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

January 24, 2025

Board of Land
and Natural Resources
Honolulu, Hawaii

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Research Permit to David Hyrenbach to Continue Research Activities for a Black-Footed Albatross Tracking Project.

SUMMARY
The Papahānaumokuākea Marine National Monument (Monument) program hereby requests approval from the Board of Land and Natural Resources (BLNR) for issuance of a Monument research permit to David Hyrenbach, Oikonos–Ecosystem Knowledge and Hawai‘i Pacific University, for access and authorization to continue black-footed albatross (BFAL) research activities in areas in the Monument under State of Hawai'i jurisdiction.

BACKGROUND LAW

The Board of Land and Natural Resources, by the Department of Land and Natural Resources (DLNR) Divisions of Aquatic Resources & Forestry and Wildlife, permits certain otherwise prohibited or regulated activities on or in its lands and waters, pursuant to Hawaii Revised Statutes (HRS) § 187A-6, 183D-6, and 195D-4; Hawaii Administrative Rules (HAR) § 13-60.5-5, 13-60.5-6, 13-126-9 and 13-126-10, and all other applicable laws and regulations.

DURATION

The permit, as described below, would allow entry for research activities to occur in the Papahānaumokuākea Marine National Monument (Monument), including the Northwestern Hawaiian Islands (NWHI) State Marine Refuge and the Kure Atoll Wildlife Sanctuary including the lands and waters (0-3 nautical miles) surrounding the following to the extent within the jurisdiction of the State of Hawai'i:

- Kamole (Laysan Island)
- Hōlanikū (Kure Atoll)

The activities covered under this permit would occur from January 26, 2025 through December 31, 2025. The applicants are requesting 42 days in the Monument. The timing and number of visits to the field sites will depend on availability of ship transport, U.S. Fish and Wildlife Service (USFWS) schedules, and weather.

At Kamole: Weather permitting, a two-person team from Oikonos will visit this site once in 2025 via separately permitted USFWS contracted vessel to: (1) retrieve 20 geolocation (GLS) tags deployed in 2024, and (2) deploy 20 GLS tags and 10 satellite-linked Argos tags. The research will

be conducted over 2 weeks during the early albatross chick provisioning period (early February – early March). The team deployments will span 12-14 days: transiting from Honolulu (3-4 days), working in the field (6 days), and returning to Honolulu (3-4 days). Additionally, the applicants will coordinate with USFWS and the National Oceanic and Atmospheric Administration (NOAA) monk seal teams deployed at this location to retrieve tags opportunistically during any separately permitted visits in 2025.

At Hōlanikū: All activities at this site will rely on State of Hawai‘i Division of Forestry & Wildlife (DOFAW) and Kure Atoll Conservancy (KAC) personnel, already deployed / separately permitted for access in the field. The applicant plans to have the Hōlanikū team spend 2 weeks during the late egg incubation and early albatross chick provisioning period (January – March) in 2025 deploying 20 GLS tags and 2 weeks opportunistically retrieving 20 GLS deployed in 2024 (for a total of 4 weeks). Additionally, the team will opportunistically retrieve GLS tags deployed in 2024.

The proposed activities are a renewal of work previously permitted and conducted in the Monument. This permit request is substantively the same as last year's PMNM permit (2024-002) to conduct research in the Monument, however, this year the activities will be conducted in part by persons not part of a co-managing agency and therefore this permit requires separate BLNR approval.

PERSONS COVERED UNDER THIS PERMIT

At any given time, only 2 Oikonos researchers will access Kamole to conduct the research. 5 TBD USFWS personnel are included in this permit to act as biological monitors for the Kamole work.

The DOFAW field team on Hōlanikū will conduct the research during their regular field season.

To accommodate contingencies, project personnel include 6 people and 14 TBD slots (including personnel from USFWS, NOAA's Monk Seal Research Program, Kure Atoll Conservancy (KAC), and contingency slots for Oikonos and DOFAW):

David Hyrenbach, PI, Hawai‘i Pacific University and Oikonos-Ecosystem Knowledge
Ilana Nimz, Field Lead, Oikonos-Ecosystem Knowledge
Alyssa Piauwasdy, Field Ecologist, Program Manager, Oikonos-Ecosystem Knowledge
Emmylou Kidder, Field Ecologist, Oikonos-Ecosystem Knowledge
TBD-person 1, Field Ecologist or volunteer, Oikonos-Ecosystem Knowledge
TBD-person 2, Field Ecologist or volunteer, Oikonos-Ecosystem Knowledge

Tiana Bolosan, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist
Ryan Potter, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist
TBD-person 1, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist or volunteer
TBD-person 2, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist or volunteer
TBD-person 3, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist or volunteer

TBD-person 1, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 2, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 3, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 4, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 5, U.S. Fish and Wildlife Service personnel or volunteer

TBD-person 1, Kure Atoll Conservancy personnel or volunteer
TBD-person 2, Kure Atoll Conservancy personnel or volunteer

TBD-person 1, NOAA Monk Seal Research Program personnel or volunteer
TBD-person 2, NOAA Monk Seal Research Program personnel or volunteer

INTENDED ACTIVITIES

The applicant proposes to characterize the at-sea distribution of birds breeding on Kamole and Hōlanikū over two breeding seasons (2024, 2025) and two non-breeding seasons (2024, 2025); (2) obtain feather samples to determine the sex of the tagged birds using molecular techniques; (3) integrate sex-specific data on seasonal movements by birds from these two colonies with existing tracking datasets for this species; and (4) synthesize their at-sea distribution and overlap with U.S. and foreign fisheries across the North Pacific to develop an integrated bycatch risk assessment for the species.

The applicant proposes to deploy a total of 20 satellite-linked platform terminal transmitters (PTTs) and up to 80 archival Geolocation (GLS) tags to track the movements of up to 100 breeding BFAL. The applicant will also sample a few breast feathers from each tagged bird and use genetic methods to sex the individuals. This permit application augments the work completed in 2024, under the auspices of PMNM permit 2024-002.

At Kamole, the applicants aim to deploy up to 20 PTTs and 40 GLS tags. In 2024, the applicants deployed 10 PTT and 20 GLS tags (permit 2024-002). If the weather and field conditions allow for a longer field visit, the applicants propose to deploy 10 PTT and 20 GLS tags in 2025. The applicants and collaborators (USFWS and NOAA monk seal team) plan to retrieve the GLS tags during field visits in 2026 (under the auspices of a future PMNM permit). To facilitate the recapture of the birds equipped with archival GLS tags, BFAL nesting sites will be recorded with GPS and will be marked using colored rocks, to aid in recapture in the following year. The PTTs, which will be attached to 4-6 dorsal feathers using Tesa tape, will fall off when the adhesive wears off (~2 months after deployment) or when the birds molt (July – September). We will also mark nests with colored rocks for the birds with PTTs in the case that USFWS can check on the fate of chicks.

At Hōlanikū, the applicants will focus on archival GLS tags at this site, with 40 tags to be deployed. We deployed half the tags (20 GLS) in 2024, as part of PMNM permit 2024-002. If the weather and field conditions allow, the current permit application will allow the applicants to deploy the other already funded tags (20 GLS) in 2025. A team of State of Hawai‘i Division of Forestry & Wildlife (DOFAW) and Kure Atoll Conservancy (KAC) personnel, already deployed and separately permitted for access in the field, will retrieve the archival GLS tags during field visits in 2025 (from October 2024 to May 2025) and 2026 (from October 2025 to May 2026). To facilitate the recapture of the birds equipped with archival GLS tags, BFAL nesting sites will be recorded with GPS and will be marked using colored rocks or recognizable pieces of marine debris (discarded buoys, stakes).

Method

To ease capture and avoid disturbance, birds will be captured by hand for tag deployments. If birds

are skittish during tag retrievals, the applicant and/or team may also use a large hand-held hoop net. Once caught, individuals will be carefully moved away from their nest to minimize disturbance to other birds and placed on the ground. After a bird is removed from its nest, the nest will be marked with a colored rock (Kamole), or recognizable marine debris or empty jugs from the field camp (Hōlanikū). The chick will be covered with a breathable piece of cloth to provide shading, while the adult is off the nest. Based on previous experience, banding / tagging, collection of feathers, and tag retrieval require 5 – 10 minutes. If adults begin to show signs of overheating during handling, the foot webbing will be wiped with ethyl alcohol wipes, to promote evaporation and cooling. If the bird continues to show signs of overheating, birds will be released early. Tagging will only take place if it is not raining, to avoid compromising the waterproofing of adults and the thermo-regulation of chicks.

More detailed information about the project can be found in the application (attached).

ADHERANCE TO FINDINGS CRITERIA, BMPs, AND OTHER SAFETY PROTOCOLS:

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
☒ Discharging or depositing any material or matter into the Monument

Monument Management Plan Strategies

The activities proposed by the applicant directly support the Monument Management Plan (PMNM MMP Vol. 1, 2008), including but not limited to priority management needs MB-2: minimize the impact of threats to migratory birds such as habitat destruction by invasive species, disease, contaminants (including oil), and fisheries interactions for the life of the plan and MB-3: monitor populations and habitats of migratory birds at a level sufficient to ascertain natural variation and then to detect changes in excess of that variation that might be attributed to human activities, including anthropogenic climate change

Best Management Practices

To safeguard Monument resources the applicants will abide by all PMNM Best Management Practices (BMPs) while conducting the aforementioned activities within PMNM.

BMP Number	Title	Download
001	Marine Alien Species Inspection Standards for Maritime Vessels	PDF
002	Protocol for Acquiring Avian Blood Samples	PDF
003	Human Hazards to Seabirds Briefing	PDF
004	Best Management Practices for Boat Operations and Diving Activities	PDF
005	Protocols to Reduce Impact to the Laysan Finch	PDF
006	General Storage and Transport Protocols for Collected Samples	PDF
007	Best Management Practices for Terrestrial Biosecurity	PDF

008	Seabird Protocols Necessary for Conducting Trolling Research and Monitoring in Papahānaumokuākea Marine National Monument	PDF
009	Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles	PDF
010	Marine Wildlife Viewing Guidelines	PDF
011	Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment, Papahānaumokuākea Marine National Monument (Monument)	PDF
012	Precautions for Minimizing Human Impacts on Endangered Land Birds	PDF
015	Nonnative Species Inspection Requirements at Midway Atoll	PDF
016	Best Management Practices for Activities on Nihoa	PDF
017	Best Management Practices for Maritime Heritage Sites	PDF
018	Rodent Prevention and Inspection Standards for Permitted Vessels	PDF
019	Best Management Practices for Activities on Mokumanamana (Necker Island)	PDF
020	Best Management Practices to minimize the spread of nuisance alga	PDF

REVIEW PROCESS

The application was sent out for review and comment to the following scientific and cultural entities: Hawai'i Division of Aquatic Resources, DOFAW, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO); USFWS, Hawaiian and Pacific Islands National Wildlife Refuge Complex Office; the Office of Hawaiian Affairs (OHA) and the PMNM Native Hawaiian Cultural Working Group.

For two weeks the 2025 application was reviewed and received questions, comments and applicant responses as noted below:

Questions:

1. What is the likelihood a GLS tag will fall off prematurely? In the event a GLS tag falls off before they are able to be removed, are there any processes in place to attempt to retrieve them?

