NOAA PROCEDURE FOR SCIENTIFIC RECORDS APPRAISAL AND ARCHIVE APPROVAL

Guide for Data Managers

National Oceanic and Atmospheric Administration
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summary

This document defines the procedure that the National Oceanic and Atmospheric Administration (NOAA) will use to identify, appraise, and decide what scientific records are preserved in a NOAA archive. The procedure applies to accepting or rejecting newly acquired scientific records for a NOAA archive and also to retaining or disposing of existing records already held in a NOAA archive.

The authority for the procedure is explicitly defined in NOAA Administrative Order (NAO) 212-15 titled *Management of Environmental and Geospatial Data and Information*.

This procedure is also in concurrence with other Federal Government authorities for records management as mandated by the National Archives and Records Administration (NARA), the Office of Management and Budget (OMB), and the NOAA Records Disposition Handbook currently in place for all NOAA Offices.

As defined in the November 6, 2006 *NOAA Information Quality Guidelines*, the following four broad categories of scientific records are subject to the procedure:

- Original Data;
- Synthesized Products;
- Hydrometerological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories; and
- Experimental Products

Scientific records can be submitted to NOAA for appraisal and archive approval by any NOAA agency or any other organization or individual responsible for the creation, accumulation, or maintenance of scientific records.

NOAA programs that plan to generate scientific records will develop a data management plan early in the planning process with the appropriate NOAA Facility that will have custody of the scientific records. During the planning process, this procedure will be used to determine what scientific records should be preserved in a NOAA archive and whether there are adequate resources that will support that archive.

The procedure is flexible in that it allows for expeditious decisions regarding scientific records that are known to be within the legal mandates and scope of the NOAA mission and also allows for a lengthier, more formal appraisal process for complex archive requests. To guide the formal appraisal process, a NOAA Scientific Records Appraisal Criteria Questionnaire has been developed using guidelines from NARA,

Summary of Process Steps used to decide what scientific records are preserved in a NOAA archive.

Step A: Identify Records for NOAA Appraisal

A.1 Initiation of Request: Information Provider (NOAA or non-NOAA) initiates a request to NOAA.
A.2 Receipt of Request: Written requests are sent to the NOAA Facility that will have custody of the scientific records. NOAA's Data Management Committee refers request to an appropriate NOAA Facility when required.

Step B: Appraise Scientific Records

B.1 Designate an Appraisal Team: Assembled by the NOAA Facility that will have custody of records.
B.2 Preliminary Records Appraisal: Appraisal Team evaluates information. Can bypass step B.3 & B.4 for straightforward archive decisions.
B.3 Formal Records Appraisal: Conducted as needed using Scientific Records Appraisal Criteria Questionnaire. Can bypass step B.4
B.4 External Science Review: Conducted as needed usually for more complex archive decisions. Team is comprised of external to NOAA scientists or users.
B.5 Assemble a Recommendations Package: Appraisal team assembles package: Approve, Disapprove, No Decision with narrative explanation justifying the decision.

Continued on the next page.

from National Research Council reports on NOAA data management, and from a literature review of existing appraisal techniques for scientific records.

The procedure has been developed so as to retain the decision making authority for NOAA scientific records preservation at the same location as where the NOAA scientific data stewardship expertise exists. In addition, the procedure allows for a higher level NOAA approval authority when requested or required. When formal appraisals are conducted or when records are to be removed from a NOAA archive, a mechanism has been incorporated into the procedure to acquire input and recommendations from external NOAA scientists as well as allowing public comments on the decisions NOAA makes as a result of this procedure.

Summary of Process Steps used to decide what scientific records are preserved in a NOAA archive.

Step C: Decision - Approval Process

C.1 Receipt of Recommendation Package: Appraisal Team gives recommendation to their Office Director
C.2 NOAA Office Director Decision: a) approve/disapprove, b) refer back to Appraisal Team, c) request external science review, d) coordinate with their Line Office if needed or required.
C.3 NARA Coordination: Ensure decision is coordinated with NARA disposition schedules
C.4 Public Comment and Appeal Period: Decisions will be advertised for Public Comment (NOAA Policy on Partnerships in the Provision of Environmental Information) that result in a) existing records being removed from a NOAA archive or b) newly acquired records being added to a NOAA archive that have also gone through a formal appraisal process.
C.5 NOAA Data Management Committee Actions: Track processes and summarize decisions in NOAA's Biennial Data Management Report to Congress on Data and Information Management.
C.6 NOAA Observing System Council Action: Receive periodic reports from DMC; if needed, take additional steps to ensure a proper decision has been made.

