

# **THE NORTH ATLANTIC RIGHT WHALE CONSORTIUM DATA:**

## **Data Sharing and Use Protocols and Agreement**

### **INTRODUCTION**

The North Atlantic Right Whale Consortium Databases were established in 1986 as part of a cooperative right whale research program conducted by the University of Rhode Island, New England Aquarium, Center for Coastal Studies, Woods Hole Oceanographic Institution, and other organizations forming the North Atlantic Right Whale Consortium. The data are comprised of two major datasets, the survey and “Sightings database”, maintained and curated by the University of Rhode Island, and the “Identification database” (formally the “Photo-Identification” database), maintained and curated by the New England Aquarium, as well as several other smaller databases.

The Sightings database contains records of thousands of sightings of right whales in the North Atlantic Ocean, as well as sightings of many other species of whales, dolphins, sea turtles, seals, and large fishes. It also contains survey data associated with many of these sightings that allow quantification of associated survey effort (note that the database does not include interpreted effort data as such). Though most sightings in the Sightings database are from surveys conducted from the late 1970's to the present, some right whale historical records go back as far as the 18th Century. The sightings contained in the database come from a wide variety of contributors both Consortium members and others. Each record in the Sightings database represents a group of whales (i.e., a group of 3 whales has a single record just as a group of 1 does) and there may or may not be photographic proof of a given right whale sighting.

The Identification database, also referred to as the North Atlantic Right Whale Catalog, or “Catalog” for short, contains all photographed sightings of right whales since 1935. In addition to photographed sightings, the database now contains any record that can lead to an individual identification. This includes “sightings” with just a skin sample and no photographs since that whale can be individually identified by genotyping. It also includes one quality location per day from satellite tags attached to identified individuals. Research groups, whale watchers, and individual mariners from all along the eastern seaboard contributed these sightings.

Photographed sightings are matched to whales in the identification database whenever possible so that individual animals can be monitored over time. Each record in the Identification database is of a single individual (i.e. a group of 3 whales will have 3 separate records with an association code linking the 3) and each record contains time, date location, observer, notes and behaviors.

The Sightings and Identification databases are periodically cross-referenced, so that individual identification data from the latter can be linked to sighting data from the former. For that reason, all sightings in the Identification database are eventually included in the Sightings database (with an approximate 1-year lag). Although the animals' identifications are not included in the Sightings database, the two databases can be linked on common fields.

In addition, there are several other databases that contain other types of biological data on right whales, contributed by numerous investigators, including: genetics, blubber thickness measurements, contaminant levels, necropsy findings and health assessment scores. These data are all linked to the Identification database by animal identification number.

Since the materials in these various datasets come from numerous independent individuals and institutions, these datasets are not strictly proprietary. Rather, they represent a scientific resource, and access to the data for scientific, educational, conservation and management purposes is encouraged. Contributors to the datasets are given first access to the data in recognition of their contribution, and contributors have full and unrestricted access to use of their own data. The level of an individual or organization's contribution to the data may weight their rights to, and use of, the full database. After that, proposals for data access from scientists, managers, students or other individuals with a bona fide purpose will be reviewed by the Consortium Board members. Given the great effort required to collect the available data, the Consortium and the curators of the data have an obligation to protect the rights of contributors by placing certain restrictions or conditions upon access to, and use of, the materials within it.

The following databases are available (dataset summaries are included at the end of this document). Access to one or more of these databases may be requested via the Consortium Executive Administrator through a single proposal:

<b>Database</b>	<b>Curator</b>
Sightings:	Bob Kenney
Identification:	Phil Hamilton
Genetics:	Tim Frasier
Contaminants	Phil Hamilton
Health Assessment:	Heather Pettis
Necropsy:	Sarah Sharp
Blubber measurements:	Carolyn Miller
Blubber archive:	Moira Brown

### **DATA ACCESS PROTOCOLS**

Data access may be requested from scientists, managers, students, or other individuals with a *bona fide* purpose. Data access will not be granted for open-ended, exploratory investigations, or for any use that would make data freely accessible to the public.

