

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Division of Aquatic Resources  
Honolulu, Hawaii 96813

May 23, 2008

Board of Land  
and Natural Resources  
Honolulu, Hawaii

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Research Permit to Dr. Brian Bowen, University of Hawaii, Hawaii Institute of Marine Biology, for Access to State Waters to Conduct Reef Fish Genetic Survey Activities.

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument research permit to Dr. Brian Bowen, associate researcher, University of Hawaii, Hawaii Institute of Marine Biology, pursuant to § 187A-6, Hawaii Revised Statutes (HRS), chapter 13-60.5, Hawaii Administrative Rules (HAR), and all other applicable laws and regulations.

The research permit, as described below, would allow entry and research activities to occur in the Papahānaumokuākea Marine National Monument (Monument), including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- Nihoa Island,
- Necker Island (Mokumanamana),
- French Frigate Shoals,
- Gardner Pinnacles,
- Maro Reef
- Laysan Island,
- Lisianski Island, Neva Shoal,
- Pearl and Hermes Atoll,
- Kure Atoll State Seabird Sanctuary

The activities covered under this permit will occur from June 1, 2008 through September 30, 2008.

The proposed activities are largely a renewal of work previously permitted and conducted in the Monument.

INTENDED ACTIVITIES

The purpose of these activities is to conduct a genetic survey of reef fishes, which will define the level of isolation among reef communities in the NW Hawaiian archipelago and address the issue of population connectivity across the NWHI.

To carry out this survey, the applicant is requesting to sample the following species:

- Orangecheek surgeonfish
- Goldring bristletooth
- Oval butterflyfish
- Ornate wrasse
- Yellowtail coris
- Slow wrasse
- Blacktail wrasse
- Scarface blenny
- Fangblenny
- Blueline snapper (ta'ape)
- Yellowstripe goatfish
- Orange goatfish
- Yellowfin goatfish
- Manybar goatfish
- Sidespot goatfish
- Peacock hind (roi)

The target species are chosen to be abundant and widespread in the archipelago, easy to identify, and easy to collect. Collections would be made at a low density of approximately 10 individuals per hectare with traps and polespears. Whenever possible, the applicant samples non-lethally and removes a rice-grain sized piece of fin (biopsy of less than one square cm) and releases the animal in the location from which it was collected. Although significant progress has been made in nonlethal sampling, most specimens are collected with polespears.

Statistical rigor requires a minimum sample size of 25 individuals per location. In studies examining the statistical power for inferring connectivity based on molecular tools, Ruzzante (1998) showed that sample sizes of less than 30-50 had significant bias and could be misleading. Therefore, in the interest of maintaining statistical rigor while minimizing the number of samples collected, the applicant requests a sample size of 30/location for most fish species. Each location is defined as an atoll or reef. Every effort would be made to minimize the impact of these collections on the natural communities.

The activities described above are part of a multiyear project. A new aspect of the project is that the applicant would also use the same mtDNA technology he applies to fish studies, to examine a parasite that may have been accidentally introduced in the 1950's. This parasitic nematode apparently hitchhiked to Hawaii with the blueline snapper and has subsequently spread to native fishes. While the introduction occurred on Oahu, the parasite has been detected in the Monument but has an uncertain distribution.

The applicant recognizes that it is important to make maximum use of specimens, especially when they are derived from lethal collections. Towards this end, he has coordinated fish species lists with a parallel project by HIMB researcher Matt Craig (whose permit application was approved by the Board on May 9, 2008). Matt Craig would be able to use the specimens collected initially for genetic analysis to resolve age, growth, diet, and other aspects of natural history. Further, the applicant is requesting the nonlethal sampling of apex predators to make maximum use of the captures conducted by Carl Meyer and colleagues for tagging studies (also approved by the Board on May 9, 2008).

DNA sequencing of all samples would occur back in the lab at HIMB.

This research would help determine whether the Monument is a series of relatively fragile (isolated) ecosystems, or whether individual reef habitats are connected in a larger and more robust ecosystem. It will also address the issue about whether the NWHI serves as a source of larvae to replenish depleted fisheries in the main Hawaiian Islands.