Step D: Implementation of the Decision

D.1 Decision implementation for new records: Notify the Information Provider of the decision and appeal process. Develop submission agreements
D.2 Decision implementation for existing records: Offer to interested agencies records to be destroyed.

1. PURPOSE

This document defines the procedure by which the National Oceanic and Atmospheric Administration (NOAA) decides what scientific records (environmental and geospatial data[1]) are preserved in a NOAA archive. In concurrence with mandates and directives for records management from the National Archives and Records Administration (NARA) and the NOAA Records Disposition Handbook currently in place, this procedure specifies:

a. a process for NOAA to identify and appraise scientific records to determine their archive value,

b. an approval process, based upon the appraisal value, that is used by NOAA to accept or reject newly acquired scientific records for a NOAA archive and to retain or dispose of existing records held in a NOAA archive and,

c. a mechanism to formally document and maintain the steps NOAA takes in identifying, appraising and approving what scientific records are preserved in a NOAA archive.

Early in the planning process, NOAA programs that will generate scientific records will develop a data management plan with the appropriate NOAA Facility that will have custody of the records. This procedure will be used to determine what scientific records should be preserved in a NOAA archive, including adequate resources that will support that archive.

This procedure allows for expeditious decisions for requests to archive scientific records that are known to be within the scope of the NOAA mission or have legal mandates for archive. A formal appraisal, which may require evaluation and discussion between the NOAA Facility and the Information Provider over a longer period of time, may be necessary for complex archive requests or for collections that are not immediately identifiable as within the scope of NOAA archival collections. A questionnaire intended to direct and facilitate the formal appraisal process is included as Appendix II, 'NOAA Scientific Records Appraisal Criteria Questionnaire'.

2. AUTHORITY

NOAA derives authority for this procedure from:

a. NOAA Administrative Order (NAO) 212-15 titled *Management of Environmental and Geospatial Data and Information* dated December 2, 2008, which provides a "policy for acquiring, integrating, managing, disseminating, and archiving environmental and geospatial data and information obtained from worldwide sources to support NOAA's mission."

b. National Archives and Records Administration mandates and directives including NARA Directive 1441 dated September 20, 2007, *National Archives and Records Administration Strategic Directions: Appraisal Policy.* Note that NARA solicited and received input for the Directive 1441 from records management experts including those at NOAA.

c. Office of Management Budget (OMB) Circular A-130 *Management of Federal Information Resources* dated November 28, 2000, which issues the broad guidelines: "agencies must collect or create only that information necessary for the proper performance of agency functions and which has practical utility" and "ensure that records management programs provide adequate and proper documentation of agency activities."

3. SCOPE

This procedure is required to identify, appraise, and make decisions regarding scientific records proposed for accessioning into a NOAA archive. This procedure is also required to make retention decisions for existing scientific records in a NOAA archive. Scientific records that existed within a NOAA archive prior to August 15, 2008 are exempt from this procedure, unless those records require evaluation for potential disposal according to existing NOAA records disposition schedules or do not have a defined disposition schedule. It is recommended that an ongoing process be put in place to continually assess NOAA archive holdings using this procedure to include a mechanism that allows user input. NOAA Libraries have established acquisition, appraisal processes, and records retention schedules and are exempt from this procedure.

The scientific records subject to this procedure consist of four of the seven broad categories of records as defined in the *NOAA Information Quality Guidelines* dated November 6, 2006. See Appendix I for a complete description of these categories and a specific list of other records that this procedure does NOT cover. Specifically, this procedure covers the following four broad categories of scientific records:

a. *Original Data* - scientific records in their most basic useful form; also referred to as "raw" or minimally processed, quality controlled, or calibrated.

[1] The definitions can be found in Section 4.

b. *Synthesized Products* - those that have been developed through analysis of original data, weather statistics, model outputs, data display through Geographical Information System techniques, and satellite-derived maps.

c. *Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories* - time-critical interpretations of original data and synthesized products, prepared under tight time constraints and covering relatively short, discrete time periods.

d. *Experimental Products* - products whose quality has not yet been fully determined or products that are based in part on experimental capabilities or algorithms.