In order to ensure that research being planned or currently conducted by contributors is not compromised or unnecessarily duplicated, and that proper authorship or acknowledgment of all major data contributors occurs, any request for data must be submitted to the Consortium in the form of a brief proposal (email is preferred). The proposal need not be lengthy, but it should at a minimum contain sufficient information on the following:

- Name of the requesting institution(s) and of the Principal Investigator;

- Outline of the proposed work, including working title, questions being addressed, hypotheses tested or anticipated management application;
- Anticipated data requirements;
- Anticipated products of the work (e.g. scientific paper, student thesis, environmental assessment (EA), environmental impact statement (EIS), management plans, reports, derived datasets);
- Estimated time frame to completion of the study (not to exceed two years). **A report summarizing the work will be due 6 months following the project end date.** It is understood that peer-reviewed and thesis publications may require a longer time frame and so a progress report indicating the outcome of the study may be filed while awaiting publication).

**Review procedure for proposals for publication purposes:**

Proposals are typically reviewed within thirty days of submission by three Consortium Board members with knowledge of the type of work being proposed and/or a curatorial role with the data. Please be aware, however, the reviews may take longer depending on the complexity and size of the request. In some cases, proposals will also be sent for review to those organizations that contributed substantial portions of the data being requested. The review will be focused on ensuring that duplication of effort is minimized, that proposed analyses seem appropriate, and that potential coauthors are identified. The committee will review the proposal and discuss appropriate authorship given their knowledge of who contributed the majority of the data required for the proposed project. Their recommendations for authorship will be sent to the applicant via the Consortium Executive Administrator. In some cases, the reviewers may suggest that, instead of authorship, acknowledgement of the Right Whale Consortium as a whole and/or certain institutions/persons be included in any published document. The applicant must ask the proposed author(s) whether they would be interested in authorship and let the Consortium Executive Administrator know what their responses are. Once authorship has been agreed upon (among the applicant, the authors, the executive administrator and the reviewers), the data will be released. If there is a disagreement about authorship, it will be resolved by the board. The applicant will then be provided with the requested data, with the method (email, FTP) determined by the size of the requested information file. Although the curatorial workload is heavy, and researchers are often very busy, every effort will be made to provide information in a timely fashion. In most cases, there will also need to be some follow-up discussion between the applicant and the data curator on the exact details of the data required and specific formats. For data extractions that require novel extraction code or additional database programming, there may be associated fees.

The curator and the reviewers will treat proposals as confidential and ideas or hypotheses that they may contain will not be shared with third parties. The only exception would be if the Consortium reviewers wish to obtain confidential peer review of the proposed work in order to judge its feasibility or merit; this would only be done with prior approval of the applicant. Conflicts over the use of the data will be mediated by Consortium board members in as timely a fashion as possible. The Consortium will encourage multi-investigator proposals where interests of several investigators overlap.

Grounds for the rejection of a proposal will include lack of investigator qualifications, lack of necessary resources, an assessment that the scope of the project is unreasonably large or not feasible within the proposed time frame, unwillingness of the investigator(s) to acknowledge or offer authorship to major data contributors, a determination that the proposed work is already underway by someone else, or if the applicant has violated a past data access agreement.

**Review procedure for proposals for management purposes:**

Proposals for management purposes only will be transmitted by the Executive Administrator to the appropriate data curator(s), but are not reviewed by the Board. Proposals may be copied to the cognizant NMFS Science Center and/or Regional Office for information purposes. The applicant will then be provided with the requested data, with the method (email, FTP) determined by the size of the requested information file. Although the curatorial workload is heavy, and researchers are often very busy, every effort will be made to provide information in a timely fashion. In most cases, there will also need to be some follow-up discussion between the applicant and the data curator on the exact details of the data required and specific formats.

**DATA ACCESS CONDITIONS**

Provision of any data will be made subject to the conditions given below, to which the applicant must agree within his/her proposal. These conditions are designed to eliminate misunderstandings, and to protect both the applicant and the organizations that curate the data, as well as the data contributors. Conditions vary slightly for management use, so careful attention should be given to specific conditions.

Users of Consortium data are encouraged to notify specific database curators of data quality issues and/or edits and/or manipulations that increase mother database robustness.

To the extent practical, databases that result from the proposed studies, that are appropriate for archiving and subsequent use within the consortium data access process, can be curated by the Executive Administrator. Subsequent use by others would be at the investigators agreement.