Applicant Response: The UV- resistant nylon cable ties used to attach the GLS tags are very durable, and we do not expect them to break, shedding the tag prematurely. According to KAC personnel, 16 of 16 BFALs tagged on February 2024 in Hōlanikū and resighted in December 2024 still carried the GLS tags. In the event of both cable ties failing and the GLS tag being shed prematurely on the island, it is highly unlikely that we would find them because they are very small and transparent.

2. Are GLS tags or satellite (PTT) tags, or the adhesive/tape used to secure them, biodegradable?

Applicant Response: The tags are coated with resin and are not biodegradadable. The cable ties are nylon and not biodegradable. The Tesa tape we use to attach the PTTs is biodegradable.

Comments:

1. Generally please minimize the discharge of non-biodegradable items as much as possible, however, we understand if there are no other viable option. Please consider reducing marine debris contribution in the future with biodegradable materials or using items that can be retrieved and disposed properly.

Applicant Response: We are aware of the potential introduction of marine debris into the marine and island environment, and always minimize loss of zip ties / tape during deployments and retrievals by carefully collecting any shreds and fragments. We have to use UV-resistant materials to ensure the tags are not lost prematurely. Yet, the tags are not buoyant and, if shed at sea, they will sink and be crushed by the water pressure.

2. For birds that may be captured / tagged in water or on the shoreline of areas with known populations of *Chondria tumulosa* and/or *Acanthophora spicifera* – please adhere to BMP #20 in terms of use or disinfection of gear used in these areas while tagging/capturing (e.g. tabis or other gear) in order to minimize the spread of nuisance algae from these areas to other areas.

Applicant Response: While no bird captures / tagging will happen in the water, the birds will be captured on their nesting sites, which may be near the shore. We appreciate your comment and will take great care to follow these precautions, per BMP#20.

ENVIRONMENTAL COMPLIANCE

Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g., HRS chapters 183C, 343; MMPA, ESA) Yes ☒ No ☐

If so, please list or explain:

- For activities by co-managing agency staff supporting research under this permit, the most recent Final Environmental Assessment covering certain subject activities was published in OEQC's The Environmental Notice on December 23, 2008 recommending a finding of no significant impact (FONSI). Separately, the Federal agency staff supporting this project assure DLNR that the proposed activities are in current federal compliance with the National Environmental Policy Act per concurrent environmental review processes completed on December 23, 2008 and a categorical exclusion.
- The Department has also made an exemption determination for this permit as necessary for non-agency staff representing the applicant on this project in accordance with Chapter 343, HRS, and Chapter 11-200.1, HAR. See Attachment ("DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200.1 HAR, FOR A PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO DAVID HYRENBACH, OIKONOS–ECOSYSTEM KNOWLEDGE, FOR ACCESS TO STATE WATERS AND LANDS TO RESEARCH BLACK-FOOTED ALBATROSSES WITHIN THE WATERS OF THE NORTHWESTERN HAWAIIAN ISLANDS UNDER PERMIT PMNM-2025-003")
- Federal Bird Banding Lab Permit #23317, 98487
- NHPA Section 106

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

If so, please summarize past permits:

- The applicant has been granted permits for previous research on seabirds in the Monument under permits PMNM 2024-002, 2016-002, 2015-031, 2011-010, 2010-027, 2009-035, and 2009-034.

Have there been any a) violations: Yes ☐ No ☒
b) late/incomplete post-activity reports: Yes ☐ No ☒

involving any of the applicant agencies or personnel?

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

If yes, please explain.

STAFF OPINION

Department staff are of the opinion that the Hyrenbach permit is justified under HAR chapter 13-60.5 criteria and should be allowed to enter state lands and waters in the Monument as indicated, and to conduct the activities as specified, subject to the Papahānaumokuākea Marine National Monument Research Permit General Conditions, and the indicated special instructions, conditions, and protocols to be observed. Staff recommends that the BLNR approve the application as indicated below.

MONUMENT MANAGEMENT BOARD OPINION

The seven members of the Monument Management Board (MMB) were consulted and are of the opinion that the applicants have met permit procedures and criteria under the findings of Presidential Proclamation 8031, 71 Fed. Reg. 36,443 (2006) as required, and these general conservation and management activities may be conducted subject to completion of all compliance requirements recommended below. The MMB concurs with the special conditions recommended by DLNR staff.

RECOMMENDATIONS:

That the Board of Land and Natural Resources

A. Approve the proposed permit for David Hyrenbach according to the form of the Application (Attachment 1) and authorize and approve entry to State lands and waters of the Monument for the MMB agencies represented by the U.S. Fish and Wildlife Service; the National Oceanic and Atmospheric Administration; and the Office of Hawaiian Affairs, for such conservation and management activities to be conducted as listed in Attachment A with the following additional conditions:

    1. That the BLNR declare that the anticipated actions to be undertaken under this permit will have little or no significant effect on the environment except consistently with the activities covered in the 2008 Final Environmental Assessment (FEA) and

FONSI. Any activities not covered in the FEA shall be addressed by the declaration of exemption from the preparation of an environmental assessment (attached).

2. Upon the finding and adoption of the department's analysis by the Board, that the Board review and accept the declaration of exemption for purposes of recordkeeping requirements of chapter 343, HRS, and chapter 11-200.1, HAR.

3. That the permittee provide, as required under the Monument permit general terms and conditions, a summary of their findings under this Monument access, including but not limited to, any initial findings to the DLNR for use at educational institutions and outreach events. Any unexpected results and anomalous encounters should be included in a report or future permit applications to the BLNR to allow proper evaluation of research efforts in future permitting decisions.

4. That all agencies and personnel covered under this permit shall abide by and obey all Monument permit general conditions and protocols, unless otherwise specifically permitted, exempted, or excluded under the terms and conditions.

5. 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.

6. 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.

7. 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.

8. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.

9. 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 with the exception of boats utilized in operations that are land-based for extended periods of time.

10. If there is any Hawaiian monk seal or any other protected species in the area when performing any permitted activity shall cease until the animal(s) depart the area, except as permitted for specific management of that species.

11. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

12. To mitigate risk of spreading *Chondria tumulosa* within the monument and Main Hawaiian Islands, the permittee will follow the Best Management Practices to Minimize the Spread of nuisance alga (BMP #20).

13. The permittee is required to follow all applicable Federal, State, and County laws with respect to the COVID-19 emergency response that apply at the time of departure and return. In issuance of this permit, the State of Hawaii is not otherwise monitoring or regulating permittee's compliance with COVID-19 laws and is not responsible for the health and safety of crew members, researchers or other occupants of the vessel associated with this permit.

Respectfully submitted,

Brian J. Neilson, Administrator
Division of Aquatic Resources

APPROVED FOR SUBMITTAL

Dawn N. S. Chang, Chairperson
Board of Land and Natural Resources
Attachments:

1) Application

2) Declaration of Exemption ("DE") from the Preparation of an Environmental Assessment under the Authority of Chapter 343, HRS & Chapter 11-200.1 HAR

Papahānaumokuākea Marine National Monument

RESEARCH Permit Application

NOTE: ***This Permit Application (and associated Instructions) are to propose activities to be conducted in the Papahānaumokuākea Marine National Monument. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031. Within this Application, provide all information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Papahānaumokuākea Marine National Monument (Monument).***

ADDITIONAL IMPORTANT INFORMATION:

- Any or all of the information within this application may be posted to the Monument website informing the public on projects proposed to occur in the Monument.

- In addition to the permit application, the Applicant must either download the Monument Compliance Information Sheet from the Monument website OR request a hard copy from the Monument Permit Coordinator (contact information below). The Monument Compliance Information Sheet must be submitted to the Monument Permit Coordinator after initial application consultation.

- Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.

INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED

Send Permit Applications to:
NOAA/Inouye Regional Center
NOS/ONMS/PMNM/Attn: Permit Coordinator
1845 Wasp Blvd, Building 176
Honolulu, HI 96818
nwhipermit@noaa.gov
PHONE: (808) 725-5800 FAX: (808) 455-3093

SUBMITTAL VIA ELECTRONIC MAIL IS PREFERRED BUT NOT REQUIRED. FOR ADDITIONAL SUBMITTAL INSTRUCTIONS, SEE THE LAST PAGE.

Papahānaumokuākea Marine National Monument
Permit Application Cover Sheet

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

Summary Information

Applicant Name: David Hyrenbach
Affiliation: Oikonos–Ecosystem Knowledge & Hawaii Pacific University

Permit Category: Research
Proposed Activity Dates: 01 January 2025 – 31 December 2025
Proposed Method of Entry (Vessel/Plane): Vessel (separately permitted by USFWS)
Proposed Locations: Kamole (Laysan Island) and Hōlanikū (Kure Atoll)

Estimated number of individuals (including Applicant) to be covered under this permit:
To accommodate contingencies, project personnel include 6 people and 10 TBD slots (including USFWS personnel and contingency slots for Oikonos and DOFAW).

Estimated number of days in the Monument: Overall, we are asking for 42 days in the Monument in 2025. The timing and number of visits to the field sites will depend on availability of ship transport, USFWS schedules, and weather.

At Kamole: Weather permitting, a two-person team from Oikonos will visit this site once in 2025 to: (i) retrieve 20 GLS tags deployed in 2024, and (ii) deploy 20 GLS tags and 10 satellite-linked Argos tags. The research will be conducted over 2 weeks during the early albatross chick provisioning period (early February – early March). Our team deployments will span 12-14 days: transiting from Honolulu (3-4 days), working in the field (6 days), and returning to Honolulu (3-4 days). Additionally, we will coordinate with USFWS and NOAA monk seal teams deployed at this location to retrieve tags opportunistically during any separately permitted visits in 2025.

At Hōlanikū: All activities at this site will rely on State of Hawai‘i Division of Forestry & Wildlife (DOFAW) and Kure Atoll Conservancy (KAC) personnel, already deployed / separately permitted for access in the field from October 2024 to May 2025. Our plan is to have the Hōlanikū team spend 2 weeks during the late egg incubation and early albatross chick provisioning period (January – March) in 2025 deploying 20 Geolocation (GLS) tags and 2 weeks opportunistically retrieving 20 GLS deployed in 2024 (for a total of 4 weeks). Additionally, the team will opportunistically retrieve GLS tags deployed in 2024.

Overall time on field sites:28 days (Kamole) and 42 days (Hōlanikū)
Year1 (2025): 14 days (Kamole), 28 days (Hōlanikū)

Description of proposed activities: (complete these sentences):

a.) The proposed activity would…

(1) characterize the at-sea distribution of birds breeding on Kamole and Hōlanikū over two breeding seasons (2024, 2025) and two non-breeding seasons (2024, 2025); (2) obtain feather samples to determine the sex of the tagged birds using molecular techniques; (3) integrate sex-specific data on seasonal movements by birds from these two colonies with existing tracking datasets for this species; and (4) synthesize their at-sea distribution and overlap with U.S. and foreign fisheries across the North Pacific to develop an integrated bycatch risk assessment for the species.

b.) To accomplish this activity we would ….

Deploy a total of 20 satellite-linked platform terminal transmitters (PTTs) and up to 80 archival Geolocation (GLS) tags to track the movements of up to 100 breeding BFAL (see Table 1). This permit application augments the work complted in 2024, under the auspices of PMNM permit 2024-002, but we have included all years here to show the full scope of the project.

At Kamole: BFAL have not been tracked from this site previously. Thus, our goal is to deploy up to 20 PTTs and 40 GLS tags at this site. We already deployed (10 PTT and 20 GLS) in 2024, as part of PMNM permit 2024-002. If the weather and field conditions allow for a longer field visit, the current permit application will allow us to deploy the 10 PTT and 20 GLS tags in 2025.

