

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii 96813

August 9, 2019

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Oahu

Issuance of Right-of-Entry Permit to the University of Hawaii, by its Department of Oceanography, for Air-Sea Gas Exchange and Inert Dye Release Study Purposes Over Submerged Lands in Kaneohe Bay; Kaneohe, Koolaupoko, Oahu; Tax Map Key: N/A – Submerged Lands

APPLICANT:

University of Hawaii, by its Department of Oceanography.

LEGAL REFERENCE:

Section 171-55, Hawaii Revised Statutes (HRS), as amended.

LOCATION:

Portion of submerged lands situated at Kaneohe Bay, Koolaupoko, Oahu as shown on the attached maps labeled **Exhibit A1 to A2**.

AREA:

Applicant is requesting an area of approximately 3 m (H) x 0.5 m (W) x 2 m (L) to place the meteorological ("Met") station scaffold. Of the 3 meters height, about 1-2 meters will be above the ocean surface. The inert dye housing appears to be about 0.75 m (H) x 0.75 m (W) x 0.75 m (L). The total area for the Met station and dye housing is about 1.5 square meters.

ZONING:

State Land Use District: Conservation

TRUST LAND STATUS:

Section 5(b) lands of the Hawaii Admission Act
DHHL 30% entitlement lands pursuant to the Hawaii State Constitution: NO X

CURRENT USE STATUS:

Requested area is unencumbered submerged land in Kaneohe Bay.

CHARACTER OF USE:

For purposes of measuring the air-sea gas exchange in shallow ocean environments, along with wind, current, waves; and, to track flow paths over the reef flat and assess horizontal mixing as water flows over the reef.

TERM OF RIGHT-OF-ENTRY:

Two months.

CONSIDERATION:

Gratis.

CHAPTER 343 - ENVIRONMENTAL ASSESSMENT:

In accordance with Section 11-200-8, Hawaii Administrative Rules (HAR), and the Exemption List for the Department of Land and Natural Resources reviewed and concurred by the Environmental Council on June 5, 2015, the subject request is exempt from the preparation of an environmental assessment pursuant to Exemption Class No. 5(1), and Exemption Class No. 5(13). See **Exhibit B**.

DCCA VERIFICATION:

Not applicable.

APPLICANT REQUIREMENTS:

None.

REMARKS:

The University of Hawaii, by its Oceanography Department ("UHOD") is requesting the issuance of a right-of-entry permit (ROE) to set-up, conduct off-shore data collection, and remove scientific equipment in the vicinity of the Kaneohe sand bar (near coordinates 21° 28.1' N, 157° 48.0' W) between August 19 and September 2, 2019 (two weeks). The study project would involve the placement, maintenance, and repair of a temporary, data collecting meteorological ("met") station and intermittent dye release apparatus (see Exhibits A-2). Accordingly, the met station will be housed on a 3-meter high scaffolding frame and be placed offshore of the Kaneohe Bay sand bar, but inshore of the surf zone, at a depth of 1-2 meters. Part of the scaffolding will be above the waterline to house the met

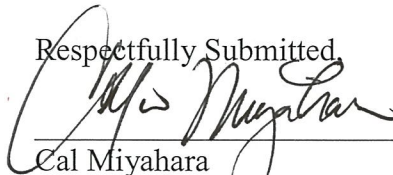
station (see **Exhibit B-1** and **B-2**). The station will collect data on the gas exchange between the ocean and atmosphere using observations both in the ocean and atmosphere; concurrently, measurements of other processes such as wind, current, wave, and turbulence will be recorded. The dye release apparatus will be placed about 200-400 yards offshore of the met station, but also inshore of the surf zone (see **Exhibit B-3**). The inert dye will be released intermittently, and its path will be tracked as it flows over the reef flat. Also, the horizontal mixing as water flows over the reef will also be assessed. At the conclusion of the study project, the structures will be removed.

