

NATIONAL MARINE MAMMAL TISSUE BANK SPECIMEN ACCESS POLICY

The goal of the National Marine Mammal Tissue Bank (NMMTB) is to maintain quality controlled marine mammal tissues and or blood that will permit retrospective analyses to determine such things as environmental trends of contaminants and other analytes of interest and that will provide the highest quality samples for analyses using new and innovative techniques. The NMMTB was formally established in 1992 by Public Law 102-587. This legislation gives lead responsibility to the National Oceanic and Atmospheric Administration (NOAA) and designates the Department of the Interior (DOI) as cooperators for establishing and managing this specimen bank.

The National Marine Fisheries Service (NMFS), Office of Protected Resources (OPR), is the NOAA line organization responsible for the NMMTB. The NMMTB is a component of NMFS Marine Mammal Health and Stranding Response Program (MMHSRP). Through an agreement between NMFS and the National Institute of Standards and Technology (NIST), the NMMTB is maintained at the NIST Biorepository, located at the Hollings Marine Laboratory in Charleston, South Carolina, as part of the National Marine Analytical Quality Assurance Program. The U.S. Fish and Wildlife Service (USFWS), the former Minerals Management Service (MMS), and the U.S. Geological Survey Biological Resources Division (USGS/BRD) are the DOI agencies cooperating in the NMMTB. These Federal agencies, NMFS, USFWS, USGS/BRD, and NIST, are defined as the NMMTB Collaborating Agencies.

Additional information on the history of the MMHSRP and the NMMTB can be found on the following NMFS website:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/national-marine-mammal-tissue-bank>

The scientific community, contributors, and principal investigators can request tissues from this repository for retrospective analyses investigating environmental trends of contaminants and other analytes of interest. The NMMTB collects, processes, and stores tissues or blood from specific species (e.g., Atlantic bottlenose dolphins, Atlantic white sided dolphins, pilot whales, harbor porpoise) obtained from mass strandings; animals that have been trapped, injured or killed incidental to commercial fisheries; animals taken for subsistence purposes; animals from which biopsies have been obtained; and animals from unusual mortality events.

Specimen Description

Each tissue consists of two duplicate samples, ≤ 150 g each (denoted A and B), and these samples are banked in the NMMTB in separate liquid nitrogen vapor-phase freezers and are maintained at ≤ -150 °C. If a portion of a tissue is requested for analysis, the B sample of that tissue can be cryogenically homogenized and aliquoted into approximately 20 subsamples of <6 g. The A sample of each specimen remains as a bulk sample and will only be homogenized after all portions from the corresponding B sample has been depleted and there is sufficient justification to homogenize the remaining material. Thus, 50 % of each specimen is available to

the scientific community for research and scientific evaluations consistent with the goal of the NMMTB and 50 % is intended for long-term storage. If a blood sample is collected, it is processed immediately into multiple aliquots. The aliquots are split with half of them being stored in one liquid nitrogen vapor-phase freezer and the other half in a different liquid nitrogen vapor-phase freezer.

Each B sample of a specimen is divided into three categories (Table 1). Category 1, which is 10 % of the homogenized material, is reserved for baseline analyses. Category 2 consists of 50 % of the material and is reserved for use by the specimen collector(s)/contributor(s). Category 3 constitutes 40 % of the material and is available to the scientific community for research that is consistent with the goal of the NMMTB and the MMHSRP.

If an A sample is eventually homogenized, it is divided into the following four categories. Category 1 consists of 10 % of the material for baseline analyses. Category 2 consists of 25 % of the material reserved for use by the specimen contributors. Category 3 consists of 25 % of the material available to the scientific community. Category 4 contains the remaining 40 %, which is intended as a permanent archive. Category 4 will not be used unless a very high need can be identified by NOAA and DOI. Combining the A and B samples, the specimen allocations for each use are as follows: Category 1 = 10 %, Category 2 = 37.5 %, Category 3 = 32.5 %, and Category 4 = 20 %.

Table 1. Relative amounts of tissue for each NMMTB category

(Category) Use	Sample A = 150 g Long-Term Archival		Sample B = 150 g Available for Homogenization	
	Weight (g)	Portion of Sample (%)	Weight (g)	Portion of Sample (%)
(1) Baseline Analyses	15	10%	15	10%
(2) Contributor	37.5	25%	75	50%
(3) Scientific Community	37.5	25%	60	40%
(4) Long-Term Archival	60	40%		

ACCESS PROCEDURES

Category 1, Baseline Analyses

Baseline analyses may be conducted by a Federal Laboratory to establish values of analytes of interest for a specimen. These baseline values may be used to monitor specimen stability during storage and, for QA purposes, to compare with analytical data being generated on the same specimens (and/or similar specimens from the same individual animals) by collaborating monitoring and research programs. The baseline database may also be used in NMMTB planning and development (i.e., evaluating collection protocols, evaluating sampling procedures required for adequate statistical analysis, etc.). NIST and NMFS, in consultation with

USGS/BRD, USFWS, and the Contributor(s) have the primary responsibility for baseline analyses, the details of which will be documented in the annual work statement of each agency.