We plan to retrieve the archival GLS tags during field visits in 2026 by our team (under the auspices of a future PMNM permit) and collaborators (USFWS and NOAA monk seal team). To facilitate the recapture of the birds equipped with archival GLS tags, BFAL nesting sites will be recorded with GPS and will be marked using colored rocks, to aid in recapture in the following year. The PTTs, which will be attached to 4-6 dorsal feathers using Tesa tape, will fall off when the adhesive wears off (~2 months after deployment) or when the birds molt (July – September). We will also mark nests with colored rocks for the birds with PTTs in the case that USFWS can check on the fate of chicks.

At Hōlanikū: Between Februay and May in both 2012 and 2013, David Hyrenbach and Michelle Hester deployed GPS tags on a total of 18 BFAL breeding on Hōlanikū. These data were published in Hyrenbach et al. 2017 and Orben et al. 2021. Since we already have fine-scale spatial data from the breeding season for this colony, we will not deploy PTTs tags at this site. Instead we will focus on archival GLS tags at this site, with 40 tags to be deployed at this site. We deployed half the tags (20 GLS) in 2024, as part of PMNM permit 2024-002. If the weather and field conditions allow, the current permit application will allow us to deploy the other already funded tags (20 GLS) in 2025.

A team of State of Hawai‘i Division of Forestry & Wildlife (DOFAW) and Kure Atoll Conservancy (KAC) personnel, already deployed / separately permitted for access in the field, will retrieve the archival GLS tags during field visits in 2025 (from October 2024 to May 2025) and 2026 (from October 2025 to May 2026). To facilitate the recapture of the birds equipped with archival GLS tags, BFAL nesting sites will be recorded with GPS and will be marked using colored rocks or recognizable pieces of marine debris (discarded buoys, stakes).

Table 1. Number of BFAL tags to be deployed and received by site, year, and tag type. Each tagged bird would have up to 4 breast feathers sampled for molecular sex determination. The samples collected during 2024, under PMNM permit 2024-002, are shaded grey for clarity.

Satellite Tags: Laysan Island (Kamole), Hawaiian Islands National Wildlife Refuge

Black-footed	Birds Tracked	No. of Feathers	Notes
2024	10	40	Feathers analyzed at PCMB, Bishop Museum
2025	10	40	Activity as part of this permit application
2026	0	0	Activity as part of a future permit
Total	**20**	**80**	

Geolocator Tags: Laysan Island (Kamole), Hawaiian Islands National Wildlife Refuge

Black-footed	Birds Tracked	No. of Feathers	Notes
2024	20	80	Feathers analyzed at PCMB, Bishop Museum
2025	20	80	Activity as part of this permit application
2026	0	0	Activity as part of a future permit
Total	**40**	**160**	

Geolocator Tags: Kure Atoll (Hōlanikū), Hawaiian Islands National Wildlife Refuge

Black-footed	Birds Tracked	No. of Feathers	Notes
2024	20	80	Feathers analyzed at PCMB, Bishop Museum
2025	20	80	Activity as part of this permit application
2026	0	0	Activity as part of a future permit
Total	**40**	**160**	

Grand Totals across all years, sites, and tag types

Black-footed	Birds Tracked	No. of Feathers	Notes
2024	50	200	Feathers analyzed at PCMB, Bishop Museum
2025	50	200	Activity as part of this permit application
2026	0	0	Activity as part of a future permit
Total	**100**	**400**	

c.) This activity would help the Monument by …

providing the Monument with useful information on the year-around distribution of male and female BFAL. BFAL have not been tracked at Kamole, and have only been tracked during the breeding season at Hōlanikū. As part of our project, we will integrate this information with similar existing data for birds from other breeding sites (Midway, Tern Island) in collaboration with Scott Shaffer and colleagues to enhance the integrated management and monitoring of this species. In a recent workshop, resource managers from NOAA fisheries, the Western Pacific Regional Fishery Management Council (WPRFMC), and the USFWS expressed their interest in these tracking data and bycatch analyses, with the goal to update the last population assessment for BFAL (Arata et al., 2009, Hyrenbach et al. 2021.

In the short-term, our team will quantify BFAL overlap with domestic and foreign fisheries, using datasets of longline and trawl fishing effort / catch from NOAA fisheries, regional fishery management organizations (RFMOs), and Global Fishing Watch (globalfishingwatch.org). Our project will assess albatross vulnerability to incidental fishing mortality and will identify the temporal and spatial hotspots of albatross-fisheries interactions. Ultimately, knowing when and where albatross interact with fisheries will help managers to identify threats and to develop recommendations for enhanced bycatch monitoring and mitigation across the North Pacific.

In the long-term, the integrated analysis of multi-colony BFAL tracking with updated fishing effort / bycatch data will inform the population assessment for this species, and will help answer questions about albatross ecology and conservation, within a broader ecosystem-based management framework. Our ultimate goal is to inform a new integrated population model (IPM) for this species, capable of evaluating the impacts from fisheries bycatch, climate (e.g., sea-level rise and flooding at breeding colonies), and introduced vegetation at colonies (Hyrenbach et al. 2021).

Hyrenbach KD, Ishizaki A, Polovina J, Ellgen S [eds]. 2021. The factors influencing albatross interactions in the Hawaii longline fishery: towards identifying drivers and quantifying impacts. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-122, 163 p. doi:10.25923/nb95-gs31TM-PIFSC-122

Arata JA, Sievert PR, Naughton MB. 2009. Status assessment of Laysan and black-footed albatrosses, North Pacific Ocean, 1923-2005. Reston (VA): U.S. Geological Survey Scientific Investigations Report 2009-5131, 80 p. https://pubs.usgs.gov/sir/2009/5131/pdf/sir20095131.pdf.

Other information or background:

Background and Overview:

Summary of recommendations from the workshop: Hyrenbach KD, Ishizaki A, Polovina J, Ellgen S [eds]. 2021. The factors influencing albatross interactions in the Hawaii longline fishery: towards identifying drivers and quantifying impacts. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-122, 163 p. doi:10.25923/nb95-gs31TM-PIFSC-122

The Hawaii deep-set longline fishery (DSLL) operates north and south of the Hawaii Archipelago, with the shallow-setting swordfish fishery operating predominantly to the north and east of the fishing grounds. The tuna-targeting DSLL fishery accounts for 96% of the fishing effort. The number of hooks has been increasing since 2010, with 64 million hooks set in 2021 (McCracken and Cooper, 2022). The Hawaii longline fishery is managed under the WPRFMC Pelagic Fisheries Ecosystem Plan (FEP), which specifies the measures to reduce interactions with protected species, including seabirds (Dalzell et al., 2021). Seabird interactions are monitored through the NMFS Pacific Islands Regional Office (PIRO) Observer Program, with the DSLL fishery monitored at a minimum of 20% coverage annually. The numbers of observed albatross interactions are summarized and published annually as part of PIRO Seabird Annual Reports and the Pelagic FEP SAFE Report (Ishizaki & Ellgen, 2021).

In the last decade (2004–2014), observer records have documented an increasing trend in albatross interactions (Ishizaki & Ellgen, 2021). A recent analysis conducted by Gilman and colleagues

(2016) using data from October 2004 to May 2014, revealed that BFAL interaction rates have significantly increased over time, especially during years of higher annual mean Multivariate El Niño Index (MEI) values, suggesting that oceanographic changes have contributed to that trend. This analysis also showed a significant increasing trend in the number of albatrosses attending fishing vessels which may have contributed to the increasing catch rates. The higher interaction rates observed during the 2015–2016 El Niño event (Ishizaki & Ellgen, 2021) further underscore the potential links between ocean conditions and albatross-longline interactions.

Published tracking data of BFAL breeding at three sites in the NHWI (French Frigate Shoals, Midway Island, and Kure Atoll) suggest that BFAL at-sea distribution and movement patterns vary according to the phase of the breeding season. Longer foraging trips take place during the incubation and the chick-rearing periods, and shorter trips occur during the chick-guarding (or brooding) period. Furthermore, tagging studies in the NWHI suggest population-level differences in distribution among BFAL colonies; birds from French Frigate Shoals show the greatest spatial overlap with areas used by the DSLL fishery (Shaffer et al., 2021). Nevertheless, substantial knowledge gaps remain concerning sex differences in distribution during the breeding and post-breeding periods, the distributions of juveniles, and the movements of BFAL from unstudied breeding sites (e.g., year around from Laysan Island, post-breeding from Kure).

Workshop attendees highlighted the need to develop a rigorous integrated population model (IPM) model, able to address total population size, including non-breeders and juveniles, based on adult counts at multiple breeding colonies over time (e.g., years of contrasting oceanographic conditions). While this model would allow the assessment of the fishery impacts (e.g., effects of fishery takes on the population) in a broader ecological context, it would require filling in three substantial data gaps:

- BFAL distribution and fishery interaction data for different age-classes (breeders, juveniles, fledging chicks) from all breeding colonies during multiple years of contrasting oceanographic conditions (e.g., ENSO, PDO);
- Fishing effort distributions and BFAL bycatch data for the Hawaii DSLL and SSLL fisheries and other North Pacific longline fisheries;
- Characterize the degree of sex-specific, and individual variability in BFAL association and reliance on fisheries.

Our project addresses these knowledge gaps by studying the year around distribution of male / female breeding BFAL from Laysan Island and Kure Atoll during two years (2024-25 and 2025-26). We will then add the distribution data to that of our collaborators and analyze the overlap and susceptibility of individuals to bycatch in different national and international fleets. These data will then be made available to USFWS and their contractors who are currently creating an IPM for the species.

Data Sharing: Once our project has been completed, we will make all the tracking and associated meta-data from each tagged bird available to other researchers in the U.S. and internationally, for future use in research and management applications.

Domestically, we will deposit our PTT tracking data into the Animal Telemetry Network (ioos.noaa.gov/project/atn), a U.S. multi-agency initiative established under the auspices of the Integrated Ocean Observing System (IOOS), to provide unity, stability, and continuity to the national infrastructure that facilitates the collection, management, and availability of marine animal

telemetry data. Data are viewable to the public in near real time via an online portal (portal.atn.ioos.us). We already shared the 2024 tracking data from the birds tagged with satellite-linked transmitters at Kamole, via NOAA's Animal Tracking Network, for researchers to view and access: https://portal.atn.ioos.us/#metadata/fb5237e6-06d7-481b-8f04-a18ad098669e/project

Internationally, we will deposit the GLS and PTT data in the Global Seabird Tracking Database, hosted by BirdLife International in the UK (www.seabirdtracking.org). We have already deposited our previous albatross tracking data in this database, which have been used in numerous reports, outreach activities, governmental assessments, and scientific publications.

Outreach: Since 2000, our research in the Monument has led to the publication of 7 peer-reviewed papers and a chapter in a technical report published by NOAA. Our team has also given 20 presentations at conferences, university seminars, local special interest groups, and government sponsored meetings. We have also provided data or analyzed products (e.g., maps or figures) to NOAA – fisheries and USFWS staff for outreach and reports. Moreover, this research has supported 4 MS and 2 undergraduate students.

For this project we will make all our research available online, with links to our educational program, Winged Ambassadors, which uses life histories of albatross to teach elementary and high school students about marine conservation. We are also enthusiastic about participating in any outreach efforts the Monument would like to promote, including outreach to members of the Native community.

