



IMPORT/EXPORT/RE-EXPORT OF BIOLOGICAL SPECIMENS (CITES/ESA) FOR SCIENTIFIC RESEARCH



☒ New ☐ Reissue/Renew ☐ Amendment

Complete Sections A or B, and C, D, and E of this application. U.S. address may be required in Section C."

A. Complete if applying as an individual			
1.a. Last name	1.b. First name	1.c. Middle name or initial	1.d. Suffix
2. Date of birth (mm/dd/yyyy)	5.a. Telephone number	5.b. Alternate telephone number	6. E-mail address

B. Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution			
1.a. Name of business, agency, Tribe, or institution Institute of Marine Sciences		1.b. Doing business as (dba)	
2. Tax identification no.	3.a. Description of business, agency, Tribe, or institution University of California Santa Cruz		3.b. Website URL (if applicable)
4.a. Principal officer (P.O.) last name Pallin	4.b. P.O. first name Logan	4.c. P.O. middle initial Joseph	4.d. P.O. Title Postdoctoral Scientist
5. Primary contact name Logan Pallin, Ph.D.		6. Primary e-mail address lpallin@ucsc.edu	
7.a. Business telephone number	7.b. Alternate phone no.	8.a. Primary contact telephone no. +1 (218) 591-0615	

C. All applicants complete address information					
1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes) 115 McAllister Way, Ocean Health Bldg, University of California Santa Cruz					
1.b. City Santa Cruz	1.c. State CA	1.d. Zip code/Postal code 95060	1.e. County/Province Santa Cruz	1.f. Country USA	
2.a. Mailing Address (include if different than physical address; include name of contact person if applicable)					
2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f. Country	

D. All applicants MUST complete	
1. Include a check or money order, payable to the U.S. FISH AND WILDLIFE SERVICE, a nonrefundable processing fee [50 CFR 13.11(d)(4)]. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – attach documentation of fee exempt status as outlined in instructions. (50 CFR 13.11(d))	
2. If you are requesting a reissue/renew/amendment, what is your permit/file number?	
3. Certification: I hereby certify that I have read and am familiar with the regulations contained in Title 50, Part 13 of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.	
<p>The individual principal officer of the business must print and sign the application. (No photocopied or stamped signatures)</p> <p><i>Logan Pallin</i> 6/21/2023 Date (mm/dd/yyyy)</p>	

** Further instructions for the above application may be found on our ePermits website. See the last page for information on the Privacy Act, Paperwork Reduction Act, Estimated Burden, and Freedom of Information Act aspects of this application form.

Mail your application(s) to Division of Management Authority, Branch of Permits, MS:IA 5275 Leesburg Pike, Falls Church, VA 22041-3803.



26 June 2023

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

To whom it may concern,

Please find enclosed in this document my application for a CITES **multi-use, blanket** export/re-export permit and associated 3-year master file for biological specimens of marine mammals in accordance with our National Marine Fisheries Service (NMFS)/Marine Mammal Protection Act (MMPA) parts permit 27102 (separately attached). I have been in previous communication with Michelle Turton in your office to apply for this CITES permit, and I was instructed to use form 3-200-37e and denote that we are especially applying for a multi-use blanket export/re-export permit. This is due to the number of species (i.e., "unlimited samples from up to 2,000 individual cetaceans/pinnipeds" a year) as denoted on our NMFS permit 27102. Because of the opportunistic nature of these NMFS parts and import permits, we are specifically asking for this multi-use export permit to be associated with the following:

- Appendix I, all pinnipeds (except walrus)
- Appendix I, all cetaceans

Please note that we have also applied for a multi-use import permit associated with our NMFS parts permit that was submitted on April 13, 2023, and the application file is CS1824710.

As part of this application, I have included the following:

- Typed answers to form 3-200-37e
- Form 3-200-37e signed
- NMFS/MMPA Parts Permit No. 27102
- University animal welfare permit (IACUC)
- General C.V. of Dr. Logan Pallin
- National Marine Fisheries Service Qualification C.V.

Please feel free to contact me if any other questions or concerns should arise.

Thank you for your help,

A handwritten signature in black ink, appearing to read "Logan J. Pallin".

Logan J. Pallin, Ph.D.
Postdoctoral Researcher
The University of California, Santa Cruz
Ocean Sciences & Institute of Marine Sciences
Bio-Telemetry & Behavioral Ecology Lab
<https://btbel.pbsci.ucsc.edu/>
lpallin@ucsc.edu | +1 (218) 591-0615



Section A:

N/A

Section B:

The Institute of Marine Sciences (IMS)

The University of California Santa Cruz

Dr. Logan Joseph Pallin

Postdoctoral Scientist

lpallin@ucsc.edu | +1 (218) 591-0615

Section C:

115 McAllister Way

Ocean Health Building

The University of California Santa Cruz

Santa Cruz, CA 95060

Santa Cruz County, USA

Section D:

See signature on form 3-200-37e

Section E:

General Information

All Applicants Must Complete

1. Same as physical address:
 - a. 115 McAllister Way
 - b. Ocean Health Building
 - c. The University of California Santa Cruz
 - d. Santa Cruz, CA 95060
 - e. Santa Cruz County, USA
2. Dr. Logan Pallin, +1 (218) 591-0615, lpallin@ucsc.edu
3. NO

Proposed Activity

- Export/Re-export (Multi-use) with the 3-year master file
4. After discussions with Michelle Turton, FWS about our research plan associated with our NMFS/ESA/MMPA parts permit, we decided it was best to apply for a multi-use blanket export permit and master file as we will be receiving multiple shipments a year as described in our NMFS permit that may require opportunistic export/re-export. These will be for "all pinnipeds" and "all cetaceans". These will be on a case-by-case basis as samples are collected from our colleagues. The collection, receipt, import and export of samples are often opportunistic and thus it is not possible to specify the seasonality of this activity as



well as where samples will be coming from. This is the nature of applying for a multi-use blanket 3-yr export permit as outlined in our NMFS permit 27102.

Additionally, it is difficult to specify the number of samples by species or by year because receipt and subsequent export/re-export of samples are opportunistic and subject to collection under other authorizations or moments of opportunity. For example, opportunistic sampling of foreign stranded individuals is critical for the identification and demographic assessments of rare or elusive species, such as beaked whales, but is outside the control of the applicant (Dr. Pallin). Directed sampling with a biopsy dart, under separate authorizations, is increasingly important for population demographic monitoring, including estimates of abundance by genotype capture-recapture and assessment of population dynamics through assessment of reproductive markers [2, 3, 13]. The requirement for directed sampling sizes differs depending on the desired question at hand. As IMS does not seek authorization for directed sampling, these requirements will be set, on a case-by-case basis, by collaborators operating under other authorizations. On occasion, we may need to send large collections to collaborators at once rather than just from a single season, and thus another justification for our high take numbers as outlined in our NMFS Permit No. 27102.

Exportation is requested to include all countries with appropriate management authority (e.g., Parties of the Convention on Trade in Endangered Species). Based on this information above and what we think would be available based on past sample transfers, the total number of parts, tissue, DNA, or endocrine products that will be collected, received, imported or exported worldwide will not exceed 2,000 individual cetaceans and 2,000 individual pinnipeds (except walrus), annually as outlined in our separate NMFS Authorization permit no. 27102.

Under this CITES multi-use export/re-export permit and associated 3-year master file, we seek to export cetacean and pinniped (except walrus) parts, for population demographic monitoring intended to improve management and the basic understanding of marine mammals' ecology, physiology, and population dynamics. Hard parts, soft parts, DNA, and hormone extracts will be held by the Institute of Marine Sciences (<https://ims.ucsc.edu/>) at the University of California Santa Cruz and managed by Dr. Logan Pallin. Dr. Pallin has previously received and exported marine mammal parts, DNA, and hormone extracts as an authorized recipient under collaborators NMFS permits and foreign CITES export/import permits. As well Dr. Pallin, the Institute of Marine Sciences, and collaborators currently manage a tissue and demographic archive of more than 2000 biopsy samples collected from seven different Southern Hemisphere cetaceans collected under NMFS Permits Nos. 14809 and 23095 through the Bio-telemetry and Behavioral Ecology Lab (<https://btbel.pbsci.ucsc.edu/>).

The anticipated U.S. and foreign sources of samples that would be exported and or re-exported under this CITES permit would include the following:



- Animals in captivity (samples taken during routine husbandry procedures or under separate authorization);
- Animals in foreign countries stranded alive or dead or that died during rehabilitation;
- Animals killed during legal subsistence hunting;
- Animals killed incidental to legal, commercial fishing operations;
- Samples from other authorized persons or collections, including but not limited to biopsy samples collected under the appropriate authorization.

In accordance with our NMFS Permit No. 27102, we will ensure that the samples were taken legally and humanely (to the extent possible) prior to accepting samples from any sources.

5. As noted previously, the collection, receipt, and subsequent export/re-export of samples are often opportunistic and thus it is not possible to specify the seasonality of this activity as well as where samples will be coming from and or going to. This is the nature of applying for a multi-use blanket export permit to supplement the nature of our NMFS parts permit no. 27102. The Institute of Marine Sciences, and Dr. Logan Pallin, will always be the recipient and or sender of samples to and from colleagues internationally and nationally under this CITES authorization.
6. In accordance with our NMFS Permit No. 27102, this CITES authorization will be used to export/re-export hard parts, soft parts, DNA, and hormone extracts from all species of cetaceans and pinnipeds (except walrus). These could include but are not limited to blood, baleen, bone, muscle, skin, blubber, hair/fur, feces, and breath exhalant. As Dr. Pallin's primary interests are molecular and physiological ecology and population dynamics and demography, the samples will be used for the extraction of DNA, and hormones, in agreement with ongoing international and national collaborations with colleagues.

The total number of samples that may be received in a given shipment would be unlimited in accordance with our NMFS Permit 27102, but would not exceed more than 2000 individual cetaceans and pinnipeds in a given year.

a. Scientific name (genus, species, and, if applicable, subspecies)	b. Common Name	c. Number & type of sample/part	d. Wild or captive born	E . Approximate date of collection (mm/yyyy)	f. Description of packaging (vials, slides, envelopes, etc)
all pinnipeds (except walrus), Appendix I	all pinnipeds	Unlimited samples from up to 2,000 individual pinnipeds of any species (excluding walrus).	Wild and or captive as outlined in NMFS permit 27102, or section 4 of this application	Sampling is opportunistic in nature, and collection can not always be planned, or historical archives may be sent	including but not limited to a vial, envelope, sample bag
all cetaceans, Appendix I	all cetaceans	Unlimited samples from up to 2,000	Wild and or captive as	Sampling is opportunistic in	including but not limited to a



		individual cetaceans of any species	outlined in NMFS permit 27102, or section 4 of this application	nature, and collection can not always be planned, or historical archives may be sent	vial, envelope, sample bag
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Source of specimens

7. We have combined our answers to questions 7/8 in section 7. As previously mentioned, given the opportunistic nature of the research outlined by our NMFS Permit No 27102, we will not know in advance what samples we may be receiving or needing to send to colleagues, which is why we are asking for a blanket CITES multi-use permit to accompany our NMFS Permit 27102. Specifically for captive samples, we may export samples from animals in captivity (samples taken during routine husbandry procedures or under separate authorization). Again, we would always ensure that the samples were taken legally and humanely (to the extent possible) prior to importing samples from any sources.

All sample collection from live wild or captive animals will be conducted under separate permits or appropriate authorizations. We will ensure that all sampling of live cetaceans and pinnipeds will be conducted with appropriate national permits and using methods consistent with approved animal use protocols from the collaborator institution and evaluated following compliance with the MMPA and best practices of the Society of Marine Mammalogy. Samples from captive, living marine mammals in the U.S. would be collected under other authorities (e.g., Animal Welfare Act regulations and an NMFS scientific research permit) and the oversight of a veterinarian.

For samples collected from foreign colleagues, we will only import/export samples from those countries with appropriate management authorities, e.g., signatories to the Convention on International Trade in Endangered Species (CITES). Dr. Pallin would ensure that any permits or legal authorizations required by the country of origin to collect non-lethal or lethal samples of marine mammals were obtained prior to the research being conducted. Samples would also include those collected from stranded dead marine mammals generated during necropsy.

We will also import/export parts from specimens collected in regulated and legal aboriginal/subsistence hunting, including but not limited to those under U.S. jurisdiction. For aboriginal/subsistence hunting under U.S. jurisdiction, methods will conform to best practices through oversight by the appropriate national and international authorities (i.e., NOAA and the International Whaling Commission). Samples may also be received from subsistence hunts in foreign countries, but will not include samples taken from activities as described below:

- i. Taken in any high seas driftnet fishery after December 31, 1992;



- ii. Deliberately killed for the express purposes of fulfilling this permit;
 - iii. Taken illegally in the country of origin;
 - iv. Taken during whaling activities not approved by the International Whaling Commission;
 - v. Taken during whaling activities opposed by the U.S.; or
 - vi. Taken in a directed cetacean hunting opposed by the U.S., including Japanese "drive fisheries."
8. Questions to section 8, are also answered in question 7.
9. N/A
10. The long-term objectives of the ongoing research project are to facilitate long-term, population demographic monitoring of marine mammals, not limited to but including, population growth/decline, reproductive rates, population stress, health states, molecular conservation, and ecophysiology. IMS and Dr. Pallin, have a world-renowned marine mammal analytical lab and are working with colleagues from all over the world to better understand the demography and health of marine mammals.

This long-term research program will run in accordance with the length of our NMFS permit no. 27102, which has a 5-year issuance and can be renewed. We anticipate the nature of this research program to be long-term and will submit for CITES multi-use renewal annually. Dr. Pallin already has several projects in the works and ongoing that will involve the import/export of marine mammal parts under this CITES permit once issued. See details on these below.

The proposed importation/exportation of samples under this CITES permit is intended to maximize population demographic monitoring of marine mammals through an improved understanding of the genetic diversity, population structure, abundance, individual movement, population demography and health of cetaceans and pinnipeds. Targeted species include any species of cetaceans and pinnipeds, except the walrus. The anticipated U.S. and foreign sources of samples include the following:

- Animals in captivity (samples taken during routine husbandry procedures or under separate authorization);
- Animals in foreign countries stranded alive or dead or that died during rehabilitation;
- Animals killed during legal subsistence hunting;
- Animals killed incidental to legal commercial fishing operations;
- Samples from other authorized persons or collections, including biopsy samples collected under separate authorization.

