

Environment



Hawai'i

a monthly newsletter

Price: \$5.00

Bye Bye, Bigeye

One of the most magnificent, extraordinary creatures of the sea, bigeye tuna, is being overfished to the point of near extinction. And all the Western Pacific Fishery Management Council can think of is how to increase the number of these fish that can be caught by the Hawai'i fleet of longline boats.

All in all, what Wespac did at its most recent meeting was shameful, even in light of the low standards against which this council is usually judged.

But Wespac is by no means alone in its failure to appreciate and protect the bigeye. It takes its place alongside the U.S. State Department and delegations from other countries and agencies who all agree something *must* be done to protect bigeye – just not by them.

Those who say the answer lies in aquaculture may have a chance to see their theories confirmed – or disproved – right here in Hawai'i. A planned tuna farm off the Kohala Coast got the first of several green lights it needs when the Land Board gave it preliminary approval in October.

Even as Bigeye Stocks Crash, Wespac Wants to Raise Longliners' Catch Share

A decade ago, Daniel Pauly, one of the leading scientists in the field of fisheries management, coined a term: Fishing down the food web. This describes what happens when the large marine predators are overfished and their numbers decline, while populations of their prey explode. Those prey fish are in turn exploited to the point that their numbers shrink and then the bulk of the catch is made up of the fish that make up the next-lower trophic level. Taken to its logical conclusion, fishing down the food web ends up with catches of plankton-feeders and detritivores that, in earlier times, would have been scorned and discarded.

At the October meeting of the Western Pacific Fishery Management Council (Wespac), guest speaker Jeff Polovina, a scientist with the Pacific Islands Fisheries Science Center of the National Oceanic and Atmospheric Administration (and one of the most prominent names in the field of marine science today), discussed trends in Hawai'i fisheries – and in several respects,

they match up well with what Pauly described.

"When you look at longline catches from observer data, the catch rates have shown a slight downward trend for most fish caught over the last decade – tunas, sharks, billfish," Polovina told the council. But one group of fish species – the "other" category on observer forms, shows an upward trend, he noted.

"Who are these 'others'?" Polovina asked, then answered his own question with a slide that pictured five species. The toothsome mahimahi was instantly recognizable. The rest – lancetfish, snake mackerel, walu, and sickle pomfret – are still fairly exotic today, but, if Pauly is to be believed, several of them may be making more frequent appearances in local markets.

Yet, apart from mahimahi (*Coryphaena hippurus*) and sickle pomfret (*Taractichthys steindachneri*), these "other" fish pose some market challenges. The meat of the longnose lancetfish

to page 5

IN THIS ISSUE

2

New & Noteworthy

3

Editorial: Going, Going, Gone?

4

Council Seeks Payouts For Non-Existent Fisheries

6

Those Reviled Purse Seiners

10

Board Talk: Thumbs Up For a Tuna Farm

12

Mahalo



Bigeye Tuna (*Thunnus obesus*)

PHOTO: NOAA

Environment



Hawai'i

Volume 20, No. 6

December 2009

NEW AND NOTEWORTHY

Seal Rehab at Keahole? On October 20, the state Natural Energy Laboratory of Hawai'i Authority's board of directors gave preliminary approval to a proposal by The Marine Mammal Center (TMMC) of Sausalito, California, to construct an endangered Hawaiian monk seal (*Monachus schauinslandi*) rehabilitation center on an acre of land at the Keahole, Kona facility. According to TMMC, it has already helped the National Marine Fisheries Service raise and release three monk seal pups, and its director of veterinary science, Dr. Frances Gulland, has been a member of the Hawaiian monk seal recovery team since 2001.

The NELHA-based center, if built, would rehabilitate sick or injured monk seals, feed undernourished seals from the Northwestern Hawaiian Islands, and serve as a quarantine/holding area for seals awaiting translocation. TMMC proposes to initially construct three



Hawaiian monk seal (*Monachus schauinslandi*)

PHOTO: NOAA PIFSC

pools with a holding capacity of nine animals, as well as a laboratory, a food prep room, and an office.

At the NELHA board's October meeting, member Patricia Cooper, representing the University of Hawai'i, voiced her concerns about the board's potential liability should seals die at the facility, citing an incident in which a veterinarian working with the university's Hawai'i Institute of Marine Biology nearly went to jail when seals died while being studied.

Local monk seal expert Lloyd Lowry, who also serves on the Marine Mammal Commission, said that the rehab center is totally different from research and if properly permitted, the NELHA board would have no liability if seals died at the facility.

NMFS' Jeff Walters added that the state is in dire need of such a facility, noting that the Waikiki Aquarium is struggling to care for KP2, a rescued Hawaiian monk seal returned to captivity because it is going blind. If and when the NELHA facility is built, Walters said it would start housing seals as soon as possible.

"We're really in a tough fix," he said.

Bucks for Birds: In late October, President Barack Obama signed the 2010 Interior, Environment, and Related Agencies Appropriations bill, which includes \$3 million for Hawaiian bird conservation. According to George Wallace, the American Bird Conservancy's vice president for oceans and islands and head of the organization's Hawai'i program, said the bill marks an important beginning. "[I]t is a bold move in the right direction and will go a long way to help species in peril such as the palila and Maui parrotbill," he said in a press release.

According to the ABC, the U.S. Fish and Wildlife Service will spend the \$3 million developing a comprehensive conservation strategy for endangered and threatened

Hawaiian birds, hiring staff, and implementing on-the-ground projects to recover the birds. If the FWS gets its way, that strategy will cover the 'akikiki (*Oreomystis bairdi*) and 'akeke'e (*Loxops caeruleirostris*). In late September, the FWS proposed adding the 'akikiki and 'akeke'e – both found only on Kaua'i – to the endangered species list, which already includes 31 endemic Hawaiian birds. The 'akikiki population has declined from 7,000 birds in 1970 to fewer than 1,400 in 2007. The 'akeke'e population has also taken a nosedive, dropping from 8,000 birds in 2000 to 5,700 in 2005, to fewer than 3,500 in 2007, according to ABC.



'Akikiki

PHOTO: JIM DENNY

A final decision on the proposed listings will be made in about a year, after comments are reviewed.

EH-xtra: We just couldn't fit everything we wanted to in our December issue. For additional coverage of the recent meetings of the federal Western Pacific Fishery Management Council and the state Board of Land and Natural Resource, visit our EH-xtra column. It's free at our website, www.environment-hawaii.org.

Environment Hawai'i

72 Kapi'olani Street
Hilo, Hawai'i 96720

Patricia Tummons, *Editor*
Teresa Dawson, *Staff Writer*
Susie Yong, *Office Administrator*

Environment Hawai'i is published monthly by Environment Hawai'i, Inc., a 501(c)(3) non-profit corporation. Subscriptions are \$50 individual; \$85 supporting; \$85 corporate and institutional. Send subscription inquiries, address changes, and all other correspondence to *Environment Hawai'i*, 72 Kapi'olani Street, Hilo, Hawai'i 96720. Telephone: 808 934-0115. Toll-free: 877-934-0130. E-mail: pattum@aloha.net
Web page: <http://www.environment-hawaii.org>

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

Production: For Color Publishing

Copyright © 2009 Environment Hawai'i, Inc.
ISSN 1050-3285

A publication of
Environment Hawai'i, Inc.