This procedure pertains only to the identification, appraisal, and approval processes associated with what scientific records are preserved in a NOAA archive. Other archive decision processes not directly covered by this procedure include: a) where scientific records are or should be archived in NOAA; b) who in NOAA is responsible for archiving scientific records; c) the length of time records are or should be retained; and d) physical procedures on how records are archived. The Reference Section provides additional guidance on these other archive decision processes to include NAO 212-15, the NOAA Records Disposition Handbook, and regulations affecting Federal agencies and their records management programs as provided by NARA.

4. DEFINITIONS

As employed in this procedure, the terms below are defined as follows:

Accession: The processes supporting the transfer of legal custody of scientific records acquired by NOAA from the Information Provider.

Appraisal: The process of determining the preservation value of scientific records.

Appraisal Team: A team usually composed of NOAA subject matter experts, designated user community representatives, and data managers who provide expert guidance when appraising scientific records for inclusion in or disposal from a NOAA Facility.

Appraisal Process, Preliminary: A preliminary appraisal of scientific records is performed by the Appraisal Team to determine whether a recommendations package can be assembled without the need of a formal appraisal process. In many instances, a preliminary appraisal will be sufficient for requests to archive scientific records that are known to be within the scope of the NOAA Facility collection requirements and resources, and for records that have legal mandates, which require their archiving. For a preliminary appraisal, the NOAA Scientific Records Appraisal Criteria Questionnaire (Appendix II) is not required, but a subset of the questions can be used to gather background information. A preliminary appraisal is straightforward and may be completed in a very short period of time.

Appraisal Process, Formal: A formal appraisal of scientific records is performed by an Appraisal Team for more complex archive requests or for collections that are not immediately identifiable as within the scope of NOAA archival collections. An important consideration for determining if a formal appraisal process is required is whether the NOAA Facility responsible for the appraisal will use shared archival resources (*e.g.*, the Comprehensive Large-Array data Stewardship System) or if the NOAA Facility will use 'local' archival resources. It is recommended that the formal process be used for appraising scientific records that require the use of shared archival resources. When a formal appraisal is conducted, the NOAA Scientific Records Appraisal Criteria Questionnaire (Appendix II) is required for use in gathering background information, which can also be used as a basis for a future submission agreement for new records approved for a NOAA archive. A formal appraisal may be complicated and may take many months to complete.

Archive: An organization or facility (also referred to as a NOAA Archive or NOAA Facility) of people and systems that has accepted the responsibility to preserve information according to NARA standards and make it available for a designated community.

Dispose: To destroy or transfer records to a Federal Records Center or other archive center after the retention period expires and if the appraisal process results in this conclusion.

Disposition Schedule: Also called a Records Retention Schedule. A type of disposition agreement developed by a Federal agency and approved by NARA that describes Federal records, establishes a period for their retention by the agency, and provides mandatory instructions for what to do with them when they are no longer needed for current Government business.

Environmental data (as defined in NOAA Administrative Order (NAO 212-15): Recorded observations and measurements of the physical, chemical, biological, geological, or geophysical properties or conditions of the oceans, atmosphere, space environment, sun, and solid earth,

as well as correlative data and related documentation or metadata. Data may exist in either electronic or analog format.

Geospatial data (as defined in NOAA Administrative Order (NAO 212-15): Information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the Earth. This information may be derived from, among other things, remote sensing, mapping, and surveying technologies. Statistical data may be included in this definition at the discretion of the collecting agency.

Information Provider: A NOAA agency or any Federal, state, tribal or local agency, national, or international organization or other organization or person responsible for the creation, accumulation, or maintenance of scientific records.

NOAA Centers of Data [(as defined in NOAA Administrative Order (NAO 212-15)]: Facilities where extensive collections of a given environmental parameter(s) are maintained because of individual or institutional research or operational requirements (*e.g.*, the National Ice Center). The Centers of Data, which are not held to all the NARA archive standards, must still adhere to basic good stewardship practices including off-site data backup and maintenance of adequate environmental control and security for their holdings. Centers of Data transfer their data holdings to the NOAA National Data Centers for permanent archiving when continued storage at the Center of Data is no longer appropriate.

NOAA Data Centers [as defined in NOAA Administrative Order (NAO 212-15)]: Major archives that maintain, process, and distribute retrospective environmental and geospatial data (also referred to as NOAA National Data Centers). The Centers provide long-term stewardship for most of NOAA's environmental and geospatial data and a broad range of user services. The Centers may serve as Agency Record Centers subject to NARA-accepted archive standards. NOAA Data Centers may be comprised of two or more archive facilities linked together through a computerized wide area network.