The total number of parts, tissue, DNA, or endocrine products that will be collected, received, imported or exported worldwide will not exceed 2,000 individual cetaceans and 2,000 individual pinnipeds (except walrus), annually. Research will be conducted at the Institute of Marine Sciences at the University of California Santa Cruz under the



supervision of Dr. Pallin. However, samples may be exported/re-exported to colleagues for specific collaborations.

Archiving tissue samples, DNA, and hormones are critical for population demographic monitoring and understanding the effects of stressors (e.g., climate change, human impacts) on population dynamics. The import/export of marine mammal parts, DNA, and hormones held in the collections and archives of scientific institutions around the world will better facilitate our understanding of the impacts of continued change on marine mammal population dynamics and demography, ultimately enhancing our ability to inform adaptive conservation and management practices. These efforts will also ensure that international borders do not limit the science required for the conservation of marine mammals.

The import/export of marine mammal parts, DNA, and hormones are required for population demographic analyses intended to meet urgent conservation objectives on marine mammals, such as the effects of climate change on polar-dependent, the effects of human disturbance on physiology and behavior, and for improved understanding of the distribution and habitat use of recovering species. These endeavors are required to promote collaboration between researchers, in the U.S. and those in other countries. This is especially relevant for marine mammals as they are highly mobile and are distributed across international borders.

Collaborative international research by Dr. Pallin has included multiple sample exchanges from institutions and researchers around the world, such as ongoing collaborations and agreements with the South Pacific Whale Research Consortium (e.g., Southern Ocean Persistent Organic Pollutants Program with Dr. Susan Bengston Nash; New Zealand Cetacean Tissue Archive with Dr. Rochelle Constantine; New Caledonia 20 year humpback data set with Dr. Claire Garrigue; Panacetacea (<https://panacetacea.org/>)).

One of the main reasons for the application of this export permit is to allow for the development of intellectual and professional autonomy for young scientists in the field. While we will continue to collaborate with those mentioned above, Dr. Pallin and the Institute of Marine Science have developed a novel research program that we are interested in supporting unencumbered from the specific interests of the other permits under which we have worked in the recent past. Sample loan/transfer timelines are prediscussed with collaborators given the specific objectives of the project and will be outlined in the form of an Authorized Recipient (AR) letter that clearly outlines the objectives of the import/export/transfer of samples as mandated by our NMFS permit 27102. It is important to note that some samples may be fully consumed in the intended analyses. Detailed tracking of sample transfers, associated permits, and archives will be managed using a FileMaker Pro database.



The current export permit being applied for would greatly augment the data we can generate from the opportunistic collection of marine mammal tissues and parts as well as contribute to population demographic monitoring. This CITES permit would help facilitate the project examples below:

Cetaceans:

- Demography and ecophysiology of Black Sea cetaceans. Collaborators: Ukrainian Scientific Center of Ecology of the Sea, I.I. Schmalhausen Institute of Zoology of NAS Ukraine, National Antarctic Scientific Center of Ukraine, Investigator Oksana Savenko. This up-and-coming collaboration aims to understand the basic demography and effects of ocean mining and military operations on Black Sea cetaceans. Research is in development.
- Prey consumption and pregnancy dynamics of Greenland bowhead whales. Collaborator: Dr. Fredrik Christiansen at Aarhus University. This collaboration is up and coming and an example of how this permit would assist in groundbreaking scientific research. Research is in development.
- Effects of spatial-temporal shifts in prey resources on Norwegian humpback whales. Collaborator: Lisa Kettemer, the Arctic University of Norway. This collaboration aims to understand the behavioral and physiological mechanisms leading to new foraging sites of humpback whales in the Barents Sea. Research is ongoing [6].
- Demographic monitoring of Antarctic marine mammals. Collaborators: National Antarctic Scientific Center of Ukraine, Vernadsky Station; Investigator Oksana Savenko. This collaboration is ongoing and directly contributes to the goals of this permit application

Pinnipeds:

- Virology of Antarctic pinnipeds. Comparison of Antarctic pinniped virology from fecal samples across different Antarctic regions. CIs Drs. Costa and Friedlaender. Collaborator: Arvand Varsani at Arizona State University. Research in development.

For samples collected from foreign colleagues, we will only import/export samples from/to those countries with appropriate management authorities, e.g., signatories to the Convention on International Trade in Endangered Species (CITES). Dr. Pallin would ensure that any permits or legal authorizations required by the country of origin to collect non-lethal or lethal samples of marine mammals were obtained prior to the research being conducted. We will always ensure that the collection of samples abided by local/state/regional regulations and adhered to the best practices as outlined by the Society of Marine Mammalogy.

No publications have been produced as part of this research project to date.

Similar research has been published from other long-term marine mammal studies conducted in the Antarctic directed by Dr. Ari Friedlaender, a professor and



collaborator at UC Santa Cruz. Dr. Pallin was a Ph.D. student in Dr. Friedlaenders lab and developed many of the techniques that will be used in this new project while in his lab.

11. Dr. Pallin is involved in providing scientific advice on the status and conservation of several historically depleted marine mammal species, including Southern Hemisphere humpback and Antarctic minke whales. Previous and ongoing research by Dr. Pallin and collaborators has, in fact, contributed directly to the current de-listing of humpback whale populations through genetic analyses of population structure and demographic monitoring. As this research is often specific to the species or population, replacing listed species with non-listed species is impossible. Further, the import of samples under this permit application would involve no additional takes of marine mammals; therefore, there is no impact on individuals or populations that could be minimized by using a non-listed species. The proposed import of samples from ESA-listed and MMPA-depleted species will also provide information of a broader significance than any individual research goal. Dr. Pallin and his collaborators share samples and data widely with researchers to maximize our understanding of these species' basic biology and behavior and the information available for conservation and management.

Technical Expertise & Authorizations

12. Dr. Pallin has a robust record of scientific publications in refereed scientific journals, including those cited below (see CV). This includes basic knowledge of population demographic monitoring, molecular ecology, endocrine pathways, and management-related questions concerning the abundance, trends, and population dynamics of marine mammals. These publications also outline the extensive development and practice of laboratory techniques that he has utilized and developed over the last 10 years. Many of the publications over the last five years have been facilitated by the receipt of marine mammal samples, under separate NMFS and CITES Permits. Please see the attached general CV of Dr. Pallin as well as his National Marine Fisheries Service Qualification C.V. which is required to hold or be a permittee on a NMFS permit. As well, Dr. Pallin has over 10 years of marine mammal field and handling research experience.

Shipment information

13. The length of our NMFS permit no. 27102 is 5 years and we anticipate renewing this every five years to continue our long-term efforts to better understand the population demographics of marine mammals. Thus, the CITES permit we would like to receive is a multi-use import permit for multiple years if possible. I know in the past, we have been able to get multi-use permits that expire every year and then have to renew, but a permit that could match the length of our NMFS permit would be ideal.
14. Samples will be exported through designated ports only and may be done so as a personally accompanied shipment or shipped internationally with a courier.



Additionally, methods used to store and transport marine mammal parts, DNA, and hormone extracts are now standard. Most samples of soft parts (e.g., skin, blubber or muscle) and DNA will be shipped in sealed containers (e.g., cryovials) of sterile preservatives such as 70% ethyl alcohol (EtOH). Some samples (e.g., blood, blubber biopsies, hormone extracts) may be transported frozen, with dry ice or liquid nitrogen, with appropriate labeling. Most samples of hard parts (e.g., bones, teeth and baleen) will be shipped sealed in plastic wrap, with appropriate labeling. No infectious tissue is intended for import and shipment under this permit.

Dr. Pallin has extensive experience (10 years) with maintaining an archive for DNA, hormones, and tissue of marine mammals as well as conducting wet lab analyses on various sample types. Most samples of soft tissue (e.g., skin and blubber) will be stored in sterile preservatives such as alcohol or frozen at -20/-80 degrees centigrade once received at the laboratory. This is considered sufficient for the long-term preservation of DNA and hormones required for standard genetic and endocrine analyses. Safe handling of any tissue follows standard laboratory protocol, including nitrile gloves, eye protection, and laboratory clothing. Dr. Pallin has received training through IACUC and the Animal Exposure Occupational Health and Safety program at the University of California Santa Cruz. The applicant also sits as a member of the University of California Santa Cruz's IACUC. Sample importation and storage information will be maintained by Dr. Pallin at the Institute of Marine Sciences (<https://ims.ucsc.edu/>) at the University of California Santa Cruz in Excel spreadsheets and in a FileMaker Pro relational database.

15. Sample shipments being personally carried will only be conducted by individuals as described under Section C of NMFS permit no. 27102. These would include the principal investigator, Dr. Pallin, named co-investigators, currently Drs. Dan Costa and Ari Friedlaender, and any later named Research Assistants who are qualified pursuant to Conditions C.2, C.3, and C.4 of NMFS Permit no 27102.

All of our samples are for use in scientific investigations only and are permitted specifically for scientific use only (see NMFS Permit 27102).

Logan J. Pallin, B.S., M.S., M.A., Ph.D.

Work: lpallin@ucsc.edu | Personal: [REDACTED]

Last Updated: January 2023

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<https://btbel.pbsci.ucsc.edu/logan-pallin/>
<http://costa.eeb.ucsc.edu/current-students/logan-pallin/>
https://www.researchgate.net/profile/Logan_Pallin2
Twitter: @logan_pallin
ORCID ID: <https://orcid.org/0000-0001-8024-9663>

Academic History

2023 – Present	University of California Santa Cruz , Postdoctoral Researcher, Ocean Sciences
2017 – 2022	University of California Santa Cruz , <i>Ph.D.</i> , Ecology and Evolutionary Biology <i>National Science Foundation Graduate Research Fellow</i> The Bio-Telemetry and Behavioral Ecology Laboratory and The Costa Lab
2017-20	University of California Santa Cruz , <i>M.A.</i> , Ecology and Evolutionary Biology
2015-17	Oregon State University , <i>M.S.</i> , Wildlife Science
2010-14	Duke University , <i>B.S.</i> , Environmental Science, Graduation with Distinction-Honors Thesis
2010-14	Duke University , <i>Cert.</i> , Marine Science and Conservation Leadership

Honors, Awards, Fellowships

May 2018	NSF Graduate Research Opportunities Worldwide Fellow-New Caledonia/France
Apr 2016	National Science Foundation Graduate Research Fellowship
Sep 2015	Provosts' Graduate Scholarship Match Award, Oregon State University
April 2014	Duke Environmental Science Department Graduation with Distinction
Dec 2012/May 2014	Duke University Deans List
Oct 2013	Minnesota Department of Education-Minnesota Indian Education Association (MIEA): Recognized as top post-secondary Native student in the state.
May 2010	Minnesota Academy of Science Scholar of Distinction
Apr 2010	Bausch & Lomb Honorary Science Award
May 2008	Eagle Scout: Boy Scouts of America

Student Training/Mentoring

- Undergraduate mentoring and training at UCSC: Martin Gil, Monterey Peninsula College, (2022 ACCESS-UCSC Intern); Jesse Cole, UCSC (2018-'20, Class of 2020, Senior Thesis Candidate, now DVM/Ph.D. Colorado State '28); Carlos Esperanza, UCSC (2019-present, Class of 2021, Senior Thesis Candidate); Phoebe Gross, UC-Berkley (2019), Bryan Sands, UCSC CC-Rise Program (2018)

Teaching Experience

Fall 2020	Teaching Assistant: Comparative Vertebrate Anatomy, UC Santa Cruz
Spring 2019	Teaching Assistant: Marine Mammal Biology, UC Santa Cruz
Spring 2017	Teaching Assistant: Molecular Ecology and Conservation, Oregon State University
Summer 2017, 2016	Guest Lecturer for Biology of Marine Mammals, Oregon State University

Professional Development and Affiliations

2021 – present	Voting committee member, UCSC Institutional Animal Care and Use Committee (IACUC)
2021 – 2022	EEB Peer to Peer Mentorship Program
2020 – present	Long-term Ecological Research (LTER) Graduate Student Coordinator for Palmer LTER
2019 – present	International Society of Wildlife Endocrinology: Member
2017 – present	The South Pacific Whale Research Consortium: Member
2014 – present	Society of Marine Mammalogy: Member
2009 – present	American Indian Science and Engineering Society: Member
2008 – Present	Society for Science & the Public
Jul 2016 –2017	Fisheries and Wildlife Graduate Student Association (FWGSA) New student Liaison, Oregon State University, Corvallis, OR
Aug 2013 – May 2014	Resident Assistant and House Council President: Duke University, Durham, NC
2010 – 2014	Duke University Environmental Alliance: Member
2010 – 2014	Duke Native American Student Alliance (NASA): Member
2009 – 2014	Geo Science Alliance: Member
2009 – 2014	National Center for Earth-surface Dynamics: Member
Dec 2012 – Feb 2013	Educational Internship. Duluth, MN. 7 th Grade Research Mentor and 60 th NE MN Regional Science Fair Co-Chair
Oct 2012	Marine Mammal Observer on Research Vessel Cape Hatteras, Beaufort, NC

Research Permit Experience

I have extensive wildlife and marine mammal permit management and writing experience. I am currently part of and or manage several National Marine Fisheries Service (NMFS)/Marine Mammal Protection Act (MMPA)/Endangered Species Act (ESA), and the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora permits.

