

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 Joshua Reece, Washington University in Saint Louis, for Access to State Waters to Conduct Moray Eel Research 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 Joshua Reece, Ph.D. candidate, Washington University in Saint Louis, 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 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
- French Frigate Shoals
- Gardner Pinnacles
- Maro Reef
- Laysan Island
- Lisianski Island
- Pearl and Hermes Atoll
- Kure Atoll State Seabird Sanctuary

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

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

INTENDED ACTIVITIES

The applicant proposes to collect a representative sample of moray eel species throughout the Northwestern Hawaiian Islands in order to gather molecular genetic information and full specimens for morphological and dietary studies. The proposed activity would allow researchers

already conducting sampling of other species and catching moray eels as by-catch, to preserve a small number of moray eel species for these studies.

The applicant's collection activities would take place on up to 3 cruises into the Monument over the course of this field season. The applicant would probably travel to the Monument on one of these trips, while the remainder of the collections would be preformed by researchers already in the area for other purposes.

There would be no boat-based sampling done specifically for moray eels. Rather, sampling sites would be restricted to those already being sampled by other researchers who potentially capture moray eels as by-catch. The only novel sampling the applicant proposes is land-based sampling at Midway, which would be moray eel-specific. The pier at Midway Atoll is a highly productive area for sampling moray eels. It allows for constant monitoring of traps and is a critical sampling point for capturing multiple moray eel species.

The applicant is proposing to collect 11 moray eel species. He would collect 15 organisms per species per bank for all banks in the NWHI. The sample sizes requested are highly unlikely to impact local or regional populations of moray eels or their ecological role on the coral reef. This claim is based on preliminary data documenting high levels of gene flow and large effective population sizes in moray eels within the Papahānaumokuākea Marine National Monument.

Any moray eels captured would be immediately placed into an iced cooler where their metabolism would quickly slow and cease. Based on the applicant's prior experience, moray eels can breathe or at least persist out of water for over two hours. On-ice, however, their metabolism ceases after approximately thirty minutes, resulting in a humane euthanasia prior to asphyxiation.

Once in the lab, DNA sequences would be analyzed to define species by their genetic patterns. Species thus defined would be compared to traditional morphologically-defined species to identify any dissimilarity and identify potentially misleading morphological features. Whole specimens would be curated at the Bishop Museum for permanent addition to their Ichthyology collection.

The proposed project would lead to a better understanding of moray eels, connectivity among the Northwest Hawaiian Islands, and the ecological role of moray eels as key predators.

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
- 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,



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

RESPONSE:

1. The applicant states that he is confident that the traps pose no entanglement hazard to protected species. Traps deployed in the past have been monitored carefully to note potential entanglements from protected species such as monk seals. In addition, precautions have been taken, such as measuring buoy ropes to the specific depth of deployment for each trap, to reduce the amount of rope floating at the surface. The applicant notes that despite extra rope length in shallow deployments, he has never observed incidences of entanglement or potential entanglement with any fauna, despite the presence of monk seals, manta rays, and marine turtles in the vicinity.
2. DAR and Monument staff are consulting with OHA and the cultural reviewer who made this request on how best to incorporate and implement this practice into Monument activities that require the taking of samples. The result of this consultation will be relayed to the applicant.

STAFF OPINION:

DAR staff is of the opinion that the Applicant has properly demonstrated valid justifications for his application and 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 Research Permit General Conditions. The following special conditions have been vetted through the legal counsel of the Co-Trustee agencies.

1. 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 protocol 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 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 Joshua Reece, Washington University in Saint Louis.”

Respectfully submitted,



DAN POLHEMUS  
Administrator

APPROVED FOR SUBMITTAL



LAURA H. THIELEN  
Chairperson