The Division of Boating and Ocean Recreation has no comments and no objections. The Army Corps of Engineers has no comments. The Division of Aquatic Resource has provided comments (see **Exhibit D**) which has been forwarded to the applicant. The Office of Conservation and Coastal Lands was consulted, however, their email response noted that no permit was required as the work timeline is less than 30 days. The Office of Hawaiian Affairs did not respond to the request for comments.

RECOMMENDATION: That the Board

1. Declare that, after considering the potential effects of the proposed disposition as provided by Chapter 343, HRS, and Chapter 11-200, HAR, this project will probably have minimal or no significant effect on the environment and is therefore exempt from the preparation of an environmental assessment.
2. Authorize the issuance of a right-of-entry permit to the Applicant for the subject area under the terms and conditions cited above, which are by this reference incorporated herein and further subject to the following:
 - A. The standard terms and conditions of the most current right-of-entry permit form, as may be amended from time to time;
 - B. Such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State; and
 - C. Authorize the Chairperson to extend the right of entry permit for good cause.

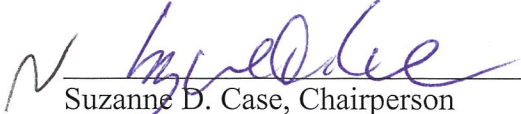
Respectfully Submitted,



Cal Miyahara

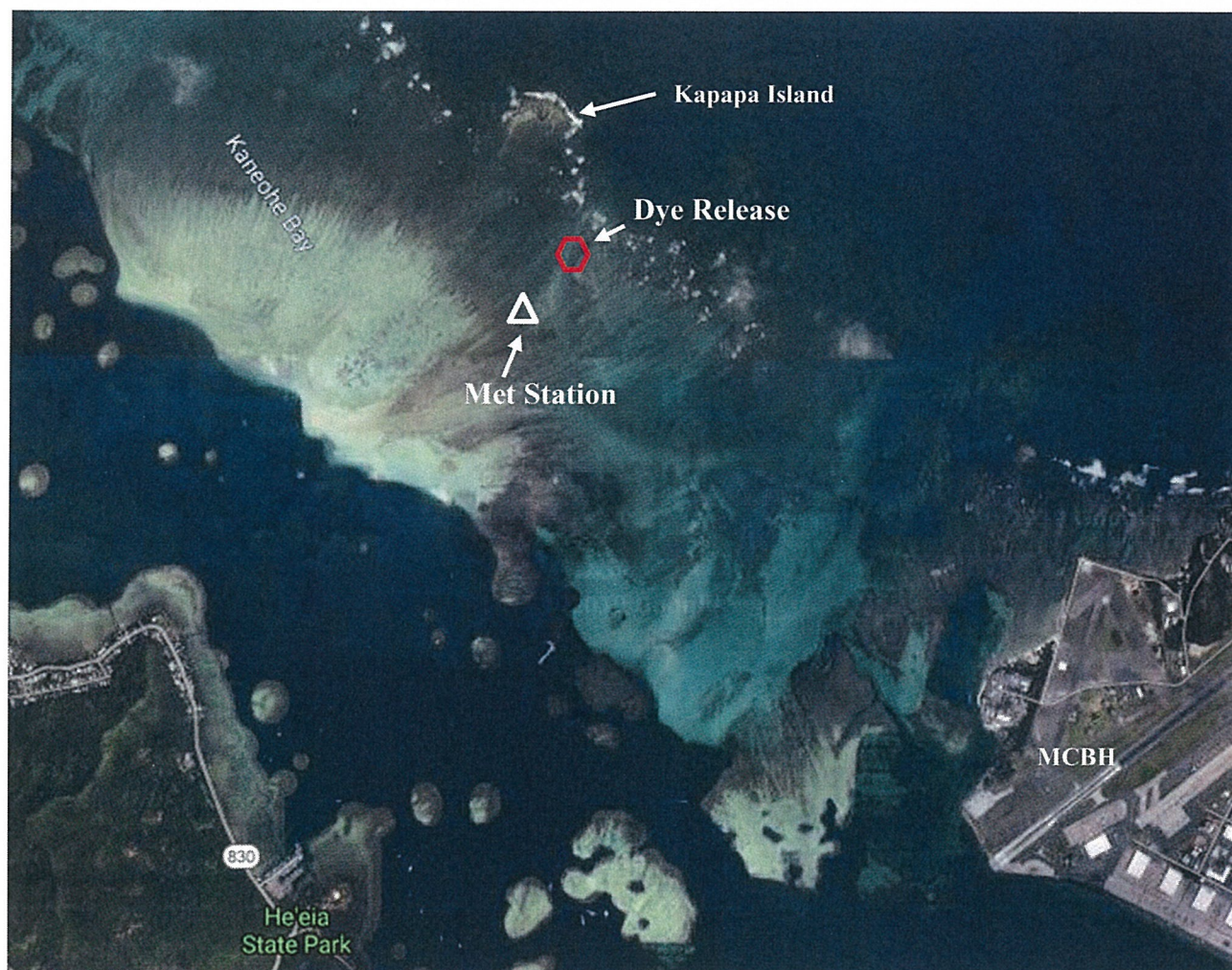
Shoreline Disposition Specialist

APPROVED FOR SUBMITTAL:


Suzanne D. Case, Chairperson

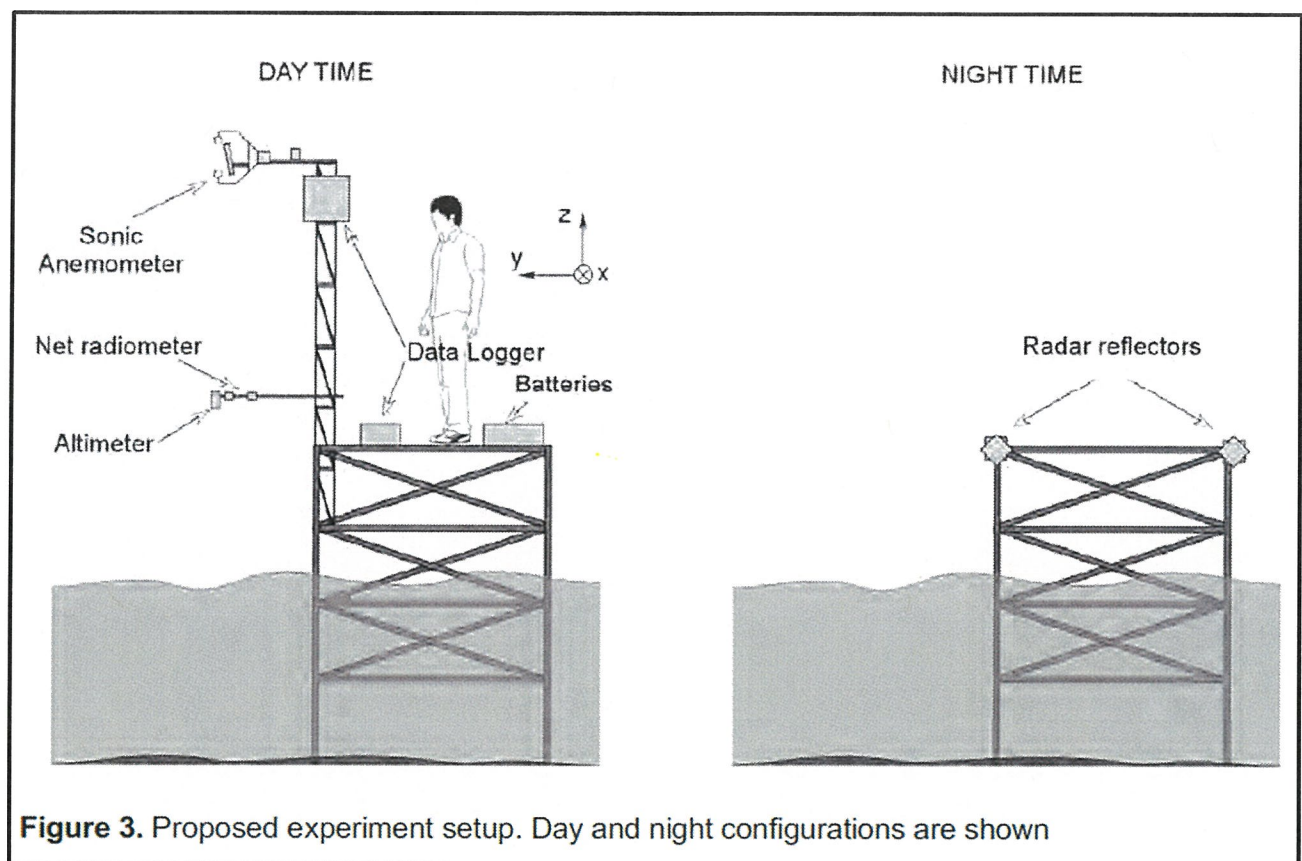


Note: Study project area – Kaneohe Bay



Note: Approximate locations of Met Station and Dye Release apparatus, Kaneohe Bay.

Exhibit A-2



Note: Schematic diagram of Meteorological Station with scaffold.