Peer-reviewed Publications

Cimino, M. A., Conroy, J. A., Connors, E., Bowman, J., Corso, A., Ducklow, H., **Pallin, L.J.**, et al. 2023. Long-term patterns in ecosystem phenology near Palmer Station, Antarctica, from the perspective of the Adélie penguin. *Ecosphere*, 14(2), e4417. <https://doi.org/10.1002/ecs2.4417>

Pallin, L. J., Kellar, N. M., Steel, D., Botero-Acosta, N., et al. 2023. A surplus no more? Variation in krill availability impacts reproductive rates of Antarctic baleen whales. *Global Change Biology*. <https://doi.org/10.1111/gcb.16559>

Pallin, L.J., Botero-Acosta, N., Steel, D. et al. 2022. Variation in blubber cortisol levels in a recovering humpback whale population inhabiting a rapidly changing environment. *Sci Rep* 12, 20250. <https://doi.org/10.1038/s41598-022-24704-6>

Bierlich, K. C., Hewitt, J., Schick, R., **Pallin, L.**, Dale, J., Friedlaender, A., ... & Johnston, D. W. 2022. Seasonal gain in body condition of foraging humpback whales along the Western Antarctic Peninsula. *Frontiers in Marine Science*, 9, 2363. <https://doi.org/10.3389/fmars.2022.1036860>

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Atkinson, Shannon, ..., **Pallin, Logan**, et al. 2021. Genetic, Endocrine, and Microbiological Assessments of Blue, Humpback and Killer Whale Health using Unoccupied Aerial Systems. *Wildlife Society Bulletin*. <https://doi.org/10.1002/wsb.1240>

Caballero S, Steel D, **Pallin L.**, ... Friedlander A, Baker CS. 2021. Migratory connections among breeding grounds off the Eastern Pacific and feeding areas in the Antarctic Peninsula based on genotype matching. *Bulletin of Marine and Coastal Research*. 50 (Supl. Esp.), 31-40. <https://doi.org/10.25268/bimc.invemar.2021.50.SuplEsp.933>

Pallin, L., Robbins, J., Kellar, N., Berube, M., Friedlaender, A. 2018. Validation of a blubber-based endocrine pregnancy test for humpback whales. *Conservation Physiology* 6(1): coy031-coy031. <https://doi.org/10.1093/conphys/coy031>

Pallin LJ, Baker CS, Steel D, Kellar NM, Robbins J, Johnston DW, Nowacek DP, Read AJ, Friedlaender AS. 2018. High pregnancy rates in humpback whales (*Megaptera novaeangliae*) around the Western Antarctic Peninsula, evidence of a rapidly growing population. *R. Soc. open sci.* 5: 180017. <http://dx.doi.org/10.1098/rsos.180017>

Riekkola, ..., **Pallin, L.**, Robbins, J., Steel, D., Tremlett, J., Vindenes, S., & Constantine, R. (2018). Application of a multi-disciplinary approach to reveal population structure and Southern Ocean feeding grounds of humpback whales. *Ecological Indicators*, 89, 455-465. <https://doi.org/10.1016/j.ecolind.2018.02.030>

Fernando Félix , Jorge Acevedo , Anelio Aguayo-Lobo , Isabel C. Ávila , Natalia Botero-Acosta..., Ari Friedlaender, **Logan Pallin**..., Edgar Vásquez. Humpback whale breeding stock G: Updated population estimate based on photo-id matches between breeding and feeding areas. Report to the IWC.

Pallin, L. (2017). *Temporal Variation in Humpback Whale (Megaptera novaeangliae) Demographics Along the Western Antarctic Peninsula. (Master's Thesis).* MSc, Oregon State University, Oregon State University Scholars Archive. (Identifier: <http://hdl.handle.net/1957/61621>)

Ari S. Friedlaender, Susan G. Heaslip, David W. Johnston, Andy Read, Doug Nowacek, John W. Durban, Robert L. Pitman, **Logan Pallin**, Jeremy Goldbogen, and Nick Gales. Comparison of humpback (Megaptera novaeangliae) and Antarctic minke (Balaenoptera bonaerensis) movements in the Western Antarctic Peninsula using state-space modeling methods. Report to the IWC SC/66b/em. Bled, Slovenia May 2016.

Pallin LJ, Adams EM, Goyert HF, Friedlaender AS, Johnston DW. 2015. Density modeling for marine mammals and sea turtles with environmental covariates. In: Wildlife Densities and Habitat Use Across Temporal and Spatial Scales on the Mid-Atlantic Outer Continental Shelf: Final Report to the Department of Energy EERE Wind & Water Power Technologies Office. Williams KA, Connelly EE, Johnson SM, Stenhouse IJ (eds.) Award Number: DE-EE0005362. Report BRI 2015-11, Biodiversity Research Institute, Portland, Maine. 35 pp.

Griffith, R., H. Wilson, A. Goldman, **L. Pallin**, L. Wiley, and D. W. Johnston. *The View from Below: An introductory handbook into marine conservation.* iBook, Marine Conservation Ecology Group at Duke University Marine Laboratory. May 1, 2013.

Refereed Journals

Scientific Reports; Conservation Physiology; Royal Society Open Science; Society of Marine Mammalogy; General and Comparative Endocrinology; PLOS ONE; Aquatic Mammals; Endangered Species Research

Outreach, Service, and News

Feb 2021	PROTECTING BLUE CORRIDORS REPORT: Challenges and solutions for migratory whales navigating national and international seas.
Aug 2020	41 st Annual News & Documentary Emmy Awards. ABC Nightline, Journey to the Edge . Nominated for Outstanding Science, Medical or Environmental Reporting .
May 2019	WWF Newsroom. The next generation of Antarctic scientists.
May 2019	ABC News; Live Interview. Scientists are 'racing against the clock' to collect crucial data on life in Antarctica.
July 2018	The Christian Science Monitor. How humpback whales made a global comeback.
June 2018	Nature Magazine. How to tell when there's a baby whale on the way.
May 2018	The New York Times. Humpback Whale Baby Boom Near Antarctica.

May 2018	Smithsonian Magazine. Antarctica's Waters May Soon Harbor a Boom of Baby Humpback Whales.
Jan 2016 – present	Data Nuggets: When whale I sea you again? Rutgers University; Developed an online platform to bring real scientific data into the k-12 classroom. (http://datanuggets.org/2017/11/when-whale-i-sea-you-again/).
Jan 2016 – present	Polar Interdisciplinary Coordinated Education (Polar-ICE). Rutgers University; student coordinator and lecturer. A program aimed to connect scientists, educators, and k-12 students using data from the Arctic and Antarctic regions (https://polar-ice.org/)

Invited Seminars and Public Talks

Pallin, L. 2021. Update on Endocrine Parameters and Demographics in Southern Hemisphere Humpback Whales. International Whaling Commission update and South Pacific Whale Research Consortium, Auckland, NZ. (Remote Presentation).

Pallin, L. 2019. Using endocrine biomarkers to monitor reproductive dynamics in Southern Ocean humpback whales. UMR ENTROPIE Tropical Marine Ecology of the Pacific and Indian Oceans and the French Research Institute for Development. Noumea, New Caledonia.

Pallin, L. 2019. The Rabbits of the Sea: Using endocrine biomarkers to monitor population dynamics in Southern Ocean humpback whales. University of Auckland, New Zealand.

Pallin, L. 2017. The Rabbits of the Sea: Pregnancy Rates in a Humpback Whale Populations within the Southern Ocean. South Pacific Whale Research Consortium, Auckland, NZ. (Remote Presentation).

Pallin, L. 2017. The dawn of cetacean research around the Antarctic Peninsula. American Cetacean Society, Oregon Chapter. Newport, Oregon.

Pallin, L. 2016. A Scientific Journey to the Bottom of the Earth: Discovering the Mysteries of the Antarctic Humpback Whale. University of Minnesota, Duluth.

Conferences/Presentations

Dec 8-13, 2019	The Society for Marine Mammalogy (SMM) Biennial Conference. Barcelona, Spain <i>Poster Presenter.</i> Title: Ecological drivers of reproductive rates in humpback whales (Megaptera novaeangliae) along the Western Antarctic Peninsula
Oct 22-29, 2017	The Society for Marine Mammalogy (SMM) Biennial Conference. Halifax, Nova Scotia, CA <i>Oral Presenter.</i> Title: Determining Pregnancy Rates in a Recovering Humpback Whale Population Around the Western Antarctic Peninsula.
Aug 20-28, 2016	The Scientific Committee on Antarctic Research (SCAR). Kuala Lumpur, Malaysia <i>Oral Presenter.</i> Title: Demography and Pregnancy Rates of Humpback Whales Along the Western Antarctic Peninsula: Links to a changing ecosystem

Dec 13-18, 2015	The Society for Marine Mammalogy (SMM) Biennial Conference. San Francisco, CA <i>Oral Presenter.</i> Title: Pregnancy Rates of Humpback Whales Along the Western Antarctic Peninsula
Aug 28 – Sep 3, 2015	Long Term Ecological Research Program All Scientists Meeting. Estes Park, CO
Apr 3-5, 2014	ACC Meeting of the Minds. Pittsburgh, PA <i>Oral Presenter.</i> Title: Seasonal variation in the sex ratio of humpback whales (<i>Megaptera novaeangliae</i>) on feeding grounds along the Western Antarctic Peninsula
Dec 21, 2012	Presentation to Cloquet Middle School. Cloquet, MN <i>Oral Presenter.</i> Title: Nine Years of Science: The Beginning of a Seventh Grader's Journey.
Oct 31 – Nov 4, 2012	American Indian Science & Engineering Society (AISES) Conference. Anchorage, Ak. <i>Poster Presenter.</i> Title: Three Stories from the Pacific Northwest: Analyses of changing river and coastal habitats in Native communities
Oct 28 – 31, 2009	National Center for Earth-surface Dynamics (NCED) and Geoscience Alliance. Portland, OR. <i>Oral Presenter and Native American Member.</i> Title: Engineering a rain garden to control road run-off and an assessment of rain gardens as the best storm water management practice.

Funding

Apr 2022	Ari S. Friedlaender, Logan J. Pallin , Sharon Stammerjohn, and Oscar Schofield. Marine Mammal Commission. Understanding the impacts of climate change on the reproductive performance of humpback whales around the Antarctic Peninsula using long-term multidisciplinary data. [REDACTED].
Feb 2021	Private donation on behalf of Eric Lundeen to help fund Antarctic field and laboratory work. [REDACTED]
Dec 2021	US Biological Adaptations to Environmental Change in Antarctica, Scientific Committee of Antarctic Research (SCAR) early career sciences grant [REDACTED]
Aug 2021	Ari S. Friedlaender, Caroline B. Casey, Logan J. Pallin . National Geographic Society. Measuring the impact of changes in human activities from the COVID-19 global pandemic on stress levels in whales. NGS-90906R-21, \$37,971.
Aug 2020	American Cetacean Society-Monterey Bay Chapter Research Grant [REDACTED]
April 2020	Private donation from Anita North, M.D. to help fund Antarctic field and laboratory work. [REDACTED]
July 2019	UCSC GSA Travel Grant. [REDACTED]
Apr 2019	Dr. Earl H. Myers & Ethel M. Myers Oceanographic & Marine Biology Trust. [REDACTED]

Dec 2018	Friedlaender A., Constantine, R., Garrigue, C., Robbins, J., Baker, C.S., Steel, D., Pallin, L. International Whaling Commission Southern Ocean Research Partnership Research Grant. Collaborative Research-Pregnancy rates in Southern Ocean humpback whales: implications for population recovery and health across multiple populations. [REDACTED].
Dec 2018	Baker, C.S., Friedlaender A., Constantine, R., Robbins, J., Steel, D., Pallin, L. International Whaling Commission Southern Ocean Research Partnership Research Grant. Collaborative Research- Connectivity of humpback whales from the Central and Eastern South Pacific and Western Antarctic Peninsula by DNA profiling. [REDACTED]
May 2018	NSF Graduate Research Opportunities Worldwide (GROW) Award. [REDACTED].
Oct 2017	American Cetacean Society-San Francisco Chapter Research Grant. [REDACTED]
Oct 2016	American Cetacean Society-Oregon Chapter Research Grant. [REDACTED].

Participation in Scientific Grants

Jun 2020 – Present	Ari S. Friedlaender, Caroline B. Casey, Megan McKenna, Jeremy A. Goldbogen, Brandon L. Southall, John Calambokidis, Jooke Robbins, Dave Wiley, Nick Kellar, & John Ryan. NSF RAPID grant. Assessing changes in baleen whale stress hormone levels in response to COVID19-related decreases in ocean noise and vessel traffic across regions and species. Student participant/funded student.
Dec 2018 – Present	Bengston Nash, S., Friedlaender, A., Christiansen, F., Castrillon, J., Newman, L. International Whaling Commission Southern Ocean Research Partnership Research Grant. Collaborative Research-Implementation of Humpback Whales for Antarctic Sea-ice Ecosystem Monitoring; Inter-program Methodology Transfer for Effective Circumpolar Surveillance [REDACTED]. Student Participant.