Officers Directors

Patricia Tummons President and Treasurer	Kathy Baldwin Robert Becker Mary Evanson Leland Miyano Mina Morita
Teresa Dawson Vice President and Secretary	

Quote of the Month

"[W]hen there's an overfished status,
we have an obligation
to rebuild stocks, not harvest more."

— Peter Young, *Wespac*

EDITORIAL

Going, Going, Gone: Will Ahi Vanish from the Auction Floor?

The star attraction at the Honolulu fish auction is bigeye tuna, also known as ahi. It is the target of almost all of the 125 or so active boats in the Hawai'i longline fleet. The choicest fish are flown to Japan or end up in the kitchens of Hawai'i's upscale restaurants and hotels. The rest are carved up in chunks by supermarket butchers. Most pieces end up plonked onto a plastic foam tray with a tiny piece of green plastic grass, wrapped in clear plastic, and sold for \$10.99

Since 1996, the Pacific stock of bigeye has been listed as "vulnerable" on the Red List of the International Union for the Conservation of Nature.

a pound – except when the holidays roll around. Then, when ahi sashimi is an essential dish in every island celebration, the prices soar.

But ahi are in trouble. Since 1996, the Pacific stock of bigeye has been listed as "vulnerable" on the Red List of the International Union for the Conservation of Nature. "Vulnerable" means that the species is not endangered but does face a high risk of extinction in the wild in the medium-term future. What qualified the bigeye for this status was a reduction of at least 20 percent in the preceding decade in population estimates as well as increasing levels of exploitation.

Since then, the situation of the bigeye has only deteriorated. For several years, the Inter-American Tropical Tuna Commission has placed curbs on the annual catches of bigeye taken in waters of the Eastern Pacific. A more recent effort to rebuild depleted stocks of Pacific bigeye was taken last December by the Western and Central Pacific Fisheries Commission (WCPFC), a relatively new regional fishery management organization that has jurisdiction over fishing activity in most of the Pacific Ocean, the source of more than half the tuna consumed globally each year. Last December, the WCPFC imposed catch limits on longliners and other curbs on purse seiners in hopes of attaining a 30 percent reduction in the losses to bigeye stock resulting from fishing.

It was certainly too little. An evaluation of the conservation measure made this summer found that even supposing that every member country or participating party fully

complied with the prescribed limits, bigeye fishing mortality would actually rise this year.

Against this background, the decision of the Western Pacific Fishery Management Council to approve a change in its management plan for bigeye and other pelagic species that could more than double the catch limit allowed to the Honolulu-based longline fleet is simply unconscionable.

What the council did was give each of the

three island territories – Guam, Commonwealth of the Northern Mariana Islands, and American Samoa – the authority to contract with the Hawai'i Longline Association to catch up to 2,000 metric tons a year of bigeye that will be attributed to the quota allowed to the territories by the WCPFC. The territories do not have the capacity to catch these fish on their own. What's more, the infrastructure needed to handle the longliners' catch and allow the bigeye to maintain their high value is lacking for the most part. Without that infrastructure, the

The data scientists use to make their assessments lead to some pretty grim conclusions. But the actual state of affairs is almost certainly bleaker.

Hawai'i longliners will be able to catch their quotas for the territories without suffering the inconvenience of having to leave their home waters, since the council thoughtfully put in a provision that conditions the need to land the fish three times a year in the territory on the adequacy of the infrastructure available to handle the catch.

Race to the Bottom

How bad off are bigeye? The data scientists use to make their assessments lead to some pretty grim conclusions. But the actual state of affairs is almost certainly bleaker. Scientists are handicapped by underreporting from some fishery participants, no reporting by others (Philippines and Indonesia being notable examples of this), and fuzzy data in still other cases (such as when the purse seiners' catch of skipjack, yellowfin,

and bigeye tuna is not broken down by species).

It may be understandable why each of the parties sitting at the negotiating table wants to increase its share of an increasingly rare – and to that extent, ever more valuable – catch. And in the world of diplomacy, where success is measured not by healthy tuna stocks but by the proportion of catch "won" by a country, maybe the United States can consider itself a winner, with the special exception carved out for Hawai'i longliners in the first place (they face only a 10 percent cut in their catches, while other longliners were whacked with a 30 percent reduction), and now the bonus quotas given them by the recent council action.

Perhaps the longliners and their minions at Wespac sincerely believe that 'justice' was somehow served in the actions taken by the council to enlarge the longliners' share of the bigeye catch. It's true that the longliners won't have to suffer economic hardship and that the council's action has spared Hawai'i consumers the inconvenience of having no platters of ahi sashimi and sushi to include in their holiday spreads this year.

But what of next year, and the years after that?

As Jeff Polovina's presentation to the council showed, the effects of fishing down the marine food web are already being seen in the longliners' catch. The diminished number of apex predators, including bigeye tunas, is affecting populations of shorter-lived, less marketable fish. That alone should be sufficient warning, but when combined with the most recent assessments of bigeye (which, pointedly, were *not* distributed to council members at the October meeting), the writing on the wall could not be clearer:

For bigeye, the status quo is not sustainable. Whether or not the Hawai'i longliners' take of the overall catch is relatively small, the council should step up and do its part to save this magnificent animal.

And if it does not, cannot, or will not, the time for consumer action may be at hand. Can anyone say boycott?

Council Seeks Monumental Payouts For Small, Even Non-Existent Fisheries

Are marine national monuments established under the Antiquities Act legal? And should Congress compensate fishers – even potential fishers – for loss of access to monument waters?

Those were two of the questions posed to the Western Pacific Fishery Management Council when the subject of three recent monuments established in the U.S. waters of the Pacific Ocean came up at its October meeting. To launch the discussion, council staff member Kelly Finn informed the council that the several marine national monuments set aside by former President George W. Bush shortly before leaving office, as well as the Northwestern Hawaiian Islands Marine National Monument he authorized in 2006, were established under questionable legal grounds. Finn backed up her statement by invoking what she claimed was the American Bar Association's view on the subject, as found in the ABA's *Marine Resources Committee Newsletter* of August 2009.

Included in the newsletter was an article, "Presidential Bans on Commercial Fishing in Pacific Marine Protected Areas: A Politically Popular but Unlawful Regulatory Action?" by James P. Walsh and Gwen Fanger of the San Francisco law firm David Wright Tremaine LLP. In her presentation to the council, Finn repeatedly referred to the Walsh and Fanger article as the position of the American Bar Association, yet the newsletter itself clearly states, "The views expressed herein ... should not be construed as representing the policy of the ABA."

The gist of Walsh and Fanger's article is that the Antiquities Act was never intended to be used for waters extending beyond the traditional three-mile territorial limit, and that, in any case, the Magnuson-Stevens Act and the National Marine Sanctuary Act "trump the vague authority of the Antiquities Act" when it comes to fisheries management in any monument waters.

Arguing a contrary view – not provided to the council members – is an article by Alison Rieser and Jon Van Dyke of the University of Hawai'i. Their article, "New Marine National Monuments Settle Issues," was, like that of Walsh and Fanger, published in an ABA sanctioned journal, *Natural Resources & Environment* (Fall 2009). Rieser and Van Dyke note that the three

new proclamations made by Bush in 2009 – setting aside monuments for the Marianas Trench (off the Commonwealth of the Northern Mariana Islands), for Rose Atoll (in American Samoa), and for the Pacific Remote Islands (Howland, Wake, Baker, and Jarvis islands, Johnston and Palmyra atolls, and Kingman Reef) – "suggest that some of the intriguing legal questions concerning a marine national monument have been settled."