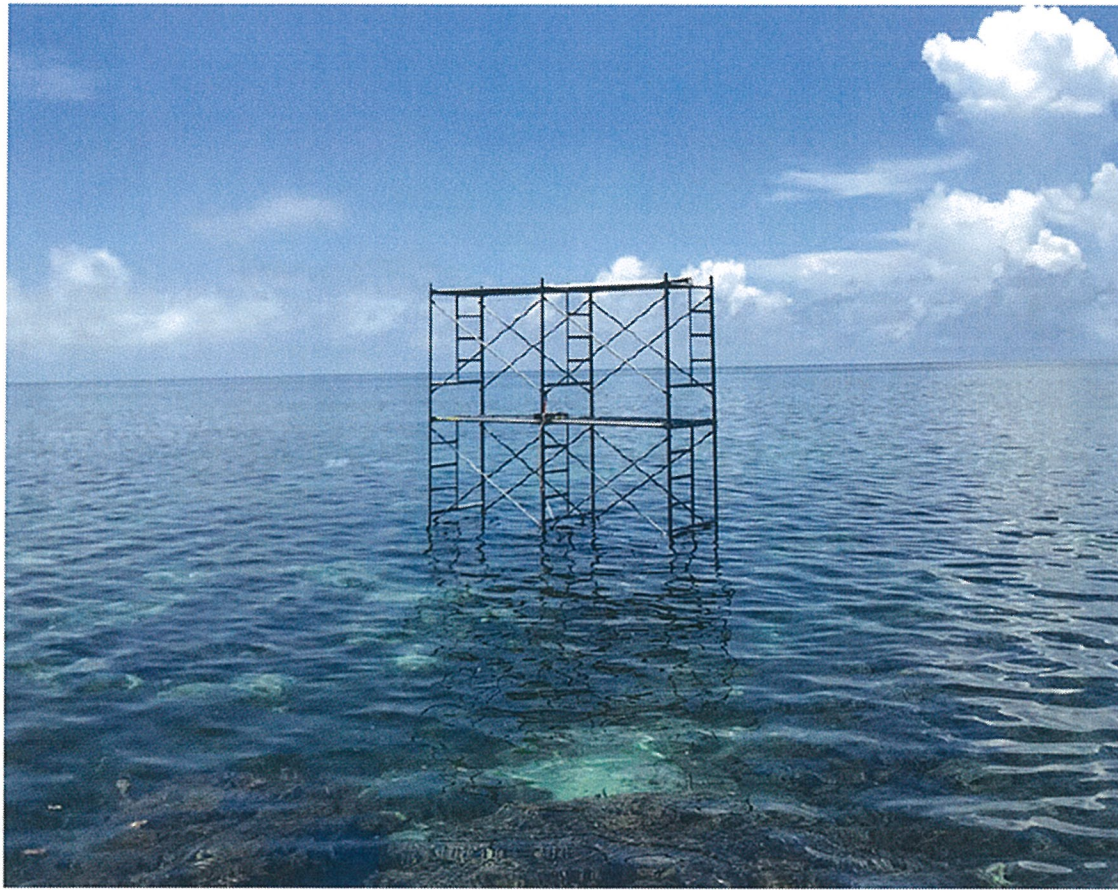


Figure 4. Similar scaffolding setup deployed on a reef flat on Dongsha Atoll (Taiwan).

Note: Sample setup of Meteorological Station scaffold.