Research Experience

June – October 2019	French Research Institute for Development. Noumea, New Caledonia Ph.D. Student and Field Biologist, research collaboration Project: Assessment of temporal trends in pregnancy rates of female humpback whales on a central pacific breeding ground Mentor: Dr. Claire Garrigue
Sept 2017 – Present	University of California Santa Cruz-Long Marine Lab, Santa Cruz, CA Ph.D. Student Project: Adipose bio-markers to study the health and demography of Southern Ocean baleen whales Advisors: Drs. Ari Friedlaender and Dan Costa
Sept 2017 – Present	University of California Santa Cruz-Long Marine Lab, Santa Cruz, CA Ph.D. Student Project: Determination and quantification of delayed implantation in a capital breeder, the Northern Elephant Seal

Advisors/Mentors: Drs. Dan Costa, Dan Crocker, and Luis Huckstadt
Collaborators: Rachel Holser and Jesse Cole

- June 2017 – Aug 2017 Oregon State University-Marine Mammal Institute, Newport, OR
Research Technician Level II
Project: It's not what you might think –DNA profiling from SnotBot samples of whale blows
Collaborators: Debbie Steel, Susana Caballero, C. Scott Baker, Kendall Mashburn, Angie Sremba, Shannon Atkinson, Andy Rogan, John Graham, Christian Miller, and Iain Kerr
- Aug 2015 – May 2017 Oregon State University, Corvallis, OR
Masters Student
Master's Thesis: Temporal variation in the demographics of Antarctic humpback whales (*Megaptera novaeangliae*) along the Western Antarctic Peninsula
Advisor: Dr. Ari Friedlaender, Committee Members: Dr. Scott Baker, Dr. Meta Landys
- May 2014 – Mar 2015 Duke University Marine Laboratory, Beaufort, NC
Research Technician Level I
Project: Hierarchical modeling with environmental covariates: Marine Mammals and Sea Turtles, Spatial Density Modeling using Two Survey Interfaces (Boat and Aerial)
Advisors: Drs. David Johnston and Ari Friedlaender
Co-partners: Biodiversity Research Institute (BRI) and The Department of Energy (DOE)
- 2012 – 2014 Duke University Marine Laboratory, Beaufort, NC
Research Independent Study
Project: Identification of sex in the Western South American stock of Humpback Whales *Megaptera novaeangliae* using PCR to better understand the life history
Advisors: Drs. Andy Read, Dave Johnston, Ari Friedlaender, and Doug Nowacek
- Feb – June 2013 James Cook University School of Marine Biology, Townsville, QLD, AU
Research Independent Study
Project: Life History Analysis of *Platygyra sinensis* in Pioneer Bay, Great Barrier Reef
Mentor: Dr. Bette Willis
- Aug – Dec 2012 Duke University Marine Laboratory, Beaufort, NC
Research Independent Study
Project: Ecology and Distribution of Pelagic Cetaceans off Cape Hatteras, NC
Mentor: Dr. Andrew Read
- Oct 2012 Smithsonian Tropical Research Institute, Bocas del Toro, Panama
Research Scientist
Mentor: Dr. Humberto Diaz
- June – Aug 2012 Center for Coastal Margin Observation and Prediction (CMOP), Oregon Health and Science University, Beaverton, OR
REU Intern
Project: Understanding Changes in a Major Estuary
Mentor: Dr. Antonio Baptista
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Field Experience

June – October 2019	French Research Institute for Development. Noumea, New Caledonia Project: Assessment of temporal trends in pregnancy rates of female humpback whales on a central pacific breeding ground <ul style="list-style-type: none">Assisted in the 2019 southern lagoon humpback whale field season in New Caledonia conducting tissue sampling and vessel operations
June 2019	Oceanic vessel R.V. Amborella, Government Nouvelle Caledonie <ul style="list-style-type: none">Photo-ID and Biopsy of humpback whales among the New Caledonia Sea Mounts, at sea for 10 days
Aug 2017 – Present	University of California, Santa Cruz-Dept EEB, Costa Lab elephant seal long term study. Project: Linking individual reproductive anomalies with hormonal cues in the northern elephant seal <ul style="list-style-type: none">Assisted in and led 2017-2022 elephant seal field seasons at Año Nuevo State Park: includes field resight efforts, managing logistics, personnel, and administrative items in addition to extensive time in the field. Assisted with over 200 elephant seal sedation procedures for recovery and deployment of tags as well as reproduction physiology studies. Was involved in more than 40 elephant seal translocations. Have personally collected tissue samples (whiskers, fur, blood, blubber, muscle) and morphological measurements from more than 100 northern elephant seals for hormone analyses. Managed and mentored several undergraduate interns who assisted with data analysis and lab work from the elephant seal demographic monitoring program
Dec 2015 – Present	Antarctic Research Expeditions <ul style="list-style-type: none">Conducted research as part of 10 separate Antarctic voyages/seasons to date across government sponsored and ecotourism platforms2016 NSF USAP Palmer, Station; 2017 NSF USAP Palmer, Station; 2019 NSF USAP Palmer, Station; 2019 One Ocean Expeditions RCGS Resolute, 2 voyages; 2020 Quixote Expeditions MV Hans Hansson, 1 voyage, 2022 Crystal Cruises Crystal Endeavor, 5 voyages
Dec 2015 – Present	NSF Long Term Ecological Research Program, Palmer Station Antarctica, United States Antarctic Research Program <ul style="list-style-type: none">2015-2017: First two years of fieldwork for a master's degree. Photo-ID and biopsy collection of humpback whales along the western Antarctic Peninsula (WAP)2017-Present: Actively conducting fieldwork for a Ph.D. degree. Photo-ID and biopsy collection of humpback whales along the western Antarctic Peninsula (WAP)
Oct 2012	Oceanic vessel R.V. Cape Hatteras <ul style="list-style-type: none">Photo-ID and Biopsy of marine mammals conducted from a large vessel, at sea for 7 days
Summer 2014	Onslow Bay NC

- 3 trips offshore working from charter boats conducting photo-id and biopsy

Apr 2015

Jacksonville FL,

- Photo-ID and Biopsy training conducted from charter boats around marine Mammals

May 2015

Cape Hatteras NC

- Photo-ID, Dtag deployment, Biopsy training and boat training around marine mammals

Research Interests

- Marine mammal biology
- Conservation biology
- Molecular and endocrine biology
- Reproduction physiology
- Ecophysiology
- Population dynamics and demography

Skills

- Proficient in ArcGIS, SPSS-PAWS, R, and MATLAB.
- Certified SSI Scuba diver
- Motorboat operator (<10m), 10+ years of driving experience
- Molecular biology and endocrinology benchwork skills
- Permit writing and management
- Large animal handling and remote field skills
- More than 10 years of marine mammal fieldwork conducting photo-ID, observations, and collecting tissue samples of more than 1,000 animals including 1 species of pinniped (Northern Elephant Seals), 6 species of baleen whale (humpback-all age classes, Antarctic minke, sei, fin, blue, and southern right whales), and 6 species of delphinids (bottlenose, spotted, common, and rissos dolphins, pilot and killer whales)

International Experience

Feb 11 – Jun 24, 2013 **James Cook University**, Study Abroad, advanced research placement, coral reef geomorphology and histology, Townsville, Queensland AU

Oct 13 – Oct 21, 2012 **Smithsonian Tropical Research Institute**, Tropical Marine Ecology of Coral Reefs, Bocas del Toro, Panama

Jun 10 – Aug 10, 2011 **Academia Del Arte**, Performing Arts and Music Composition, Arezzo, Italy

Apr 14 - Apr 22, 2011 **Missions in Jamaica**, Rebuild schools and run a medical clinic, Above Rocks, Jamaica

Jun 1 – Jul 24, 2009 **German American Partnership Program (GAPP)**, Foreign exchange student in Villingen, Germany

Researcher Qualifications Form Marine Mammal**Contact information****Name:** Logan Joseph Pallin, Ph.D.**Title:** Postdoctoral Researcher**Affiliation:** UC Santa Cruz, Biotelemetry and Behavioral Ecology Lab and Costa Lab**Business e-mail address:** lpallin@ucsc.edu**Business phone number:** +1 (218) 591-0615**Relationship to Principal Investigator:**

I am a Postdoctoral Researcher working with Dr. Ari Friedlaender at the University of California Santa Cruz. I have been working on marine mammals (cetaceans 11 years, pinnipeds 5 years) with colleagues from both the USA and from other countries (New Zealand, Colombia, French Polynesia, New Caledonia) since 2012. During this time, I have been both a student and research technician, conducting and helping lead fieldwork as well as sample collection in the USA, Antarctica, and New Caledonia, as well as performing all required molecular and biochemical laboratory analyses from collected biological samples. Collectively, I have 11 years of marine mammal research, laboratory, and archiving experience and have personally worked on more than 15 different species, including all age and sex classes, and two species of pinnipeds. As well, I have extensive permit management experience and I am part of several other NMFS related MMPA/ESA permits, and currently hold my own parts permit (27102).

Table 1. Relevant Education

<i>Degree</i>	<i>Major/Field of Study</i>	<i>Institution and Location</i>	<i>Year Received</i>
<i>B.S.</i>	<i>Environmental Science and Marine Conservation</i>	<i>Duke University, Durham, NC</i>	2014
<i>M.S.</i>	<i>Wildlife Science</i>	<i>Oregon State University, Corvallis, OR</i>	2017
<i>M.A.</i>	<i>Ecology and Evolutionary Biology</i>	<i>University of California Santa Cruz, Santa Cruz, CA</i>	2019
<i>Ph.D.</i>	<i>Ecology and Evolutionary Biology</i>	<i>University of California Santa Cruz, Santa Cruz, CA</i>	2022

Relevant Experience**A. Table 2. Relevant Professional History**

<i>Job Title</i>	<i>Role</i>	<i>Affiliation</i>	<i>Location</i>	<i>Dates</i>
<i>Undergraduate Lab Technician</i>	<i>Molecular Biologist</i>	<i>Duke University</i>	<i>Beaufort, NC, USA</i>	<i>2012-14</i>
<i>Research Technician 1</i>	<i>Marine Mammal Molecular and Field Biologist</i>	<i>Duke University</i>	<i>Beaufort, NC, USA</i>	<i>2014-15</i>
<i>M.S. Student</i>	<i>Marine Mammal Biologist and Physiologist</i>	<i>Oregon State University</i>	<i>Newport, OR, USA</i>	<i>2015-17</i>

<i>Research Technician 1</i>	<i>Marine Mammal Molecular Biologist</i>	<i>Oregon State University</i>	<i>Newport, OR, USA</i>	<i>2017</i>
<i>Ph.D. Student</i>	<i>Marine Mammal Biologist and Physiologist</i>	<i>University of California Santa Cruz</i>	<i>Santa Cruz, CA, USA</i>	<i>2017-22</i>
<i>Post-Doctoral Researcher</i>	<i>Marine Mammal Biologist and Physiologist</i>	<i>University of California Santa Cruz</i>	<i>Santa Cruz, CA, USA</i>	<i>2022-Present</i>

B. Summary of Experience

List of duties to be performed under permit:

- Cetaceans: Small boat operation, Biopsy collection, Suction-cup tagging, Photo-identification, Laboratory analyses, Sample curation
- Pinnipeds: Assist in elephant seal field seasons including extensive time in the field, including re-sight efforts, basic animal handling, translocation transport, managing logistics, collect and analyze biological samples and assist and lead sedation procedures.

Table 3. Summary of Experience.

<i>Procedures</i>	<i>Experience Metrics: Estimated Number of Animals, Hours/Months/Years, Species, and Age Class</i>	<i>Most Recent Year Performed</i>	<i>Level of Experience</i>
<i>Cetaceans:</i>			
<i>Observation, behavior or monitoring; \ and Photo-Identification</i>	<i>Conducted photo-ID and observations of more than 1,000 cetaceans over the last 10 years including 6 species of baleen whale (humpback-all age classes, Antarctic minke, sei, fin, blue, southern right whales) and over 10 species of odontocetes (i.e. bottlenose, spotted, common, and rissos dolphins, pilot, killer, cuvier's and arnoux's beaked whales)</i>	<i>2022</i>	<i>4</i>
<i>Sample, biopsy</i>	<i>Over the last 10 years, I have successfully biopsied more than 1000 large whales, including humpback, arnouxs, Southern Right Whales, Fin Whales, and Antarctic minke whales (adult/juvenile) in the Southern Ocean and Central Pacific as well as over 50 smaller delphinids from species, including bottlenose, spotted, common, rissos dolphins and pilot whales in the Central Atlantic and Pacific.</i>	<i>2022</i>	<i>4</i>
<i>Small boat and Rhib operations</i>	<i>Driven and maneuvered either a small boat (zodiac) or Rhib over the last 10 years around 1000+ individual cetaceans, during close approaches for the purpose of conducting photo or behavioral observations, biopsy tissue sampling and driving for both suction cup and dart/implant tagging maneuvers.</i>	<i>2022</i>	<i>4</i>
<i>Acoustic, sonar for prey mapping</i>	<i>Non-harassment acoustic sonar recording of prey fields in key foraging areas of cetaceans in Antarctica. Extensively conducted prey surveys over three years (2015-2017) in the Antarctic using echosounders mounted to a small Rhib.</i>	<i>2018</i>	<i>3</i>
<i>Instrument, suction-cup tag cetaceans</i>	<i>Over the last seven years I have deployed 15 suction cup tags (CATS & DTAGs) on pilot whales (n=1) and humpback whales (n=6) in the Central Pacific and Central Atlantic oceans. >50 hours of in-the-boat prep/approach experience for tagging specifically</i>	<i>2022</i>	<i>3</i>

<i>Pole sample, exhaled air, and skin</i>	<i>I have breath-sampled humpbacks with a pole (~6) and done pole skin sampling on bow-riding dolphins (6)</i>	<i>2019</i>	<i>3</i>
<i>Collect, sloughed skin</i>	<i>Collected more than 100 sloughed skin sample in the central pacific from humpback whales</i>	<i>2019</i>	<i>4</i>
<i>Pinnipeds:</i>			
<i>Observation (mark resight, monitoring, behavioral) of pinnipeds; Count/Survey</i>	<i>I have resighted marks, brands, and flipper tags on many hundreds of animals over the last 5 years, including all sexes and age classes of northern elephant seals and California sea lions.</i>	<i>2022</i>	<i>4</i>
<i>Mark (bleach, dye, flipper tag) of pinnipeds</i>	<i>I have marked and/or flipper tagged ~500 northern elephant seals of all age classes and sexes over the last 5 years.</i>	<i>2022</i>	<i>4</i>
<i>Measure and weigh of pinnipeds</i>	<i>I have measured and weighed ~200 northern elephant seals of all sexes and ages classes over 5 years.</i>	<i>2022</i>	<i>4</i>
<i>Restraint (board, cage, hand, and net) of pinnipeds</i>	<i>I have successfully restrained ~100 weanling and juvenile northern elephant seals using all methods (primarily net/bag, cage, and hand restraint) over 5 years. This includes juvenile northern elephant seals (primary experience),</i>	<i>2022</i>	<i>4</i>
<i>Sample, blood; Sample, biopsy (muscle and blubber); Sample, (hair and vibrissae); Sample, swab (nasal, anal); Sample, milk of pinnipeds</i>	<i>I have successfully collected blood samples from ~150 adult female and juvenile northern elephant seals, and ~10 pup northern elephant seals. I have successfully collected blubber and/or muscle biopsies ~100 times on adult female and juvenile northern elephant seals. I have successfully collected ~150 vibrissae and ~150 hair samples in adult female, juvenile, and pup northern elephant seals. I have successfully collected ~50 nasal rectal swabs in adult northern elephant seals. I have successfully collected ~20 milk samples from adult female northern elephant seals. All this experience is over 5 years.</i>	<i>2022</i>	<i>4</i>
<i>Transport of pinnipeds</i>	<i>I have successfully transported ~50 juvenile northern elephant seals from the colony to laboratory facilities and/or a distant release sight over 2 years. This involved the sedation and caging of animals safely for transport. I helped with juvenile handling, caging, loading, unloading, and vehicle transport logistics.</i>	<i>2022</i>	<i>3</i>
<i>Ultrasound of pinnipeds</i>	<i>I have a hand-held ultrasound to measure blubber depth on ~20 adult female and juvenile northern elephant seals over 5 years.</i>	<i>2022</i>	<i>3</i>
<i>Capture of pinnipeds</i>	<i>Successfully captured ~200 northern elephant seals of all age and sex classes. This includes both canvas bags and or hand-injected sedatives.</i>	<i>2022</i>	<i>2</i>
<i>Instrument, external on pinnipeds</i>	<i>I have successfully attached instruments (VHF, ARGOS, accelerometers, cameras, physiology tags etc.) to ~150 adult female and juvenile northern elephant seals over 5 years.</i>	<i>2022</i>	<i>3</i>
<i>Administer drug (IV, subcutaneous,</i>	<i>I have administered various drugs (e.g. lidocaine, oxytocin) to ~250 individual northern elephant seals including all sexes and age classes over the last 5 years.</i>	<i>2022</i>	<i>3</i>

topical) for pinnipeds			
Anesthesia (injectable sedative) for pinnipeds	I have successfully performed ~30 anesthetic procedures on adult and ~20 on juvenile northern elephant seals under supervision over 3 years. I have also assisted with 200+ sedation procedures on adult and juvenile northern elephant seals over 5 years.	2022	2
Anesthesia (gas [cone, mask, and intubation])	Over 3 years, assisted intubation, ventilation and gas anesthesia of ~30 juvenile northern elephant seals. I have personally ventilated ~15 juvenile northern elephant seals and successfully intubated 1.	2022	2

