

Comments for the U.S. Coral Reef Task Force Meeting



Pago Pago, American Samoa

August 2007

KAHEA: The Hawaiian-Environmental Alliance
Honolulu, Hawai`i
KAHEA-Alliance@hawaii.rr.com

Concerns Regarding NWHI “Research Goldrush”

Researchers found illegally transporting disease organisms from the Northwestern Hawaiian Islands; potential threat to Hawai`i reefs

NOAA NWHI vessel lab called a “bacterial cesspool”

KAHEA Seeks Full State and Federal Investigation

Submitted August 10, 2007 for posting on www.coralreef.gov

Aloha and greetings from Hawai`i,

Although we are not able to attend the U.S. Coral Reef Task Force Meeting, we would like to inform delegates of serious concerns regarding efforts to protect the Northwestern Hawaiian Islands (NWHI) over the last two years. In 2000, the NWHI Coral Reef Ecosystem Reserve was created by Executive Order. In 2005, the state of Hawai`i, created the NWHI State Refuge, protecting state waters to an extent even greater than the protections in federal waters. In 2006, the NWHI Monument was created by Presidential Proclamation, overlaying existing protections.

Enclosures:

- Appendix A: **Concerns regarding Apparent Civil and Criminal Violations on Board the NOAA Hi`ialakai, HIMB NWHI Research Cruise - 2006 as Reported by State and Federal Officials**, KAHEA submittal to State Board of Land and Natural Resources, July 27, 2007
- Appendix B: **Testimony describing the NWHI violations on the HIMB expedition** by
 - NOAA NWHI Research Coordinator, Randy Kosaki – including characterization of Hi`ialakai wet lab as “bacterial cesspool”
 - DLNR permit coordinator, Jill Zamzow
- Appendix C: **Emails sent to the vessel** while it was at sea from
 - Director of Hawai`i Institute of Marine Biology, describing her effort -- after the discovery of the illegally cultivated and transported disease bacteria from NWHI and Johnston Atoll on-board the Hi`ialakai – to obtain ex-post facto permission to import the cultures, despite the state NWHI permit prohibition on doing so and lack of an import permit;
 - DLNR NWHI Representative, Athline Clark mentioning “legal issues” but ensuring researchers that they would not be reprimanded; according to testimony before the Land Board in July, 2007. Clark apparently reported the violations to the proper enforcement officials 8 months later, after serious concerns were raised by the public;

- Appendix D: **Summary and full text of deep concerns expressed prior to the vessel’s departure by scientists on the State Agriculture Board Advisory Subcommittee on Invertebrate and Aquatic Biota.**

Background

State NWHI Refuge rules are, in most cases, far stricter than Monument rules and provide for simple and clear protection of NWHI ecosystems “in their natural character.” Everything is prohibited that is not explicitly permitted in a short list of three categories of permits allowed for the state waters of the NWHI:

- (1) “scientific or education purposes”
- (2) “non-extractive purposes undertaken to further the knowledge of resources or which provide for enhanced resources protection or benefit resource management”
- (3) “subsistence, traditional and customary practices by Native Hawaiians consistent with the long-term preservation of the refuge resources”

State refuge rules stipulate:

- a “**do no harm**” requirement for permitting;
- use of clearly defined “**precautionary approach**” to minimize risks of adverse impacts, especially where data is limited;
- a **public comment** requirement; and
- strong steps taken towards **permit violators** -- the penalty for violating permit conditions is denial of future access to this fragile public trust resource:

State permitting guidelines stipulate:

- a prohibition on commercial activities, including bioprospecting;
- that permitted activities are required to show “demonstrable benefits to the preservation and management of the NWHI ecosystem”;
- require that “the activity must do no harm to the ecological or biological systems, sites or resources of the NWHI, or by virtue of the mode of transport to be employed for access”;
- require that the activity must have “demonstrable benefits to the cultural and spiritual relationship of Native Hawaiians to the NWHI ecosystem” and “must support the perpetuation of traditional knowledge and ancestral connections of the Native Hawaiians to the NWHI.”

Researchers illegally transport disease organisms from the Northwestern Hawaiian Islands, potentially threatening Hawai`i reefs

Hi`ialakai Wet Lab a “Bacterial Cesspool”

KAHEA Seeks Investigation of DLNR's Aquatics Division

We are now facing a historic case regarding the first recorded major violations of the state’s new stringent Northwestern Hawaiian Islands Refuge rules. Federal and state officials have testified that, during one of the first major research expeditions permitted to conduct extractive activities in the state’s newly created no-take Refuge, researchers at the Hawai`i Institute of Marine Biology (HIMB) – including a former state Department of Land and Natural Resources contract staff-person - cultivated disease bacteria in the NWHI, transported this bacteria within and outside of the NWHI, and attempted to bring the disease cultures to the Main Hawaiian Islands, in violation of their strict permit requirements and state and federal quarantine and

customs laws regarding the transport and import of disease organisms. Testimony submitted by the lead NOAA scientist on-board the vessel (enclosed) also indicated, alarmingly, that the ship's wet lab was a "bacterial cesspool."

Officials testified (enclosed) that the HIMB disease researchers harvested, cultivated, and transported live coral within the NWHI, dumping wastewater from their coral tank overboard as they traveled between islands. These actions, which occurred in 2006, represent serious violations of state permit conditions and state and federal laws. As of August 2007, however, over a year since the violations, only one individual has been cited for one charge – that of transporting coral. The enforcement action has so far failed to address the culpability of federal and state representatives onboard the research vessel who knowingly facilitated the cultivation of disease bacteria on-board the vessel and who omitted mention of these activities from their required activity log report to the DLNR. The HIMB research is funded under a \$2.25 million Congressional earmark, which was announced by Senator Inouye last year.

In January, the state Board of Land and Natural Resources was presented with documentation of potentially criminal activity by two researchers pertaining to disease bacteria cultivation and transport in the NWHI, waste dumping, and live coral transport. The expedition's cruise log, required as a condition of the state permit to describe activities in state waters, was written by a NOAA official and an HIMB representative, and failed to describe any of the activities known to be violations or their attempted remedies. The head of HIMB attempted (email enclosed) to secure ex-post facto clearance to bring the disease bacteria to the Main Hawaiian Islands, despite the fact that there had been no Board of Agriculture approval for the import -- required by law -- and despite the fact that it represented a violation of the state permit.

Prior to the vessel's departure, State Department of Agriculture requested scientists to review an application to transport and import disease bacteria and coral import. These scientists raised significant concerns about the potential threat to reefs in the Main Hawaiian Islands as a result of the planned activities. For example, in testimony submitted to the Agriculture Board Advisory Subcommittee on Invertebrate and Aquatic Biota, Dr. Andrew Rossiter (Director of Waikiki Aquarium) stated:

At the outset, I would like to state that I am fully cognizant of the fact that scientific research often needs to use taxa that are non-native, and wherever possible I try to support such endeavors. However in this instance the research project comes with associated risks. These risks are twofold, and their implications are immense: there is a potential risk of accidental introduction of a non native coral into Oahu waters, and there is the potential risk of the accidental introduction of pathogenic microbes deleterious to corals into Oahu waters. After careful consideration, I conclude that the concerns regarding accidental introduction of coral, and especially of microbes, are not satisfactorily addressed in this application, and I do not feel that the potential merits of the research come close to outweighing the risks. The deliberate importation of corals carrying known – or suspected pathogenic microbes should be forbidden.