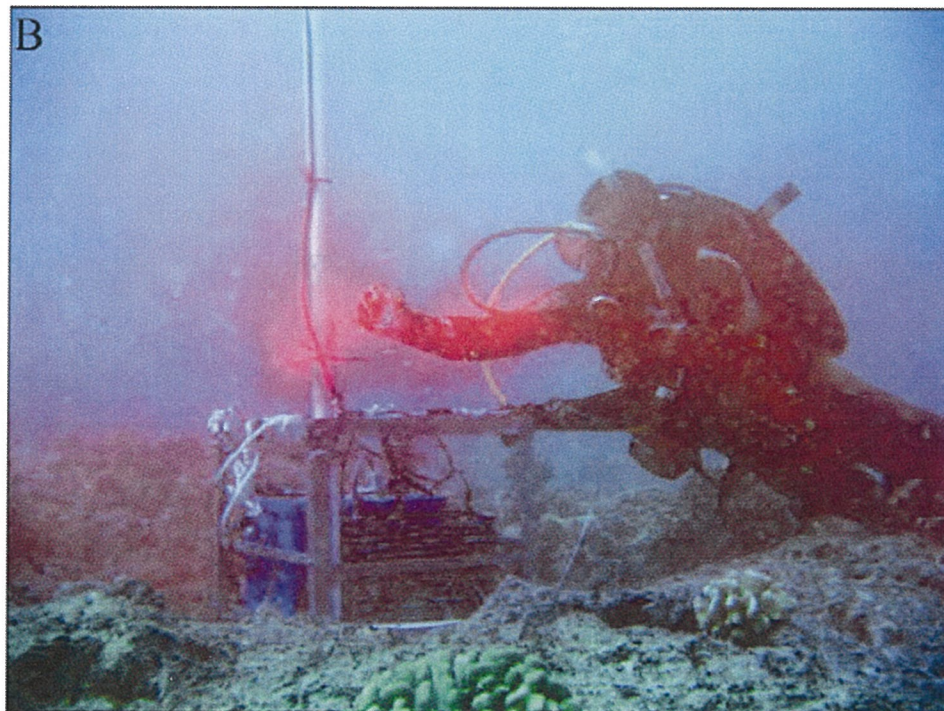


Figure 5. Photo of release of Rhodamine WT off of Kakaako in 2004 (see Jones et al. 2008).

Note: Inert Dye Release apparatus.