Category 2 and 3 Applicants

The scientific community, contributors, and principal investigators for research can request tissue specimen samples for retrospective studies. The Contributor is an organization that contributes samples, funds or personnel for collecting or archiving tissues in the NMMTB (see below under the section, Major Contributors, To-Date). A principal investigator is an individual primarily responsible for the taking, importation, export, and any related activities conducted under a permit issued for scientific research or enhancement purposes.

Of particular importance in determining whether a sample request by the scientific community will be granted is the justification that the use being proposed is consistent with the goals of the NMMTB (page 1, paragraph 1) and the MMHSRP; and comparable tissue samples necessary to accomplish the goals of the proposed research could not be readily obtained from other sources. The goals of the MMHSRP are to facilitate the collection and dissemination of reference data on marine mammals and health trends of marine mammal populations in the wild; to correlate the health of marine mammals and marine mammal populations in the wild with available data on physical, chemical, and biological environmental parameters; and to coordinate effective responses to unusual mortality events.

The applicant should keep in mind that only a very limited amount of a sample may be available and that the NMMTB emphasizes the intended use of banked specimens for retrospective studies.

How To Apply:

1. Applicants must submit a signed written request with attached study plan to the MMHSRP Program Manager, Office of Protected Resources, NMFS (identified below under the section, Principal Representatives of the NMMTB Collaborating Agencies).

2. The following specific information must be included in the request:

- a. A clear and concise statement of the proposed use of the banked tissue specimen. The applicant must justify the use of the banked tissue and demonstrate that the proposed use is consistent with the goals of the NMMTB and the MMHSRP (described above);
- b. A copy of the applicant's scientific research permit. The applicant must demonstrate that the proposed use of the banked tissue is authorized by the permit;
- c. Name of principal investigator, official title, and affiliated research or academic organization;
- d. Specific tissue sample and quantity desired;
- e. Research facility where analyses will be conducted. The applicant must demonstrate that the research facility will follow the Analytical Quality Assurance (AQA) program, which was designed to ensure the accuracy, precision, level of detection, and intercompatibility of data resulting from chemical analyses of marine mammal tissues. The AQA consists

of annual interlaboratory comparisons and the development of control materials and standard reference materials for marine mammal tissues. Standard Reference Materials® for use in the analysis of marine mammal tissues can be purchased from the NIST

- f. Verification that funding is available to conduct the research;
- g. Estimated date for completion of research, and schedule/date of subsequent reports;
- h. Agreement that (1) all research/findings based on use of the banked tissue will be reported to NIST, the NMMTB/MMHSRP Program Manager, and the contributor; and (2) tissue specimen samples that are used/released for genetic analyses (DNA sequencing) are required to archive sequences in the National Center for Biotechnology Information's GenBank. Sequence accessions in GenBank should document the source, citing an animal field number and/or NIST Storage number that identifies the animal; and
- i. Agreement that credit and acknowledgment will be given to U.S. Fish and Wildlife Service (USFWS), U.S. Geologic Service (USGS), NMFS, NIST, former MMS, the NMMTB, and the collector for use of banked tissues. The applicant shall insert the following acknowledgment in all publications, abstracts or presentations based on research using the banked tissue:

The specimens used in this study were collected by [the contributor] and provided by the National Marine Mammal Tissue Bank, which is maintained at the NIST Biorepository at the Hollings Marine Laboratory, Charleston, SC and which is operated under the direction of NMFS with the collaboration of USGS, USFWS, former MMS, and NIST through the Marine Mammal Health and Stranding Response Program (and the Alaska Marine Mammal Tissue Archival Project [if the samples are from Alaska]).

3. Upon submission of a complete application, the MMHSRP Program Manager will send the request and attached study plan to the following entities which will function as the review committee:

- a. Appropriate Federal agency (NMFS or USFWS) marine mammal management office for that particular species, and
- b. Representatives of the NMMTB Collaborating Agencies (NMFS, USFWS, USGS Biological Resources Division, and NIST). If no member of the review committee is an expert in the field that is related to the proposed research activity, any member may request an outside review of the proposal, which may be outside of NMFS or USFWS but within the Federal government.

4. The MMHSRP Program Manager will send the request and attached study plan to any contributor(s) of the tissue specimen sample. The contributor(s) of the sample may submit comments on the proposed research activity to the Director, Office of Protected Resources within 30 days of the date that the request was sent to the contributor(s).

5. Review committees for requests involving species managed by the DOI will be chaired by the USFWS Representative of the NMMTB Collaborating Agencies. All other review committees will be chaired by the MMHSRP Program Manager.

6. Recommendations on the request and an evaluation of the study plan will be provided by

each committee chair to the Director, Office of Protected Resources, NMFS.