Dr. Sam Pooley –Director of NMFS/NOAA Pacific Islands Regional Office – pointed out substantial dangers and the fact that HIMB is a poor choice for this sort of research given proximity to Kaneohe Bay. He noted:

- "possible disastrous consequences of a release of non-indigenous coral disease from this importation" pg 4
- "The HIMB site is not the most desirable site for this type of work... a location further from natural coral reefs, such as the UH Manoa campus, would be more desirable from a biosecurity perspective ..

Even with the biosecurity measures proposed at HIMB , risks still remain of accidental release of microbes into Kaneohe Bay"

- "If future work of this sort is proposed later, facilities more isolated from natural reefs would be desirable."

The Department of Agriculture did not issue permits for these dangerous imports. The State HIMB permit for NWHI clearly forbade any transport of live materials of any sort.

In addition, Agriculture Board scientists underscored the importance of ensuring that waste water was not dumped from coral samples overboard during transit. In fact, state laws prohibit any dumping of wastes into the refuge. The HIMB submittal described (pg 2) a "semi-closed aquaria system" to house the coral fragments. This was alarming to reviewers, one of whom commented, "For evaluation purposes, when describing a system that houses pathogenic organisms, either it is a closed system or it is an open system. The use of "semi" in this context concerns me."

The Advisory Board scientists underscored the importance of not releasing any effluents from corals or samples: "All water in which the corals or microbes from them are held shall be kept in containers that do not release effluents into open or semi-open systems unless that water is sterilized or disinfected." "Measures shall be taken to ensure that no release of the corals or their holding water (unless appropriately disinfected) into open waters within the State of Hawaii's jurisdiction shall occur from aboard the ship or otherwise during transport..."

The Subcommittee expressed concern about the cavalier approach towards biosafety found in the application:

- "The issues associated with bringing in a coral species that does not occur here naturally seem to have been ignored or trivialized" pg 6
- "Instead it is stated that "the only concern is in any possible microbes that may be brought in with this coral." In my opinion, the microbes are an additional, and major, concern, on top of that associated with A cytherea import. I have strong reservations as to whether the applicant appreciates fully the risks and regulations associated with bringing in non-native corals." Pg 6
- "The experimental protocol indicates the possibility or likelihood that the fragments would already be infected with pathogenic strains of microbes. In my opinion, importing pathogenic microbes here would seem, at best, a risky venture. In this I am in complete agreement with the applicant's statement that "there is always some risk associated with bringing in organisms". However, I am in complete disagreement with her statement that "the critical need for this type of research...greatly outweighs any potential risks." Instead, I see immense risks inherent in a project that has unclear scientific merit and little evident benefits from a conservation perspective." Pg 6

These evaluations were all conducted prior to the departure of the vessel and no permit was granted for the import of live coral or bacteria to the Main Hawaiian Islands. Despite this information documenting deep concerns about the potential threats posed by the proposed transport of live coral, use of open flow systems, and any attempt to cultivate and import disease bacteria, HIMB researchers went on to do just that. The eye-witness accounts detail how HIMB researchers harvested and keep live corals on board the vessel, using an open flow system, where wastes were dumped overboard as the vessel traveled between islands; cultivated and transported disease bacteria in violation of permit conditions as well as, possibly state and federal laws. These violations halted only after they were belatedly "discovered" by officials late in the trip. For example, a NOAA official – who had helped the researchers to set up a bacterial incubator in a relatively hidden portion of the vessel – later reported that he discovered bacteria cultivation and transport after the vessel had left the NWHI.

Although state and federal officials knew the details of the events while the vessel was still at sea, enforcement officials and customs officers were not notified and the vessel, potentially still bearing disease cultures, was not inspected on arrival in Honolulu. State Aquatic Resources staff attempted to handle these violations internally, giving rise to serious concerns about possible conflicts of interest and collusion in apparent efforts to protect the interests of former staff and close colleagues.

KAHEA finds that the most shocking violations involve the illegal cultivation and transport of disease organisms, which apparently HIMB sought to bring into the Main Hawaiian Islands despite the outright ban on doing so. In addition we are very concerned by the purposeful use of an open flow waste dumping system given the researchers' full knowledge of the dangers of the use of this sort of system. We are deeply concerned that there is no effort apparent to prosecute these serious violations or the range of individuals involved in the process. As scientists have noted, the purposeful transport of disease pathogens within the NWHI, at Johnston Atoll and their planned transport into the Main Hawaiian Island potentially poses a dangerous threat to our reefs.

The entire permitting and enforcement system for the NWHI appears to be plagued with procedural irregularities, conflicts of interest, and favoritism. The failure to properly implement and enforce the state refuge protections has severely compromised efforts to protect this extremely delicate and vitally important marine ecosystem.

We call for full federal and state investigations into the HIMB violations, as well as the actions of federal and state officials involved with the case. The public needs to know that activities in the NWHI must and do follow state-of-the-art disease and alien species protocols and that NWHI protections are not being sacrificed for political connections or personal relationships.

Advocates are also renewing their call for a moratorium on all research permits to the NWHI. In light of the possible structural support from HIMB for the import of illegally cultivated and transported bacteria, the failure of DLNR staff to report the violations to authorities, and the possible culpability of NOAA staff, it is clear that significant work is still needed to properly implement the NWHI state refuge.

It is crucial that before researchers – especially those in an institution which has promulgated violations of permit conditions -- are allowed into this unique marine ecosystem, we have in place all of the checks and balances necessary to ensure that the permitting process is transparent, and that all enforcement procedures are properly followed. Without this, we are placing our precious public trust resources at risk. Unless these first high-profile violations are addressed to the maximum extent of the law, NWHI Managers will establish an unfortunate precedent that jeopardizes our precious reefs in the Northwestern Hawaiian Islands.

Appendix A:
**Concerns regarding Apparent Civil and Criminal Violations on Board the NOAA Hi`ialakai,
HIMB NWHI Research Cruise - 2006 as Reported by State and Federal Officials, KAHEA**
submittal to State Board of Land and Natural Resources, July 27, 2007

To: Board of Land and Natural Resources

From: Marti Townsend, KAHEA: The Hawaiian-Environmental Alliance

Date: July 26, 2007

Re: Agenda Items F-2 and F-3, Enforcement Action against HIMB staff, Greta Aeby (et al)

Aloha Land Board Members,

This agenda presents the Board of Land and Natural Resources with a historic decision regarding the first recorded violations of the state's new stringent Northwestern Hawaiian Islands Refuge rules. These violations were documented by federal and state officials as occurring during one of the first major research expeditions granted permission to conduct activities in the state's newly created stringent no-take Refuge. These stringent protections, designed to protect the public trust resources of the NWHI, were instituted by Governor Lingle as a result of lengthy hearings and over 24,000 public comments submitted to DLNR in support of the strongest possible protections, implemented in an open and transparent manner.