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Hyrenbach, K. David

Title: Research Associate, Oikonos-Ecosystem Knowledge
& Professor of Oceanography, Hawaii Pacific University (HPU)

1a. Intended field Principal Investigator (See instructions for more information):
Alyssa Piauwasdy, Program Manager, Oikonos-Ecosystem Knowledge

2. Mailing address (street/P.O. box, city, state, country, zip):

[redacted]

For students, major professor's name, telephone and email address: N.A.

3. Affiliation (institution/agency/organization directly related to the proposed project):
Oikonos-Ecosystem Knowledge, [redacted]

4. Additional persons to be covered by permit. List all personnel roles and names (if known at time of application) here (e.g. John Doe, Research Diver; Jane Doe, Field Technician):
At any given time, only 2 Oikonos researchers will access Kamole to conduct the research. We have also requested that 5 TBD USFWS personnel be included in this permit to act as biological monitors for the Kamole work.

The DOFAW field team on Hōlanikū will conduct the research during their regular field season. Once we have determined who will be going in the field, we will notify the Monument before departure from Honolulu. As part of this collaborative project, we will work closely with the refuge biologists and USFWS staff on planning, logistics, and data sharing.

To accommodate contingencies, project personnel include 6 people and 14 TBD slots (including personnel from USFWS, NOAA's Monk Seal Research Program, Kure Atoll Conservancy (KAC), and contingency slots for Oikonos and DOFAW):

David Hyrenbach, PI, Hawaii Pacific University and Oikonos-Ecosystem Knowledge
Ilana Nimz, Field Lead, Oikonos-Ecosystem Knowledge
Alyssa Piauwasdy, Field Ecologist, Program Manager, Oikonos-Ecosystem Knowledge
Emmylou Kidder, Field Ecologist, Oikonos-Ecosystem Knowledge
TBD-person 1, Field Ecologist or volunteer, Oikonos-Ecosystem Knowledge
TBD-person 2, Field Ecologist or volunteer, Oikonos-Ecosystem Knowledge

Tiana Bolosan, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist
Ryan Potter, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist
TBD-person 1, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist or volunteer
TBD-person 2, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist or volunteer
TBD-person 3, State of Hawai‘i Division of Forestry & Wildlife (DOFAW), Ecologist or volunteer

TBD-person 1, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 2, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 3, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 4, U.S. Fish and Wildlife Service personnel or volunteer
TBD-person 5, U.S. Fish and Wildlife Service personnel or volunteer

TBD-person 1, Kure Atoll Conservancy personnel or volunteer
TBD-person 2, Kure Atoll Conservancy personnel or volunteer

TBD-person 1, NOAA Monk Seal Research Program personnel or volunteer
TBD-person 2, NOAA Monk Seal Research Program personnel or volunteer

Section B: Project Information

5a. Project location(s):

		Ocean Based	
☐ Nihoa Island	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Necker Island (Mokumanamana)	☐ Land-based	☐ Shallow water	☐ Deep water
☐ French Frigate Shoals	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Gardner Pinnacles	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Maro Reef			
☒ Laysan Island	☒ Land-based	☐ Shallow water	☐ Deep water
☐ Lisianski Island, Neva Shoal	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Pearl and Hermes Atoll	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Midway Atoll	☐ Land-based	☐ Shallow water	☐ Deep water
☒ Kure Atoll	☒ Land-based	☐ Shallow water	☐ Deep water
☐ Monument Expansion Area			
☐ Other			

NOTE: Shallow water is defined by water less than 100 meters in depth.

☒ Remaining ashore on any island or atoll (with the exception of Sand Island, at Midway Atoll and field camp staff on other islands/atolls) between sunset and sunrise.

NOTE: There is a fee schedule for people visiting Midway Atoll National Wildlife Refuge via vessel and aircraft.

Location Description:
Designated albatross breeding colonies at Kamole and Hōlanikū.

5b. Check all applicable regulated activities proposed to be conducted in the Monument:

☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource

☐ Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands

☐ Anchoring a vessel

☐ Deserting a vessel aground, at anchor, or adrift

☐ Discharging or depositing any material or matter into the Monument

☐ Touching coral, living or dead

☐ Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument

☐ Attracting any living Monument resource

☐ Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)

☐ Subsistence fishing (State waters only)

☐ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

6. Purpose/Need/Scope ***State purpose of proposed activities:***
The main purpose of our research effort is to provide the Monument, USFWS, and U.S. fishery managers (NOAA fisheries and Western Pacific Fishery Management Council) with a comprehensive picture of BFAL interactions with fisheries. The secondary purpose is to improve the population assessment of the species, by better understanding the links between their at-sea distribution and the threat of fisheries bycatch, within the context of oceanographic variability and changing climate.

Quantifying BFAL mortality in domestic and foreign longline fisheries throughout the North Pacific has been a research priority for resource managers in the US and abroad, and for RFMOs for decades (Cousins & Cooper 2000, Arata et al. 2009, Gilman et al. 2016, Hyrenbach et al. 2021). To address the goal of better understanding bycatch risks to BFAL, this research will fill data gaps and integrate updated fishery and demographic data towards the creation of an Integrated Population Model (IPM).

To advance BFAL conservation, our project will address two complementary knowledge gaps: (1) incomplete data on the year-around albatross distribution at sea from several colonies, and (2) outdated data on the magnitude and distribution of fishing effort within the albatross range, especially from certain fleets (e.g., China) and regions of special interest (e.g., Western Pacific). The direct outcomes of this project include knowledge of albatross movements from important and data-poor colonies (Laysan Island, Kure Atoll) and during periods of the breeding cycle not previously studied, new partnerships with foreign fishing agencies, and a synthesis of these data to inform a future full IPM.

Albatross Tracking: To date, BFAL have only been tracked from 3 of the 8 Northwestern Hawaiian Islands colonies (Midway, Tern Island, Kure Atoll), and from Torishima (Mukojima Island Group, Japan). No tracking data exist for Laysan Island, the second largest breeding site, hosting over 21,000 pairs (~35% of global population). This is a site of particular interest due to its geographic location, between Tern Island and Midway Atoll, which may lead to distinct at-sea distribution (Shaffer et al. 2021). The existing tracking data suggest that Tern Island birds commute to the West Coast and enter the US and Canadian Economic Exclusive Zones (EEZs) (Guy et al. 2013), while Kure birds commute to the NW Pacific and the Japanese EEZ. (www.pelagicos.net/research_bfal_tracking.htm). New genetic information indicates that bycatch from the Hawaii DSLL fishery is made up mostly of French Frigate Shoals albatross, with some bycatch of Kure birds in Alaska groundfish fisheries. Understanding the foraging distributions and fishery overlap of Laysan Island birds may provide insights into their lower survival and higher skipping breeding rates (Kendall et al. 2021). In addition to colony-based patterns, we will analyze sex-specific differences in distribution and fishery overlap. To accomplish this, we will sample a few breast feathers from each tagged bird and use genetic methods to sex the individual. We also will use archived feather samples to sex the birds previously tracked from Midway and Tern Island using genetic methods (in collaboration with Dr. Scott Shaffer). By including these sex-specific tracks into our dataset, we will amplify the value of these existing data.

Fisheries Vulnerability: Because BFAL overlap with multiple fisheries operating in national EEZs and the high-seas, bycatch assessments involve integrating diverse multinational datasets of disparate quality and resolution. These assessments are inhibited by the lack of fleet-specific fishing effort and bycatch rates. For instance, previous assessments estimated overall incidental mortality using bycatch rates for observed US fisheries and fishing effort distributions for foreign fleets

(Lewison & Crowder 2003, Arata et al. 2009). The dynamic nature of fishing also renders older assessments obsolete, as fishing effort and distributions shift over time. For instance, Arata et al. (2009) generated BFAL bycatch estimates from driftnet fisheries using data dating back to the 1970s, and these fisheries were discontinued after a 1990 U.N. ban. Moreover, Arata et al.'s pelagic and demersal longline bycatch estimates were based on observations spanning 1998-2004. Similarly due to the lack of updated data, the 2017 BFAL workshop used the estimates from Arata et al. (2009) for non-Hawaii fisheries in the updated model scenarios, by extending them into the future (2005 - 2016).

The National Fish and Wildlife Foundation (NFWF) has invested substantial funding on long-term conservation of BFAL, a species at risk from multiple anthropogenic impacts, including mortality via fisheries bycatch, nesting habitat loss via sea-level rise, and impacts from marine pollution (ACAP 2012, BirdLife International 2020). Despite the dynamic and complex nature of North Pacific fisheries, quantifying the magnitude of fisheries bycatch and its population-level impacts is perhaps the most tractable of the known anthropogenic threats on BFAL populations. An updated species assessment will not only inform Monument management and BFAL conservation priorities in the U.S., but it will also provide a stimulus for advancing international collaboration on bycatch estimation and mitigation across the North Pacific.

*Considering the purpose of the proposed activities, do you intend to film / photograph federally protected species beyond the protocols provided in PMNM Best Management Practices (https://www.papahanaumokuakea.gov/permit/bestmanagement.html)? Yes ☐ No ☒

If so, please list the species you specifically intend to target.
N.A.

For a list of terrestrial species protected under the Endangered Species Act visit:
http://www.fws.gov/endangered/
For a list of marine species protected under the Endangered Species Act visit:
http://www.nmfs.noaa.gov/pr/species/esa/
For information about species protected under the Marine Mammal Protection Act visit:
http://www.nmfs.noaa.gov/pr/laws/mmpa/

7. Answer the Findings below by providing information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Monument:

The Findings are as follows:

a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?

We will enter the Papahānaumokuākea Marine National Monument knowing that these islands are a resource to be protected and respected for their natural beauty, cultural and historical significance, and importance as a sensitive ecosystem. As a result, we will conduct our activities with full awareness of these facts and carefully scrutinize our protocols to ensure proper safeguards for the animals, flora, and cultural and historical artifacts and sites.

We will avoid unnecessary entry into sites that are covered by our research permits to minimize trampling and habitat destruction, and we will only enter sites not associated with our research permits if given permission by Refuge staff. Nothing is collected unless it is associated with our research activities and is covered by our permits. Furthermore, our field team will be accompanied by USFWS or DOFAW personnel who have previously visited and worked at Kamole and Hōlanikū, and, if it would be helpful, we would be happy to support any USFWS field projects as directed by USFWS staff.

With regard to our research on seabirds within the Monument, we will carefully evaluate each bird prior to deployment, to ensure that nervous or poorly conditioned birds are not studied. We will also take every precaution to minimize our impact on surrounding nests and birds. Nest markers (either colored rocks or debris) will be temporary only, and will be removed after 2026. Each bird is handled as minimally as possible and with awareness of the increased stress associated with being handled by humans. Despite the unavoidable amount of handling stress, in our experience, handled individuals recover quickly when returned to their nest. Our previous experience on Kure Atoll indicates that when released after being equipped or recaptured, BFAL albatross return to their nest to attend their chick.

Though other seabirds like auks appear to be susceptible to adverse effects from the attachment of tags, researchers have deployed tracking devices on other albatrosses for decades, with no significant adverse effects due to their large body masses and surface-foraging habits (Phillips et al. 2003). In our case, the weight of our tags (2.5 g for a GLS and 45.0 g for a PTT) amount to 0.1% - 1.8% of a BFAL's body mass, below the recommended maximum of 3%, recommended for seabird applications (Gaunt et al. 1997). While we will not be able to test for handling and tag-attachment effects, these tags have been deployed on BFAL for years, and there is no evidence of detrimental impacts. According to our colleague, Dr. Scott Shaffer, since 2002 nest abandonment from his research activities has been less than 1% using similar tagging methods as ours. Given these exceptional tag recovery rates, we have no reason to believe that tagging has caused mortality or morbidity to the study birds.