The Council on Environmental Quality "drafted the three new proclamations," Rieser and Van Dyke write, adding that the CEQ "undoubtedly found useful a 2000 Department of Justice legal opinion, written when President Clinton was considering a monument for the waters" around the Northwestern Hawaiian Islands (the area later protected by Bush as the Papahānaumokuākea Marine National Monument).

The report prepared for the council, however, stresses the "potential illegality of the monuments." What's more, it argues that because closures associated with the monuments will result in some fishers being permanently displaced from fishing grounds, "it would therefore be just for the U.S. government to compensate those fishery participants and communities that have been affected through a permanent prohibition on commercial fishing" in monument waters.

But just how much fishing is actually conducted in the areas given monument status?

According to Wespac's own data, not much.

In American Samoa, the catch from the area of Rose Atoll averaged 240,000 pounds from 2001 to 2008. The average catch in the last four years of that period, however, is half that – 120,865 pounds, or just under 55 metric tons. Of the average total catch of 10 million pounds, this represents 1.2 percent.

In the case of the Mariana Trench monument, only the waters of the Island unit are closed

to commercial fishing – which, in any case, was rarely pursued there. Still, Wespac staff mourned the loss of this potential: "Fishing is a primary long-term economic opportunity for the CNMI, but now one third of the island chain has been put off limits to commercial fishing," the report prepared for the council states. And, notwithstanding the fact that the monument is less than a year old, the staff report writes off the touted economic benefits of the monument as having "failed to materialize due to the global economic recession and the claims that were used to promote their formation. [sic] Large numbers of visitors and scientists queuing to gain access to the monument islands and providing economic benefit to CNMI has not occurred as of yet."

Waters now in the Pacific Remote Islands Areas National Marine Monument were fished primarily by purse seine fleets and occasionally Hawai'i-based longliners. Even Wespac admits, however, that "currently these catches comprise relatively small fractions of the total production from the various fleets."

The full council duly approved a recommendation that staff prepared, asking the Secretary of Commerce to develop a compensation package for fishermen inconvenienced by the monuments, "in consultation with the fishing industry and the council." It also asked the fishing agencies of Guam, American Samoa, and CNMI to conduct surveys of fishermen that may have fished in the monument areas but whose catch is "not represented in the current data set" – i.e., unreported.

Don Palawski, who represents the U.S. Fish and Wildlife Service on the council (but who has no vote), was the sole person who raised any concerns about this. "The



A spectacled parrotfish at Kure Atoll in the Papahānaumokuākea Marine National Monument

last few meetings we've had a great deal of discussion about the purse seiners' expansion," he said. "I find it hard to believe that the expansion of monuments in the Pacific is hurting them. Second, I'd be curious as to whether the creation of the Pacific Remote Island Area monuments ... will be a factor in preventing the longline industry from attaining its catch limits."

Manny Duenas, who usually misses no opportunity to disparage purse seiners, rose to their defense this time. "When we were in American Samoa," he said, referring to the council's meeting there last spring, "the American hull purse seiners, that was their concern... There is an impact somewhere."

And council chairman Sean Martin insisted that, notwithstanding catch limits on bigeye, the closure of PRIA waters to commercial fishing could have some financial pinch to it. While there are bigeye catch limits, he noted, "other species are commonly taken in addition to bigeye in the southern islands... In certain years, a significant amount of catch comes out of the southern remote islands, so there is some impact. I can't put my finger on what it might be from a financial standpoint, but certainly there's activity that used to take place in those areas

that will no longer take place."

The motion carried, with two abstentions (Peter Young and William Robinson).

Payouts for Bottomfishers

The council report was highly critical of the compensation plan that is being implemented for participants in the bottomfish fishery and the (defunct) lobster fishery in the Northwestern Hawaiian Islands. As of June 15, 2011, bottomfishing in the Papahānaumokuākea Marine National Monument will be banned; lobster fishing effectively ended more than a decade ago, when the populations of lobsters could no longer support commercial harvesting.

Last year, Congress authorized \$6,697,500 to be used to compensate the fishers displaced by establishment of the monument. The money is to be distributed on the basis of the economic value of their fishing permits. If funds remain after the permits are bought out, "A future voluntary vessel and gear buyout may be developed once the permit compensation is complete," says the final rule published in the Federal Register of September 15. The actual amount to be distributed is somewhat less: \$197,500 was taken by the National Oceanic and Atmospheric Admin-

istration for "internal indirect costs," while NMFS is paying \$138,529 to the Pacific States Marine Fisheries Commission to administer the program.

Once the permit holder receives funds, the permit will immediately be invalidated – a condition that council staff found objectionable. "There were a few things we would have changed" in the compensation package, Finn told the council. In particular, she said, "I don't think we would have agreed to instant withdrawal from the fishery upon compensation."

Written comments that council executive director Kitty Simonds provided on the draft rule made the same point: "NMFS should not require participants in the compensation program to exit the NWHI fishery prior to June 15, 2001... If the immediate exit provision is to be retained, the compensation packages should be directly increased to fully include the additional two years of foregone revenues," she wrote.

NMFS responded by noting that the compensation a permit holder receives will, under the payout formula, already include payment for the revenues lost from the time of compensation to the closure of the fishery.

— P. T.

Wespac from page 1

(*Alepisaurus ferox*) has been described as watery and gelatinous. Walu, also known as escolar (*Lepidocybium flavobrunneum*), might be a hard sell, too: while tasty (some try to market it as "white tuna"), its oily flesh has caused it to be nicknamed the Ex-Lax fish. Snake mackerel (*Gempylus serpens*), has little market value. If it is retained and sold, it usually ends up in processed fish cake: its appearance alone can dampen the most robust appetite.

"We're seeing a new face of the pelagic ecosystem," Polovina said. "Snake mackerel catch rates have gone up 17.9 percent a year. Mahimahi catch rates doubled over the last decade, even though no one targets it." Catch rates for escolar increased at a brisk rate of nearly 11 percent a year, according to Polovina's data. For the higher trophic-level predators, however, catch rates were heading south over the same period. Albacore led the charge, with an annual catch-per-unit-effort (CPUE) decline of more than 9 percent (although part of this decline may be attributed to a shift in targeting by the longline fleet). Striped marlin and bigeye tuna, high riders on the trophic scale, also saw significant declines

in average annual CPUE (4.8 percent and 3.4 percent, respectively).

"The overall composition of the catch has changed," Polovina said. "It used to be that 70 percent of the catch was made up of top trophic-level predators; now it's about 40 percent. We're seeing now a trophic cascade. The biomass of prey fish has increased its ratio. There's an increase of faster-growing, shorter-lived animals. Used to be, they made up 20 percent of the catch. Now they're 40 percent." Research by Polovina (published in the *Fishery Bulletin* in September) shows that the lancetfish, which made up 10 percent of the total catch, in 2006 amounted to 20 percent – exceeding the catch of the fishery's target, bigeye (17 percent of the catch in both years).