Some of the violations (including those brought before the Board today) were carried out by a former DAR employee/contractor, Greta Aeby, who worked for DAR during the period where the Refuge rules were being developed, apparently reporting directly to DAR NWHI Representative Athline Clark, before moving to HIMB. How the Board acts on these two agenda items will influence all future interpretations of the State's Refuge rules as well as the public perception of the state's commitment to protecting this precious public trust resource. We note that there appear to be significant irregularities in the actions of DAR staff in the processing of these violations and call for immediate Board action regarding DAR. The importance of these decisions cannot be overstated.

Contents

| | |
|--|-------|
| 1. Clear documentation of civil and criminal violations | pg. 1 |
| 2. Substantial irregularities in DLNR investigation | pg. 2 |
| 3. Recommendations | pg. 4 |
| 4. Additional thoughts and questions: Deep concerns that this enforcement action fails to address the institutional challenges to protecting the NWHI and implementing the State Refuge rules, Questions Pertaining to NOAA Liabilities, Concerns regarding HIMB | pg. 7 |

Enclosures

* Original DAR submission to Land Board regarding Aeby violation, 1/12/07

* Cruise log co-authored by Randy Kosaki (NOAA) and Erik Franklin (HIMB)— identifying where the NOAA vessel was on what date during the HIMB expedition and describing activities conducted (activities which represented permit violations and the remediation of such violations, however, are missing from this log)

1. CLEAR DOCUMENTATION OF CIVIL AND CRIMINAL VIOLATIONS:

The eye-witness reports by federal and state officials (Kosaki and Zamzow) presented to the Board on 1/12/07 and again, over six months later, on 7/27/07 describe at least two perpetrators and four categories of violations of state permit conditions and state law. We note that this enforcement action, however, addresses only one violation by one person. If the Board finds sufficient grounds to take action on the one violation based on the information presented here, we posit that the Board has sufficient information to take action on the remaining violations. Failure to take action on all documented violations would irreparably undermine the effectiveness of the NWHI Refuge.

The eye-witness account by the NOAA NWHI Marine National Monument Research Coordinator, Dr. Randy Kosaki, identifies two people involved in possible permit violations – Dr. Greta Aeby and David Albert. Yet the DAR enforcement action is completely silent on Mr. Albert’s role in the commission of these violations. The record presented to the Board does not provide any information to justify absolving Mr. Albert of all responsibility for his actions and provides no evidence of any consideration of violations by parties other than Ms. Aeby.

Moreover, Dr. Kosaki’s eye-witness account also describes four types of actions and activities observed that violate state permit conditions and state law on multiple occasions by two individuals. We note, however, that descriptions of these activities are missing from the Cruise Report documenting activities on the HIMB mission co-authored by Dr. Kosaki and Erik Franklin. These are:

- 1) Keeping coral samples alive in violation of condition #29 of permit DLNR.NWHI06R008
- 2) Dumping wastewater from the coral tanks overboard in violation of state law, including HRS § 13-60.5-4,
- 3) Keeping micro-organisms alive onboard in violation of condition #29 of permit DLNR.NWHI06R008, and
- 4) Transporting live organisms (coral and micro-organisms) across state boundaries in violation of state law, including HRS §150A (Hawai‘i Quarantine Law). (DAR Board submission of 1/12/07 documented two coral transport violations (i.e. to and from FFS), an unknown number of bacterial transport violations (up the NWHI chain to Johnston Atoll - and to MHI after freezing)

Why are the three additional violations identified in testimony by Drs. Kosaki and Zamzow not addressed in the enforcement action before the Board? If the Board finds the evidence presented in this staff submittal sufficient to warrant punishment for cultivating live coral, then the Board also has sufficient evidence to take action against the other violations for described in this record. We note that this decision will have serious implications far beyond this current enforcement action.

- 5) In addition, permit condition #21 requires permittees to provide a cruise log listing “days spent in the Marine Refuge, activities carried out, approximate positions and general observations.” The Daily Activity Log (enclosed) co-authored by Randy Kosaki (NOAA) and Erik Franklin (HIMB) on June 11, 2006 (pg 3 – 6) describes activities on every day of the HIMB expedition – except for the day that, according to testimony by Kosaki and Zamzow, the illegally transported bacteria colonies were frozen.

The Activity Log fails to describe any activities related to (1) the illegal harvest of live coral at FFS and transport of live coral from FFS to any other location (2) discovery of illegal coral harvest by Dr. Kosaki and Dr. Zamzow (3) the dumping of wastewater by Aeby/Albert (4) the “replacement” of the coral back at the original FFS site as claimed by Dr. Kosaki in his later testimony (5) bacteria cultivation and transport by Aeby and Albert (6) freezing of the Aeby/Albert bacterial samples (7) anything that occurred on May 31 – apparently the day when the samples were frozen and the only day missing from the report (8) the destruction by bleach of the Aeby/Albert samples.

The Daily Activity Log indicates that on May 30, 2006, the vessel arrived at Johnston Atoll. There is *no activity recorded at all on May 31*. Activities are recorded for every day prior to and after this date, however.

We are concerned that some of these omissions appear to be a potential violation of permit condition #21 requiring permittees to describe the “activities carried out.” Why is there no discussion in the DAR submittal of the information missing from the Daily Activity Log produced by NOAA and HIMB?

2. SUBSTANTIAL IRREGULARITIES IN DLNR INVESTIGATION

Given the clear documentation by state and federal officials (made public prior to the 1/12/07 Land Board hearing) of multiple violations by at least two individuals on the HIMB research mission and the great importance of this inaugural enforcement action, we fully expected the DLNR investigation to be systematic and thorough. Unfortunately, this investigation and enforcement action appears to be plagued by substantial irregularities, including:

- (1) **Failure by DAR to officially notify and request investigation by DLNR enforcement body, the Division of Conservation and Resources Enforcement (DOCARE) of the alleged violations (including potential criminal violations) at the time they were discovered by state and federal officials.** The discovery of the violations by state and federal officials is documented in email communications from DAR staff dated 5/31/06 and 6/09/06, while the vessel was still at sea. These documents were made public a few days prior to the 1/12/07 Land Board hearing. (They are the last few pages of the enclosed 1/12/07 DAR Board submission.)
- (2) **Failure to present a copy of the results of DAR internal investigation report to Land Board.**
- (3) **Failure to present to the Land Board the results of DOCARE investigation initiated in 2007 (after public comments expressing concern about to the lack of investigation reports)**
- (4) **Repeated attempts by DAR staff and administrator to convince the Board to act in the absence of DOCARE investigation results and DAR investigation report** on Ms. Aeby’s alleged violations on two separate occasions (1/12/07 and 7/27/07) and to vote on providing her with another permit – *despite state law banning permit violators from accessing the NWHI* - on two other occasions (7/13/07, 7/27/07).
- (5) **Failure to present to Land Board documentation of and recommended enforcement actions on all documented violations by all individuals, including potential criminal violations by at least two individuals noted in written testimony by federal and state officials and testimony presented to the Land Board on 1/12/07.** There is a lack of discussion pertaining to the missing

entries regarding NWHI activities in the NOAA/HIMB Research Expedition Cruise report. In addition, we note the **lack of information pertaining to documentation of US Customs declarations required for the import of biological samples to the State of Hawai`i**. We note that an email from Jo-Ann Leong to Greta Aeby dated 5/31/06 and made public in the 1/12/07 Land Board submission documents the efforts made by HIMB director Dr. Leong to “obtain permission from Alan Riggs to bring those samples to the Halawa quarantine facility” which would appear to be an effort to violate or circumvent various laws, rules, and permit conditions pertaining to the transport of biological samples into the state. We note the email dated 6/9/07 from DAR staffer/NWHI coordinator, Athline Clark which indicates that “not a single one of them [the scientists on the mission] indicated that the samples would be transported out of State, and they did NOT actually have permission to do this.” (emphasis in original) The Clark email notes “issues with legality” associated with such actions. [Exhibit F, last section of DAR 1/12/07 Land Board submission - enclosed]