To ease capture and avoid disturbance, birds will be captured by hand for tag deployments. If birds are skittish during tag retrievals, we may also use a large hand-held hoop net. Once caught, individuals are carefully moved away from their nest to minimize disturbance to other birds and placed on the ground. After a bird is removed from its nest, the nest will be marked with a colored rock (Kamole), or recognizable marine debris or empty jugs from the field camp (Hōlanikū). The chick will be covered with a breathable piece of cloth to provide shading, while the adult is off the nest. Based on our previous experience, banding / tagging and tag retrieval require 5 – 10 minutes. If adults begin to show signs of overheating during handling, we will wipe their foot webbing with ethyl alcohol wipes, to promote evaporation and cooling. If the bird continues to show signs of overheating, we will release the bird early. Tagging will only take place if it is not raining, to avoid compromising the waterproofing of adults and the thermo-regulation of chicks.

Hyrenbach, Beck and our team have previous experience capturing albatross by hand and with hoop nets, and are familiar with tag attachment / retrieval techniques. We will continually evaluate handling time to refine field methods to make this process as streamlined as possible to reduce stress to the birds

b. How will the activity be conducted in a manner compatible with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument cultural, natural and historic resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects?

Our research has provided new insights into the marine distributions and far-ranging movements of Hawaiian albatrosses, highlighting their use of different National Marine Sanctuaries and national territorial waters across the North Pacific. These findings underscore the ecological links and threats albatrosses face in the ocean environment (see publications and ongoing projects provided below).

Given that albatross forage across the Pacific and face many threats across many different regions of the North Pacific, our data provide a broader understanding for the oceanographic drivers of their populations and the potential anthropogenic impacts on their survival and population trends (e.g., Hyrenbach et al. 2021). For instance, our tracking data have provided critical information for determining overlap with management jurisdictions (Hyrenbach et al. 2006, Hyrenbach 2008) and fisheries (Hyrenbach & Dotson 2003, Guy et al. 2013). We build upon this previous research to develop a comprehensive and updated picture of BFAL vulnerability to fisheries bycatch, which will improve BFAL conservation decision-making for USFWS, NOAA, and other government agencies. Our research and the broader understanding of albatross distribution and movements were deemed essential to monitor and model the BFAL population trends (see NOAA workshop report, Hyrenbach et al. 2021).

Moreover, our datasets provide a unique opportunity for education and outreach. In the past, we have highlighted the tracking research we have conducted at Tern Island and Kure Atoll on the NOAA-sponsored "Winged Ambassadors" program and classroom activities (Marrero et al. 2012, www.downloadwingedambassadors.org). Through our presentations and social media postings, we will also increase the visibility of the National Wildlife Refuge system and promote greater awareness of the conservation and protection of natural resources within the Monument.

Our project's fundamental goals of improving our knowledge and global conservation of BFAL also support the preservation of a culturally important species in Hawaiian culture and folklore. In Hawaiian worldviews, native plants and animals, such as BFAL or Kaupu, have inherent value as ancestors. Our project would increase the ʻike, or knowledge, of the species and of the ecologies of Kamole and Hōlanikū. Our work would also support the kānāwai of these places and species, or the rules and laws that direct the behavior and uses for places and resources with the goal of minimizing abuse of those resources. We are keenly aware of the cultural and historical significance of the Northwestern Hawaiian Islands and respect the resources to minimize our impact on these islands. Hyrenbach and Beck also have first-hand experience working at other sensitive sites in Hawaii, and are keenly aware of the cultural aspects involved in international and cross-cultural management and conservation of migratory species (e.g., Nevins et al. 2009).

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument.

BFAL are important top predators in the North Pacific Ocean ecosystem, and according to the Monument Management Plan, greater than 98 percent of the world's population breeds in the Monument. Thus, the Monument provides a unique location from which researchers can study these

highly pelagic species while they are "island-bound" during the breeding season. In particular, Kamole and Hōlanikū are high priority sites, due to the lack of knowledge of the at-sea distributions and fishery-overlap of albatross breeding at those sites (Hyrenbach et al. 2021). While no BFAL have been tracked from Laysan Island, three previous studies have been completed at Hōlanikū: (i) Young et al. (2009) tracked Laysan albatross (*Phoebastria immutabilis*; mōlī) year-around with GLS tags, (ii) Hyrenbach et al. (2017) tracked BFAL with PTTs during the chick-rearing period (May – July), and (iii) Hester and Vanderlip tracked BFAL with GPS tags during the chick-brooding period (Feb – May) (Orben et al. 2021). The current study will provide a year-round perspective of BFAL distributions that will complement the previous tracking studies at Kure Atoll.

Other studies have captured albatrosses at sea and have attached satellite transmitters during the post-breeding period, but these studies often lack any of the demographic information that we deem significant. Additionally, at sea captures of these species can be more stressful for birds than capturing them from their nest sites. Tagging breeding birds at colonies allows researchers to examine the distributions of birds of known breeding status and from specific breeding sites, thus providing key ancillary information to characterize: (1) breeding performance, 2) population demographics, 3) population comparisons of banded individuals, and 4) standardized comparisons of birds of known breeding status, sex, and colony origin. All of these aspects add greatly to our ecological interpretation and understanding of albatross distributions and ecosystem dynamics.

A unique facet of our tracking effort has been the ability to compare albatross distributions and movements across consecutive years to determine whether inter-annual variation in oceanographic conditions affects seabird behavior (Kappes 2009, Kappes et al. 2010 & 2015). These analyses are critical for understanding how albatrosses adapt to perturbations in their environment, and how changes in oceanography affect albatross foraging strategies, and ultimately their reproductive output in a given year (Thorne et al. 2015 & 2016). These analyses will allow us to make informed predictions about what large-scale environmental changes, such as El Niño Southern Oscillation events, or possibly global climate change may have on albatross populations in the future (e.g., Hazen et al. 2013).

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?

As mentioned above, the adverse impact of our research upon individual seabirds is minimal and is limited to a cost of increased stress individuals during the tag deployment and retrieval (5-10 minutes each). Based on the relative mass of the tags (< 2% of albatross body mass) and the results of previous tracking studies on this species, we do not expect that the instruments themselves will impact the birds' ability to forage effectively. We do not anticipate any other adverse impacts on other Monument cultural, natural and historic resources, qualities, or ecological integrities.

The positive impacts of our research, in terms of potential conservation measures and management strategies for the species are, however, monumental. Our project follows a workshop organized by U.S. fisheries management agencies (NOAA-fisheries and WPFRMC) to assess the fishery bycatch vulnerability and impacts on this species. Thus, the results from our study will be combined with existing data to develop a basin-wide and multi-colony assessment that will inform longline fisheries management and will help interpret and model the BFAL population trajectory.

As noted previously, our research incorporates aspects of outreach to educate the public about scientific research and marine conservation. We also take great care to minimize our foot print on the island by using the minimum number of personnel at field sites and in the minimum amount of time we feel is required to conduct our research in a safe and efficient manner. We always try to balance using the fewest number of animals possible while still obtaining ecologically meaningful and statistically strong results. Overall, the knowledge we obtain about seabirds from our research will help ensure their long-term protection as a resource to be cherished and respected in a cultural sense. As top marine predators, seabirds also serve as sentinels of ocean health and marine pollution (Hyrenbach et al. 2017, Savoca et al. 2022). Our research promotes greater understanding of this concept at a minimal cost to the Monument's resources.

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose.

To understand how albatrosses interact with fishing vessels, it is critical to study their movements throughout the year (including the incubating, brooding, rearing, and post-breeding phases). Their foraging behavior changes dramatically throughout their life cycle, as they adjust their effort to match the energetic demands of self-feeding and chick-provisioning, and as they respond to seasonal changes in oceanographic conditions and fishery distributions. These behavioral changes lead to seasonal distributional changes (Hyrenbach et al. 2002, Kappes et al. 2015), which influence their use of Monument waters and their overlap with fishing vessels (Hyrenbach et al. 2006, Hyrenbach 2008, Wren et al. 2019).

To match our field work with the life-cycle of BFAL, we will deploy the tags at the end of egg incubation and the start of the brooding phase (January – March), when adults are still attending their nests and go on short (1 – 7 day) foraging trips. This timing will ensure we have access to a large number of adult birds, and that – in the event of an adult not returning to the nest after tagging – that there are no impacts on the young chicks. We will also coordinate with USFWS to plan the timing and number of entries into the Monument, by cost-sharing the cost of the transport vessel and by collaborating with DOFAW personnel (Hōlanikū) and USFWS personnel (Kamole). At Kamole, where tagging (in years 1 and 2) will require a 6-day window between January through April, we can adjust our field work based on USFWS planned activities and priorities, and are happy to aid in their research activities. In years 2 and 3, we will also retrieve GLS tags during these 6-day visits. We will also ask USFWS and NOAA personnel to opportunistically retrieve tags retrievals during planned trips to the island in spring / summer (May – August). At Hōlanikū, where DOFAW personnel will deploy and retrieve the tags, we will have even more flexibility to integrate our work amidst other monitoring and research activities.

f. Provide information demonstrating that you are qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

Dr. Hyrenbach has over 20 years of experience studying the foraging ecology of albatrosses around the world and has previously visited Tern Island (2009) and worked in other Hawaiian seabird colonies (Lehua, Kaena Point). Moreover, he has served in several management and conservation groups focusing on albatrosses and other endangered marine resources in the Hawaiian Islands: (1) chair of the North Pacific Albatross Working Group (2004-06); (2) member of the Western Pacific

Regional Fishery Management Council Protected Species Committee; and (3) member of the Hawaiian Monk Seal Recovery Team (2014-19). Therefore, he is familiar with the cultural and biological significance of the Monument.

Dr. Hyrenbach has also maintained a research program on albatrosses since he was in graduate school (1998) and is very familiar with the logistics involved in managing an Argos CLS program, programming / deploying tags, and downloading / analyzing the data. Dr. Hyrenbach is also acutely aware of the ecological impact this work may have on the Monument's natural and cultural resources. Thus, he and his students take great care to minimize deleterious effects on the fauna, flora, and historical sites of the islands. As a way to mitigate the impacts on these resources, Dr. Hyrenbach, his students, and colleagues will continuously evaluate and modify their protocols to accommodate new regulations, restrictions, and to minimize any deleterious effects that our research may cause. We will also modify our protocols to accommodate changes in equipment (e.g., improved attachment techniques) or methods that improve results and reduce impacts.

Ilana Nimz has over a decade of experience working with seabirds in the North Pacific, from Alaska to Hawai'i. She has conducted field ecology studies on breeding productivity, diet, and movements of seabirds in remote field sites in the Gulf of Alaska and Hawai'i. She also has experience deploying and retrieving loggers (GPS, GLS, TDR), collecting blood and feather samples, banding, and handling seabirds in the field. She has worked in remote and culturally sensitive areas within the Monument. She has been participated in State of Hawai'i DLNR-DOFAW expeditions to Nihoa, and in expeditions to Kamole with NOAA's monk seal program. She participated in this project's 2024 tagging expedition, and her previous experience will ensure the success of this year's research. In addition to field work, Nimz leads the Winged Ambassadors education program for Oikonos.