The management issues posed by this change in catch composition are significant. In the past, Polovina noted, "there was a lot of focus on single species – for example, bigeye tuna – but we need to look at the whole ecosystem. Juvenile bigeye occupy a lower trophic level than adults, the same trophic level as mahimahi. So, will juvenile bigeye now have a better chance at survival because the top predators are removed? Or, now that there are these other competitors at the same trophic level as juveniles, will it be

more difficult for bigeye juveniles to mature? We don't know enough about these interactions, but it's worth giving thought to."

In a telephone interview, Polovina said that what's occurring in Hawai'i differs in several respects from what Pauly was describing. "In Daniel's approach, you're sequentially depleting resources as you go further down the food web," Polovina said. "Here, though, bigeye tuna still commands the highest price, still is the target of the fishery, but what's happened is an increase in things that have no market value, like snake mackerel, lancetfish. You're reducing the abundance of fish at the top of the food web, but are still fishing it.

"What Daniel characterized as fishing down the food web – you wipe out one trophic level and move down. Here, it's a little like that, but the target species is still largely the bigeye."



Big Trouble For Bigeye

But how much longer can the bigeye be profitably targeted? In recent years, stock

Those Reviled Purse Seiners

The press release issued by the Western Pacific Fishery Management Council was hardly dispassionate. "U.S. Territories Ask for 'Justice' in Pacific Tuna Allocations," read the headline on the notice, which described the council's vote to allow Guam, Commonwealth of the Northern Marianas, and American Samoa to assign up to 2,000 metric tons of their allotted share of Pacific bigeye tuna to the Hawai'i longline fleet – with the Hawai'i longliners not even having to fish in the islands' territorial waters, much less land fish in their ports.

The vote taken was in support of adding an amendment to the council's Fishery Management Plan for pelagic

species (tunas and other open-ocean fish).

According to the press release, the decision was a matter of "justice" for the U.S. territories: "The 39 U.S. flagged, government-subsidized purse seiners harvest 6,500-8,000 metric tons of Pacific bigeye annually and have no [Western and Central Pacific Fisheries Commission] quota, while the 130 permitted U.S. longliners have a WCPFC quota of 3,763 metric tons of bigeye," the press release stated.

During the meeting, several council members voiced righteous indignation over what was described as the unfair edge held by the purse seiners. Council vice chairman Manny Duenas of Guam

may have been the most vocal on this point. "To me," he said at one point, "the needs of the territories are always subservient to the needs of the purse seiners. The last 15 years of my life I've dedicated to anti-purse-seining."

The press release took note of the \$18 million paid each year by the U.S. government to island nations under the South Pacific Tuna Treaty, which expires in 2013. However, the \$18 million is the only foreign aid that the United States provides to the South Pacific island nations that are party to the agreement. Owners of the purse seine vessels make additional payments, including the costs of observers. Their total payments to the treaty nations

assessments of bigeye in the western and central Pacific suggest that the catch of bigeye tuna (*Thunnus obesus*) exceeds estimates of sustainable yields by from 50 percent to 100 percent.

Last December, the Western and Central Pacific Fisheries Commission, based in Pohnpei, Federated States of Micronesia, adopted a conservation and management measure (CMM-2008-01) with a goal of reducing fishing mortality of bigeye in 2011 by 30 percent from annual catch averages seen in the years 2001 through 2004. This, it was thought, would bring catches back to a level that was sustainable. (The measure is also intended to protect yellowfin tuna, which is not in as dire straits as bigeye but still in need of some protection.)

Now, however, according to the commission's Scientific Committee, that goal of reducing catches of bigeye by 30 percent seems unattainable – indeed, according to the latest scientific reports, catch rates are likely to increase in 2009. Even if the 30 percent reduction could be achieved, it probably would not be sufficient to allow bigeye stocks to recover to healthy levels. Those were among the conclusions reached at the August meeting of the committee, held in Vanuatu. Supporting the findings was a report by John Hampton and Shelton Harley, WCPFC scientists, evaluating the effects of CMM-2008-01 on bigeye and yellowfin.

After reviewing fisheries data and analyzing it in relation to the restrictions imposed

by the conservation measure, Hampton and Harley modeled bigeye population projections through the year 2018. Not only was the desired goal of a 30 percent catch reduction in bigeye unlikely to be achieved, they found, but also there was likely to be no reduction in the degree to which bigeye were being overfished. In 2007-2008, they reported, actual levels of overfishing of bigeye exceeded 2.0 – or twice the sustainable yield. That figure was far higher than the level of overfishing (around 1.4) that had been estimated to occur at the time the conservation measure was adopted last December.

Hampton and Harley gave three main reasons for the inability of the conservation measure to achieve its stated goal. First, given certain of the exclusions and loopholes in the provisions of the measure applicable to longliners, by 2011, the longline bigeye catch in the area under the commission's jurisdiction (the so-called convention area) would be reduced by no more than 11 percent from the baseline (the average catch of longliners between 2001 and 2004). Second, under even the most conservative scenarios, purse seine effort (measured in terms of days spent fishing) will be similar to or exceed the historical high effort that occurred in 2005 and 2008. "[I]t is clear that even perfect implementation of all provisions of the CMM ... will not meet the bigeye tuna objective ... [of] achieving a 30 percent reduction in mortality in the purse seine fishery," they write.

Third, the conservation measure does not apply in the archipelagic waters of the western Pacific, where Indonesia, the Philippines, Papua New Guinea, and the Solomon Islands all have active purse seine fisheries and where the take of juvenile bigeye is high.

Absent more stringent conservation measures, Hampton and Harley wrote, by 2018, bigeye tuna spawning biomass "is predicted to continue its decline." By 2018, they wrote, actual spawning biomass of bigeye in the region – a measure of the reproductive potential of the fish – would be just 40 to 60 percent of what was needed to support the maximum sustainable yield of the purse seine and longline fisheries.

The report of the WCPFC Scientific Committee noted, "Not only have conditions deteriorated since the previous assessment, our view of past conditions is now more pessimistic," given recent updated catch information from countries fishing in the region that had been missing from previous stock assessments.

In conclusion, the WCPFC Scientific Committee noted that "the combination of increased fishing mortality on bigeye tuna to levels well above [maximum sustainable yield] ... and the inadequacy of CMM-2008-01 in reducing fishing mortality by 30 percent implies that stock biomass will continue to decline if ... effective action is delayed." Identifying and implementing management measures that can correct the deficiencies of CMM-2008-01, the commit-

this year came to \$5.7 million. (Hawai'i longliners pay nothing for observers—and in fact, are reimbursed their costs of providing observers with food and lodging each day at sea.)

According to the U.S. State Department, the landed value of the catches made by the U.S. purse seine fleet in 2008 came to \$250 million. The ratio of government subsidies to the value of the catch is thus about 1 to 14 (a dollar of public funds for each 14 dollars in landed value of the catch—or seven cents on the dollar).

Compare that to the subsidies to the Hawai'i-based longline fleet. Under the most recent version of the fisheries appropriations bill (still moving through Congress at this writing), the National Marine Fisheries Service will be providing \$7.1 million for the Hawaiian Longline Observer Program, \$7.8 million for the

Hawaiian sea turtle and incidental take activities (made necessary by the interactions of longliners with endangered and threatened sea turtles); and \$1.5 million for the study and protection of whales in the Pacific. Even if part of that is discounted since it helps West Coast fisheries comply with the Endangered Species Act and other environmental laws, the total amount of public funds directed toward helping the Hawai'i longliners stay in business is on a scale similar to that provided to the purse seine fleet.