Relevant training, certificates, or licenses

- CATS suction cup tagging training – Dr. Ari Friedlaender and Ross Nichols, M.S. (2021-2022)
- Lead field biologist and coordinator for RAPID NSF project in Monterey Bay, California for biopsy, photo id, boat operations on humpback whales (2020-Current)
- Lead field biologist in New Caledonia: under supervision of Dr. Clair Garrigue for biopsy, photo id, boat operations (Fall 2019)
- Cetacean research in the Antarctic: biopsy, photo id, boat operations (2016-Present)
- Research Technician at Oregon State University-Marine Mammal Institute (2017) Project: It's not what you might think –DNA profiling from SnotBot samples of whale blows
- Graduate Research Assistant Oregon State University-Marine Mammal Institute (2015-2017). Master's Thesis: Temporal variation in the demographics of Antarctic humpback whales along the Western Antarctic Peninsula
- Photo-identification training-Dr. Andrew Read's lab: Duke University Marine lab (2012-2015)
- D-tag deployment and tracking-Dr. Read's Lab (Summer 2015)
- D-tag setup and field training-Dr. Read's Lab and Woods Hole (Summer 2015)
- Boat operation near cetaceans-Dr. Read's Lab (Summer 2012)
- Biopsy collection for cetaceans-Dr. Read's Lab (Fall 2012)
- Biopsy training for cetaceans-Dr. Read's Lab (Summer 2012)
- Oceanic Cruise-RV Cape Hatteras as research tech conducting photo-id and biopsy for Dr. Read's Lab (Fall 2012)

Relevant peer-reviewed publication history (2 pages maximum)

Pallin, L. J., Kellar, N. M., Steel, D., Botero-Acosta, N., Baker, C. S., Conroy, J. A., Costa, D. P., Johnson, C. M., Johnston, D. W., Nichols, R. C., Nowacek, D. P., Read, A. J., Savenko, O., Schofield, O. M., Stammerjohn, S. E., Steinberg, D. K., & Friedlaender, A. S. 2023. A surplus no more? Variation in krill availability impacts reproductive rates of Antarctic baleen whales. *Global Change Biology*, 29, 2108– 2121. <https://doi.org/10.1111/gcb.16559>

Cimino, Megan A., Conroy, John A., Connors, Elizabeth, Bowman, Jeff, Corso, Andrew, Ducklow, Hugh, Fraser, William, **Pallin, Logan**, et al. 2023. Long-Term Patterns in Ecosystem Phenology near Palmer Station, Antarctica, from the Perspective of the Adélie Penguin. *Ecosphere*, 14(2): e4417. <https://doi.org/10.1002/ecs2.4417>

Pallin, L.J., Botero-Acosta, N., Steel, D. *et al.* 2022. Variation in blubber cortisol levels in a recovering humpback whale population inhabiting a rapidly changing environment. . *Scientific Reports*, **12**, 20250 <https://doi.org/10.1038/s41598-022-24704-6>

Bierlich, K. C., Hewitt, J., Schick, R., **Pallin, L.**, Dale, J., Friedlaender, A., ... & Johnston, D. W. 2022. Seasonal gain in body condition of foraging humpback whales along the Western Antarctic Peninsula.

Frontiers in Marine Science, 9, 2363. <https://doi.org/10.3389/fmars.2022.1036860>

Pallin L., Bierlich K. C., Durban J., Fearnbach H., Savenko O., Baker C. S., Bell E., Double M. C., de la Mare W., Goldbogen J., Johnston D., Kellar N., Nichols R., Nowacek D., Read A. J., Steel D. and Friedlaender A. 2022. Demography of an ice-obligate mysticete in a region of rapid environmental change. *R. Soc. open sci.* 9, 220724. <http://doi.org/10.1098/rsos.220724>

Marcondes, M.C.C., Cheeseman, T., Jackson, J.A., **Pallin, L.**, et al. 2021. The Southern Ocean Exchange: porous boundaries between humpback whale breeding populations in southern polar waters. *Sci Rep* 11, 23618. <https://doi.org/10.1038/s41598-021-02612-5>

Michelle Modest, Irvine, L. Andrews-Goff, V., Gough, W., Johnston, D., Nowacek, D., **Pallin, L.**, Read, A., Tyson Moore, R., Friedlaender, A. 2021. First description of migratory behavior of humpback whales from an Antarctic feeding ground to a tropical calving ground. *Animal Biotelemetry* 9, 42. <https://doi.org/10.1186/s40317-021-00266-8>

Atkinson, Shannon, ..., **Pallin, Logan**, et al. 2021. Genetic, Endocrine, and Microbiological Assessments of Blue, Humpback and Killer Whale Health using Unoccupied Aerial Systems. *Wildlife Society Bulletin*. <https://doi.org/10.1002/wsb.1240>

Caballero S, Steel D, **Pallin L**, ... Friedlander A, Baker CS. 2021. Migratory connections among breeding grounds off the Eastern Pacific and feeding areas in the Antarctic Peninsula based on genotype matching. *Bulletin of Marine and Coastal Research*. 50 (Supl. Esp.), 31-40. <https://doi.org/10.25268/bimc.invmar.2021.50.SuplEsp.933>

Pallin, L., Robbins, J., Kellar, N., Bérubé, M., & Friedlaender, A. (2018). Validation of a blubber-based endocrine pregnancy test for humpback whales. *Conservation Physiology*, 6(1), coy031.

Pallin L, Baker CS, Steel D, Kellar NM, Robbins J, Johnston DW, Nowacek DP, Read AJ, Friedlaender AS. 2018 High pregnancy rates in humpback whales (*Megaptera novaeangliae*) around the Western Antarctic Peninsula, evidence of a rapidly growing population. *R. Soc. open sci.* 5: 180017. <http://dx.doi.org/10.1098/rsos.180017>

Riekkola, L., Zerbini, A. N., Andrews, O., Andrews-Goff, V., Baker, C. S., Chandler, D., Childerhouse, S., Clapham, P., Dodémont, R., Donnelly, D., Friedlaender, A., Gallego, R., Garrigue, C., Ivashchenko, Y., Jarman, S., Lindsay, R., **Pallin, L.**, Robbins, J., Steel, D., Tremlett, J., Vindenes, S., & Constantine, R. (2018). Application of a multi-disciplinary approach to reveal population structure and Southern Ocean feeding grounds of humpback whales. *Ecological Indicators*, 89, 455-465.

Relevant reports and presentations (1 page maximum)

Pallin, L. (2017). Temporal Variation in Humpback Whale (*Megaptera novaeangliae*) Demographics Along the Western Antarctic Peninsula. (Master's Thesis). (Master's of Science), Oregon State University, Oregon State University Scholars Archive. (Identifier: <http://hdl.handle.net/1957/61621>)

Ari S. Friedlaender, Susan G. Heaslip, David W. Johnston, Andy Read, Doug Nowacek, John W. Durban, Robert L. Pitman, **Logan Pallin**, Jeremy Goldbogen, and Nick Gales. Comparison of humpback (*Megaptera novaeangliae*) and Antarctic minke (*Balaenoptera bonaerensis*) movements in the Western Antarctic Peninsula using state-space modelling methods. Report to the IWC SC/66b/em. Bled, Slovenia May 2016.

Pallin LJ, Adams EM, Goyert HF, Friedlaender AS, Johnston DW. 2015. Density modeling for marine mammals and sea turtles with environmental covariates. In: *Wildlife Densities and Habitat Use*

Across Temporal and Spatial Scales on the Mid-Atlantic Outer Continental Shelf: Final Report to the Department of Energy EERE Wind & Water Power Technologies Office. Williams KA, Connelly EE, Johnson SM, Stenhouse IJ (eds.) Award Number: DE-EE0005362. Report BRI 2015-11, Biodiversity Research Institute, Portland, Maine. 35 pp.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

March 28, 2023

Logan Pallin, Ph.D.
Institute for Marine Sciences
115 McAllister Way
Ocean Health Building
Santa Cruz, CA 95060

Dear Dr. Pallin:

The National Marine Fisheries Service (NMFS) has issued Permit No. 27102 to the Institute for Marine Sciences for research activities on marine mammal parts. This permit is effective upon your signature and is valid through March 31, 2028. To use your permit:

1. Read the permit, including attachments. If you have questions, email your permit analyst – Jennifer Skidmore (jennifer.skidmore@noaa.gov) or Shasta McClenahan, Ph.D. (shasta.mcclenahan@noaa.gov) before signing the permit.
2. Sign and date the signature page.
3. Keep the original signature page with your permit.
4. Return a copy of the signature page to our office by email to your permit analysts.
5. Provide a copy of this letter and the permit to each Co-Investigator (CI).

Salvage: While this permit does authorize collection via salvage of parts from dead marine mammals in Antarctica, it does not authorize collection or receipt of specimens from marine mammals stranded dead or alive in the United States. To obtain and report samples from U.S. stranded animals, contact the appropriate NMFS Regional Stranding Network Coordinators (<https://www.fisheries.noaa.gov/contact-directory/marine-mammal-stranding-network-coordinators>).

Fisheries Bycatch: To receive marine mammal carcasses or parts from animals killed incidental to commercial fisheries in the United States contact the appropriate NMFS Science Centers (<https://www.fisheries.noaa.gov/contact-directory/science-centers>).

Import/Export: The import and export of species, or parts of species, listed on the Appendices to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) requires a CITES Permit. For further information please contact the U.S. Fish and Wildlife Service (USFWS), Division of Management Authority, Branch of Permits, MS: IA, 5275 Leesburg Pike, Falls Church, VA 22041-3803 (1-800-358-2104).

All samples imported or exported must be declared and cleared through a USFWS port designated for wildlife (50 CFR 14.12) and a Wildlife Declaration Form 3-177 must be filed with the USFWS inspector at the time of import or export. Contact the appropriate port for details



about how to declare and clear your shipment *prior* to shipping your samples. The list of designated ports and Form 3-177 may be obtained from: <https://www.fws.gov/media/wildlife-trade-designated-portspdf>.

Permit Reporting: Please see Appendix C of your permit, which outlines your reporting requirements. Note:

- All collection, import, export, and the receipt of parts under the authority of this permit must be reported in your annual report tables.
- Parts received from U.S. stranding networks should not be reported under this permit (see salvage section above).
- Transfers of parts acquired under the authority of this permit to CIs or Authorized Recipients (ARs) within the United States should not be reported in your annual report tables.

Disease Transmission: To minimize disease transmission, we recommend these routine practices be followed:

- All personnel should refer to local, State, and national requirements and public health guidance for their activities.
- All personnel should wear appropriate personal protective equipment (PPE) when working with marine mammal parts.
- Work clothes, including footwear and dedicated PPE, should be worn only at work.
- Indirect contact between pets kept at home and wild animals should not occur including contact via footwear, equipment, and clothes.
- Individuals who are ill should not work with live animals until cleared by their health care provider.

For more information see the Centers for Disease Control and Prevention www.cdc.gov, the United States Department of Agriculture <https://www.usda.gov>, the World Organization for Animal Health <https://www.oie.int>, the American Veterinary Medical Association www.avma.org, and the World Health Organization www.who.int.

Please keep your contact information current in our online database (<https://apps.nmfs.noaa.gov>). You will receive automated email reminders of due dates for annual and final reports and a notice prior to expiration of your permit.

Sincerely,

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SLOAN.AMY.C.1365868545
Date: 2023.03.28 07:13:35
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Jolie Harrison
Chief, Permits and Conservation Division
Office of Protected Resources

Enclosure



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

Permit No. 27102
Expiration Date: March 31, 2028
Reports Due: June 30, annually

PERMIT TO COLLECT, RECEIVE, POSSESS, IMPORT, AND EXPORT PROTECTED SPECIES¹ PARTS FOR SCIENTIFIC PURPOSES

I. Authorization

This permit is issued to the Institute for Marine Sciences (hereinafter “Permit Holder”), 115 McAllister Way, Ocean Health Building, Santa Cruz, CA 95060 [Responsible Party: Logan Pallin, Ph.D.], pursuant to the provisions of the Marine Mammal Protection Act of 1972 as amended (MMPA; 16 U.S.C 1361 *et seq.*); the regulations governing the taking and importing of marine mammals (50 CFR Part 216); the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*); the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR Parts 222-226); and the Fur Seal Act of 1966 (FSA; 16 U.S.C. 1151 *et seq.*).