NOAA Facility: A NOAA Data Center or NOAA Center of Data that maintains scientific records that are described by a NARA Disposition Schedule.

Preservation: Processes and operations involved in ensuring the technical and intellectual survival of records through time.

Records (See also Scientific Records): "...records means all books, papers, maps, photographs, machine-readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business..." (From 44 U.S.C. 3301)

Records Authenticity: "An authentic record is one that can be proven a) to be what it purports to be, b) to have been created or sent by the person purported to have created or sent it, and c) to have been created or sent at the time purported. To ensure the authenticity of records, organizations should implement and document policies and procedures which control the creation, receipt, transmission, maintenance, and disposal of records to ensure that record creators are authorized and identified and that records are protected against unauthorized addition, deletion, alteration, use, and concealment." (From ISO 15489-1:2001)

Records Reliability: "A reliable record is one whose contents can be trusted as a full and accurate representation of the transactions, activities or facts to which they attest and can be depended upon in the course of subsequent transactions or activities. Records should be created at the time of the transaction or incident to which they relate, or soon afterwards, by individuals who have direct knowledge of the facts or by instruments routinely used within the business to conduct the transaction." (From ISO 15489-1:2001)

Records Integrity: "The integrity of a record refers to its being complete and unaltered. It is necessary that a record be protected against unauthorized alteration. Records management policies and procedures should specify what additions or annotations may be made to a record after it is created, under what circumstances additions or annotations may be authorized, and who is authorized to make them. Any authorized annotation, addition, or deletion to a record should be explicitly indicated and traceable". (From ISO 15489-1:2001)

Records Usability: "A useable record is one that can be located, retrieved, presented and interpreted. It should be capable of subsequent presentation as directly connected to the business activity or transaction that produced it. The contextual linkages of records should carry the information needed for an understanding of the transactions that created and used them. It should be possible to identify a record within the context of broader business activities and functions. The links between records that document a sequence of activities should be maintained." (From ISO 15489-1:2001)

Scientific Records (See also Records): Environmental and Geospatial data used by NOAA to perform its legal and functional mission. Scientific records that are the subject of this procedure are the environmental and geospatial

data records that meet one or more of the categories of records described by the *NOAA Information Quality Guidelines* (see Section 3 and Appendix I). Any Information Provider could produce these records.

5. PROCEDURE FOR IDENTIFYING, APPRAISING, APPROVING AND IMPLEMENTING THE ACCESSION AND DISPOSAL OF NOAA SCIENTIFIC RECORDS

Step A. Identify Scientific Records for NOAA Appraisal

The first process step involves identifying records that should be appraised for inclusion in or disposal from a NOAA Facility's collection.

A.1 Initiation of Request

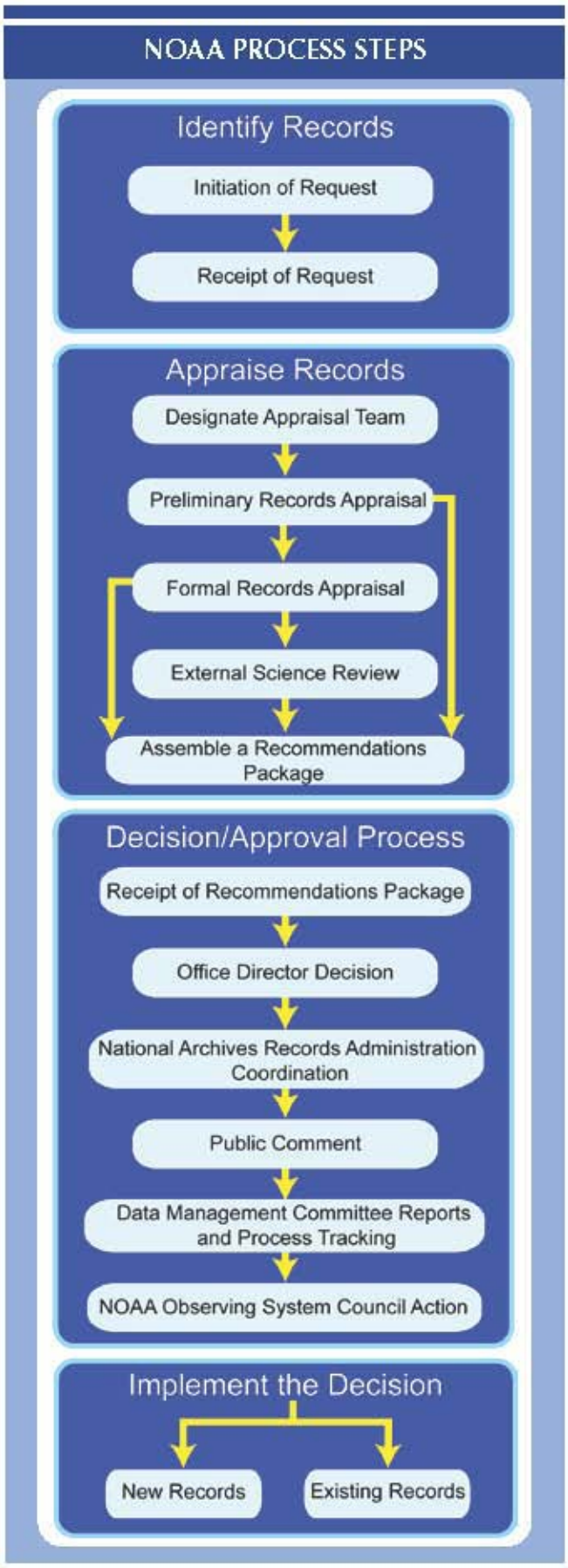
An Information Provider identifies scientific records and initiates a request that scientific records be added to a NOAA archive or that existing records be removed (disposed of) from a NOAA archive. It is expected that the Information Provider will contact the appropriate NOAA Facility early in the planning process for new scientific records to develop a data management plan that ensures that adequate resources are available to archive the records, especially if the archive will be a large volume or complex.