EXEMPTION NOTIFICATION

Regarding the preparation of an environmental assessment pursuant to Chapter 343, HRS and Chapter 11-200, HAR

Project Title:	Issuance of Right-of-Entry Permit to the University of Hawaii, Department of Oceanography, for Air-Sea Gas Exchange and Inert Dye Release Study Purposes at Kaneohe Bay.
Reference No.:	N/A
Project Locations:	Kaneohe, Koolaupoko, Oahu; Tax Map Key: N/A – Submerged Lands.
Project Description:	Air-sea gas exchange and dye release study at Kaneohe Bay.
Chap. 343 Trigger(s):	Use of State Land
Exemption Class No.:	In accordance with Section 11-200-8(a) (4), Hawaii Administrative Rules, the subject request is exempt from the preparation of an environmental assessment pursuant to Class No. 5(1) that states, "Conduct surveys or collect data on existing environmental conditions (e.g., noise, air quality, water flow, water quality, etc.)"; and, Class 5(13) that states, "Research or experimental management actions that the Department declares are designed specifically to monitor, conserve, or enhance native species or native species' habitat."
Cumulative Impact of Planned Successive Actions in Same Place Significant?	No, the request is a one-time ROE for the purpose of conducting experimental studies and data collection at a specific location. As such, staff believes that there would be no significant cumulative impact to the submerged lands.
Action May Have Significant Impact on Particularly Sensitive Environment?	No, the equipment being used is relatively small and will be removed at the completion of the study. In addition, based on the analysis below, staff believes there would be no significant impact to sensitive environmental or ecological receptors.
Consulted Parties:	Agencies as noted in the submittal.
Analysis:	Similar environmental study requests have been permitted in the past. The proposed activity is similar in type and scope. Such activities have resulted in no known significant impacts, whether immediate or cumulative, to the natural, environmental and/or cultural resources in the area. Staff also believes that the

request would involve negligible or no expansion or change in use of the subject area beyond that previously existing.

Recommendation:

It is recommended that the Board find that this project will probably have minimal or no significant effect on the environment and is presumed to be exempt from the preparation of an environmental assessment.

DAVID Y. IGE
GOVERNOR OF
HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 7/19/2019

DAR # 5958

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

MEMORANDUM

TO: Brian J. Neilson
DAR Administrator

FROM: Ki mberly Fuller, Aquatic Biologist

SUBJECT: Issuance of Right-of-Entry Permit for Air-Sea Gas Exchange and Inert Dye
Release Study Purposes at Kaneohe Bay

Request Submitted by: University of Hawaii, Department of Oceanography

Kaneohe, Koolauoko, Oahu- Submerged Lands

Location of Project: _____

Brief Description of Project:

In order to measure the air- gas exchange in shallow ocean environments, the applicant is requesting to place, use and remove a meteorological ("Met") station scaffold (3m x .5m x 2m) and an inert dye housing (0.75m x 0.75m x 0.75m) in submerged lands in Kaneohe Bay, Koolauoko, Oahu. The Met station will be placed approximately a kilometer south of Kapapa Island and the inert dye housing between the two (map included in project proposal). Inert dye will be released intermittently and its path will be tracked as it flows over the reef. The Met station will be housed on a 3m tall scaffold with 1-2 meters above the ocean surface. The equipment will removed two weeks after deployment (August 18, 2019- September 2, 2019). Data on gas exchange, wind, current, wave, turbulence and

Comments:

☐ No Comments ☒ Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: _____

Brian J. Neilson
DAR Administrator

Date: _____

7/22/19

Please see applicant's response attached at the end.

EXHIBIT "D"

DAR# 5958

Brief Description of Project

and horizontal mixing will be collected.

DAR# 5958

Comments

DAR supports this project which will add to the knowledge of air-sea gas exchange in shallow ocean environments along with other environmental information.

The following are potential concerns or recommendations for the deployment of the structures, the equipment securement, entanglement prevention, invasive species/ disease best management practices, and chemical MSDS :

1) Deployment of the structures: Structures should be deployed using any equipment necessary to safely lower structures to the sea floor (lift bags, lowering ropes/line, winch etc.) while minimizing potential impact to the benthic environment during this process. It is recommended that the equipment be deployed in areas of sand or bare substrate.

2) Equipment securement: No anchor system has been described. DAR requests a description of how equipment will be secured. Structures should be secured/anchored with appropriate weights or anchoring systems that take into consideration all directions of water motion or potential weather events. All anchoring systems will be deployed in areas of bare substrate or sand.