II. Abstract

The objective of the research is to monitor population demographics of marine mammals through the study of genetic diversity, population structure, abundance, individual movement, and health. In addition, parts will be maintained in a curated collection for future research.

III. Terms and Conditions

The activities authorized herein must occur by the means, in the areas, and for the purposes set forth in the permit application, and as limited by the Terms and Conditions specified in this permit, including attachments and appendices. Permit noncompliance constitutes a violation and is grounds for permit modification, suspension, or revocation, and for enforcement action.

A. Duration of Permit

1. Personnel listed in Condition C.1 of this permit (hereinafter “Researchers”) may conduct activities authorized by this permit through March 31, 2028. This permit expires on the date indicated and is non-renewable. This permit may be extended by the Director, NMFS Office of Protected Resources or the Chief, Permits and Conservation Division (hereinafter “Permits Division”), pursuant to applicable regulations and the requirements of the MMPA, ESA, and FSA.
2. Researchers must immediately stop permitted activities and the Permit Holder must contact the Permits Division for written permission to resume if authorized

¹ “Protected species” include species listed as threatened or endangered under the ESA, and marine mammals.



numbers for collection, receipt, import, or export are exceeded. See Condition E.2 for reporting requirements.

B. Number and Kinds of Protected Species, Locations and Permitted Activities

1. The table in Appendix A outlines the number of animals, by taxa, from which marine mammal parts may be collected, received, imported, or exported, and the locations and time periods in which these activities may occur.
2. This permit does not authorize the take² of any live protected species.
3. Biological samples³ may be obtained from the following sources in the United States and in foreign countries, as specified:
 - a. Marine mammals killed during legal U.S. or foreign subsistence harvests;
 - b. Marine mammals stranded alive or dead or that died during rehabilitation in foreign countries, including collection of parts from dead stranded marine mammals in Antarctica;
 - Collecting or receiving parts from U.S. stranded marine mammals must be authorized by the NMFS Stranding Network, and is not covered by this permit. Contact information available at: <https://www.fisheries.noaa.gov/contact-directory/marine-mammal-stranding-network-coordinators>);
 - c. Marine mammals that died incidental to commercial fishing operations in foreign countries where such taking is legal;
 - d. Marine mammals that died incidental to commercial fishing operations in the United States where such taking is legal (samples may be obtained from NMFS Science Centers, <https://www.fisheries.noaa.gov/contact-directory/science-centers>);
 - e. Marine mammals in captivity where samples were taken as a result of routine husbandry procedures or under separate permit in the United States or abroad; and

² A take under the MMPA means to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal. A take under the ESA means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to do so. Take under the MMPA and ESA includes the collection of dead animals, or parts thereof. A take or taking under the FSA means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill. The FSA authorizes the taking, transportation, importation, exportation, or possession of northern fur seals or their parts for educational, scientific, or exhibition purposes.

³ Biological samples include, but are not limited to: carcasses (whole or parts); and any tissues, fluids, or other specimens from live or dead protected species; except feces, urine, and spew collected from the water or ground.

- f. Samples from other authorized persons or collections.
- 4. Biological samples obtained from sources in B.3 above and biological samples from stranded marine mammals in the United States under separate authorization may be exported and re-imported.
- 5. Marine mammal parts imported under the authority of this permit must be taken in a humane manner and in compliance with the Acts and any applicable foreign law. Importation of marine mammals and marine mammal parts is subject to the provisions of 50 CFR Parts 14 and 23.
- 6. The Permit Holder must not obtain samples from marine mammals:
 - a. Taken in any high seas driftnet fishery after December 31, 1992;
 - b. Deliberately killed for the express purposes of fulfilling this permit;
 - c. Taken illegally in the country of origin;
 - d. Taken during whaling activities not approved by the International Whaling Commission (IWC);
 - e. Taken during whaling activities opposed by the United States⁴; or
 - f. Taken in a directed cetacean fishery opposed by the United States, including Japanese “drive fisheries.”
- 7. The Permit Holder must comply with the following conditions, and the regulations at 50 CFR 216.37 (Appendix B), for biological samples acquired or possessed under authority of this permit.
 - a. The Permit Holder is ultimately responsible for compliance with this permit and applicable regulations related to the samples unless the samples are permanently transferred per Condition at B.7.d.
 - b. Biological samples must be maintained according to accepted curatorial standards and must be labeled with a unique identifier (e.g., alphanumeric code) that is connected to on-site records with information identifying the:
 - i. Species and, where known, age and sex;
 - ii. Date of collection, acquisition, or import;
 - iii. Type of sample (e.g., blood, skin, bone);
 - iv. Origin (i.e., where collected or imported from); and

⁴ Including samples taken during scientific whaling and commercial hunts after the IWC Whaling Moratorium of 1986.

- v. Legal authorization for original sample collection or import.
 - c. For temporary transfers:
 - i. The Permit Holder may designate Authorized Recipients (ARs) for analysis and curation of samples related to the permit objectives. The Permit Holder must maintain a record of the transfer including the following:
 - 1. Name and affiliation of the AR;
 - 2. Address of the AR;
 - 3. Types of samples sent (species, tissue type);
 - 4. Type of analysis; and
 - 5. Whether samples will be consumed in analysis, returned to the Permit Holder, curated, or destroyed.
 - ii. The Permit Holder must provide a written copy of the AR designation and the permit per Condition D.3 when transferring samples to the AR (contact your permit analysts for an example letter).
 - iii. Samples remain in the legal custody of the Permit Holder while in the possession of ARs. The Permit Holder remains responsible for the samples, including any reporting requirements.
 - d. For permanent transfers: If the Permit Holder wishes to permanently transfer marine mammal samples (i.e., relinquish custody), recipients must have separate authorization pursuant to 50 CFR 216.37 (e.g., permit, regional authorization letter) prior to transfer.
 - e. This permit does not authorize the creation or use of marine mammal cell lines.
 - f. Samples cannot be bought or sold. This does not apply to reimbursement associated with actual costs (e.g., shipment or transport costs).
 - g. After meeting the permitted objectives, the Permit Holder may continue to possess and use (excluding export) biological samples acquired under this permit, including after permit expiration, without additional written authorization. The samples must be maintained as specified in the permit and a copy of the permit must be kept with the samples forever.
8. Researchers working under this permit may collect visual images (i.e., any form of still photographs, film, video, or other footage) as needed to document the permitted activities in the field (i.e., collection of parts in Antarctica), provided the collection of such images does not result in harassment of protected species.

9. The Permit Holder may use visual images collected under this permit, in printed materials (including commercial or scientific publications), electronic media (e.g., web pages), and presentations provided the images are accompanied by a statement indicating that the activity depicted was conducted pursuant to NMFS ESA/MMPA Permit No. 27102. This statement must accompany the images in all subsequent uses or sales.
10. Upon written request from the Permit Holder, approval for photography, filming, or audio recording activities not essential to achieving the objectives of the permitted activities in the field (i.e., collection of parts in Antarctica), including allowing personnel not essential to the research (e.g., a documentary film crew) to be present, may be granted by the Chief, Permits Division.
 - a. Where such non-essential photography, filming, or recording activities are authorized they must not influence the conduct of permitted activities in any way or result in takes of protected species.
 - b. Personnel authorized to accompany the Researchers during permitted activities for the purpose of non-essential photography, filming, or recording activities are not allowed to participate in the permitted activities.
 - c. The Permit Holder and Researchers cannot require or accept compensation in return for allowing non-essential personnel to accompany Researchers to conduct non-essential photography, filming, or recording activities.

C. Qualifications, Responsibilities, and Designation of Personnel

1. At the discretion of the Permit Holder, the following Researchers may participate in the conduct of the permitted activities in accordance with their qualifications and the limitations specified herein:
 - a. Principal Investigator – Logan Pallin, Ph.D. for all activities;
 - b. Co-Investigators – Daniel Costa, Ph.D. and Ari Friedlaender, Ph.D. for all activities; and
 - c. Research Assistants – personnel identified by the Permit Holder or Principal Investigator and qualified to act pursuant to Conditions C.2, C.3, and C.4 of this permit.
2. Individuals conducting permitted activities must possess qualifications commensurate with their roles and responsibilities. The roles and responsibilities of personnel operating under this permit are as follows:

- a. The Permit Holder is ultimately responsible for activities of individuals operating under the authority of this permit. Where the Permit Holder is an institution/facility, the Responsible Party is the person at the institution/facility who is responsible for the supervision of the Principal Investigator.
 - b. The Principal Investigator (PI) is the individual primarily responsible for the taking, import, export and related activities conducted under the permit. The PI must be on site during activities conducted under this permit unless a Co-Investigator named in Condition C.1 is present to act in place of the PI.
 - c. Co-Investigators (CIs) are individuals who are qualified to conduct activities authorized by the permit, for the objectives described in the application, without the on-site supervision of the PI. CIs assume the role and responsibility of the PI in the PI's absence.
 - d. Research Assistants (RAs) are individuals who work under the direct and on-site supervision of the PI or a CI. RAs cannot conduct permitted activities in the absence of the PI or a CI.
3. Personnel involved in permitted activities in the field (i.e., collection of parts in Antarctica) must be reasonable in number and essential to conduct of the permitted activities. Essential personnel are limited to:
 - a. Individuals who perform a function directly supportive of and necessary to the permitted activity (including operation of vessels or aircraft essential to conduct of the activity);
 - b. Individuals included as backup for those personnel essential to the conduct of the permitted activity; and
 - c. Individuals included for training purposes.
4. Persons who require state or Federal licenses to conduct activities authorized under the permit must be duly licensed when undertaking such activities.
5. The Permit Holder cannot require or receive direct or indirect compensation from a person approved to act as PI, CI, or RA under this permit in return for requesting such approval from the Permits Division.
6. The Permit Holder or PI may add CIs by submitting a request to the Chief, Permits Division that includes a description of the individual's qualifications to conduct and oversee the activities authorized under this permit. If a CI will only be responsible for a subset of permitted activities, the request must also specify the activities for which they would provide oversight.

7. Where the Permit Holder is an institution, the Responsible Party may request a change of PI by submitting a request to the Chief, Permits Division that includes a description of the individual's qualifications to conduct and oversee the activities authorized under this permit.
8. Submit requests to add CIs or change the PI by one of the following:
 - a. The APPS online system at <https://apps.nmfs.noaa.gov>;
 - b. An email attachment to the permit analysts for this permit; or
 - c. A hard copy mailed to the Chief, Permits Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Room 13705, Silver Spring, MD 20910; phone (301)427-8401.

D. Possession of Permit

1. This permit cannot be transferred or assigned to any other person.
2. The Permit Holder and persons operating under the authority of this permit must possess a copy of this permit when:
 - a. Engaged in a permitted activity;
 - b. A protected species part is in transit incidental to a permitted activity; and
 - c. A protected species part taken, received, imported, or exported under the permit is in the possession of such persons.
3. A duplicate copy of this permit must accompany or be attached to the container, package, enclosure, or other means of containment in which a protected species part is placed for purposes of storage or transit.

E. Reports

1. The Permit Holder must submit annual, final, and incident reports containing the information and in the format specified by the Permits Division.
 - a. Reports must be submitted to the Permits Division by one of the following:
 - i. The APPS online system at <https://apps.nmfs.noaa.gov>;
 - ii. An email attachment to the permit analysts for this permit; or
 - iii. A hard copy mailed to the Chief, Permits Division.
 - b. You must contact your permit analysts for a reporting form if you do not submit reports through the online system.

2. Incident reports: must be submitted within two weeks of exceeding authorized collection, receipt, import, or export, as specified in Condition A.2.
 - a. The incident report must include a complete description of the events and identification of steps that will be taken to reduce the potential for exceeding authorized collection, receipt, import, or export.
 - b. In addition to the written report, the Permit Holder must contact the Permits Division by phone (301-427-8401) as soon as possible, but no later than within two business days of the incident.
 - c. The Permits Division may grant authorization to resume permitted activities based on review of the incident report and in consideration of the Terms and Conditions of this permit.
3. Annual reports describing activities conducted during the previous permit year (from April 1 to March 31 of the following year) must:
 - a. Be submitted by June 30th each year the permit is valid; and
 - b. Include a tabular and narrative accounting of activities (Appendix C).
4. A joint annual/final report including a discussion of whether the objectives were achieved must be submitted by June 30, 2028, or, if the research concludes prior to permit expiration, within 90 days of completion of the research.
5. Research results must be published or otherwise made available to the scientific community in a reasonable period of time. Copies of technical reports, conference abstracts, papers, or publications resulting from permitted research must be submitted the Permits Division upon request.

F. Notification and Coordination

1. The Permit Holder must provide written notification of planned field work (i.e., collection of parts in Antarctica) to the appropriate NMFS Region at least two weeks prior to initiation of each field trip/season. If there will be multiple field trips/seasons in a permit year, a single summary notification may be submitted per year.
 - a. Notification must include the:
 - i. Locations of the intended collection sites,
 - ii. Estimated dates of activities, and
 - iii. Number and roles of participants.

- b. Notification must be sent to the following Assistant Regional Administrator for Protected Resources for activities in the Antarctic:

West Coast Region, NMFS, 501 West Ocean Blvd., Suite 4200, Long Beach, CA 90802-4213; phone (562)980-4005; fax (562)980-4027
Email (*preferred*): WCR.research.notification@noaa.gov

2. To the maximum extent practical, the Permit Holder must coordinate permitted activities with activities of other Permit Holders conducting the same or similar studies on the same species.

G. Observers and Inspections

1. NMFS may review activities conducted under this permit. At the request of NMFS, the Permit Holder must cooperate with any such review by:
 - a. Allowing any employee of NOAA or other person designated by the Director, NMFS Office of Protected Resources to observe permitted activities; and
 - b. Providing all documents or other information relating to the permitted activities.