Alyssa Piauwasdy has over eight years of experience working with seabirds in Washington, Alaska, and Hawai'i. She has conducted field ecology studies on breeding productivity, diet, and movement of puffins, auklets, gulls, cormorants, and shearwaters on remote field sites. She has experience deploying and retrieving GLS loggers, collecting blood and feather samples, banding, and handling seabirds in the field. As part of her field experience, she has worked in an active airfield, remote culturally sensitive areas, and areas of UXO concern. Her experience working in remote field sites includes camping in all-weather conditions, and doing night work. In addition to field work, Piauwasdy has managed field data collection and archiving for a variety of projects. She is currently leading a shearwater GLS tagging project in O'ahu, which is part of her thesis research. She is a MS graduate student at Hawai'i Pacific University, and will defend her thesis in December 2024.

All the team members have field experience working with Hawaiian seabirds and many of them are working for DOFAW in Hōlanikū. In particular, Cynthia Vanderlip provides a wealth of knowledge and experience in the field, which will make this project a success.

Finally, we will ensure that research results from this work will be published in a timely manner while giving proper acknowledgement to the Monument and Refuge Complex system. Our team has an established track-record, which has resulted in several publications on albatross tracking (Hyrenbach et al. 2016, 2017, Orben 2021, Shaffer et al. 2021), and research on plastic ingestion by seabirds from the Monument (Rapp et al. 2017, Youngren et al. 2018, Savoca et al. 2022).

g. Provide information demonstrating that you have adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

Our team (Project PIs – Hyrenbach and Hester) was awarded 36 months ($405K) of funding, starting in January 2024 from the National Fish and Wildlife Foundation's Seabird Fund to support the costs of conducting this research. For field logistics, we have $60K set aside each for 3 years of vessel costs ($20k per year), in addition to salary and equipment costs. We also have an additional $10K to support DOFAW logistics on Hōlanikū, and $10K to support USFWS or NOAA crews to opportunistically retrieve GLS tags. Beyond the funding from NFWF, we have in excess of $411K in matching funds to support this project and related projects. Our team has also been awarded a $60K grant by the Paul M Angell foundation, to augment this project's deliverables.

Given our prior experience working in albatross tracking, our partnerships with management agencies (USFWS, DOFAW, NOAA) and other seabird tracking researchers (Shaffer, Orben), and our continuous refinement of research protocols and methods, we believe we can minimize the need for mitigating measures within the Monument.

h. Explain how your methods and procedures are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural, natural and historic resources, qualities, and ecological integrity.

Although we modify and adapt our methods when needed, we plan to use the same general methods from our previous albatross tracking studies at Kure Atoll (Hyrenbach et al. 2017) and Tern Island (Hyrenbach et al. 2002), which have proven highly successful. Moreover, we have consulted with other seabird researchers currently working in the Monument (Shaffer, Orben) to ensure our methods are consistent with theirs and our datasets can be merged for an integrated analysis.
As previously noted, our methods provide us with an extensive amount of data, at a minimal cost to individual birds and Monument resources. We also design our studies to provide meaningful and statistically robust results using the lowest number of individuals. We will remove from the colonies all field equipment and materials not in use at the end of the field season. While this work does not necessitate IACUCs for either Dr. Hyrenbach or Beck, all methods and protocols used in this research activity have been approved by the Institutional Animal Care and Use Committees at HPU and partner institutions in previous projects.

i. Has your vessel been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

Transportation of the field team will be part of a planned visit by USFWS and DOFAW. Thus, we will not use our own vessel, but will rely on a vessel selected by USFWS.

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

We believe that our researchers have the knowledge, experience, and sensitivity to be respectful stewards of the natural resources within the Monument by virtue of: (1) our involvement in research within the Monument since 1998 (through a collaboration with Dr. David Anderson, from Wake

Forest University); (2) our previous field experience in Tern Island and Hōlanikū, in addition to decades of seabird research experience in the U.S. and internationally; (3) our partnerships with USFWS and DOFAW; and (4) our collaboration with other seabird researchers already tracking albatrosses in the Monument (Shaffer and Orben).

Furthermore, our research activities and purported outcomes are consistent with and mutually beneficial for the Monument to manage and maintain viable seabird populations. We have previously complied with all permit requirements and submitted detailed reports on our activities. We have also provided images and unpublished data from our research to NOAA (Alaska) and USFWS (Hawaii and California) and are happy to continue to do so upon request.

8. Procedures/Methods:

PTT tags will be attached using established methods employed previously for this species by our team and other researchers (Shaffer, Orben), since the 1990s. PTTs will be carefully attached to feathers on the dorsal region between the scapulas using Tesa tape (a durable cloth tape). The total mass a bird will carry is up to 50 g or about ~1.5% of bird body mass. Birds are weighed upon capture to ensure that this criterion is met.

GLS tags will be affixed to a band on the leg, based on established methods from others (Shaffer, Orben, Young). There is current conflicting advice from DOFAW and USGS about whether the GLS should be attached to a federal metal band or a plastic darvic band. Based on our previous experience and advice from Cynthia Vanderlip, we will attach the GLS tags to a plastic darvic band, following Shaffer's previous work and the BBL's recommendations. These are the methods we already used successfully in 2024.

To avoid rubbing of the leg (which is sometimes an issue for this large species), we will have 2 sizes of darvic and metal bands available (7B and 8). GLS tags will be zip-tied to the darvic band and placed around the bird's tarsus. The zip tie will be tightened with a zip tie gun to ensure that the closure tab does not rotate to touch the birds' legs. Total weight of the GLS unit will be 3g or <0.001% of the birds' body weight.

In 2025, 50 adults were equipped with tags (Table 1): (1) 10 birds from Kamole with Argos satellite-linked PTTs that transmit data and will remain attached for 3-6 months, until the attachment fails or the feathers are molted in summer (May – August); (2) 20 birds from Kamole with archival GLS tags; and (3) 20 birds from Hōlanikū with archival GLS tags. These archival tags will continue recording data for up to 5 years, until the birds are recaptured back at the colony (January – May). Thus, even if birds skip one breeding season, they can be recaptured in subsequent years and the data downloaded.

Given that our equipment and methods will replicate previous field efforts (Hyrenbach et al. 2002, 2017, Shaffer et al. 2021) and our permitted activities in 2024, we do not anticipate any logistical changes to our tracking protocols. To ensure that our PTT tags fall within the recommended weight ratio (<3% of body weight), we request to weigh the birds with a spring balance when we deploy the tags. We also request to sample up to 4 body contour feathers to determine the sex of the birds using molecular techniques. These feathers would be available to future researchers interested in molecular or genetic studies.

At Hōlanikū, we request that approved researchers follow the fate of chicks from tagged individuals throughout the breeding season to ascertain fledging success. No handling will be required. At Kamole, we ask that any separately-permitted visiting USFWS or NOAA teams opportunistically check the fate of chicks from tagged individuals, whenever possible.

After tagging / recapture, birds will be released next to their nest and will be visually observed for several minutes at a distance to ensure that no complications have arisen. Feather samples will be stored in ziplock bags and kept at room temperature in a dry place in the field, and then frozen for long-term storage until analyses are conducted back in the lab.

NOTE: If land or marine archeological activities are involved, contact the Monument Permit Coordinator at the address on the general application form before proceeding.

N.A.

9a. Collection of specimens - collecting activities (would apply to any activity): organisms or objects (List of species, if applicable, attach additional sheets if necessary):

Common name: Black-footed Albatross (Kaupu, BFAL)

Scientific name: Phoebastria nigripes

& size of specimens: Up to 4 contour feathers taken from up to 100 specimens

Collection location: Within the albatross breeding colonies, near a nest.

☐ Whole Organism ☒ Partial Organism

9b. What will be done with the specimens after the project has ended?

Feathers will be used to determine the sex of the specimens using molecular methods.
Feathers will be grounded up and analyzed for stable isotopes.

9c. Will the organisms be kept alive after collection? ☐ Yes ☐ No
N.A.

• General site/location for collections:
In the breeding colonies, near the nest of the captured birds.

• Is it an open or closed system? ☐ Open ☐ Closed
N.A.

• Is there an outfall? ☐ Yes ☐ No
N.A.

• Will these organisms be housed with other organisms? If so, what are the other organisms?
N.A.

• Will organisms be released?
Yes, the birds will be released near their nest after handling to deploy or remove tags.

10. If applicable, how will the collected samples or specimens be transported out of the Monument?
Feathers will be sealed in ziplock bags. All samples will be transported off-island via boat.

11. Describe collaborative activities to share samples, reduce duplicative sampling, or duplicative research:
There is no duplication of this work, because birds from these colonies have not been tracked using these tags in the past. These will be the first black-footed albatross tracking data from Kamole. While we have previously used PTTs on birds from Hōlanikū, this previous study focused on the chick-brooding (Feb – March) and chick-rearing (March – July) phases. These will be the first deployments of archival GLS tags on BFAL from Hōlanikū. We are collaborating with other seabird researchers (Shaffer, Orben) and integrating our data with previously collected datasets, available via the BirdLife International Seabird Tracking Project.

Once we have completed our work, all feather samples will be available for other researchers to use in any pollutant / isotopic studies. Moreover, all the tracking data (from PTT and GLS tags) will be shared with international repositories of tracking data (BirdLife International, Animal Telemetry Network) to ensure they are widely available to other researchers and resource managers.

12a. List all specialized gear and materials to be used in this activity:
No special gear is required to collect feather samples.
Feathers are plucked from the birds' breasts by hand.
All waste will be transported off the island and disposed of appropriately.
All tracking data will be analyzed following previously used methods described above (e.g., Hyrenbach et al. 2002, Shaffer et al. 2021).

12b. List all Hazardous Materials you propose to take to and use within the Monument:
No hazardous materials will be brought to the field sites or generated during this research.

13. Describe any fixed installations and instrumentation proposed to be set in the Monument:
No fixed installations or instrumentation will be set in the Monument.

14. Provide a time line for sample analysis, data analysis, write-up and publication of information:
We envision that this research will lead to at least two publications: a synthesis of albatross distributions and an assessment of albatross fisheries vulnerability. Data analysis will commence as soon as possible in order to continually refine analytical approaches, but publications specific to the NFWF albatross-fisheries project will likely be written in late 2026. The final report for that project is expected to be completed in December 2026. Furthermore, we anticipate that additional collaborative papers will stem from this work

15. List all Applicants' publications directly related to the proposed project:

Orben, R.A., Adams, J., **Hester. M.**, Shaffer, S.A., Suryan, R.M., Deguchi, T., Ozaki, K., Sato, K., Young, L. C., Clatterbuck, C., Conners, M.G., Kroodsma, D.A., Torres, L.G. 2021. Across borders: External factors and prior behaviour influence North Pacific albatross associations with fishing vessels. Journal of Applied Ecology 58:1272–1283.

Hyrenbach, K.D., Ishizaki, A., Polovina, J., Ellgen, S. [editors]. 2021. The factors influencing albatross interactions in the Hawaii longline fishery: towards identifying drivers and quantifying impacts. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-122, 163 p. doi:10.25923/nb95-gs31TM-PIFSC-122

Nevins, H.M., Beck, J., Michael, P.E., **Hester, M.**, Peschon, J., Donnelly-Greenan, E., Fitzgerald, S. 2018. Demographics of Laysan *Phoebastria immutabilis* and Black-footed *P. nigripes* Albatross caught as bycatch in Alaskan groundfish and Hawaiian longline fisheries. Marine Ornithology 46: 187-199.