DAR reminds the applicant of live rock and stony coral regulations:

- HAR 13-95-70: It is unlawful to take, break or damage, with any implement, any stony coral from the waters of Hawaii, including any reef or mushroom coral.

- HAR 13-95: Unlawful to take, break or damage, any live rock, defined as any natural hard substrate to which marine life is visibly attached or affixed. Unlawful to damage any live rock by any intentional or negligent activity causing the introduction of sediment, biological contaminants, or pollution into state waters.

3) Entanglement Prevention: DAR recommends that efforts be made by permittee and authorized assistants to utilize best management practices to eliminate any potential for incidental entanglement of any marine organism. Entanglement prevention practices will include but are not limited to: minimizing the amount of structures or components that may potentially cause entanglement during research operations (loops, holes, slack lines). Permittee will immediately notify DAR and the appropriate federal agency to report the entanglement of any protected species if incidental entanglement occurs.

4) Invasive Species/Disease: All equipment deployed must be visually checked for invasive algae/sponges/other organisms and disinfected with 10% bleach solution for 10 minutes before deployment in alternate location if moved between multiple watersheds/distinct reef areas. If equipment cannot be bleached, gear must be thoroughly rinsed with fresh water and dried in sun for 24 hours before deployment in alternate location, sterilized with another viable method or alternate sampling gear should be utilized.

5) Inert dye MSDS: Inert dye to be used is not directly specified. Please include MSDS

DAR# 5958

Comments

for inert dye to be used in this project. DAR requests the known effects on the environment and wildlife from the inert dye used. DAR requests that the inert dye with the most minimal impact is used if possible.

To: Brian J. Nielson
DAR Administrator

Calen Miyahara
DLNR Land Division

From:

David Ho
Professor, University of Hawai`ii at Mānoa
Department of Oceanography
1000 Pope Road
Honolulu, HI 96822, USA

Geno Pawlak
Affiliate Faculty, Department of Ocean and Resources Engineering
University of Hawai`ii at Mānoa
2500 Dole St.
Honolulu, HI 96822, USA

Professor, University of California San Diego
Mechanical and Aerospace Engineering Department
9500 Gilman Dr.
La Jolla, CA 92024

Subject: Issuance of Right-of-Entry Permit for Air-Sea Gas Exchange and Inert Dye Release Study Purposes at Kaneohe Bay

Thank you for your comments and support of our proposed project in Kaneohe Bay in your memo from 7/19/2019. We outline our responses to your comments and concerns below.

1. Deployment of structures: the scaffolding structure will be assembled in place with components lowered down from a surface vessel using ropes. As recommended, we will deploy the frame in an area with sand (preferable) or bare substrate).
2. Equipment securement: The structure will be anchored to the bed with lead and zinc ingots (100 lbs per leg) that will be secured at the base of each leg. Each of the scaffolding legs will have a footpad that will be buried into the sand to provide additional stability. If significant waves or winds are forecast after deployment, the scaffolding will be removed.
3. Entanglement Prevention: We will minimize structural components below the water line to reduce risk of entanglement. Any cables or line will be secured to avoid potential for entanglement. The structure will be visited regularly during daylight hours during the 2-week experiment to inspect for any incidental entanglement.
4. Invasive Species/Disease: Components for the scaffolding platform to be used the experiment will not have been deployed elsewhere. Other scientific instrumentation

has been cleaned and dried thoroughly and has not been deployed elsewhere for several months. Gear will not be transported between any other watersheds or reef areas.

5. Inert dye SDS. The tracer dye to be used in these tests is Rhodamine WT, which is endorsed the Army Corps of Engineers as "the dye most suitable for use in inflow studies" and which poses "no known environmental or health hazards when used in unpolluted waters". More information, along with the SDS was provided in our original project description (description and SDS attached here for reference).

Please contact us if you have any further concerns or questions.