H. Modification, Suspension, and Revocation

1. Permits are subject to suspension, revocation, modification, and denial in accordance with the provisions of Subpart D [Permit Sanctions and Denials] of 15 CFR Part 904.
2. The Director, NMFS Office of Protected Resources may modify, suspend, or revoke this permit in whole or in part:
 - a. In order to make the permit consistent with any change made after the date of permit issuance with respect to applicable regulation prescribed under Section 103 of the MMPA and Section 4 of the ESA;
 - b. In a case in which a violation of the terms and conditions of the permit is found;
 - c. In response to a written request⁵ from the Permit Holder;

⁵ The Permit Holder may request changes to the permit related to: the objectives or purposes; the species or number of animals, and the location, time, or manner of taking/collecting, importing and exporting protected species. Such requests must be submitted in writing to the Chief, Permits Division in the format specified in the application instructions.

- d. If NMFS determines that the application or other information pertaining to the permitted activities (including, but not limited to, reports pursuant to Section E of this permit and information provided to NOAA personnel pursuant to Section G of this permit) includes false information; and
 - e. If NMFS determines that the authorized activities will operate to the disadvantage of threatened or endangered species or are otherwise no longer consistent with the purposes and policy in Section 2 of the ESA.
- 3. Issuance of this permit does not guarantee or imply that NMFS will issue or approve subsequent permits or amendments for the same or similar activities, including those of a continuing nature, requested by the Permit Holder.

I. Penalties and Permit Sanctions

- 1. A person who violates a provision of this permit, the MMPA, ESA, FSA, or the regulations at 50 CFR Part 216 and 50 CFR Parts 222-226 is subject to civil and criminal penalties, permit sanctions, and forfeiture as authorized under the MMPA, ESA, FSA, and 15 CFR Part 904.
- 2. The NMFS Office of Protected Resources shall be the sole arbiter of whether a given activity is within the scope and bounds of the authorization granted in this permit.
 - a. The Permit Holder must contact the Permits Division for verification before conducting the activity if they are unsure whether an activity is within the scope of the permit.
 - b. Failure to verify, where the NMFS Office of Protected Resources subsequently determines that an activity was outside the scope of the permit, may be used as evidence of a violation of the permit, the MMPA, ESA, FSA, and applicable regulations in any enforcement actions.

J. Acceptance of Permit

1. In signing this permit, the Permit Holder:
 - a. Agrees to abide by all terms and conditions set forth in the permit, all restrictions and relevant regulations under 50 CFR Parts 216 and 222-226, and all restrictions and requirements under the MMPA, and the ESA, and the FSA;
 - b. Acknowledges that the authority to conduct certain activities specified in the permit is conditional and subject to authorization by the NMFS Office Director; and
 - c. Acknowledges that this permit does not relieve the Permit Holder of the responsibility to obtain any other permits, or comply with any other Federal, State, local, or international laws or regulations.

DAMON
RANDALL.KIMBERLY.BETH.
1365821093

Digitally signed by DAMON
RANDALL.KIMBERLY.BETH.136582
1093
Date: 2023.03.27 15:54:16 -04'00'

Kimberly Damon-Randall
Director, Office of Protected Resources
National Marine Fisheries Service

3/27/2023

Date Issued

Logan Pallin, Ph.D.
Institute for Marine Sciences
Responsible Party

Date Effective

Appendix A: Tables Specifying the Kinds of Protected Species, Locations, and Authorized Activities

Table A1. Annual collection,⁶ receipt, import and export of samples from any ESA-listed and non-ESA listed pinniped and cetacean under NMFS jurisdiction. No takes of live animals are authorized. Sources of samples are identified in Conditions B.3 and B.4.

Marine mammal parts (carcasses, hard and soft parts) may be collected, received, imported, and exported at any time of year. Import and export includes all countries with an appropriate management authority (e.g., Parties of the Convention on Trade in Endangered Species). Marine mammal parts may be analyzed and curated at the Institute of Marine Science (Santa Cruz, California), and at laboratories and facilities of designated Co-Investigators and Authorized Recipients.

Line No.	Species	Life Stage	Sex	No. Animals per Year	No. Samples per Animal	Authorized Action	Details
1	Cetacean, unidentified	All	Male and Female	2,000	Unlimited	Export; Import; Receive domestically; Salvage (carcass, tissue, parts)	Unlimited samples from up to 2,000 individual cetaceans of any species. Salvage is restricted to marine mammal parts in Antarctica.
2	Pinniped, unidentified	All	Male and Female	2,000	Unlimited	Export; Import; Receive domestically; Salvage (carcass, tissue, parts)	Unlimited samples from up to 2,000 individual pinnipeds of any species (excluding walrus). Salvage is restricted to marine mammal parts in Antarctica.

⁶ Collection of parts is restricted to the salvage of marine mammal parts in Antarctica.

Appendix B: 50 CFR 216.37 Marine Mammal Parts

With respect to marine mammal parts acquired by take or import authorized under a permit issued under this subpart:

(a) Marine mammal parts are transferrable if:

(1) The person transferring the part receives no remuneration of any kind for the marine mammal part;

(2) The person receiving the marine mammal part is:

(i) An employee of NMFS, the U.S. Fish and Wildlife Service, or any other governmental agency with conservation and management responsibilities, who receives the part in the course of their official duties;

(ii) A holder of a special exception permit which authorizes the take, import, or other activity involving the possession of a marine mammal part of the same species as the subject part; or

(iii) In the case of marine mammal parts from a species that is not depleted, endangered or threatened, a person who is authorized under section 112(c) of the MMPA and subpart C of this part to take or import marine mammals or marine mammal parts;

(iv) Any other person specifically authorized by the Regional Director, consistent with the requirements of paragraphs (a)(1) and (a)(3) through (6) of this section.

(3) The marine mammal part is transferred for the purpose of scientific research, maintenance in a properly curated, professionally accredited scientific collection, or education, provided that, for transfers for educational purposes, the recipient is a museum, educational institution or equivalent that will ensure that the part is available to the public as part of an educational program;

(4) A unique number assigned by the permit holder is marked on or affixed to the marine mammal part or container;

(5) The person receiving the marine mammal part agrees that, as a condition of receipt, subsequent transfers may only occur subject to the provisions of paragraph (a) of this section; and

(6) Within 30 days after the transfer, the person transferring the marine mammal part notifies the Regional Director of the transfer, including a description of the part, the person to whom the part was transferred, the purpose of the transfer, certification that the recipient has agreed to comply with the requirements of paragraph (a) of this section for subsequent transfers, and, if applicable, the recipient's permit number.

(b) Marine mammal parts may be loaned to another person for a purpose described in paragraph (a)(3) of this section and without the agreement and notification required under paragraphs (a)(5) and (6) of this section, if:

(1) A record of the loan is maintained; and

(2) The loan is for not more than one year. Loans for a period greater than 12 months, including loan extensions or renewals, require notification of the Regional Director under paragraph (a)(6).

(c) Unless other disposition is specified in the permit, a holder of a special exception permit may retain marine mammal parts not destroyed or otherwise disposed of during or after a scientific research or enhancement activity, if such marine mammal parts are:

(1) Maintained as part of a properly curated, professionally accredited collection; or

(2) Made available for purposes of scientific research or enhancement at the request of the Office Director.

(d) Marine mammal parts may be exported and subsequently reimported by a permit holder or subsequent authorized recipient, for the purpose of scientific research, maintenance in a properly curated, professionally accredited scientific collection, or education, provided that:

(1) The permit holder or other person receives no remuneration for the marine mammal part;

(2) A unique number assigned by the permit holder is marked on or affixed to the marine mammal specimen or container;

(3) The marine mammal part is exported or reimported in compliance with all applicable domestic and foreign laws;

(4) If exported or reimported for educational purposes, the recipient is a museum, educational institution, or equivalent that will ensure that the part is available to the public as part of an educational program; and

(5) Special reports are submitted within 30 days after both export and reimport as required by the Office Director under 216.38.

Appendix C: Protected Species Parts Permit Annual Report Form

Reports may be submitted:

- a. Through the online system at <https://apps.nmfs.noaa.gov>;
- b. By email attachment to the permit analysts for this permit; or
- c. By hard copy mailed to the Chief, Permits Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Suite 13705, Silver Spring, MD 20910; phone (301)427-8401.

If you do not intend to submit your report online, please contact your permit analysts for an electronic report form to fill out and return.

Date: _____ Reporting Period: _____

Permit Number: _____ Permit Holder's Name: _____

Contact Name: _____ Contact Email: _____

Contact Phone #: _____ (Contact = person submitting report)

Part I: APPS and Sample Tables.

Table Guidance:

Annual Report Tables Guidance:

- Report any parts you collect, import, export, or receive from the sources identified in Condition B.3.
- Report any export and re-import of marine mammal parts in accordance with Condition B.4, including U.S. stranded parts.
- Do not report collection or receipt of parts from marine mammals stranded dead or alive in the United States. These parts are not authorized under this permit.
- Do not report subsequent transfers of parts acquired under this permit to Co-Investigators (CIs) or Authorized Recipients (ARs) within the United States. However, do discuss the research collaborations with CIs and ARs in the narrative portion (Question 1).

Instructions for filling out the tables:

1. APPS Table. Enter information on the actual number of animals of each taxa from which parts were imported, exported, or received during this reporting period according to the tables in your permit. For unidentified cetaceans and pinnipeds, please provide the total number of animals from which parts were collected, imported, exported, and/or received during this reporting period.
2. Sample Table. Provide more specific information in a separate table to document the legal collection and receipt of samples imported, exported, or received during this

reporting period. Copies of such documentation must be submitted the Permits Division, upon request.

You must fill out and submit one of the following:

- The provided excel table; or
- Your own tracking table, provided it includes all the required information as described in the excel table.

Part II: Narrative.

Provide responses to the questions in APPS to the best of your ability and as applicable to your activities (overview on <https://www.fisheries.noaa.gov/national/reports-protected-species-permits>). If a question is not applicable, explain why.

Vertebrate Sample Use Protocol Application

This form is for research, teaching, testing, or experimentation involving no contact with any living vertebrates. The IACUC encourages anyone working with cephalopods to also fill out the form or include in a protocol form. **Please fill out this form completely—enter NA where not applicable—and send preferably as a Word document to iacuc@ucsc.edu.** To select a checkbox, double click on the checkbox and set the default value to "Checked." Questions and feedback regarding this form should be directed to iacuc@ucsc.edu.

A. ADMINISTRATIVE DATA

Submission date: 04/18/2023		
Protocol title: Receipt, collection, import, and export of marine mammal parts, DNA, and hormone extracts for population demographic monitoring and opportunistic research		
Principal investigator: Dr. Logan Pallin		
Department: Ocean Sciences/Institute of Marine Sciences		
Phone: (218) 591-0615	Email: lpallin@ucsc.edu	Mail stop: Ocean Health Bldg
Co-respondent(s) on protocol communications: Dr. Ari Friedlaender (arsfried@ucsc.edu)/Dr. Dan Costa (costa@ucsc.edu)		

- Provide the course name and number if this is a class activity.
N/A
- If this animal use protocol is externally funded, specify the funding source and Cayuse proposal number assigned by the Office of Sponsored Projects. For PHS and NSF projects specifically, please ensure before submitting this IACUC application that the scope of work, species, numbers, agents and methods for them, procedures, and euthanasia methods are congruent between the grant and application. Note that in general, grant proposal descriptions will be broad and IACUC protocols more specific. Add or delete rows as needed.

Funding Source	Cayuse <u>proposal</u> number (not the project number)	Comment
NA	NA	

The vertebrate samples that could be received under this protocol are not tied to specific funding at UCSC, however, if funding is obtained for analysis of these samples in the future, we will add that information by amendment.

- List the names of all individuals authorized to conduct procedures involving animal contact under this proposal and provide their institutional affiliation, role, email, and phone number. Add or delete rows as needed. Named individuals must complete the "Group A: For Non-Contact Research Only" CITI IACUC online training course. Once your protocol is approved, any additional key personnel must be added by amendment (see UCSC IACUC Forms webpage for updated Protocol Amendment Form) **prior** to direct participation in the proposed activities.

Name	Institutional Affiliation	Protocol Study Role	Email address	Phone	completed? enter date below		Non-affiliated personnel affirmation*
					CITI training	OHSS (safety)	
Logan Pallin	UCSC	PI	lpallin@ucsc.edu	218-591-0615	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ari Friedlaender	UCSC	CI	arsfried@ucsc.edu	919-672-0103	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dan Costa	UCSC	CI	costa@ucsc.edu	831-227-4555	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*PI affirms by checking this box that any non-affiliated individual has completed animal care and use training and occupational health and safety assessment at the individual's home institution.

- In the event of an animal emergency, please provide the emergency contact information for how the PI and co-respondent(s) can be reached:

N/A – no live animals to be involved.

B. STUDY OBJECTIVES

- What is the purpose of this activity? (To select a checkbox, double click on the checkbox and set the default value to "Checked." You may select more than one.)

☐ Grant/Contract ☒ Research ☐ Pilot Study ☐ Student Project ☐ Teaching ☐ Public Display
☒ Other: Archiving, sample import

- Briefly explain the aim of the study or activity, and, if appropriate, why the study is important to human or animal health, the advancement of knowledge, or the good of society. Use language and words which a layperson (non-medical, non-scientific) would understand.

This project and associated NMFS Permit involve the collection, receipt, importation, and exportation of samples. The project aims to maximize population demographic monitoring of marine mammals through an improved understanding of the genetic diversity, population structure, abundance, individual movement, population demography, and health of cetaceans and pinnipeds. Possible species include any species of cetaceans and pinnipeds, except the walrus.

Archiving tissue samples, DNA, and hormones are critical for population demographic monitoring and understanding the effects of stressors (e.g., climate change, human impacts) on population dynamics. The collection, import, and export of marine mammal parts, DNA, and hormones held in the collections and archives of scientific institutions around the world will better facilitate our understanding of the impacts of continued change on marine mammal population dynamics and demography, ultimately enhancing our ability to inform adaptive conservation and management practices. These efforts will also ensure that international borders do not limit the science required for the conservation of marine mammals.

Marine mammal samples may be obtained by our team as salvage from naturally deceased carcasses in Antarctica only, or from collaborators anywhere in the world under internationally approved permits; no sampling of living animals will occur under this protocol. The collection, shipping, and analysis of marine mammal samples is highly regulated and will occur in accordance with all applicable legal requirements.