For appraising new records, the Information Provider can be either a NOAA agency or any other national or international organization or agency, or individual. NOAA Facility staff may initiate the process of evaluation in cases where the identified records have no willing or able entity to serve in the Information Provider role.

For appraising existing records, which were previously accepted and are currently contained within a NOAA archive, the Information Provider and the NOAA Facility may be the same entity. This occurs when a NOAA Facility is trying to make a determination as to whether existing (previously accepted) records can be disposed of in concert with a NARA disposition schedule. It is recommended that an ongoing process be put in place to continually assess NOAA archive holdings using this procedure to include a mechanism that allows user input.

A.2 Receipt of Request

The initial request by the Information Provider should be sent to the NOAA Facility that will have responsibility for the scientific records. The request, in the form of a letter or email, will include basic facts about the scientific records that describe the records title, volume size, spatial and temporal coverage, records format, recording media, and other descriptive information that may be considered important. Examples of other descriptive information can



be found in Appendix II to include Section 1 on NOAA Mission Relevancy.

An Information Provider, especially one external to NOAA, may not know the appropriate NOAA Facility to submit an archive request. All requests to archive data at NOAA should be referred to the appropriate NOAA Facility for appraisal and further action. A NOAA Facility may process the request or refer it to NOAA's Data Management Committee (DMC). The DMC will direct all requests to the appropriate NOAA Facility when requested using as guidance NOAA Administrative Order 212-15, Management of Environmental and Geospatial Data and Information. The Information Provider will receive, within 30 days of the NOAA Facility's receipt of the request, acknowledgement of the request and the expected duration of the process, which will return a decision to the requester.

Step B. Appraising Scientific Records to Determine NOAA Archival Value

The second process step involves appraising the scientific records.