**Conditions for data use intended for publication (includes peer-reviewed publications, thesis work, education modules, and other uses that are not strictly managerial):**

- For a reasonable period of time (generally that of the estimated time frame of the applicant's proposed study), the Consortium will not provide similar data to others for the same or similar scientific purposes described in the applicant's proposal, without first obtaining the applicant's written permission. Exceptions to this may be made if the access request is for substantial datasets and/or efforts are similar in nature but utilizing alternate approaches. This exception will often apply to modeling and AI efforts.
- The applicant will use the requested materials for only those purposes set forth in his/her proposal. Requests for significant departures from the scope of the proposal must be submitted in writing to the review board or data curator, as applicable, for approval.
- The applicant will not share the requested materials with any third party.

- The applicant agrees to complete the work in the time frame given, although requests for reasonable extensions of this time frame will of course be considered.
- The applicant agrees to publish the results in a refereed journal in a timely manner. Given the endangered status of the North Atlantic right whale population, it is critical that any research results that provide a better understanding of the biology and behavior of this species be disseminated so that they are accessible to other scientists and managers. Failure to do this constitutes unfair monopolization of data with no benefit to the population. **A written report must be submitted to the Consortium Executive Administrator (preferably electronically) within six months of the specified end date of proposed work. Manuscripts may serve as the report.** Failure to supply a report would preclude further data access. Reports will be accessible by Consortium Board Members. Additionally, researchers are strongly encouraged to present right whale related work at the Annual North Atlantic Right Whale Consortium Meeting.

**Conditions for data use intended for management purposes only:**

- Applicants may use the data for other management related analyses on one condition: they inform the Consortium Executive Administrator of **each additional project**. This process allows the Consortium to establish links between the applicant and other managers and/or scientists interested in similar analyses and also permits the data curator to inform the applicant about available updates to the data or errors discovered in the data subsequent to its provision. Also, by tracking the different ways the data are used, the Consortium can further illustrate the benefits of shared data. Although persons other than the initial applicant may perform the additional analyses, it remains the responsibility of the initial applicant to inform the Consortium of the additional work.
- In all cases where the NARWC database is used for management purposes, the following disclaimer must be included in the document: “Raw sighting data from the NARWC database are not effort-corrected and the management documents in which they are used are not peer reviewed. Distributional patterns based on these data are likely to be biased by where, and when, surveys were conducted.” The data curator will inform the applicant of any limitations of the data provided (eg., from an area with little or no survey effort, for a species that has low detectability from the surveys available, from surveys with strong seasonality, or with other known biases).

In cases where the document (not peer-reviewed) presents any additional interpretation based on sightings data made available by the Consortium, the producer of the report must identify the relevant discussion and interpretation sections referring to the database in a transmittal letter prior to public release. In such cases, one or more members of the Consortium Board may be tasked to review these sections. These reviews will be limited to ensuring that the data are not misused or misrepresented. In such cases where reviewers feel that data have been misused or misrepresented, the Consortium will submit a public comment, limited to the use and interpretation of the Consortium data, to insure that an accurate correction is a part of any official public record and the decision-making process.

- If the management analyses result in publishable information, the applicant is required to submit an additional request for publication. If someone has already applied for data to publish on a similar analysis, the Consortium will encourage a dialog among the parties, but publication rights will go to the applicant who first applied for data under the publication request process.
- **A written report must be submitted to the Consortium Executive Administrator (preferably electronically) within six months of the specified end date of proposed work and may include** any document or other product produced using the Consortium data provided including but not limited to EIS's, EA's, Take Reduction Team documents, PowerPoint presentations, Endangered Species Act Section 7 consultations, workshop proceedings, executive summaries, or other unpublished "gray literature." **Reports will be accessible by Consortium Board Members.**

**All users of NARWC data must acknowledge and agree to the condition of data access outline above.**

#### **Preferred Citation of Consortium Data**

Each database accessed should be given individual citation. Citations of Consortium data should follow the format below:

**In text:**

**North Atlantic Right Whale Consortium (YEAR)**

**In Literature Cited:**

**North Atlantic Right Whale Consortium (YEAR). North Atlantic Right Whale Consortium XXX Database MM/DD/YYYY (Anderson Cabot Center for Ocean Life at the New England Aquarium, Boston, MA, U.S.A.).**

XXX could be: Identification, Sightings, Genetics, Contaminants, or Necropsy or a combination of these.