- (6) **Failure to report to Land Board on the substantial irregularities** occurring within DAR during the processing of these violations.
- (7) No evidence to suggest that DAR staff, who were aware (as documented in their email communication) of legal issues pertaining to the transport of organisms to the state of Hawai`i, **requested DOCARE agents to inspect the vessel** when it docked or **informed the US Customs office** regarding the need to inspect the vessel (did the vessel clear customs when it arrived at Honolulu?).
- (8) **Removal from 7/27/07 DAR presentation of information provided Land Board on 1/12/07 regarding additional violations as well as potential criminal penalties, including imprisonment.**

For example, the current DAR staff submission to the Land Board (Discussion section , page 3 of 5) has eliminated all mention of Aeby`s bacteria cultivation violations, and details of potential criminal penalties, including imprisonment, which were presented to the Board in the 1/12/07 submission (Aeby Enforcement Action #DAR-NWHI-07-01) which documented violations by Aeby regarding transport of coral, and culture and transport of bacteria:

“Dr Aeby violated condition #29 twice during the course of her permit. First, Dr. Aeby transported a live organism both within and outside of the NWHI refuge waters when she took a live coral sample from FFS to Gardner and back to FFS on May 23 and 24, 2006. This action was witnessed and documented by Dr. Kosaki and Dr. Zamzow, the NWHI Research Coordinator for the Division of Aquatic Resources. As previously established, condition #29 prohibits transportation of live organisms “within, or outside of, the NWHI State Refuge waters.”

*Second, Dr. Aeby violated condition #29 when she cultured live bacteria derived from diseased coral samples. Once again, this activity was witnessed by staff members aboard the Hi`ialakai, including Dr. Kosaki and Dr. Zamzow. See Exhibits C and D. Condition #29 explicitly states that all samples **will be killed** by appropriate means. Not only did Dr. Aeby fail to kill some of the diseased coral specimens that she collected, but she actually cultured these organisms.*

These two incidents represent significant breaches of the permit issued to Dr. Aeby. Violations of permits issued under HAR 13-60.5-6 may subject the responsible party to criminal and /or civil sanctions under Hawai`i Revised Statutes (HRS) 187A-12.5, 187A-13, and 188-70. Under HRS 187A-12.5, the Board may assess a fine of up to \$1000 for a first violation and up to \$2,000 for a second violation. Under HRS 187A-13, any person who is found guilty of violating a rule of the department for which there is no penalty provided has committed a petty misdemeanor and, pursuant to HRS 18-70, shall be punished for a first conviction by a fine of not more than \$500 or imprisonment of up to 30 days.”(pg. 4 of 5, emphasis in original)

(9) Failure to apply penalty schedule for multiple violations of state law and permit conditions.

3. RECOMMENDATIONS

We feel that this striking failure to implement proper enforcement actions can be used to improve the on-going effort to protect the NWHI. To this end, we offer the following suggestions.

First, the Board should seek a **formal and external investigation of DAR’s handling of this enforcement action**. Such an investigation would include identification of the date of official notification of DOCARE regarding violations by DAR staff, the date of notification of U.S. Coast Guard regarding import of biological samples known to be occurring by DAR staff, and efforts by DAR and HIMB to facilitate the bringing of organisms into the Main Hawaiian Islands, analysis of information missing from the Cruise Log submitted by Randy Kosaki and Erik Franklin, etc. Such an investigation will give the Board an opportunity to objectively assess and improve DAR procedures for enforcing the state refuge requirements. It will also give the public the confidence it needs that this enforcement action was not undermined by political motivations or personal relationships and that the state refuge is being operated in accordance with state law and permit requirements.

Second, in order to **send a clear message that the Board fully intends to enforce the stringent protections** for NWHI waters, the Board should **act to demonstrate that violators of the protections** of the public trust waters of the NWHI -- even if they formerly worked for DAR or work for other agencies - **shall be prosecuted to the fullest extent of the law**.

Third, the Board should **review the findings of the investigation(s) related to these violations and to DAR actions by the Division of Conservation and Resources Enforcement**. DOCARE is the primary investigative and enforcement agency of the DLNR. It has the expertise and resources to ensure that an investigation is thorough and comprehensive.

Fourth, the Board should **request that the State Auditor’s Office review and report** on the permitting process and enforcement procedures for the nascent State Refuge. This first-ever enforcement action provides an excellent opportunity for the Auditor’s Office to assess the effectiveness of Refuge procedures and offer suggestions for improvement.

Fifth, the Board should recognize permits as an educational opportunity and **revisit the policy of not including preventive language in permit conditions**, such as the prohibition on wastewater dumping in state waters, the Impact Log requirement, the detailed language pertaining to Waste Log requirements

and the encouragement to permittees to report any possible permit violations (see attached testimony from July 15, 2007 BLNR meeting regarding the importance of these conditions). We recommend that the Land Board ensure that the Board's original requirements for an "impact log" are re-instated on all future NWHI permits. Such an impact log clearly documents all samples harvested from the NWHI, requires sign-off by a Co-Trustee representative, and serves as a legal document useful for enforcement purposes.

Board Language re impact log: "a daily log maintained by the appointed trustee representative aboard the vessel whereby any organisms collected will be documented on a daily basis relative to what was collected, the amount, the size of the specimens, the location (including specific GPS points) and the status of the specimen(s). The log entry will be signed by the person who collected the organisms and countersigned by a State or other Co-Trustee representative after validation of the collection: this log will constitute a legal document for enforcement purposes."

Fifth, the board should instruct staff to follow DLNR guidelines establishing a **45 day public review period** for NWHI related permit issues; Instructing staff to follow DLNR's commitment of January 2007 to **the maximum timely release of permit information and pre-decisional documentation**. We note that DLNR withheld the Aeby application (and other HIMB applications) from the public from February 1 2007 – almost a six month period.

Sixth, we urge the Board to remedy the irregularities to the fullest extent possible by:

- (1) Requesting that all existing investigation reports of the HIMB incidents and full copies of all documents pertaining to this case be presented to the Board, to aid in Board deliberation on the violations, HIMB permit application(s), and DAR processes including:
 - a. Full copies of any reports or documents pertaining to the DAR investigation of these violations, identifying which DAR officials carried out the investigation and their qualifications for doing so;
 - b. Full copies of any DOCARE investigation reports
 - c. Full copies of original permit applications (and subsequent versions if modifications occurred), identifying all individuals who proposed to obtain and/or utilize samples of bacteria or coral collected by Aeby
- (2) Ascertaining whether the investigation(s) were solely limited to Greta Aeby or whether there were investigations of other parties including:
 - a. others on the Aeby permit (as originally proposed to DAR and later modified)
 - b. the other researcher reported by federal and state officials to be engaged in violations
 - c. any HIMB employee, state or federal staffer who made efforts to attempt to circumvent state and/or federal law pertaining to transport of biological samples, etc.
 - d. authors of the Cruise Report who failed to describe activities carried out in the State refuge pertaining to the illegal harvest, transport, and cultivation of live coral and bacteria, the discovery of these activities (including by one of the report's co-authors, and the alleged replacement of the live coral at FFS).