B.1 Designate an Appraisal Team

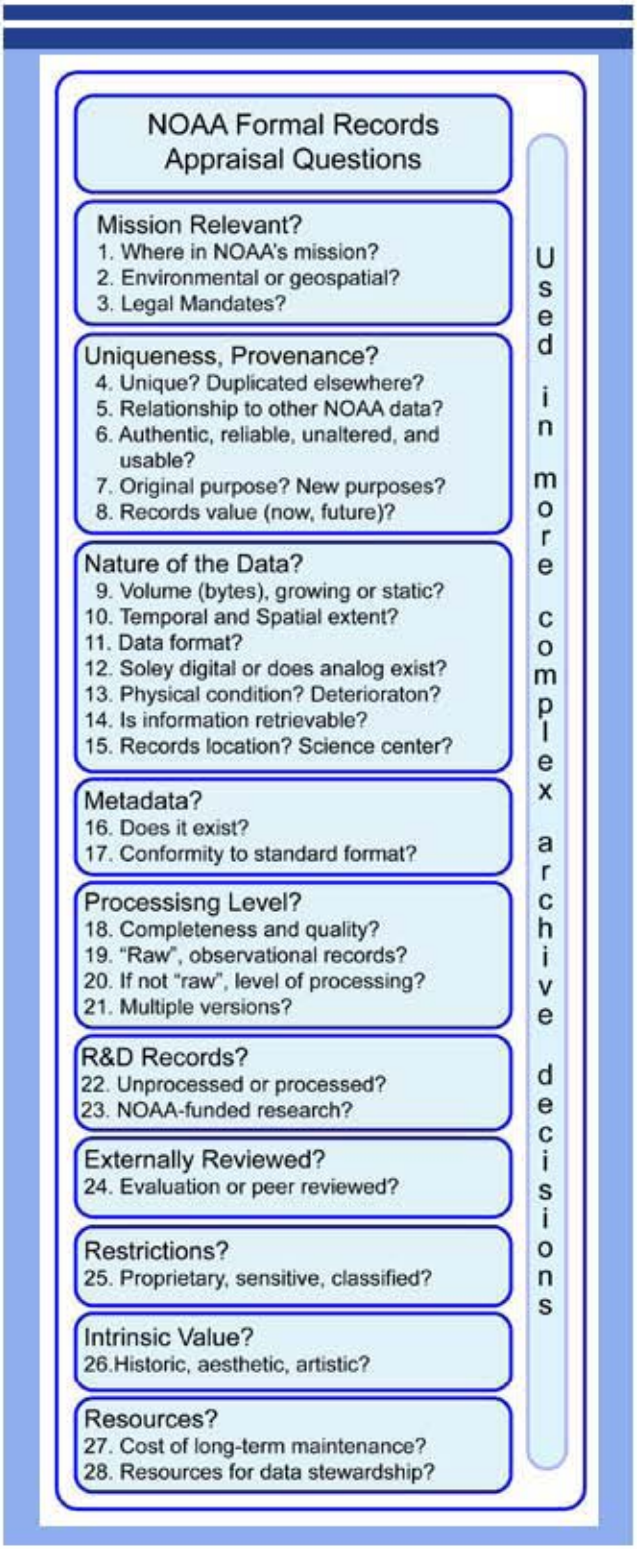
The Office Director of the NOAA Facility appoints an Appraisal Team that will perform an appraisal of the records. See Section 6.D for guidance in constructing this team.

B.2 Preliminary Records Appraisal

The Appraisal Team evaluates the basic facts and any other descriptive information received from the Information Provider to determine whether a formal appraisal process is warranted. If a formal appraisal is not needed, then the Appraisal Team will assemble the recommendation package (step B.5). See the Section 4 Appraisal Process Definitions for guidance in distinguishing between a preliminary and a formal appraisal. The Appraisal Team and Information Provider will iteratively negotiate what scientific records are to be archived as the background information is gathered and analyzed. These negotiations can also occur outside of the procedure defined in this document.

B.3 Formal Records Appraisal

When needed, the Appraisal Team will meet with the Information Provider to assemble detailed background information about the specific scientific records. The NOAA Scientific Records Appraisal Criteria Questionnaire (Appendix II) will be used to help gather this background information and can be used as a basis for a future submission agreement for new records approved for a NOAA archive. Either the Information Provider or the Appraisal Team, or both performs the first iteration of gathering background information. As needed, the Appraisal Team will have follow-up discussions with the Information Provider to verify/confirm all background information that has been



gathered. The Appraisal Team and Information Provider will iteratively negotiate what scientific records are to be archived as the background information is gathered and analyzed. These negotiations can also occur outside of the procedure defined in this document.

B.4 External Science Review

When needed and usually for more complex archive decisions, the Appraisal Team can request that an External Science Review Team assist in reviewing or gathering additional information and provide recommendations. The Appraisal Team can either arrange for their own external science review or, in the case of particularly important decisions, ask the DMC to arrange for such a review. See Section 6.F for guidance in constructing this team. The External Science Review Team will be provided with the results of the Appraisal Criteria Questionnaire and other information as requested to aid in developing the science team's recommendations. The additional information gathered and recommendations from any External Science Review Team will be documented. All recommendations made to NOAA will be used in accordance with the Federal Advisory Committee Act.

B.5 Assemble a Recommendations Package

The Appraisal Team assembles a recommendation package. The recommendation package will contain a approve, disapprove, or no decision recommendation along with a narrative that explains the decision. Approve recommendations are either "Accept" for new scientific records to be accessioned or "Retain" for existing scientific records. Disapprove recommendations are either "Reject" for new scientific records to be accessioned or "Dispose of" for existing scientific records. If no decision is provided, the narrative will describe the reasons with a recommendation of further actions that should be taken in order to render a decision. The recommendation package will contain all the background information gathered which includes all information assembled in the Preliminary Records Appraisal (Step B.2), the Formal Records Appraisal (Step B.3), and the External Science Review (Step B.3), when the latter two are conducted.