If you have any questions, please contact Heather Pettis at the New England Aquarium. (617.226.2144 or [hpettis@neaq.org](mailto:hpettis@neaq.org)). Proposals should be submitted via this **ONLINE FORM**. Proposals will be distributed to the appropriate members of the review board and/or to the curator of the data, as applicable. All proposals must include the following signed agreement:

#### **North Atlantic Right Whale Databases**

##### **Sightings:**

**Bob Kenney**

The Sightings database contains records of thousands of sightings of right whales in the North Atlantic Ocean, as well as sightings of many other species of whales, dolphins, sea turtles, seals,

and large fishes. It also contains survey data associated with many of these sightings that allow quantification of associated survey effort (note that the database does not include interpreted effort data as such). Though most sightings in the Sightings database are from surveys conducted from the late 1970's to the present, some right whale historical records go back as far as the 18<sup>th</sup> Century. The sightings contained in the database come from a wide variety of contributors both Consortium members and others.

**Identification: Phil Hamilton**

The Identification database, also referred to as the North Atlantic Right Whale Catalog, or “Catalog” for short, contains all photographed sightings of right whales since 1935. In addition to photographed sightings, the database now contains any record that can lead to an individual identification. This includes “sightings” with just a skin sample and no photographs since that whale can be individually identified genotyping. It also includes one quality location per day from satellite tags attached to identified individuals. Research groups, whale watch vessels, and individual mariners from all along the eastern seaboard contributed these sightings.

Photographed sightings are matched to whales in the identification database whenever possible so that individual animals can be monitored over time. Each record in the Identification database is of a single individual (i.e. a group of 3 whales will have 3 separate records with an association code linking the 3) and that record contains time, date location, observer, notes and behaviors.

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**Other Databases:**

**While not formally NARWC Databases, there are other institutionally held databases that may be accessed via NARWC request:**

**Genetics: Tim Frasier**

The genetic database contains all of the genetic information for sampled North Atlantic right whales. Included are gender, mitochondrial haplotypes, and genotypes based on 35 microsatellite loci. Additionally, genetics-based information can also be generated upon request and when appropriate, such as paternity or maternity, and relatedness. The genetic database is also available for individual identification purposes when photo-ID is not possible but comparative samples are available.

**Contaminants Phil Hamilton**

The contaminants database contains quantitative chemical assessments of contaminant burdens (PCB's and some pesticides) and semi-quantitative immunohistochemical assessments of levels of cytochrome P450 1A expressed in the vascular endothelia of the shallow reticular dermis (outer blubber) of right whale integument collected by biopsy. Much of these data have been published; [Weisbrod, A. V., D. Shea, M. J. Moore, J. J. Stegeman \(2000\) Organochlorine](#)

[exposure and bioaccumulation in the endangered northwest Atlantic right whale \(\*Eubalaena glacialis\*\) population. Environmental Toxicology and Chemistry 19: 654-666.](#)

**Health Assessment:** **Heather Pettis**

Visual assessment of four body parameters thought to be associated with overall relative health of individual right whales. Contains assessments for all photographed right whale sightings. An overview of the Visual Health Assessment methodology and scored parameters is available [HERE](#).

**Necropsy:** **Sarah Sharp**

Necropsy reports for each mortality examined since 1970 are available electronically. These reports vary from short measurement records to extensive analyses of forensic pathology, histopathology, images, and other analyses. Most cases up to 2000 were summarized by: [Moore, M., A. Knowlton, S. Kraus, W. McLellan, R. Bonde \(2005\) Morphometry, gross morphology and available histopathology in Northwest Atlantic right whale \(\*Eubalaena glacialis\*\) mortalities \(1970 to 2002\). Journal Cetacean Research and Management 6: 199-214.](#) A summary of cases from 2003-2018 are in [Sharp, S.M., McLellan, W.A., Rotstein, D.S., Costidis, A.M., Barco, S.G., Durham, K., Pitchford, T.D., Jackson, K.A., Daoust, P.Y., Wimmer, T. and Couture, E.L., 2019. Gross and histopathologic diagnoses from North Atlantic right whale \*Eubalaena glacialis\* mortalities between 2003 and 2018. Diseases of aquatic organisms, 135\(1\), pp.1-31.](#)

**Blubber measurements:** **Carolyn Angell**

The blubber measurements database contains measurements of the thickness of the integument (epidermis and blubber) collected by ultrasound from a limited area of the dorsal aspect of free-swimming individual right whales in the Bay of Fundy during summers from 1998-2002 and in Cape Code Bay during the spring of 1998.

**Blubber archive:** **Moira Brown**

The blubber archive contains small portions of blubber obtained while biopsy darting for skin samples.