- (3) Ensuring that DOCARE investigators are present at the Board hearing on Friday to answer questions (we have made a request for this but have not yet received a positive response)
- (4) Ascertaining whether, given the substantial irregularities, DOCARE has conducted any investigation of DAR actions pertaining to this case. If so, request that full copy of results of this investigation be presented to the Board as an aid in their deliberations;
- (5) It is our understanding that the University of Hawai'i has comprehensive codes of conduct for animal and disease research. We urge the Board to request that information be sought from the University of Hawai'i regarding whether the violation of state permit rules and state and potential federal laws pertaining to harvest and transport of organisms, bacteria cultivation, and disposal of waste water meets University code of conduct requirements.

The record presented to the Board raises serious questions regarding the lack of proper enforcement and reporting procedures followed by DAR staff once they were notified that apparent violations of state permit conditions and state law had occurred. Email correspondence from Ms. Athline Clark, the state program manager, to Dr. Kosaki and Dr. Zamzow, suggest that DAR staff attempted to address this problem internally, ignoring enforcement reporting requirements.

This concern is reinforced by the lack of key elements in the record before the Board. For example, **where is the correspondence from DAR to DOCARE notifying DOCARE of possible violations? Was the Hi'ialakai inspected upon its arrival in Honolulu, as is standard procedure in other cases of suspected alien species introduction?** Has DOCARE completed any investigations? If it has, then those findings should be presented to the Board in their entirety before an enforcement action is taken. **Why has the current staff submittal to the Board removed language pertaining to criminal charges?**

Moreover, the tardiness and character of this enforcement action – and the lack of input from DOCARE to the Board process on potential violations, including criminal violations - suggest a troubling lack of commitment to the enforcement of state laws and NWHI permit conditions by DAR. The violations were known to DAR staff while the vessel was at sea in May and June, 2006. Our understanding it that these serious violations were not formally reported to DOCARE at the time, despite the fact that apparent criminal violations of state law were observed on the vessel and reported by federal and state officials. The initial enforcement action – apparently an in-house DAR effort in the absence of enforcement personnel involvement -- was first brought before the Board on January 12, 2007, a full six months after the violations were initially reported. The DAR submission included no evidence of a DOCARE investigation, despite allegations by federal and state officials of potential criminal violations of Hawai'i law, in addition to permit violations. HIMB submitted research permits for the next research season, apparently including that of Dr. Aeby, to DAR on February 1, 2006. These applications were kept from public view until several days prior to Land Board hearings held months later despite the DLNR commitment to a 45 day public review period.

4. DEEP CONCERNS THAT THIS ENFORCEMENT ACTION FAILS TO ADDRESS THE INSTITUTIONAL CHALLENGES TO PROTECTING THE NWHI AND IMPLEMENTING THE STATE REFUGE RULES

This enforcement process has highlighted several troubling institutional flaws in the effort to implement the State Refuge rules. We urge the Board to act to address the substantial irregularities in the DAR and Co-Trustee process.

Questions pertaining to NOAA liabilities

Dr. Kosaki's eye-witness account describes the fact that the senior NOAA official (and possibly others) was aware that the permittees brought on-board tools used to violate the state permit conditions and state law. According to Dr. Kosaki, the permittees brought onboard with them a "temperature-controlled bacterial culture incubator." The primary purpose of this apparatus is apparently to keep bacteria alive, despite the ban on doing so clearly stated in the permits. Why was this device allowed onboard a ship where all samples are mandated to be killed? The guardians of the State Refuge failed to prevent these violations from occurring by allowing the permittees to bring this device onboard.

Questions that come to mind include:

- 1) NOAA's Chief NWHI scientist co-authored the Cruise Log report on the day the vessel returned to Honolulu, yet his report omitted any mention of activities which he had observed and which constituted potential civil and criminal violations of permit conditions, state and federal laws. If the author of the cruise report omits key information pertaining to potentially illegal activities or activities conducted in violation of permit conditions, is this not a violation of the permit condition requiring activities to be documented in the cruise report?
- 2) Is NOAA ultimately responsible for events on the vessel? Was the Captain of the vessel interviewed in this investigation? Is the Captain responsible for events on-board the vessel?
- 3) If NOAA officials were aware that a "temperature-controlled bacterial culture incubator" was brought on board despite a "kill order" for all samples, what is the level of NOAA culpability?

Concerns Regarding HIMB

The Hawai'i Institute of Marine Biology appears to be promoting violation-based research. On the HIMB website (www.hawaii.edu/HIMB), the discussion of coral diseases in the NWHI includes a passage describing the illegal cultivation of diseased coral and bacteria. Specifically, the website says:

"...in elucidating the etiology of *Acropora* white syndrome at FFS [French Frigate Shoals] we conducted basic studies on the ecology of the bacterial communities on infected versus uninfected corals. Bacteria from colonies with signs of *Acropora* white syndrome and uninfected controls were cultured and colony-forming units per cm³ coral tissue were found to be much higher in the infected tissue (avg. >15,000) as compared to control regions of the colony (avg. 34.8) or healthy colonies (avg. 25.9)."

(See, http://www.hawaii.edu/HIMB/nwhi_crrp/nwhi_crrp_coral_disease.htm [emphasis added])

Public statements like this currently posted on the HIMB site suggest that HIMB, as an institution, fails to underscore the importance of promoting adherence to state refuge requirements as clearly written in the permits for this research activity. HIMB researchers have been observed by federal and state officials as having violated state permit conditions and state law, potentially placing healthy coral reef ecosystems in the Hawaiian Island chain at risk from deadly and as yet incurable disease(s).

The email record presented to the Board documents the fact that Dr. Jo-Ann Leong, Director of HIMB, attempted to seek after-the-fact approval from the DLNR and the Department of Agriculture to use a quarantine facility in Halawa to allow the illegally-transported bacteria to be brought to the Main Hawaiian Islands. Her assertion to Dr. Aeby – despite state law banning permit violators from returning to the NWHI – that “I will send you to French Frigate Shoals at another time” shows little respect for state Refuge law and fails to recognize the Land Board process which is the sole determinant of permit approval for the state Refuge and which must operate in accordance with state law.

Finally, we are concerned that the current permit review and enforcement process places an undue burden on the director of DAR, Dr. Dan Polhemus. Dr. Polhemus’ extensive experience as a scientific researcher has led to solid working relationships and close personal friendships with colleagues who are researchers at institutions including HIMB. Given this background, however, it is unfair for the Board to expect Dr. Polhemus to serve as an independent border guard and enforcement officer over his researcher colleagues. That would be the role of DOCARE.