Step C. Decision/Approval Process for Accessioning and Disposing of Scientific Records

The third broad process step is a multi-level approval process.

C.1 Receipt of Recommendations Package

The Appraisal Team provides the recommendation package to the Office Director of their NOAA Facility.

C.2 Office Director Decision/Approval

The Office Director of the NOAA Facility will: a) approve/disapprove the recommendation as is, b) refer the recommendation back to the Appraisal Team for further background information, c) ask the Appraisal Team to conduct an External Science Review or ask DMC to coordinate this external review, or d) coordinate with his or her NOAA Line Office for additional assistance when needed or when required by the Line Office policy. The Office Director or Line Office will notify DMC of all decisions that result in a) scientific records being removed from a NOAA archive or b) scientific records being added to a NOAA archive that have also gone through a formal records appraisal process.

C.3 Coordination with NARA

Decisions to remove scientific records from an existing NOAA archive or to add scientific records to a NOAA archive will be performed according to NARA disposition schedules as contained in the NOAA Records Disposition Handbook before the decision is implemented. This action is to be performed by the NOAA Facility staff.

C.4 Public Comment and Appeal Period

Any decision that results in a) existing scientific records being removed from a NOAA archive or b) newly acquired scientific records being added to a NOAA archive that have also gone through a formal records appraisal process will be advertised for public comment and appeal by the NOAA Office Director using their Line Office's procedure for implementing the "NOAA Policy on Partnership in the Provision of Environmental Information." Before the decision is implemented, any public comments and appeals received will be considered by the Appraisal Team for possible revisions to the recommendations package. The time period for public comments and appeals is prescribed in the Line Office's Partnership Policy. The NOAA Office Director can also use other means of advertising decisions as a result of this procedure to the affected user community such as society journal articles, constituent meetings, newsletters, *etc.*

C.5 Data Management Committee (DMC) Reports and Process Tracking

DMC will issue periodic reports to the NOAA Observing System Council (NOSC) that summarize the results of this Appraisal/Approval procedure, including measuring the timeliness and effectiveness of the application of the procedure, as well as recommendations for process improvement. DMC will track all decisions and document the steps that result in a) scientific records being removed from a NOAA archive or b) scientific records being added to a NOAA archive that have also gone through a formal records appraisal process.

DMC will also provide a summary of archive decisions in the Biennial Data Management Report to Congress and in the annual program planning and budgeting processes. These updates are especially important for scientific records that have been approved for archive but where resources may not exist or are insufficient to support the archive.

C.6 NOAA Observing System Council (NOSC) Action

The NOSC will receive periodic reports from DMC as defined in Step C.5. NOSC endorsement of a decision by a NOAA Facility is not required and will be automatic. The NOSC can take whatever additional actions are deemed appropriate to ensure a proper archive decision has been made.

Step D. Implementing the Decision

The fourth broad process step is implementing the decision. Before implementing any decision, the NOAA Office Director will ensure that coordination with NARA and any public comments and appeals have been adequately addressed. Adequate resources must exist before a decision is implemented. If adequate resources do not exist, then DMC will be notified and a description will be included in NOAA's Biennial Report to Congress on Data and Information Management.

D.1 Decision implementation for New Records

The NOAA Office Director that is responsible for the appraisal will notify the Information Provider of the decision. If the decision is to not archive at NOAA, the NOAA Office Director will make a recommendation to the Information Provider as to where the scientific records could be archived when possible.

For records that have been approved for inclusion in a NOAA archive, the process that establishes a Submission Agreement will begin, or if already begun, will proceed to the establishment of a formal agreement between the Information Provider and the NOAA Facility. The Appendix II questionnaire can be used as a basis for the submission agreement. An example of a submission agreement is outlined in the Open Archival Information System (OAIS) Reference Model. The corollary Producer-Archive Interface Methodology Abstract Standard document describes this process. The NOAA Data Centers, in conjunction with the CLASS team, have developed a Submission Agreement template that should be useful for most records. As part of the OAIS Reference Model, the appraisal and approval of information to archive would be part of the OAIS Management responsibility.