And when it comes to the ratio of subsidies to landed value of the catch, the public funds go a lot further with the purse seiners. According to NMFS data, the landed value of the Hawai'i longliners in 2007 amounted to \$57 million. If the amount of subsidies for observers, turtle mitigation and whale research and pro-

tection is pegged conservatively at \$12 million, the subsidy-to-economic activity ratio for the Hawai'i longline fleet is less than 1 to 5 (roughly 20 cents per dollar of landed value of the catch).

In terms of the impact of the purse seiners' catch on bigeye, the exact volume of bigeye taken in purse seines is not known. The juveniles are mixed in with the targeted yellowfin and skipjack and not tallied separately when catches are landed. The assessment of the Western and Central Pacific Fisheries Commission's Conservation and Management Measure 2008-01, undertaken by John Hampton and Shelton Harley last summer, noted that even if purse seiners could modify their fishing methods to be more selective and avoid sets on small-tuna, this "would likely be of only marginal benefit because of the high natural mortality rate of very small tuna." — *P.T.*

tee said, is "the most urgent issue facing the commission with regard to managing the sustainability of target tuna stocks."

At the next full meeting of the commission, to be held December 7-11 in Papeete, Tahiti, the full commission will take up a discussion of the Scientific Committee's report.



But in Hawai'i, An Increasing Quota

Under the Western and Central Pacific Fisheries Commission's conservation measure for bigeye tuna, the 2009 catch of the Hawai'i-based longline fleet was to be reduced 10 percent from the volume of bigeye caught in 2004, for a total catch of 3,763 metric tons of bigeye taken from waters within the WCPFC's jurisdiction. According to scientists with NMFS' Pacific Islands Fisheries Science Center, that quota was expected to have been reached by December 1. After that, to meet the huge holiday demand for ahi, the longliners would be constrained to fishing in the waters of the Eastern Pacific (east of 150° West meridian). There, bigeye are also dangerously close to being in an overfishing state, but given the catch trends for 2009, the annual catch limit of 500 metric tons for U.S. longliners set by the Inter-American Tropical Tuna Commission will probably not be met.

Still, even if the bigeye in the Eastern Pacific remain available, in the past, the fourth quarter of the year has historically been the poorest season for catching bigeye in that region. From 2005 through 2008, the fourth-quarter catch of Eastern Pacific bigeye is just 4 percent of the total annual bigeye catch taken from the Eastern Pacific by the Hawai'i longliners.

As *Environment Hawai'i* reported in September, the Hawai'i Longline Association anticipated the possibility that it could be facing a late-year closure of its most productive bigeye grounds under the WCPFC conservation measure. To mitigate that, it entered into an agreement with the government of American Samoa, under which HLA vessels would amount to a charter fleet of the government. With the WCPFC conservation measure giving American Samoa and other small island nations a minimum quota of 2,000 metric tons of bigeye—and no limit whatsoever if they were undertaking 'responsible' development of their fisheries—the HLA evidently spied a loophole that could allow its members to continue fishing in the Western and Central Pacific well after the fleet had reached its 2009 limit, with the charter agreement giving HLA the right to take up to 1,500 metric tons of American Samoa's allocation of bigeye.

The fly in the ointment came in July, when the National Oceanic and Atmospheric Administration published a draft rule that would have required any landings

attributed to territorial quotas to be made in the territory. At the July meeting of Wespac, whose chairman, Sean Martin, is a founding member of the HLA, the council voted to have its staff develop amendments, for a vote in its October meeting, to the council's Pelagics Fishery Management Plan that would clearly legitimize the sort of charter arrangements anticipated in the HLA-American Samoa agreement.

In the council's meeting last month, the proposed amendments were discussed—without the participation of Martin, who recused himself. For the benefit of other council members, Fred Tucher, general counsel for the NMFS Pacific Islands Regional Office, elaborated: "Prior to the council meeting, I received a copy of a contract signed by [American Samoa council member] Ray Tulafono and James Cook [Martin's business partner] on behalf of HLA." The agenda item up for discussion would affect this agreement, he continued. Under the Magnuson-Stevens Act, he said, council members may participate in decisions, "provided the issue does not address a matter of primarily an individual concern." In this case, he said, "Martin has decided to recuse himself." (Tulafono, who sits on the council thanks to his governmental position and not as representative of private fishing interests, was not required to recuse himself, Tucher later explained.)

The document prepared by staff for the

council's consideration presented a range of options, from no-action (leaving the HLA-American Samoa agreement in a difficult legal position), to alternatives that provided explicit authority for such charter arrangements to vessels of any nation, with catch limits of 1,000 or 2,000 metric tons. (The unlimited catch allowed to WCPFC territories engaged in "responsible" fisheries development was briefly mentioned in the staff report: "This [no-limit] alternative would be most consistent with the wording of ... CMM 2008-01; however, it seems irresponsible not to limit longline catches of

"I'm not happy with what's being discussed today. The only fishing group being regulated under the quota system is the longline fleet."

— Manny Duenas, Wespac

bigeye by the Territories given the condition of the bigeye stock.")

Advice from the council's Pelagic Plan Team as well as its Scientific and Statistical Committee attempted to throw cold water on the proposal. With respect to quotas for the island territories, the SST wrote, "Given the continued decline of the status of the bigeye stock the SSC does not support any increase in bigeye catch by any entity ... and declines to endorse any specific alternatives related to this draft [Fishery Management Plan] amendment." The Plan Team, evidencing some doubt as to the claim in the agreement that the HLA charter agreement was "integral" to American Samoa's domestic fleet, recommended that any amendment to the fishery management plan include criteria, "such as one that includes port of landing, recent history of landings, port of vessel servicing and vessel location office, for determining if vessels operating under domestic charter arrangements" are in fact "integral," as required under the WCPFC conservation measure for bigeye.

In response to the Plan Team's comments, the council staff included in its set of options one that would require charter vessels to make "at least three annual landings to offload catch in the ports of the chartering territory, if adequate infrastructure is available (as determined by the chartering territory) to make it commercially feasible." However, if no landings are feasible in the first year "due to lack of infrastructure," the requirement would not have to be met until the sec-

ond year of the arrangement. (Given the damage from the September tsunami, it is unlikely that anyone would challenge a determination that in 2009, at least, American Samoa's infrastructure would be incapable of accommodating landings from the Hawai'i longliners.)

Council member Peter Young expressed his dismay over the proposed change in the Pelagics FMP that would increase fishing effort on a species dangerously close to overfished condition – if not already in overfished territory. "We began this with a discussion of responsible fisheries development ... as a reason for considering the

expansion of the harvest of bigeye in the area," he said.

"Then we had the discussion of vessel chartering, and the recusal of the chair, and mention of an agreement of some type between HLA and American Samoa... I feel like I'm connecting dots. It looks like what we're trying to do is increase the allocation to HLA to harvest bigeye with an additional allocation of 1,000 to 2,000 metric tons per territory and they may not even have to land the fish in American Samoa, because, if there's no infrastructure for the longline fleet to land there, they don't have to do that... We know the earthquake and tsunami devastated harbor facilities, so it's not likely they'll be landed there next year. There are no longliners in Guam except a training vessel, and we know they don't have facilities in Guam and CNMI [Commonwealth of the Northern Mariana Islands]. If bigeye come to

"We don't want to open the door to wholesale abuse of chartering."