C. COLLECTION OF VERTEBRATE SAMPLES

- List any samples to be collected during the study, including common and scientific names of species, sample types. If permit(s) are required, please provide details in Section D. Add rows as necessary.

Sample Type	Common name	Genus and species	Number
Hard/soft parts	Whales and dolphins	Cetacean, unidentified	Unlimited samples from up to 2,000 individual cetaceans of any species
Hard/soft parts	Seals and sea lions (except walrus)	Pinniped, unidentified	Unlimited samples from up to 2,000 individual pinnipeds (except walrus) of any species

Samples as part of this project could include hard parts, soft parts, DNA, and hormone extracts from all species of cetaceans and pinnipeds (except walrus). These could include but are not limited to blood, baleen, bone, muscle, skin, blubber, hair/fur, feces, and breath exhalent. As the applicant's primary interests are molecular and physiological ecology and population dynamics and demography, the samples will be used for extraction of DNA, and hormones, as well as long-term storage. The applicant does not anticipate developing or maintaining cell lines.

We cannot further specify the number of samples by species or by year because receipt, import, and export of samples are opportunistic and subject to collection under other authorizations or moments of opportunity.

2. Describe why the samples or specimens are needed, how these materials are to be collected and from where, or indicate whether and how they will be received from others for use in this activity.
 - Receipt and analysis of samples will increase our understanding of the impacts of continued change on marine mammal population dynamics and demography, ultimately enhancing our ability to inform adaptive conservation and management practices. These efforts will also ensure that international borders do not limit the science required for the conservation of marine mammals. This research project may contribute to population demographic analyses intended to meet urgent conservation objectives on marine mammals, such as the effects of climate change on polar-dependent species [2-4], the effects of human disturbance on physiology and behavior (e.g., Pallin et al. In Review, [5]), and for improved understanding of the distribution and habitat use of recovering species.
 - As part of this proposal, samples will be received from individual researchers and institutions from any country with appropriate management authority, e.g., signatories to the Convention on International Trade in Endangered Species (CITES). The applicant would ensure that any permits required by the country of origin to legally collect non-lethal samples or samples collected from stranded dead marine mammals were (1) obtained prior to the research being conducted, (2) that collection procedures adhered to the best practices of the Society of Marine Mammalogy, (3) were under compliance of the Marine Mammal Protection Act (MMPA), and (4) collected in adherence to the requirements of our current federal authorization for this work (NMFS permit 27102).
 - Methods used to store and transport marine mammal parts, DNA, and hormone extracts are now standard. Most samples of soft parts (e.g., skin, blubber or muscle) and DNA will be shipped in sealed containers (e.g., cryovials) of sterile preservatives such as 70% ethyl alcohol (EtOH). Some samples (e.g., blood, blubber biopsies, hormone extracts) may be shipped frozen, with dry ice or liquid nitrogen, with appropriate labeling. Most samples of hard parts (e.g., bones, teeth and baleen) will be shipped sealed in plastic wrap, with appropriate labeling. No infectious tissue is intended for shipment. Samples may be shipped and or transported as personal accompanied luggage. Shipping of individual samples will be conducted according to the requirements of the carrier.
3. Explain why it is necessary to use vertebrate samples rather than non-animal or non-vertebrate alternatives, why you have chosen the particular species, and why you have chosen the number of species. More information about [animal numbers on IACUC FAQs web page](#).

The requested permit will support the analysis and archiving of hard parts, soft parts, DNA, and hormone extracts from all species of cetaceans and pinniped, worldwide (except walruses), including ESA-listed and MMPA-depleted species (that is, those species protected under the Endangered Species Act and the Marine Mammal Protection Act). The applicant and his collaborators are involved in providing scientific advice on the status and conservation of several historically depleted species, including Southern Hemisphere humpback and Antarctic minke whales. Previous and ongoing research by the applicant and collaborators has, in fact, contributed directly to the current conservation listing of humpback whale populations through genetic analyses of population structure and demographic monitoring. As this research is often specific to the species or population, replacing listed species with non-listed species and or non-animal or non-vertebrate alternatives is impossible. This project will also provide information of a broader significance than any individual research goal. The applicant and his collaborators share samples and data widely with researchers to maximize our understanding of marine mammals' basic biology and behavior and the information available for conservation and management.
4. Researchers working on unfixed tissues of primates and wild animals may be exposed to pathogens such as Hantavirus, hepatitis-B, and herpes virus Simiae. Please indicate below whether your work involves specimens that may carry pathogens, or if you are working with specimens with little or no medical history. If so, contact biosafety@ucsc.edu.

☒ N/A ☐ Handling of Potentially Hazardous Biological Material ☐ Contacted biosafety@ucsc.edu

D. RESEARCH AUTHORIZATIONS

1. Is another IACUC involved in this activity? If so, provide explanation and contact information for the IACUC.

N/A

2. Indicate if federal, state, and/or local permits are required and whether they have been obtained or applied for. Provide the agency, number, and expiration date for each authorization. Be advised that while IACUC approval may be granted prior to permit acquisition, no animal use activities can occur without both IACUC and required agency authorizations. The IACUC may request copies of these authorizations at any time. Add additional rows if needed.

A federal permit is required to receive marine mammal samples, and our permit extends throughout the 3-year protocol period. In addition, marine mammal samples from endangered species may require an international CITES permit (Convention on International Trade in Endangered Species of Wild Fauna and Flora) if listed as CITES appendix I. Samples requiring CITES authorization will not be imported without appropriate CITES permits. Samples will also be cleared at the first port of entry into the United States following USFWS declarations and customs clearance requirements (i.e., customs form EDEC 3-177). A multi-use CITES import permit has been applied for and is pending.

Agency	Permit number or ID	Expiration	Application status/comment
National Marine Fisheries Service (NMFS)	27102	31 March, 2028	Active as of 28 March 2023

If permit period does not cover the entire protocol period, confirm that research will not continue without renewal of necessary authorizations.

NA

E. HEALTH AND SAFETY CONSIDERATIONS

1. The use of hazardous substances, equipment, or procedures may require special approval from UCSC Environmental Health & Safety, Institutional Biosafety Committee, and/or the Radiation Safety Committee. Indicate whether you are using any of the following substances in your research. If so, identify the substance(s) and provide status of your usage permissions. Relevant links are provided in the table below. (To select a checkbox, double click on the checkbox and set the default value to "Checked.")

Substance	Contact	Agent(s)	Authorization Status
<input checked="" type="checkbox"/> None	--	--	--
<input type="checkbox"/> Biological Agents	<u>IBC</u>	Agent(s)	None, Pending, or Approved
<input type="checkbox"/> Recombinant DNA	<u>IBC</u>	Agent(s)	None, Pending, or Approved
<input type="checkbox"/> Hazardous Chemicals	<u>EH&S</u>	Agent(s)	None, Pending, or Approved
<input type="checkbox"/> Controlled Drugs	<u>EH&S</u>	Agent(s)	None, Pending, or Approved
<input type="checkbox"/> Radionucleotides	<u>RSC</u>	Agent(s)	None, Pending, or Approved

2. Identify the facility or location where research will be performed.

Samples will be stored and analyzed at the University of California Santa Cruz. We anticipate that sample handling will primarily take place in the IMS/Ocean Health Building on the Coastal Science Campus.

3. Describe the practices and procedures required for the safe handling and disposal of animal tissues and material associated with this study. Also describe methods for removal of radioactive or hazardous waste.

The PI has extensive experience (10 years) with maintaining an archive for DNA, hormones, and tissue of marine mammals as well as conducting wet lab analyses on various sample types. Most samples of soft tissue (e.g., skin and blubber) will be stored in sterile preservatives such as alcohol or frozen at -20/-80 degrees centigrade. This is considered sufficient for the long-term preservation of DNA and hormones required for standard genetic and endocrine analyses. Safe handling of any tissue follows standard laboratory protocol, including nitrile gloves, eye protection, and laboratory clothing. The applicant has received training through IACUC and the Animal Exposure Occupational Health and Safety program at the University of California Santa Cruz.

Sample collection and storage information will be maintained by the PI at the Institute of Marine Sciences (<https://ims.ucsc.edu/>) at the University of California Santa Cruz in excel spreadsheets and in a FileMaker Pro relational database

4. Indicate any potentially hazardous equipment, procedures, or operations (e.g., firearms, power tools, rock climbing, scientific diving, work in confined spaces, etc.) and what measures will be taken to control or mitigate hazards.

Solvent extractions, centrifuge, homogenizers, liquid nitrogen, -80 freezers

All those involved in this project have or will go through the laboratory safety, equipment, and extraction protocols specific to this project and will be supervised by the PI and Co-PIs. As well, all members will also adhere to basic and specialized EHS training as provided by UCSC learning center.

5. Field Safety Plans (FSP) are required for fieldwork (off-campus outdoor research, teaching, or learning activity) or any activity to take place outside of the United States. If these activities are anticipated, indicate below and contact EH&S at fieldsafety@ucsc.edu or see ehs.ucsc.edu/programs/research-safety/field-research.

☒ N/A ☐ Fieldwork ☐ International Travel ☐ Contacted EH&S Advisor ☐ Completed FSP

F. PRINCIPAL INVESTIGATOR CERTIFICATIONS

- ☒ I certify that I have completed the CITI IACUC online training course required by the IACUC.
- ☒ I certify that I am aware that all individuals listed in Section A are required to complete "Group A: For Non-Contact Research Only" of the CITI IACUC online training course or an equivalent animal care and use training, and have received training appropriate to their role, including the collection or handling of samples to be obtained.
- ☒ I certify that I will obtain approval from the IACUC before initiating any significant changes in this study.
- ☒ I certify that I am familiar with and will comply with all pertinent institutional, state, and federal rules and policies.

PROTOCOL SUBMITTED BY THE PRINCIPAL INVESTIGATOR

Signature of principal investigator:



Date: 04/18/2023

IACUC FINAL APPROVAL

Certification of review and approval by the UC Santa Cruz Institutional Animal Care and Use Committee:



Approval signature:

Date: 4/20/23

From: [Logan Pallin](#)
To: [Hutchins, Brian \(Jake\)](#)
Cc: [Ari Friedlaender](#); costa@ucsc.edu
Subject: [EXTERNAL] Re: CITES Application #CS2489018
Date: Thursday, August 17, 2023 3:03:19 PM
Attachments: [image001.png](#)

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi Brian

Thanks so much for reaching out. I really appreciate it. I am also wondering if you would have time to chat briefly just to help clarify a few things on my end as I did apply for both an import and export separately for this and it seems like they will be on different expiration timelines. This is how I was originally told to do it by Michelle Turton. Let me know if that works for you. My cell is [REDACTED].

To address these briefly here:

1. Please confirm that the samples will be collected from all cetaceans and pinnipeds (except walrus), as indicated in the NMFS permit, or whether they will be collected from only cetaceans and pinnipeds included in CITES App I? App I was added in the application in a few places, but the description of the research project seems to indicate all species (except walrus).
 - Sorry for this confusion. Yes, sample will be from all pinnipeds (except walrus) and cetaceans. I was getting confused on what listed species would apply to the export vs the import.
2. I understand that you have also submitted an application for a separate import permit (and may also have a separate IFS permit?). We are going to proceed with the finding for this export permit application as being a request for authorization for the export of bio samples from both App I and App II cetacean and pinniped species. We believe the finding for the separate import application will be just for the App I species, and there may have been some pasting back and forth amongst the two applications which is what caused the confusion (that this export permit application was for only App I species). Please let us know if this is not in fact the case.
 - Hi Brian, as long as we don't need the import permit to cover App II species that would be fine. Again, I was slightly confused on what category of listed species (i.e., 1, 2 or 3) were applied to import and export. But again, given we will be receiving/collecting samples from all pinnipeds (except walrus) and cetaceans, we want to make sure our CITES imports and exports cover these all.

The intro from the sea permit is a separate application for our ongoing research in Antarctica that is just a renewal.

Let me know if that is not clear, and again happy to have a quick chat on the phone.

thanks a bunch

Logan

Logan J. Pallin, Ph.D.
Postdoctoral Researcher
The University of California, Santa Cruz
[Bio-Telemetry & Behavioral Ecology Lab](#)
lpallin@ucsc.edu
pronouns: (he/him/his)

On Thu, Aug 17, 2023 at 10:32 AM Hutchins, Brian (Jake) <brian_hutchins@fws.gov> wrote:

Hello,

Our office has received application #CS2489018, 3-200-37e: Import/Export CITES/ESA Animals for the establishment of a Master File authorizing the export of : App. I pinnipeds (except walrus) and App. I cetaceans. To continue the review process, please provide the following:

1. Please confirm that the samples will be collected from all cetaceans and pinnipeds (except walrus), as indicated in the NMFS permit, or whether they will be collected from only cetaceans and pinnipeds included in CITES App I? App I was added in the application in a few places, but the description of the research project seems to indicate all species (except walrus).
2. I understand that you have also submitted an application for a separate import permit (and may also have a separate IFS permit?). We are going to proceed with the finding for this export permit application as being a request for authorization for the export of bio samples from both App I and App II cetacean and pinniped species. We believe the finding for the separate import application will be just for the App I species, and there may have been some pasting back and forth amongst the two applications which is what caused the confusion (that this export permit application was for only App I species). Please let us know if this is not in fact the case.

In accordance with 50 CFR 13.11(e), if the requested information is not received by this office by **October 1, 2023 (within 45 calendar days from the date of this email), your application will be abandoned and administratively closed. Once a file is closed you will need to submit a new application and all required fees for the Service to**

consider your proposed activity.

Thank you for your time,

Jake Hutchins | Biologist

[USFWS](#) | [International Affairs](#)

Division of Management Authority

5275 Leesburg Pike MS IA

Falls Church Virginia 22041-3803 USA



August 28, 2023

Phone conversation with Dr. Logan Pallin

Spoke with Dr. Pallin on reasoning behind separating his application into two separate applications. Also spoke about the expected timeline with the 3-200-37 application requirement for FR publishing. The permit is expected to complete review by mid' November. Received confirmation that walruses would not be included in research.