7. The Director, Office of Protected Resources, NMFS, will make the final decision on release of the samples based on the advice provided by the review committee, comments received from any contributor(s) of the sample within the time provided in Section 4, and determination that the proposed use of the banked tissue specimen is consistent with the goals of the MMHSRP and the NMMTB. The Director will send a written decision to the applicant and send copies to all review committee members. If the samples are released, the response will indicate whether the samples have been homogenized and, if not, the homogenization schedule.

The average time for review of the request and the mailing of the written response to the requester will be 45 working days from receipt of the request by the committee chair. However, the Director, Office of Protected Resources, NMFS will respond in writing no later than 60 days following receipt of the letter of request.

8. Shipping and homogenization costs related to the use of any specimens from the NMMTB will be borne by the applicant.

9. The applicant will dispose of any remaining tissue sample after the research is completed unless the requester submits another request for research and receives approval in accordance with the procedures listed above. The request must be submitted within three months after the original project has been completed.

Category 4, Long-Term Archival

Aliquots of Category 4 cannot be withdrawn until all other categories of a sample have been depleted. When Category 4 tissues are withdrawn, the same review process will be followed as described for Category 3 with the final determination made jointly by the Representatives of the NMMTB Collaborating Agencies and specific Contributors.

PRINCIPAL REPRESENTATIVES OF THE NMMTB COLLABORATING AGENCIES

Teresa K. Rowles, D.V.M., Ph.D.
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NOAA/NMFS/PR2
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Silver Spring, Maryland 20910-3282

Rebecca S. Pugh
Leader, Biospecimen Science Group
U.S. Department of Commerce
NIST
Hollings Marine Laboratory
331 Fort Johnson Road
Charleston, South Carolina 29412

U.S. Department of the Interior
USGS Biological Resources Division
Alaska Science Center
Bldg. SSMC-3, Room 13752
1011 East Tudor Road
Anchorage, Alaska 99503

Monty Kodis
U.S. Department of the Interior
USFWS

DEPARTMENT OF THE INTERIOR REPRESENTATIVES FOR SPECIMEN ACCESS REVIEW

For walrus, N sea otter, polar bear:

USGS Biological Resources Division
Alaska Science Center
1101 E. Tudor Rd
Anchorage, Alaska 99503

U.S. Fish and Wildlife Service
Marine Mammals Management
Alaska Science Center
1101 E. Tudor Rd
Anchorage, Alaska 99503

For Manatees:

Robert K. Bonde, Ph.D., Sirenia Project
USGS Biological Resources Division
Florida Caribbean Science Center
412 NE 16th Avenue, Room 250
Gainesville, Florida 32601

Jim Valade, Lead Recovery Biologist and/or
Species Expert
U.S. Fish and Wildlife Service
Jacksonville Field Office
6620 South Point Drive, Suite 310
Jacksonville, Florida 32216-0958

For southern sea otter:

USGS Biological Resources Division
Western Fisheries Research Center
6505 NE 65th Street
Seattle, Washington 98113

U.S. Fish and Wildlife Service
Ventura Field Office
24993 Portola Rd, Suite B
Ventura, CA 93003

DEPARTMENT OF COMMERCE REPRESENTATIVES FOR SPECIMEN ACCESS REVIEW

For cetaceans and pinnipeds (except walrus), depending on region or species managed:

NMFS
Alaska Regional Office
Protected Resources Division
P.O. Box 21668
Juneau, Alaska 99802

NMFS,
Alaska Fisheries Science Center y
National Marine Mammal Laboratory
7600 Sand Point Way N.E.
Seattle, Washington 98115-6349

NMFS
Southwest Fisheries Science Center
Protected Resources Division
8604 La Jolla Shore Drive
La Jolla, California 92037-1508

NMFS,
Northeast Regional Office
Protected Resources Division
One Blackburn Drive
Woods Hole, Massachusetts 01930-2298

NMFS
Southeast Fisheries Science Center
Protected Resources and Biodiversity Branch
Miami, Florida

NMFS
Northwest Fisheries Science Center
Environmental Conservation Division
2725 Montlake Blvd., East
Seattle, Washington 98112-2097

NON-FEDERAL CONTRIBUTORS, TO-DATE:

North Slope Borough Department of Wildlife Management, Barrow, Alaska
Marine Mammal Center, Sausalito, California
Minerals Management Service, Alaska OCS Environmental Studies Division, Anchorage, Alaska
St. Paul Tribal Government, St. Paul Island, Alaska
Kawerak, Inc., Natural Resources Division and Eskimo Walrus Commission, Nome, Alaska
Kotzebue, IRA, Kotzebue, Alaska
Alaska Sea Life Center, Seward, Alaska
Alaska Department of Fish and Game, Juneau, Alaska
New England Aquarium, Boston, Massachusetts
University of North Carolina at Wilmington, North Carolina
Hubbs Sea World Research Institute, Orlando, Florida
Sea World, San Diego, California
Hawaii Pacific University, Waimanalo, Hawaii
University of Hawaii, Honolulu, Hawaii