— William Robinson, NMFS

Honolulu, I don't know how that helps the territories....

"I don't see why we're even suggesting the next step when bigeye is the targeted fish, because we're obligated to prevent overfishing, and when there's an overfished status, we have an obligation to rebuild stocks, not harvest more."

Council member Dave Itano, said, "I just don't see the economics of it, developing a bigeye fishery in American Samoa or

Guam." Referring to the fact that the fish would have to be shipped out of the territories to market, he continued: "Having to land fish locally, especially in American Samoa and maybe Guam, for the quality of fish, it doesn't add up economically to me... It just seems rather a stretch. This is painful."

Stephen Haleck, a council member from American Samoa, made a pitch for the chartering agreement. "In American Samoa, Chicken of the Sea cannery has closed already... True, our infrastructure was damaged by the tsunami, but that doesn't mean we are not looking to rebuild. From American Samoa's point of view, we're looking at this chartering agreement as a very good tool for us to receive funding" – HLA agreed to pay \$225,000 to help out with harbor improvements and other projects – "and also as a means to rebuild our infrastructure, provide jobs, training for our people. And that's why we have signed an agreement already."

Blame it on the purse seiners

Manny Duenas, council member from Guam, objected to Itano's characterization of Guam. Guam has "the largest trans-shipment port in the Pacific for foreign fleets. We're very familiar with trans-shipment, three to four daily flights to Japan," Duenas said. "We do have capacity in Guam, we just do not have the fish. But CNMI does, so maybe we can partner."

As for the troubled state of bigeye, Duenas blamed it on the purse seiners. "Look at 2008 records," he said. "The purse seine fleet nearly doubled. They're up to 55,000 metric tons over the last eight years. Nothing has been done on their end for conservation, but they got big money."

"I'm not happy with what's being discussed today. The only fishing group be-

ing regulated under the quota system is the longline fleet. The purse seine fleet is not being regulated this way. Who are you kidding, scientists, when you pick on the longliners?"

Under the WCPFC conservation measure for bigeye, Duenas noted, "Territories are not given a limit. There is, no quota." Still, with the recent establishment of several large monument areas in territorial seas around CNMI and Ameri-

can Samoa, and the expansion of military closed areas off Guam, “we’re shut out of our waters.”

“I don’t think anyone in this room has a right to point to territories and say we’re not deserving of this. People on this council had the chance to attack purse seiners, but all the effort was focused on the longline fleet.”

William Robinson, administrator of NMFS’ Pacific Islands Regional Office in Honolulu, attempted to defend both WCPFC and the conservation measure it adopted.

“One comment on WCPFC,” he said. “It’s really an imperfect organization. And it’s dominated by geopolitics, in that the majority of its membership is made up of small island developing states and non-voting participating territories who have clearly expressed a view geopolitically that their economic development as nations depends in part on their ability to develop their own fisheries. Given the scientific advice that we need to reduce effort by as much as 30 percent to fish at a sustainable level, clearly, for the majority of members, that reduction is going to come out of the developed nations, not out of aspirations of small island developing states.

“That’s very difficult to deal with in real world, but that’s the Catch-22 we’re dealing with. To the extent [small island developing states] rapidly develop their fisheries, either reductions come from developed nations, or we’re not going to achieve fishing goals at all. It’s a very difficult situation.”

Nor could Robinson let slide Duenas’ remarks on the purse seine fleet. “I don’t



Purse-seine vessel in American Samoa.

PHOTO: WESPAC

chartering fleet. Our concern is kind of precedential, in the sense that in the first place, ... a reasonable interpretation of integral is some sort of essential nexus, such as landing, provisioning, etc. We feel that’s important that those kinds of requirements be included....

“What we don’t want to see as members of WCPFC, we don’t want to set a precedent or create a model that Chinese Taipei or Taiwan or Korea can come in and think that they can write a check to somebody, and that in and of itself makes us integral, and therefore we can just keep fishing wherever we normally fish and land wherever we normally land. We suspect some of that is occurring anyway, but our position is that it should stop. The contribution of a charter fleet should be significant. ... We don’t want to open the door to wholesale abuse of chartering, which is why we’ve pushed so hard to have these operational conditions.”

When the turn came for members of the public to comment, Jim Cook, owner of several longline vessels with Sean Martin, weighed in. “There’s been a lot of discussion that turns on the definition of integral,” he said. “It’s curious to me that the

dress Young’s repeated concerns that the possible increased fishing mortality of big-eye tuna allowed under the FMP amendment would undermine the goals of the Magnuson-Stevens Act. “Under the national standard,” Robinson said, “basically, because the United States is a small part of the overall mortality... the Magnuson Act defers to the regional fishery management organization” – in this case, the WCPFC – “as long as the RFMO is addressing the overfishing issue. And because the U.S. catch is a very small percentage, 3 to 4 percent, of the total, we defer to the RFMO... With the conservation and management measure, if you follow through with a 30 percent reduction, there would be a significant reduction in mortality... If you look at the exemptions of small island developing states and territories, there’s an expectation there may be some responsible development in those fisheries which would add some mortality back in. But what these proposals do, whether it’s ours or another, it simply adds a little bit more mortality back into the equation. Maybe you don’t get the full 30 percent mortality, you get something less, but overall you should still get significant reduction in mortality.”

In the end, the motion to allow Guam, American Samoa, and CNMI to manage up to 2,000 metric tons of bigeye catch per year through charter arrangements passed the council by a wide margin. The final vote: 9 in favor, 2 opposed (Laura Thielen and Peter Young), 1 recusal (Martin), and 1 abstention (Robinson).

— *Patricia Tummons*

“I think we’re all islanders, we’re all from the United States, we’re all integral.”

— *Jim Cook, longliner*

want to wade into purse seine waters,” he said, “but I would point out that the U.S. position was to take them off the water for two months, but nobody else would agree to that.... The [National Marine] Fisheries Service is supportive of the Conservation and Management Measure, which clearly recognizes that SIDS [small island developing states] and territories do have right to responsibly develop their fishery without significant constraints. We support that....

“But I want to identify one issue that’s somewhat problematic for us. That the issue of what it means to operate as an integral part of a domestic fleet. ... The problematic aspect right now for the Fisheries Service is, what is the minimum threshold for operating as an integral part of a

WCPFC did not enter into discourse on this definition. They granted island communities their unlimited or 2,000 ton quota and left the rest up to them... Here we’ve been talking about integral, and benefits accruing, but it seems to me it’s up to the territories to decide what’s integral, and not the U.S. government. I think we’re all islanders, we’re all from the United States, we’re all integral.”

The next day, the council voted on the issue. Once more, the purse seine fleet was vilified, with frequent mention made of the \$18 million a year that the U.S. government pays in foreign aid to island nations so that the U.S. purse seiners can fish in their waters.

Robinson of NMFS attempted to ad-



For Further Reading

The September 2009 edition of *Environment Hawai'i* contains a more thorough discussion of the HLA-American Samoa charter agreement. The article, “Hawai'i Longliners Attempt an End Run around Bigeye Quotas in Western Pacific,” is available online at the *Environment Hawai'i* website: www.environment-hawaii.org. Access is free to current subscribers.