Hyrenbach, K.D., Hester, M.M., Adams, J., *Titmus, A.J.*, Michael, P., *Wahl, T. Chang, C.-W.*, Marie, A., **Vanderlip, C**. 2017. Plastic ingestion by Black-footed Albatross (*Phoebastria nigripes*) from Kure Atoll, Hawai'i: Linking diet remains and parental distributions at sea. Marine Ornithology, 45: 225–236.

Michael, P.E., Jahncke, J., **Hyrenbach K.D.** 2016. Placing Local Aggregations in a Larger-scale Context: Hierarchical Modeling of Black-footed Albatross Dispersion. PLoS ONE 11(4): e0153783 doi:10.1371/journal.pone.0153783

Michael, P.E., Jahncke, J., **Hyrenbach, K.D.**, 2013. Relative influence of static and dynamic features on black-footed albatross habitat use in central California Sanctuaries. Fisheries Oceanography, 23(1): 18-31.

Guy, T.J., Jennings, S.L., Suryan, R.M., Melvin, E.F., Bellman, M.A., Ballance, L.T., Blackie, B.A., Croll, D.A., Deguchi, T, Geernaert, T.O., Henry, R.W., Hester, M., **Hyrenbach, K.D**., Jahncke, J., Kappes, M.A., Ozaki, K., Roletto, J., Sato, F., Sydeman, W.J., Zamon, J.E. 2013. Overlap of North Pacific albatrosses with the U.S. west coast groundfish and shrimp fisheries. Fisheries Research, 147: 222-234.

Marrero, M., **Hester, M.**, **Hyrenbach, D.**, *Michael, P*., Adams, J., **Vanderlip, C.**, Keiper, C., Stock, J., Collins, A., Alvarez. T. 2012. Winged Ambassadors: Ocean Literacy Through the Eyes of Albatross. Current Journal of Marine Education, 28(2): 26-30.

Hyrenbach, K.D. 2008. Applying Spatially-explicit Measures for Albatross Conservation, Pp. 118-120. In: De Roi, T., Jones, M., Fitter, J. (Eds). Albatross: their world, their ways. Firefly Books, Buffalo, NY.

Suryan, R.M., Sato, F., Balogh, G., **Hyrenbach, K.D.**, Sievert, P., Ozaki, K. 2006. Foraging destinations and marine habitat use of short-tailed albatrosses: a multi-scale approach using first-passage time analysis. Deep-Sea Research II, 53 (3-4): 370-386.

Hyrenbach, K.D., Keiper, C., Allen, S.G., Anderson, D.J., Ainley, D.G. 2006. Use of national marine sanctuaries by far-ranging predators: commuting flights to the California Current System by breeding Hawaiian albatrosses. Fisheries Oceanography, 15 (2): 95-103.

Keiper, C.A., Hester, M.M., and **Hyrenbach, K.D.** 2005. Wonderous Ocean Wanderers in Our Own Front Yard. Hydrosphere, 17: 1, 10-11. www.farallones.org/docs/albatross.pdf

Shaffer, S. Costa, D., Suryan, R., **Hyrenbach, D.** 2004. Regional Summaries: North Pacific (section 4.1). In: BirdLife International. Global Procellariiform Tracking Workshop Report. Cambridge, BirdLife International. pp. 47-49.

Hyrenbach, D., Costa, D., Croxall, J., Cuthbert, R., Gales, R., Huin, N., Nel, D., Nicholls, D., Phillips, R., Pinaud, D., Quintana, F., Robertson, C., Robertson, G., Shaffer, S., Silk, J., Stahl, J.-C., Suryan, R., Terauds, A., Weimerskirch, H. 2004. Results: Establishment, maintenance and use of GIS tracking database (section 5.3). In: BirdLife International. Global Procellariiform Tracking Workshop Report. Cambridge, BirdLife International. pp. 64-66.

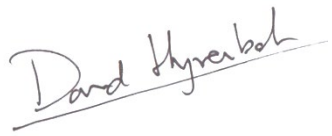
Croxall, J., Costa, D., Cuthbert, R., Gales, R., Huin, N., **Hyrenbach, D.**, Nel, D., Nicholls, D., Phillips, R., Pinaud, D., Quintana, F., Robertson, C., Robertson, G., Shaffer, S., Silk, J., Stahl, J.-C., Suryan, R., Terauds, A., Weimerskirch, H. 2004. Conclusions and future work (chapter 6). In: BirdLife International. Global Procellariiform Tracking Workshop Report. Cambridge, BirdLife International. pp. 69-72.

Hyrenbach, K.D., Dotson, R.C. 2003. Assessing the susceptibility of female Black-footed Albatross (*Phoebastria nigripes*) to longline fisheries during their post-breeding dispersal: an integrated approach. Biological Conservation, 112: 391-404.

Hyrenbach, K.D., Fernández, P, Anderson, D.J. 2002. Oceanographic habitats of two sympatric North Pacific albatrosses during the breeding season. Marine Ecology Progress Series, 233: 283-301.

Hyrenbach, K.D., Dotson, R.C. 2001. Post-breeding movements of a male Black-footed Albatross *Phoebastria nigripes.* Marine Ornithology, 29: 23-26.

With knowledge of the penalties for false or incomplete statements, as provided by 18 U.S.C. 1001, and for perjury, as provided by 18 U.S.C. 1621, I hereby certify to the best of my abilities under penalty of perjury of that the information I have provided on this application form is true and correct. I agree that the Co-Trustees may post this application in its entirety on the Internet. I understand that the Co-Trustees will consider deleting all information that I have identified as "confidential" prior to posting the application.



Signature

November 10, 2024
Date

SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE BELOW:

NOAA/Inouye Regional Center
NOS/ONMS/PMNM/Attn: Permit Coordinator
1845 Wasp Blvd, Building 176
Honolulu, HI 96818
FAX: (808) 455-3093

DID YOU INCLUDE THESE?

☒ Applicant CV/Resume/Biography
☒ Intended field Principal Investigator CV/Resume/Biography
☒ Electronic and Hard Copy of Application with Signature
☐ Statement of information you wish to be kept confidential
☐ Material Safety Data Sheets for Hazardous Materials

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
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CONSERVATION AND COASTAL LANDS
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ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

January 24, 2025

TO: Division of Aquatic Resources File

THROUGH: Dawn N. S. Chang, Chairperson

FROM: Brian J. Neilson, Administrator
Division of Aquatic Resources

SUBJECT:

DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200.1 HAR, FOR A PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO DAVID HYRENBACH, OIKONOS-ECOSYSTEM KNOWLEDGE, FOR ACCESS TO STATE LAND AND WATERS TO CONDUCT BLACK-FOOTED ALBATROSS RESEARCH UNDER PERMIT PMNM-2025-003.

The following permitted activities are found to be exempted from preparation of an environmental assessment under the authority of Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 11-200.1, Hawaii Administrative Rules (HAR):

Project Title: Papahānaumokuākea Marine National Monument Research Permit to David Hyrenbach to Continue Research Activities for a Black-Footed Albatross Tracking Project

Permit Number: PMNM-2025-003

Project Description:
The permit, as described below, would allow entry for research activities to occur in the Papahānaumokuākea Marine National Monument (Monument), including the Northwestern Hawaiian Islands (NWHI) State Marine Refuge and the Kure Atoll Wildlife Sanctuary including the lands and waters (0-3 nautical miles) surrounding the following to the extent within the jurisdiction of the State of Hawai'i:

- Kamole (Laysan Island)

- Hōlanikū (Kure Atoll)

The activities covered under this permit would occur from January 26, 2025 through December 31, 2025. The permittee is requesting 42 days in the Monument. The timing and number of visits to the field sites will depend on availability of ship transport, U.S. Fish and Wildlife Service (USFWS) schedules, and weather.

At Kamole: Weather permitting, a two-person team from Oikonos will visit this site once in 2025 to: (1) retrieve 20 geolocation (GLS) tags deployed in 2024, and (2) deploy 20 GLS tags and 10 satellite-linked Argos tags. The research will be conducted over 2 weeks during the early albatross chick provisioning period (early February – early March). The team deployments will span 12-14 days: transiting from Honolulu (3-4 days), working in the field (6 days), and returning to Honolulu (3-4 days). Additionally, the permittee will coordinate with USFWS and the National Oceanic and Atmospheric Administration (NOAA) monk seal teams deployed at this location to retrieve tags opportunistically during any separately permitted visits in 2025.

At Hōlanikū: All activities at this site will rely on State of Hawai‘i Division of Forestry & Wildlife (DOFAW) and Kure Atoll Conservancy (KAC) personnel, already deployed / separately permitted for access in the field from October 2024 to May 2025. The permittee plans to have the Hōlanikū team spend 2 weeks during the late egg incubation and early albatross chick provisioning period (January – March) in 2025 deploying 20 GLS tags and 2 weeks opportunistically retrieving 20 GLS deployed in 2024 (for a total of 4 weeks). Additionally, the team will opportunistically retrieve GLS tags deployed in 2024.

The proposed activities are a renewal of work previously permitted and conducted in the Monument. This permit request is substantively the same as last year's PMNM permit (2024-002) to conduct research in the Monument, however, this year the activities will be conducted in part by persons not part of a co-managing agency and therefore this permit requires separate BLNR approval.

INTENDED ACTIVITIES

The project proposes to characterize the at-sea distribution of birds breeding on Kamole and Hōlanikū over two breeding seasons (2024, 2025) and two non-breeding seasons (2024, 2025); (2) obtain feather samples to determine the sex of the tagged birds using molecular techniques; (3) integrate sex-specific data on seasonal movements by birds from these two colonies with existing tracking datasets for this species; and (4) synthesize their at-sea distribution and overlap with U.S. and foreign fisheries across the North Pacific to develop an integrated bycatch risk assessment for the species.

The permittee proposes to deploy a total of 20 satellite-linked platform terminal transmitters (PTTs) and up to 80 archival Geolocation (GLS) tags to track the movements of up to 100 breeding BFAL. The applicant will also sample a few breast feathers from each tagged bird and use genetic methods

to sex the individuals. This permit application This permit application augments the work completed in 2024, under the auspices of PMNM permit 2024-002.

At Kamole, the permittee aims to deploy up to 20 PTTs and 40 GLS tags. In 2024, the permittee deployed 10 PTT and 20 GLS tags (permit 2024-002). If the weather and field conditions allow for a longer field visit, the permittee proposes to deploy 10 PTT and 20 GLS tags in 2025. The permittee and collaborators (USFWS and NOAA monk seal team) plan to retrieve the GLS tags during field visits in 2026 (under the auspices of a future PMNM permit). To facilitate the recapture of the birds equipped with archival GLS tags, BFAL nesting sites will be recorded with GPS and will be marked using colored rocks, to aid in recapture in the following year. The PTTs, which will be attached to 4-6 dorsal feathers using Tesa tape, will fall off when the adhesive wears off (~2 months after deployment) or when the birds molt (July – September). We will also mark nests with colored rocks for the birds with PTTs in the case that USFWS can check on the fate of chicks.