Appendix B:
Testimony describing the NWHI violations on the HIMB expedition
by
NOAA NWHI Research Coordinator, Randy Kosaki
– including characterization of Hi'ialakai wet lab as “bacterial cesspool”
DLNR permit coordinator, Jill Zamzow

Randall Kosaki, Ph.D.
Research Coordinator
NOAA NWHI Marine National Monument

A. Transport of live corals between French Frigate Shoals and Gardner Pinnacles

NOAA ship HI'IALAKAI cruise HI-06-07 began in Honolulu on 5/18/06. The cruise plan called for stops at Nihoa, French Frigate Shoals, Gardner Pinnacles, and Johnston Atoll.

At approximately 1830 on the evening of 5/23/06, HI'IALAKAI began the 110 nautical mile transit from French Frigate Shoals to Gardner Pinnacles. After arrival at Gardner Pinnacles on the morning of 5/24/06, while preparing dive gear for the day's activities, I noticed two pieces of live *Acropora cytherea* (table coral) tied to "eggcrate" mesh in Dr. Greta Aeby's holding tank. I had not noticed the pieces earlier, as they were in a bucket contained within a larger holding tank, and were not readily visible to a casual observer. The pieces appeared to have been two (broken) pieces of what was once one larger piece, originally 10 cm in greatest dimension. The coral did not exhibit any signs of disease, tumors, or bleaching, and appeared to be in good health. I immediately sought out Aeby. When queried, Aeby told me that the coral was collected alive at French Frigate Shoals and had in fact made the transit to Gardner Pinnacles in an open system (flow through) seawater tank, with the discharge going over the side. Although *Acropora* corals occur naturally at Gardner Pinnacles, I instructed her to close off the seawater system for the duration of our stay at Gardner Pinnacles (and subsequent transit back to French Frigate Shoals), and requested that she return the corals to an area of suitable habitat as soon as possible upon our return to French Frigate Shoals. At this time, I also notified the State DLNR representative on board (Dr. Jill Zamzow, State NWHI Research Coordinator), and informed her that a permit violation may have occurred.

At approximately 1830 on the evening of 5/24/06, HI'IALAKAI began its transit back from Gardner Pinnacles to French Frigate Shoals. On the morning of 5/25/06, Aeby replaced the live *Acropora* on a reef near to its collection site, in an *Acropora* rich habitat. *Acropora* coral has the ability to re-cement itself to the bottom and grow well after natural fragmentation events (due to storms, etc.). Aeby informed me that her coral fragments were replaced on the reef in a manner which would allow for re-attachment and growth. This was verified by her dive buddy, Dr. Thierry Work of USGS.

Factually incorrect statements that were contained a previous document circulated to the Land Board in August 2006. The following events referenced in that document DID NOT occur on this cruise:

1. Disease-bearing corals were not transported anywhere aboard HI'IALAKAI, either within or between atolls.

2. Corals (healthy or diseased) were not transported “all the way up the NWHI... to Midway.” Gardner Pinnacles (as described above) is the farthest to the northwest that . This cruise did not go anywhere near Midway.
3. Corals (healthy or diseased) were not transported to “within a day or so “ of Johnston Atoll. No live corals left the vicinity of French Frigate Shoals and Gardner Pinnacles.

The only transport of live corals on NOAA ship HI'IALAKAI cruise HI-06-07 is that which I have described above.

B. Culture of live bacteria aboard NOAA ship HI'IALAKAI

Dr. Greta Aeby and her technician, Mr. David Albert, brought aboard a temperature-controlled bacterial culture incubator and sterile agar plates at the start of the cruise with the intent of culturing and then preserving potential coral disease pathogens. The incubator was set up and running in the ship's wet lab during the transit from Honolulu to French Frigate Shoals, as well as during operations at French Frigate Shoals. The wet lab is a community lab space with stainless steel sinks at which all specimens are processed, preserved, dissected, etc. While at French Frigate Shoals, Albert placed some test agar plates in the incubator (in the wet lab). The quickly showed themselves to be colonized with a multitude of bacteria, most likely the result of contamination from the incubator's proximity to a variety of humans, specimens, and other sources of contamination. Albert told me the wet lab was a “bacterial cesspool,” not at all suited for the type of research that Aeby hoped to pursue.

The Chief Boatswain aboard HI'IALAKAI, Mark O'Connor, provided Albert with space for the incubator in a forward storage compartment, away from the hustle and bustle of the wet lab, and off-limits to other members of the scientific party (and out of view of myself or Jill Zamzow). Albert apparently found this satisfactory, as his grumblings to me ceased. On or about 5/30/06, I realized that Albert was culturing live bacteria from colonies of diseased coral. Because of a lack of clarity regarding which specific activities were found to be agreeable to HIMB and DLNR (per their pre-cruise meeting), I contacted Honolulu via email and phone (Dr. Jo-Ann Leong, HIMB director; Ms. Aulani Wilhelm, NWHI Coral Reef Ecosystem Reserve acting coordinator) for clarification. Dr. Leong requested that Aeby kill all bacterial cultures by freezing. All agar plates were frozen by Mr. Albert (verified by myself). All plates were frozen on the evening of 5/31/06, the day before our arrival at Johnston Atoll.

On 6/11/06, while transiting from Johnston Atoll to Honolulu, I received email instructions from a DLNR representative (Ms. Athline Clark) to destroy all agar plates in 100% bleach. I watched Albert soak all plates in bleach. The bleached plates were packaged in Biohazard plastic bags, and destroyed at a shoreside facility after our arrival in Honolulu on 6/11/06..

Hi'ialakai Cruise Timeline

Jill P. Zamzow, Ph.D.
NWHI Research Coordinator
State of Hawaii Division of Aquatic Resources

I was aboard Hi'ialakai cruise 06-07 with researchers from the Hawaii Institute of Marine Biology from 18 May to 11 June 2006. The following is documentation of my observations aboard the vessel during that time period. The cruise track was from Honolulu to Nihoa to French Frigate Shoals to Gardner Pinnacles to French Frigate Shoals to Johnston Atoll to Honolulu.

On May 23, 2006, upon arrival at Gardner Pinnacles from French Frigate Shoals (FFS), Chief Scientist Randall Kosaki realized that Dr. Greta Aeby had a living sample of a *Montipora* species coral in a bucket on deck. Due to weather issues, we only worked at Gardner Pinnacles for one day, and the vessel, and the coral, returned to FFS on 5/24/06. I believe that the coral was returned to its native habitat, although it may have been destroyed – Dr. Kosaki would know. I only remember receiving word that it was “taken care of”.

On May 29, 2006 we finished our work at FFS and departed en route for Johnston Atoll. The next day, or shortly thereafter, Chief Scientist Kosaki and I realized that Dr. Aeby's technician was culturing micro-organisms taken from healthy and diseased corals. We were unsure as to whether this was allowed on her permits. Dr. Kosaki and I both made telephone calls to Honolulu looking for advice and clarity on the matter. On May 31, 'Aulani Wilhelm of the NWHI Marine National Monument (then Coral Reef Ecosystem Reserve) emailed Dominique Horvath of U. S. Fish and Wildlife Service stating that Dr. Aeby could not bring anything back from the NWHI alive. Dr. Jo-Ann Leong, Director of the Hawaii Institute of Marine Biology, emailed asking Dr. Aeby to kill the cultured micro-organisms. All of the cultures are frozen before we arrive at Johnston Atoll after sunset on the 31st.