Others wishing to view the article may do so on payment of \$10 for a two-day pass to the archives.

BOARD TALK

Tuna Cage Project off Kohala Coast Wins Conservation District Use Permit

A company trying to grow in cages fish that are being pillaged to near commercial extinction in the Pacific received Conservation District Use Permit (CDUP) approval from the state Board of Land and Natural Resources on October 24.

In a 4-1 vote, the Land Board brought Hawai'i Ocean Technology, Inc. (HOT) one step closer to achieving its plans to grow several thousand pounds of yellowfin and bigeye tuna (a.k.a. ahi) in 12 giant, deep-water "oceanspheres" off the Big Island's North Kohala coast.

Concerned that the untethered cages – which will be held in place, HOT says, with thrusters powered by ocean thermal energy conversion – have never been tested, the Land Board limited HOT to three cages; any more would require seeking further approval from the Land Board. (According to HOT representatives, three cages is the minimum number needed to be profitable.)

HOT must also get an effluent discharge permit from the state Department of Health, a U.S. Army Corps of Engineers Section 10 permit, and an ocean lease from the Land Board before it can install the cages. It may also have to contend with contested-case hearing requests from Kale Gumapac of the Kanaka Council and O'ahu's Michael Kumukauoha Lee, both of whom claim that the project will impact native Hawaiian rights and traditions.

"This is unacceptable," Gumapac said after the vote. Whether the Land Board will grant Lee and Gumapac a contested-case hearing remains to be seen.

Should the project proceed as planned, HOT's tuna farm will cover 247 acres of ocean west of Malae Point. Twelve oceanspheres, each 165 feet in diameter, will be spread throughout the area and be submerged 65 feet below the ocean surface.

The company, founded in July 2006, plans to install one cage next year, two more in 2011, four more in 2012, and the last five in 2013.

At University of Hawai'i at Hilo's Pacific Aquaculture and Coastal Resources Center, HOT plans to grow tuna fingerlings from eggs collected from two to six captured broodstock or from wild tuna. HOT expects to produce 1,000 tons of ahi by 2011, 3,000 by 2012, and 6,000 by 2013, according to a report to the Land Board by the Department of Land and Natural Resources' Office of Conservation

and Coastal Lands. Most of the production is intended to be exported, according to HOT's business plan.

At the Land Board's meeting, OCCL administrator Sam Lemmo admitted that the project was "a little bit science-fiction" in that raising ahi from eggs has never been done commercially and the OTEC-powered cage engine is an unproven technology. Lemmo also said the project's environmental impact statement identified a number of unresolved issues, including the source and makeup of the project's feed, and a lack of benthic information and a marine mammal plan.

With regard to concerns raised by the public during the environmental impact statement review and CDUP process about diseased fish infecting wild populations, Lemmo said it's difficult to mitigate an epidemic before it happens. "If there's a huge disease outbreak, then we can jump on it," he said.

Regarding the project as a whole, Lemmo recommended board approval on the condition that HOT complete benthic surveys and a marine mammal plan before cage installation.

"We never really know the absolute truth [about impacts]... There will always be an amount of risk," he said.

According to HOT CEO Bill Spencer, there are no risks involved in the project. When asked by O'ahu board member John Morgan what the project's worst-case scenario might be, Spencer said, "We don't see a worst-case scenario."

He said that the state's two open-ocean aquaculture operations – Kona Blue Water Farms, LLC, and Grove Farm Fish & Poi, LLC (originally Cates International, Inc.) – haven't had any disease and seem to have had minimal to no impact on the benthic habitat.

The sea floor is 1,300 feet below his proposed project, he said, much deeper than the sea floor below the two other farms. He added that the state Department of Health's National Pollution Discharge Elimination System Permit will address water quality and that the ocean currents will ensure that effluent from the cages will never reach deeper than 500 feet.

Local oceanographer and HOT consultant Ricky Grigg added that he had surveyed the sea floor around the project area decades ago while looking for coral and "didn't find very much" marine life. The bottom was mostly flat sand with a few rocky outcrops, he said.

Spencer said that his cages will be so large that the stocking density and flushing issues that have led to disease in fish farms elsewhere will not be a problem.

"Hawai'i is known throughout the world as the Silicon Valley of aquaculture" and open ocean aquaculture is "our best new source of protein," Spencer told the board. He added that meeting the world's demand for fish is a more pressing problem than global warming.

Opposition

To several members of the public who testified against the project, the global need for fish was not Hawai'i's concern. A handful of native Hawaiians who flew to O'ahu from the Big Island to testify described how Hawaiians fed hundreds of thousands of people for generations with their fishponds, many of which are unused today and have fallen into disrepair. Lee shared once-secret protocols his family used to prevent disease in fishponds they once tended.

"This," he said of HOT's proposal, "is a science fair project."

Gumapac added, "It's difficult to listen to these gentlemen when they haven't come to seek our advice or counsel and they say they're going to experiment in your water. Our kupuna did it in an environmentally sound way [incorporating a variety of animals into the ponds to prevent theft, control disease and fertilize the water]... Whose techniques should we be using?"

Gumapac and others also argued that the cages would affect Hawaiian gathering rights.

While HOT attorney William Tam assured the Land Board that the permit would exclude only other projects from the area and would not affect boats, access by the public or fishing, OCCL's report to the board states, "HOT notes for safety all fishermen and boaters be kept 100 feet from each of the twelve oceanspheres' buoy. Fishermen will be allowed to fish around the oceanspheres but not directly above or below them. No swimming or SCUBA diving would be allowed in the 247 acre ocean project site/lease area."

(Two other testifiers – Solei Niheu and Donna Burns – expressed their discomfort with the presence of an armed Division of Conservation and Resources Enforcement officer, who had entered the board room after some heated testimony. Burns called it a "racist act" and stormed out after Kaua'i board member Ron Agor asked her if she was going to speak to the proposal or leave.)

Rob Parsons of the Sierra Club – Maui Group raised several concerns relating to the size of the project in his written testimony.

"This is not a farm," he told the board. "This is an industrial feedlot."

Since one percent of the fish from all the cages was expected to die before harvesting, Parsons asked what percentage of those fish would be tested for disease and how the "morts" (as many as 2,400 at full capacity) would be disposed of.

He added that HOT has been vague about its expected yields "by a factor of 100 percent! They contradict earlier statements of 6,000 tons yearly projection by stating that production will vary between 6,000 or 12,000 tons, 'depending on the final system design.' That is an incredible amount of uncertainty and wiggle room."

Parsons also noted that the harvesting of millions of tons of baitfish (sardines, herring, anchovies, menhaden, krill) to make fish food impacts ecosystems throughout the world and robs wild fish of food sources.

"Therefore, aquaculture operators are continually seeking substitutes to feed their caged stock. Kona Blue (which raises kahala) has substituted soy protein and chicken trimmings to offset the percentages of fish meal and fish oil. Top level piscatavours (fish eaters) like ahi are not expected to have the same growth characteristics as wild fish if they are fed land-based proteins. HOT acknowledges they, 'have not identified the best diet yet,'" he wrote.

HOT has not selected a fish food vendor and has said only that it has no plans to use GMO soy and will seek local alternatives, Parsons said.

