to allow for public participation. This Quick Review discusses an exception to the open meeting requirement for "permitted interaction groups" or "PIGs," as set forth in section 92-2.5, HRS. While other types of permitted interactions were previously discussed in Part 2 of this Quick Review series, this article explains how members of a board may form a PIG to investigate or to negotiate a matter.

PIGs Established to Investigate

Two or more members of a board, but less than the number of members which would constitute a quorum, may be assigned to investigate a matter relating to the official business of their board.

In order for a board to take action on a matter investigated by a PIG, **three meetings must occur**. At the **FIRST** meeting of the full board, the scope of the investigation and the scope of each member's authority are defined. The PIG may then conduct its investigation.

At a **SECOND** meeting of the full board, findings and recommendations of the PIG are presented to the board, but the board cannot discuss or act on the report at this meeting.

- A PIG may present its findings to the full board in an executive session *if* the reason for entering into the executive meeting is one of those set forth in section 92-5(a), HRS, or other law. For example, if a PIG was created to investigate whether to take certain disciplinary action against an employee, it may present its findings to the full board in accordance with section 92-5(a)(2), HRS, which allows board to enter executive meetings to consider the discipline of an employee.

If the board would like to discuss, deliberate, or make any decisions regarding the PIG's report, it must do so only at a **THIRD** meeting held separately and after the meeting at which the findings and recommendations of the investigation were presented by the PIG.

- The public must be allowed to testify on any agenda item of the board, including those concerning PIGs and reports by PIGs.

Some Practical Considerations for Investigative PIGs

- PIGs are not subject to the Sunshine Law's requirements for giving notice, holding open meetings, or keeping minutes.

- PIG members may communicate by interactive technology (Skype, teleconference, etc.), and by e-mail, telephone, etc., on matters within the scope of the PIG's authority without violating the Sunshine Law.
- Although a PIG is not required to hold public meetings, it can choose to do so if it wishes.
- PIGs may solicit input from the public as part of an investigation without the need of filing a meeting agenda in accordance with the Sunshine Law.
- A PIG may include among its members people who are not members of the board that created the PIG. A PIG may also consult with others (i.e., staff, members of the public, individuals with expertise in a field) in furtherance of its investigation, but should NOT consult with other members of its parent board.
- Members of a board who are not part of the PIG may NOT attend PIG meetings.
- Before the PIG reports to the board, PIG members should not discuss the status of their investigation with other board members who are not part of the PIG.
- A standing committee of a board may create a PIG, and such PIGs must follow all the requirements of section 92-2.5(b), HRS.
- If a member of a PIG ceases to be a member of the parent board, the board should not substitute another board member into that vacant PIG position. The PIG's membership was previously established at the initial meeting that created the PIG. If a board wants to change the PIG's membership, it should dissolve the PIG and create a new one.

PIGs Established to Negotiate

Another less common type of PIG can be formed when two or more members of a board, but less than a quorum, are assigned to present, discuss, or negotiate any position adopted by the board at a meeting. The assignment of members to a PIG for the purpose of negotiation, and the scope of each member's authority, must be defined at a board meeting prior to the presentation, discussion, or negotiation. The three-meeting requirement for investigative PIGs does not apply to PIGs established to negotiate.

As a final note, boards should keep in mind that they may be subject to other laws or rules in addition to the Sunshine Law, which could affect members' ability to discuss pending matters. This may be particularly relevant for boards that exercise adjudicatory functions (which are not subject to the Sunshine Law), as they must generally avoid *ex parte* communications. Boards should consult with their own attorneys on the application of such laws and rules.