At Hōlanikū, the permittee will focus on archival GLS tags at this site, with 40 tags to be deployed. We deployed half the tags (20 GLS) in 2024, as part of PMNM permit 2024-002. If the weather and field conditions allow, the current permit application will allow the permittee to deploy the other already funded tags (20 GLS) in 2025. A team of State of Hawai‘i Division of Forestry & Wildlife (DOFAW) and Kure Atoll Conservancy (KAC) personnel, already deployed and separately permitted for access in the field, will retrieve the archival GLS tags during field visits in 2025 (from October 2024 to May 2025) and 2026 (from October 2025 to May 2026). To facilitate the recapture of the birds equipped with archival GLS tags, BFAL nesting sites will be recorded with GPS and will be marked using colored rocks or recognizable pieces of marine debris (discarded buoys, stakes).

Method

To ease capture and avoid disturbance, birds will be captured by hand for tag deployments. If birds are skittish during tag retrievals, the applicant and/or team may also use a large hand-held hoop net. Once caught, individuals will be carefully moved away from their nest to minimize disturbance to other birds and placed on the ground. After a bird is removed from its nest, the nest will be marked with a colored rock (Kamole), or recognizable marine debris or empty jugs from the field camp (Hōlanikū). The chick will be covered with a breathable piece of cloth to provide shading, while the adult is off the nest. Based on previous experience, banding / tagging, collection of feathers, and tag retrieval require 5 – 10 minutes. If adults begin to show signs of overheating during handling, the foot webbing will be wiped with ethyl alcohol wipes, to promote evaporation and cooling. If the bird continues to show signs of overheating, birds will be released early. Tagging will only take place if it is not raining, to avoid compromising the waterproofing of adults and the thermo-regulation of chicks.

More detailed information about the project can be found in the application.

ADHERANCE TO FINDINGS CRITERIA, BMPs, AND OTHER SAFETY PROTOCOLS:

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
☒ Discharging or depositing any material or matter into the Monument

Monument Management Plan Strategies

The activities proposed by the permittee directly support the Monument Management Plan (PMNM MMP Vol. 1, 2008), including but not limited to priority management needs MB-2: minimize the impact of threats to migratory birds such as habitat destruction by invasive species, disease, contaminants (including oil), and fisheries interactions for the life of the plan and MB-3: monitor populations and habitats of migratory birds at a level sufficient to ascertain natural variation and then to detect changes in excess of that variation that might be attributed to human activities, including anthropogenic climate change

Best Management Practices

To safeguard Monument resources the permittee will abide by all PMNM Best Management Practices (BMPs) while conducting the activities within PMNM.

BMP Number	Title	Download
001	Marine Alien Species Inspection Standards for Maritime Vessels	PDF
002	Protocol for Acquiring Avian Blood Samples	PDF
003	Human Hazards to Seabirds Briefing	PDF
004	Best Management Practices for Boat Operations and Diving Activities	PDF
005	Protocols to Reduce Impact to the Laysan Finch	PDF
006	General Storage and Transport Protocols for Collected Samples	PDF
007	Best Management Practices for Terrestrial Biosecurity	PDF
008	Seabird Protocols Necessary for Conducting Trolling Research and Monitoring in Papahānaumokuākea Marine National Monument	PDF
009	Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles	PDF
010	Marine Wildlife Viewing Guidelines	PDF
011	Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment, Papahānaumokuākea Marine National Monument (Monument)	PDF

012	Precautions for Minimizing Human Impacts on Endangered Land Birds	PDF
015	Nonnative Species Inspection Requirements at Midway Atoll	PDF
016	Best Management Practices for Activities on Nihoa	PDF
017	Best Management Practices for Maritime Heritage Sites	PDF
018	Rodent Prevention and Inspection Standards for Permitted Vessels	PDF
019	Best Management Practices for Activities on Mokumanamana (Necker Island)	PDF
020	Best Management Practices to minimize the spread of nuisance alga	PDF

REVIEW PROCESS

The application was sent out for review and comment to the following scientific and cultural entities (for review of activities in which the entities are not themselves an applicant): Hawai'i Division of Aquatic Resources, DOFAW, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO); USFWS, Hawaiian and Pacific Islands National Wildlife Refuge Complex Office; the Office of Hawaiian Affairs (OHA) and the PMNM Native Hawaiian Cultural Working Group.

For two weeks the 2025 application was reviewed and received questions, comments and applicant responses as noted below:

Questions:

1. What is the likelihood a GLS tag will fall off prematurely? In the event a GLS tag falls off before they are able to be removed, are there any processes in place to attempt to retrieve them?

Applicant Response: The UV- resistant nylon cable ties used to attach the GLS tags are very durable, and we do not expect them to break, shedding the tag prematurely. According to KAC personnel, 16 of 16 BFALs tagged on February 2024 in Hōlanikū and resighted in December 2024 still carried the GLS tags. In the event of both cable ties failing and the GLS tag being shed prematurely on the island, it is highly unlikely that we would find them because they are very small and transparent.

2. Are GLS tags or satellite (PTT) tags, or the adhesive/tape used to secure them, biodegradable?

Applicant Response: The tags are coated with resin and are not biodegradadable. The cable ties are nylon and not biodegradable. The Tesa tape we use to attach the PTTs is biodegradable.

Comments:

1. Generally please minimize the discharge of non-biodegradable items as much as possible, however, we understand if there are no other viable option. Please consider reducing marine debris contribution in the future with biodegradable materials or using items that can be retrieved and disposed properly.

Applicant Response: We are aware of the potential introduction of marine debris into the marine and island environment, and always minimize loss of zip ties / tape during deployments and retrievals by carefully collecting any shreds and fragments. We have to use UV-resistant materials to ensure the tags are not lost prematurely. Yet, the tags are not buoyant and, if shed at sea, they will sink and be crushed by the water pressure.

2. For birds that may be captured / tagged in water or on the shoreline of areas with known populations of *Chondria tumulosa* and/or *Acanthophora spicifera* – please adhere to BMP #20 in terms of use or disinfection of gear used in these areas while tagging/capturing (e.g. tabis or other gear) in order to minimize the spread of nuisance algae from these areas to other areas.

Applicant Response: While no bird captures / tagging will happen in the water, the birds will be captured on their nesting sites, which may be near the shore. We appreciate your comment and will take great care to follow these precautions, per BMP#20.

ENVIRONMENTAL COMPLIANCE

NEPA / HEPA: (check-one)

☒ Categorical Exclusion / Exempt Class: 5
☐ EA
☐ EIS

Other Consultations: (ESA/MMPA Section 7; NHPA Section 106, etc.)

- Federal Bird Banding Lab Permit #23317, 98487
- NHPA Section 106

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

If so, please summarize past permits:

- The permittee has been granted permits for previous research on seabirds in the Monument under permits PMNM 2024-002, 2016-002, 2015-031, 2011-010, 2010-027, 2009-035, and 2009-034.

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 ☒

Consulted Parties: The permit application was sent out for review and comment to the following scientific and cultural 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), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

Exemption Determination: After reviewing §11-200.1-15, HAR, including the criteria used to determine significance under §11-200.1-13, HAR, DLNR has concluded that the activities under this permit would have minimal or no significant effect on the environment and that issuance of the permit is categorically exempt from the requirement to prepare an environmental assessment based on the following analysis:

1. All activities associated with this permit have been evaluated as a single action. The activities are for a single project that spans multiple years. Due to the need for a new permit every year, there are multiple permits, however, the actions are all encompassed into one research project.

2. The General Exemption Type #5 for Basic Data Collection, Research and Experimental Management with no Serious or Major Environmental Disturbance Appears to Apply. §11-200.1-16 (a) (1) and §11-200.1-16 (a) (2), HAR, exempts the class of actions that involve "basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." This exemption type has been interpreted to include the research activities proposed by the permittee for the research of black-footed albatrosses.

The proposed activities here appear to fall squarely under the general exemption type identified under HAR §11-200.1-16 (a) (1) and §11-200.1-16 (a) (2), as described under the revised 2020 DLNR Exemption List (Concurred on by the Environmental Council on November 10, 2020), under the general exemption type #5 (Part 1), items #13, #14 and #15, which includes, respectively, "research that the Department declares is designed specifically to monitor, conserve, or enhance native species or native species' habitat," "implanting transponders and affixing tags, transmitters, markers, or other similar devices to birds, mammals, invertebrates, or aquatic organisms to record movement, longevity, growth, distribution, behavior, and other activities; taking disease or blood samples from birds, mammals, invertebrates, or aquatic organisms; and placing remote monitoring devices (to determine animal movement), cameras, equipment and feeders," and "game and non-game wildlife surveys, vegetation and rare plant surveys, aquatic life surveys, inventory studies,

new transect lines, photographing, recording, sampling, collection, culture, and captive propagation."

The permittee and team would follow Monument Best Management Practices (BMPs) to mitigate threats activities could have on listed species, sea birds, and terrestrial birds.

As discussed below, no significant disturbance to any environmental resource is anticipated. Thus, so long as the below considerations are met, the general exemption types should include the action now contemplated.

3. Cumulative Impacts of Actions in the Same Place and Impacts with Respect to the Potentially Particularly Sensitive Environment Will Not be Significant. Even where a categorical exemption appears to include a proposed action, the action cannot be declared exempt if "the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment." §11-200.1-15 (d), HAR. To gauge whether a significant impact or effect is probable, an exempting agency must consider every phase of a proposed action, any expected primary and secondary consequences, the long-term and short-term effects of the action, the overall and cumulative effect of the action, and the sum effects of an action on the quality of the environment. §11-200.1-13, HAR.

This project would build on work done in prior projects (authorized under PMNM permits 2016-002, 2015-031, 2011-010, 2010-027, 2009-035, and 2009-034) and in year one of this project conducted last year (PMNM 2024-002). While last year was the first year that BFAL were tracked at Kamole, between February and May in both 2012 and 2013, David Hyrenbach and Michelle Hester deployed GPS tags on a total of 18 BFAL breeding at Hōlanikū. These data were published in Hyrenbach et al. 2017 and Orben et al. 2021. These activities had no deleterious effects on Monument resources. Possible adverse effects include the possibility BFAL or their nests and habitats may be disturbed during the tagging and retrieval process, however, the permittee and agents acting under this permit take various precautions as escribed in the application (CITE) and the permittee will abide by all PMNM BMPs. With that in mind, significant cumulative impacts are not anticipated as a result of this activity, and numerous safeguards further ensure that the potentially sensitive environment of the project area will not be significantly affected. All activities will be conducted in a manner compatible with the management direction of the Monument Proclamation in that the activities do not diminish monument resources, qualities, and ecological integrity, or have any indirect, secondary, cultural, or cumulative effects. The joint permit review process did not reveal any anticipated indirect or cumulative impacts that would occur as a result of these activities. These activities would be conducted with support from NOAA, USFWS, and State of Hawai‘i staff, authorized separately under permit PMNM-2025-001.

Since no significant cumulative impacts or significant impacts with respect to any particularly sensitive aspect of the project area are anticipated, the categorical exemptions identified above should remain applicable.

4. Overall Impacts will Probably have a Minimal or No Significant Effect on the Environment. Any foreseeable impacts from the proposed activity will probably be minimal, and further mitigated by general and specific conditions attached to the permit. Specifically, all research activities covered by this permit will be carried out with strict safeguards for the natural, historic, and cultural resources of the Monument as required by Presidential Proclamation 8031 and other applicable laws.

Conclusion. Upon consideration of the permit to be approved by the Board of Land and Natural Resources, the potential effects of the above listed project as provided by Chapter 343, HRS and Chapter 11-200.1 HAR, have been determined to be of probable minimal or no significant effect on the environment and exempt from the preparation of an environmental assessment.