The activities described above may require the following regulated activities to occur in State waters:

- Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving monument resource
- Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
- Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

#### REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific entities: Hawaii Division of Aquatic Resources, Hawaii Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), and United States Fish and Wildlife Service Pacific Islands NW Refuge Complex Office. The Office of Hawaiian Affairs (OHA), and the Kaho‘olawe Island Reserve Commission (KIRC) were also consulted.

#### **Comments received from the scientific community are summarized as follows:**

Scientific reviews support the acceptance of this application.

Concerns raised were:

1. What protocols the applicant would be following to ensure the safe storage and transport of the diseased fish he is requesting to collect
2. What plans the applicant has to present his research and results to the public

#### **Comments received from the Native Hawaiian community are summarized as follows:**

Cultural reviews support the acceptance of this application.

No concerns were raised, but the following suggestion was made:

3. A ho'o kupu, Wai (fresh water) or awa (liquid form) should be offered at the site of first sampling.

#### **Additional reviews and permit history:**

Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g. MMPA, ESA, EA) Yes  No

If so, please list or explain:

- The proposed activities are in compliance with the National Environmental Policy Act.

Has Applicant been granted a permit from the State in the past? Yes  No

If so, please summarize past permits:

- The applicant was granted permits DLNR/NWHI/06R004 and PMNM-2007-032 to conduct similar work in 2006 and 2007.

Have there been any a) violations: Yes  No

b) Late/incomplete post-activity reports: Yes  No

Are there any other relevant concerns from previous permits? Yes  No

RESPONSE:

- DAR and Monument staff have been working with HIMB researchers to address staff concerns and develop a Monument transport protocol. Currently, the protocol is subject to external peer review. The results of this review will be known by the May 23<sup>rd</sup> Land Board meeting. The method of storage and transport of healthy and diseased fish being proposed by the applicant would be addressed in the Monument transport protocol.
- The Applicant provided a listing of upcoming presentations to be given at international meetings, as well as at the Hawaii Conservation Conference.
- A cultural briefing was given to HIMB staff and researchers by the cultural reviewer who made this request. That briefing included a discussion on how best to incorporate and implement this practice into Monument activities that require the taking of samples.

STAFF OPINION:

DAR staff is of the opinion that Applicant has properly demonstrated valid justifications for his application and, conditional on development of a peer-reviewed Monument transport protocol, should be allowed to enter the NWHI State waters and to conduct the activities therein as specified in the application with the following special instructions and conditions, which are in addition to the Papahānaumokuākea Marine National Monument Conservation and Management Permit General Conditions. The following special conditions have been vetted through the legal counsel of the Co-Trustee agencies.

- This permit is not to be used for nor does it authorize the sale of collected organisms. Under this permit, the authorized activities must be for noncommercial purposes not

involving the use or sale of any organism, by-products, or materials collected within the Monument for obtaining patent or intellectual property rights.

2. The permittee may not convey, transfer, or distribute, in any fashion (including, but not limited to, selling, trading, giving, or loaning) any coral, live rock, or organism collected under this permit without the express written permission of the Co-Trustees.
3. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocols attached to this permit.
4. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.
5. Refueling of tenders and all small vessels must be done at the support ships and outside the confines of lagoons or near-shore waters in the State Marine Refuge
6. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

MONUMENT MANAGEMENT BOARD OPINION:

The MMB is of the opinion that the Applicant has met the findings of Presidential Proclamation 8031 and this activity, conditional on development of a peer-reviewed Monument transport protocol, may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by DAR staff.

RECOMMENDATION:

“That the Board authorize and approve, with stated conditions, a Research Permit to Dr. Brian Bowen, University of Hawaii, Hawaii Institute of Marine Biology.”

Respectfully submitted,



DAN POLHEMUS  
Administrator

APPROVED FOR SUBMITTAL



LAURA H. THIELEN  
Chairperson