We worked at Johnston Atoll from the 1st June through the 7th. While transiting back to Honolulu on the 9th June, we received an email directing that all the frozen micro-organisms be immersed in bleach, to ensure their demise. On the 10th June, all the frozen culture plates were bleached in 100% Clorox. We re-entered State waters on the 11th June.

Appendix C:
Emails sent to the vessel while it was at sea
from

Director of Hawai‘i Institute of Marine Biology, describing her effort -- after the discovery of the illegally cultivated and transported disease bacteria from NWHI and Johnston Atoll on-board the Hi`ialakai – to obtain ex-post facto permission to import the cultures, despite the state NWHI permit prohibition on doing so and lack of an import permit,

DLNR NWHI Representative, Athline Clark mentioning “legal issues” but ensuring researchers that they would not be reprimanded; according to testimony before the Land Board in July, 2007. Clark apparently reported the violations to the proper enforcement officials 8 months later, after serious concerns were raised by the public.

Dan A
Polhemus/DLNR/StateHiUS
01/02/2007 04:40 PM

To James B Rogers/DLNR/StateHiUS@StateHiUS
cc
bcc
Subject Fw: Glycerol stocks of bacteria from French Frigate &
Johnston Atoll

Blaine -

Here is the message from HIMB asking Greta to destroy her samples, dated 31 May 2006.

- Dan Polhemus

----- Forwarded by Dan A Polhemus/DLNR/StateHiUS on 01/02/07 04:39 PM -----



Athline M
Clark/DLNR/StateHiUS
05/31/06 04:23 PM

To Dan A Polhemus/DLNR/StateHiUS@StateHiUS, Francis G
Oishi/DLNR/StateHiUS@StateHiUS, "Jill Zamzow.atsea"
<jill.zamzow.atsea@noaa.gov>
cc

Subject Fw: Glycerol stocks of bacteria from French Frigate &
Johnston Atoll

Please see the attached email that Jo-Ann Leong just sent to Greta. I think this will address the issue for all involved.

Athline M. Clark
Special Projects Program Manager
Hawaii Division of Aquatic Resources
Department of Land and Natural Resources
1151 Punchbowl St. Rm. 330
Honolulu, Hawaii 96813
(808) 587-0099 voice
(808) 587-0115 fax
Athline.M.Clark@hawaii.gov

----- Forwarded by Athline M Clark/DLNR/StateHiUS on 05/31/06 04:28 PM -----



Jo-Ann Leong
<joannleo@hawaii.edu>
05/31/06 04:09 PM

Please respond to
joannleo@hawaii.edu

To guest1.hiialakai@noaa.gov
cc aulani.wilhelm@noaa.gov, Malia.Chow@noaa.gov,
chiefsci.hiialakai@noaa.gov, Moani.Pai@NOAA.gov,
Athline.M.Clark@hawaii.gov, Dominique_Horvath@fws.gov,
Domingo.Carvalho@hawaii.gov
Subject Glycerol stocks of bacteria from French Frigate & Johnston
Atoll

Dear Greta,

I am asking you to kill all of the bacterial samples that you have collected on this Hiialakai cruise in State of Hawaii, FWS, and Reserve waters. Although I spent the morning obtaining permission from Alan Riggs

EXHIBIT E

to bring those samples to the Halawa quarantine facility, my discussions with the Reserve office and with DAR, lead me to ask you to destroy those samples. The Reserve has talked to Domingo Carvalho and he has told them that the Board doesn't meet until a day after the Hiialakai arrives back in Honolulu. The perception is that you are trying to find loopholes and ways around the process in order to accomplish your goals. The ramifications for HIMB and the rest of the HIMB team if you continue with your sampling, are untenable and I cannot allow this.

We need to put in place a process that will ensure containment of the samples and live assays. I agree with you that trying to find a solution to the coral disease problem is our responsibility and we should be doing this for the state of Hawaii and the people of the Pacific Ocean countries whose coral reefs are being impacted by disease. However, I want you to come back and work with us to develop this quarantine facility and I will send you to French Frigate Shoals at another time. Rusty also goes to Johnson Atoll every other year and you can go on one of those cruises.

There will always be opportunities and although I understand the urgency you feel, you need to stop.

Best regards,

Jo-Ann

Dan A
Polhemus/DLNR/StateHiUS
01/02/2007 04:47 PM

To James B Rogers/DLNR/StateHiUS@StateHiUS
cc
bcc
Subject Fw: Samples disposition and debriefing

Blaine -

Still more.

- Dan Polhemus

----- Forwarded by Dan A Polhemus/DLNR/StateHiUS on 01/02/07 04:45 PM -----



Athline M
Clark/DLNR/StateHiUS
06/09/06 05:55 PM

To "Jill Zamzow.atsea" <jill.zamzow.atsea@noaa.gov>, chiefsci.hiialakai@noaa.gov
cc Aulani.Wilhelm@noaa.gov, Malia.Chow@noaa.gov, joannleo@hawaii.edu, Dan A Polhemus/DLNR/StateHiUS@StateHiUS
Subject Samples disposition and debriefing

Randy and Jill:

There has been some additional discussion about the disposition of samples and at the end of the day, I have been asked to let you know the outcomes. As the two agency representatives, it will be your task to ensure that these directions are followed.

We are concerned that freezing may not be enough to ensure that the transfer of live material will not occur especially at the microbial or parasite level. Just to be safe and to be clear, all samples that have been frozen and are not currently in any other solution for genetics analysis must be bleached to ensure that there is no transfer of pathogens. This is a policy call and may affect more than one researcher. However, we stand firm and want to assure the public that no live samples were brought into the State nor that there any fear of a transfer. I am so sorry to deliver this message at the 11th hour, but Dan Polhemus does agree with this action, as do others.

In addition, we will need to send letters to all the scientist regarding how the applications were filled out, as not a single one of them indicated that the samples would be transported out of State, and they did NOT actually have permission to do this. We will not send letters of reprimand, merely letters that put them on notice that this should be paid attention to in the future to avoid any issues with legality.

I need to do this all sooner than later and will unfortunately need to debrief with you both as soon as possible after the ship returns. I know you both wanted some time off and both deserve it as well, but I need to request that we meet Tues. morning at DAR at 10 AM. to have this debrief. I realize this might affect some of your plans but it is also critical that we do this while things are still fresh.

Jill I will have my cell phone with me. If 10 AM does not work for you and Randy, please call when you get in and we will figure something out for that day.

mahalo

Athline M. Clark

EXHIBIT F

Special Projects Program Manager
Hawaii Division of Aquatic Resources
Department of Land and Natural Resources
1151 Punchbowl St. Rm. 330
Honolulu, Hawaii 96813
(808) 587-0099 voice
(808) 587-0115 fax
Athline.M.Clark@hawaii.gov

Appendix D:
Summary and full text of deep concerns expressed prior to the vessel's departure by scientists on the State Agriculture Board Advisory Subcommittee on Invertebrate and Aquatic Biota.

“Immense Risks” of HIMB Research Identified by Scientists

Newly – released documentation from State Dept of Agriculture shows deep concerns raised by scientists on May 2, 2006 about HIMB disease research, Aeby’s vague and misleading claims, “unclear scientific merit”, “little evident benefits from a conservation perspective”, and show that there had been a full discussion of danger of dumping wastewater via an open-flow system – as Aeby later did in the NWHI.