"Considering they are projecting the need for 12,000,000 pounds of feed annually, this

language is incredibly vague. There must be full disclosure and understanding of the components of the fish feed, the sources from which they are derived, and the impacts from withdrawing them and importing those resources to Hawai'i. Note that 100 percent of the feed would be imported," he wrote.

Finally, Parsons suggested that there might be greater merit and more potential for sustainability in reviving Hawaiian fishponds, "or in pursuing land-based re-circulating aquaculture and aquaponics systems that utilize nutrient-rich fish waste to grow vegetables."

Randy Cates, whose company was the first commercial open-ocean aquaculture operation in the state, testified neither for nor against HOT's proposal, but did say he was bothered by any application focused on exporting fish.

"We export 50 percent of our wild caught fish and import 90 percent of the fish [we consume]... We should be focused on creating jobs in Hawai'i and feeding Hawai'i," he said.

Setting a Cap

For Cates, it came down to one thing: Is the technology safe? He did not have an answer to that question, but asked the board to consider that before voting.

O'ahu board member John Morgan said he felt the technology would prove itself as the process moved along. While at-large member Samuel Gon was a bit more cautious about giving the green light to an unproven technology, "on the other hand, there are always the painful first steps and that involves a lot of talking to people," he said.

Lemmo's original recommendation to the board was to approve a CDUP for all 12 spheres, but require the Land Board chair's approval for all but the first two. Given the concerns about the experimental cages, however, all of the board members wanted the authority to approve additional cages to rest with the entire board. While some board members wanted to allow HOT only one cage, in the end, the board gave HOT the ability to install three cages before seeking permission for the rest. Gon was the only board member to oppose the CDUP.

Regarding the concerns raised by the public, at-large member David Goode noted that the project's final EIS, accepted months ago, was not contested. "There was a whole lot of opportunity to comment," he said.

Ocean lease amendments

At the same meeting, the Land Board was scheduled to vote on a proposal that would allow the DLNR's Land Division to be paid for managing the two existing ocean leases on behalf of the state's Aquaculture Development Program (ADP). However, Land Division administrator Morris Atta withdrew the item because he said the Department of the Attorney General had issues with some of the language in a proposed agreement between the DLNR and the ADP, which is a program of the state Department of Agriculture. Under the proposal, the DLNR would reap a 25 percent management fee from the rent of both leases. Currently, that would total of \$875 a year, but that amount would likely grow. In addition to three proposals for fish farms off Maui and the Big Island, Randy Cates, who operates Grove Farm Fish & Poi, told the board that his company, located in waters off 'Ewa, O'ahu, plans to expand.



'Ahahui Malama I Ka Lokahi MOA

The Land Board approved a Memorandum of Agreement between DLNR's Division of Forestry and Wildlife and the non-profit 'Ahahui Malama I Ka Lokahi. The agreement will help both entities apply their resources to related projects in and around Kawainui Marsh in windward O'ahu. 'Ahahui already has a curatorship agreement with the DLNR to care for Ulupo Heiau and Na Pohaku O Hauwahine, two historical sites located at opposite ends of the marsh.

— Teresa Dawson

Environment Hawai'i



a monthly newsletter



*You have a friend who needs EH,
and now is the perfect time
to give them a gift subscription.*

Gift recipient's name: _____
 Recipient's address: _____
 City, State, Zip code: _____

To charge by phone, call toll free: 1-877-934-0130

Sign me up for a new renewal subscription at the
 individual rate (\$50) corporate rate (\$85)

I wish to make a donation of \$ _____ a month through my credit card account for 12 months
 minimum amount is \$20 a month)

I wish to make a onetime donation of \$ _____.

name _____
 address _____
 city, state, zip code _____

Mail form to:
Environment Hawai'i
72 Kapi'olani Street
Hilo, HI 96720

We are a 501(c)(3) organization. All donations are tax-deductible to the extent allowed by law.



Address Service Requested

Printed on recycled paper 

“Thank you for keeping investigative reporting alive in Hawai'i.”

In this year of troubles, we take heart in the warm and generous responses we have received to our annual fall fund-raising campaign. Not only have you opened your checkbooks to us, you have sent words of encouragement that mean the world to us and give us confidence that our work does, indeed, have value.

Here are some of your names. Others – and you know who you are – prefer to remain anonymous.

Larry Abbott and Donna Lum
Laura Acevedo
Robert Aitken
Allen Allison

Kay Drey
David Drury
Susan Dursin
Jan Elliott

Doug Lamerson
Limtiaco Consulting Group
Keith Loll
Amy and Paul Luersen
Tom Mader
Downey Manoukian
Martha Martin
Holly McEldowney
Doug and Chris Meller
Lola Mench
Annette Menté
Paula Merwin
Tiger Mills
Art and Val Mori
Ralston Nagata
Jay Nelson

Pauline Sato
Marueen Schaeffer
Diane Shepherd
Sophia Shoen
Marilyn Simpson
Stacy Sproat-Beck
Hugh Starr
Mary Steiner
Charles Stone
Don Swanson and Barbara White
Don Swerdfeger
Joy Tamayose
Earl Tanaka
Ron and Arlene Terry
Laura Thompson
Peter Thompson

*“This too-small check is just to tell you
how happy I am that you will keep publishing.
There is so much to be done.”*

Eve Anderson
Andrea Anixt
Stephen Anthony
Denise Antolini
Kathleen Baldwin
Roxie Berlin
Marlee Breese
Pam Bunn
Cindy Carlisle
Marilyn Carlsmith
George Cattermole
Deborah Chang
Dora and Karl Chang
Helen Chellin
Sheila Conant
Sam and Mary Cooke
Richard Cox
Linda and Robert Dawson
Teresa Dawson
Richard Denison
Julie Denslow
William Devick
Laurel Douglass

Andrew Fisher
Foodland
Kimo Frankel
Grace Furukawa
Betsy Gagné
Cynthia Gillette-Wenner
Judith Graham
Michael Hadfield
Isaac Hall
Donald Hall and
Patricia Tummons
Bob Hampton
June Harrigan and Arnold Lum
David Henkin
Stephen Hight
Sue and Robert Irvine
Brian Jenkins
Mark and Carol Johnson
Ed Johnston and Helen Rogers
Michael Jones
Pi'ialani Kaopuiki
Virginia and Robert Karpovich
Keith and Diane Keffer
Amy Kimura
Harvey and Mary King
Bob Kinzie
Michael Kliks
Robert Knourek
Patty and Ken Kupchak

*“Having just again read the morning ‘fluff’ and
cheap ‘wire-service feeds’ available in Honolulu,
I am wondering why we feed them at all.
It only encourages them. So I am getting back at
them by sending you a check for what two months
of fluff costs. I know you spend the money better.”*

Steve and Christine Olive
John Parker and Judith Zeichner
Pew Charitable Trusts
Richard Poirier
Eliot F. Porter
Thane and Linda Pratt
Peter Rappa
Ursula and Robert Retherford
Alison Reiser
Shaunagh Robbins
Barbara Robeson
Sara and Mark Robinson
Gordon Russell

Allen Tom
Mabel Trafford and Steve Miller
Gordon Tribble
Emily Tummons
Phyllis Turnbull
Ron and Charlotte Walker
Rick Warshauer
Bruce and Lorita Wichman
Carol Wilcox
Susie Yong
Alan Young
Emma Yuen