Dr. Andrew Rossiter: At the outset, I would like to state that I am fully cognizant of the fact that scientific research often needs to use taxa that are non-native, and wherever possible I try to support such endeavors. However in this instance the research project comes with associated risks. **These risks are twofold, and their implications are immense: there is a potential risk of accidental introduction of a non native coral into Oahu waters, and there is the potential risk of the accidental introduction of pathogenic microbes deleterious to corals into Oahu waters. After careful consideration, I conclude that the concerns regarding accidental introduction of coral, and especially of microbes, are not satisfactorily addressed in this application, and I do not feel that the potential merits of the research come close to outweighing the risks. The deliberate importation of corals carrying known – or suspected pathogenic microbes should be forbidden.”**

State Department of Agriculture, Submission to Advisory Committee on Plants and Animals, May 2, 2006

On April 28, 2006 the Land Board voted on the Aeby permit in 2006, and placed the requirement that “No live organisms of any kind will be transported within, or outside of, the NWHI State Refuge waters. Samples will be killed by freezing, immersion in ethanol, or other acceptable means.” The staff submittal, signed by Dan Polhemus, documented staff concerns about the potential for the spread of coral disease “among sites in the NWHI” and quoted Aeby as saying, in response to concerns raised, “All samples will be killed by freezing aboard ship.” Pg 3 , Item 2 in Response section of staff submittal.

On May 2, 2006, a request was made by HIMB to the State Dept of Agriculture (document enclosed) to allow the import of “60 large fragments of table coral (*Acropora cytherea*)” which “will be used to conduct experiments examining the role of microbes in the health of the coral. Microbes will be cultured from the coral mucus and grown out to pure culture. Each strain of microbe will then be tested on a coral fragment to determine whether or not it compromises the health of the coral. This method will aid in determining which microbes are beneficial versus pathogenic.”

The submittal described (pg 2) a “semi-closed aquaria system” to house the coral fragments, the fact that access to HIMB is “limited to authorized personnel only”. Aeby claimed (on signed page at back of submittal) that “This coral specie is already found in the Hawaiian archipelago and so would be considered a native specie. Most coral microbes have been found to be host specific which means they would not affect other coral species. ... It is currently being cultured at the Waikiki Aquarium. Since it is a native specie on the reefs of Hawaii , the only concern is in any possible microbes that may be

brought with this coral.” Aeby’s submission included, however, two pages copied from a book on coral which stated that Acropora was “found in Hawaii only in the NWHI”.

In her submission, Aeby stated that “Johnston Atoll is the last stop on our research cruise before returning to Hawaii. Hence, due to the constraints of maintaining coral onboard the ship, I am requesting to use coral from Johnston Atoll as opposed to from the NWHI. . . . The risk of any potential harm from bringing this coral in for a short-term study is almost non-existent. I have prior experience working with health-compromised coral in closed systems (EPA lab in Gulf Breeze, Fl) and som am trained in appropriate protocols for such work. HIMB is isolated on Coconut Island with security guards present. Although, there is always some risk associated with bringing in organisms, I feel that the critical need for this research combined with our precautionary approach greatly outweighs any potential risks.”

Dan Polhemus, DAR Administrator, was on the Advisory Committee to review this application. According to the submittal, Dr. Polhemus had “no response” to the submittal, not even a description of concerns raised within DAR about the danger of disease and live coral transport or the ban on transport of live organisms recommended by DAR and later approved by the Land Board. (pg. 3, BDSUB-06-0331-AEBY-IAB) The failure of the state’s top aquatics official to weigh in on this permit is troubling.

Reviewer Dr. Andrew Rossiter, however, commented:

- Aeby’s claims that Acropora is a native species to be “vague and misleading” -- and indicated that Acropora is “certainly not” found on Oahu. Pg 5
- “The issues associated with bringing in a coral species that does not occur here naturally seem to have been ignored or trivialized” pg 6
- “Instead it is stated that “the only concern is in any possible microbes that may be brought in with this coral.” In my opinion, the microbes are an additional, and major, concern, on top of that associated with A cytherea import. I have strong reservations as to whether the applicant appreciates fully the risks and regulations associated with bringing in non-native corals.” Pg 6
- “The experimental protocol indicates the possibility or likelihood that the fragments would already be infected with pathogenic strains of microbes. In my opinion, importing pathogenic microbes here would seem, at best, a risky venture. In this I am in complete agreement with the applicant’s statement that “there is always some risk associated with bringing in organisms”. However, I am in complete disagreement with her statement that “the critical need for this type of research...greatly outweighs any potential risks.” Instead, I see immense risks inherent in a project that has unclear scientific merit and little evident benefits from a conservation perspective.” Pg 6
- Permit Application: “Most coral microbes have been found to be host specific.” “Most” is not the same as “all”. There thus exists a potential risk of cultured microbes being able to infect other species of corals found around Oahu. Additionally, microbes are notoriously prone to mutation – it is unwise to assume that any microbes brought into Oahu and accidentally released into the environment would be passive and not affect or infect local corals.”

- Permit Application: “The coral fragments will be housed in a semi-closed aquaria system.” For evaluation purposes, when describing a system that houses pathogenic organisms, either it is a closed system or it is an open system. The use of “semi” in this context concerns me.
- Permit Application: “Access ... [to Coconut Island] is by boat and is limited to authorized personnel”. The status of ‘authorized’ presumably includes persons visiting for tours of the facility, etc, and so should not be given too much credence as regards accessibility.
- At the outset, I would like to state that I am fully cognizant of the fact that scientific research often needs to use taxa that are non-native, and wherever possible I try to support such endeavors. However in this instance the research project comes with associated risks. **These risks are twofold, and their implications are immense: there is a potential risk of accidental introduction of a non native coral into Oahu waters, and there is the potential risk of the accidental introduction of pathogenic microbes deleterious to corals into Oahu waters. After careful consideration, I conclude that the concerns regarding accidental introduction of coral, and especially of microbes, are not satisfactorily addressed in this application, and I do not feel that the potential merits of the research come close to outweighing the risks. The deliberate importation of corals carrying known – or suspected pathogenic microbes should be forbidden.”**

Other reviewers :

- **“There is a real possibility that the potential microbial populations from the distant location of Johnston Atoll could be different and/or more pathogenic than local Hawaii microbial populations: pg 3**

From Sam Pooley – NMFS/NOAA

- **“possible disastrous consequences of a release of non-indigenous coral disease from this importation” pg 4**
- **“The HIMB site is not the most desirable site for this type of work... a location further from natural coral reefs, such as the UH Manoa campus, would be more desirable from a biosecurity perspective .. Even with the biosecurity measures proposed at HIMB , risks still remain of accidental release of microbes into Kaneohe Bay”**
- **“If future work of this sort is proposed later, facilities more isolated from natural reefs would be desirable.”**
- **Recommendation “Measures shall be taken to ensure that no release of the corals or their holding water (unless appropriately disinfected) into open waters within the State of Hawaii’s jurisdiction shall occur from aboard the ship or otherwise during transport from Johnston Atoll...”**
- **Recommendation: “All water in which the corals or microbes from them are held shall be kept in containers that do not release effluents into open or semi-open systems unless that water is sterilized or disinfected.”**