D.2 Decision implementation for Existing Records

If the decision is to dispose of records and the coordination with NARA (Step C.3) has been completed and any public comments and appeals that were received (Step C.4) have been adequately addressed, the Office Director that has custody of the records will attempt to donate the records to interested agencies or individuals to include the original records creator when applicable. The agencies or individuals contacted will be documented. If there is no interest, the records can be destroyed in accordance with established NARA Records Disposition Schedule requirements. The NOAA Office Director has the discretion to retain these records for a longer period of time.

6. ASSIGNMENT OF NOAA ROLES AND RESPONSIBILITIES

A. NOAA Observing System Council (NOSC)

NOSC is comprised of NOAA Assistant Administrators from all Line Offices and other senior NOAA officials. It reports directly to the NOAA Administrator. For the purpose of this procedure, the NOSC coordinates observational and data management activities across NOAA. The NOSC will:

1. Receive periodic reports from DMC on decisions made as a result of this procedure. These reports will include measuring the timeliness and effectiveness of the application of the procedure, as well as recommendations for process improvement.
2. Take whatever additional steps are deemed appropriate to ensure a proper archive decision has been made. NOSC endorsement of a decision by a NOAA Facility is not required and will be automatic.

B. NOAA Data Management Committee (DMC)

The DMC is comprised of data manager representatives from the NOAA Data Centers and all NOAA Line Offices and Goals. It reports to the NOSC. The DMC will:

1. Maintain a tracking system to track scientific record requests submitted to this procedure which will formally document and maintain the steps NOAA takes in identifying, appraising and approving what scientific records are or should be preserved in a NOAA archive.
2. When requested, determine the appropriate NOAA Facility to perform the appraisal using as guidance NOAA Administrative Order 212-15, Management of Environmental and Geospatial Data and Information.
3. When applicable, request an External Science Review Team and serve as the NOAA interface for that team.

4. Issue periodic reports to the NOSC that summarize the results of this Appraisal/Approval procedure, including measuring the timeliness and effectiveness of the application of this procedure, as well as recommendations for process improvement.
5. Describe in documents, such as NOAA's Biennial Report to Congress on Data and Information Management and annual planning and budgeting documents, requirements for scientific records approved for archive through this procedure especially where resources are lacking or insufficient.

C. Office Director of a NOAA Facility

The Office Director is the senior manager responsible for operating a NOAA Facility. The Office Director will:

1. Assign or appoint the Appraisal Team that will perform the scientific records appraisal.
2. Notify the Information Provider within 30 days of the NOAA Facility's receipt of the request, acknowledgement of the request and the expected duration of the process, which will return a decision to the requester.
3. Review the recommendation package submitted by the Appraisal Team.
4. Make approve/disapprove decisions when applicable or forward decisions to their NOAA Line Office for additional assistance when needed or when required by their Line Office policy.
5. Request that the Appraisal Team obtain additional background information on the scientific records subject to this procedure, when needed.
6. Request that the DMC assemble an External Science Review Team and/or ask the Appraisal Team to conduct an external science review, when required.
7. Prior to implementing a final decision, coordinate all decisions as a result of this procedure with NARA disposition schedules.
8. Prior to implementing a final decision, advertise for public comment and appeal the decisions as a result of this procedure in accordance with his/her Line Office's NOAA Policy on Partnership in the Provision of Environmental Information, when required.
9. Notify the Information Provider of the results of the appraisal process and explain the public comment and appeal process as described in Step C4.
10. When possible, recommend to the Information Provider where the scientific records could be archived when the decision is to not archive at NOAA.
11. Provide reports to the DMC on the results of the appraisal process.
12. Implement decisions, including assigning appropriate NOAA staff to work with the Information Provider in order to develop a Submission Agreement for new records accepted for archive.

D. Appraisal Team

An Appraisal Team is usually comprised of one or more NOAA employees who have knowledge of the scientific records subject to this procedure and usually from the single NOAA Facility where the records would be archived. However, an Appraisal Team may include staff from other NOAA offices and external NOAA experts when required. When expert knowledge of the scientific records resides outside of NOAA, the inclusion of experts external to NOAA is important. An Appraisal Team is created by the NOAA Facility Office Director and consists of one or more individuals who can represent or address: a) the Designated Community of scientific users of the records, b) preservation issues, c) IT infrastructure, d) cost estimations, e) any international or interagency issues, and f) other issues germane to the scientific records. No member of this Team may be the actual or prospective Information Provider for the records being appraised. An Appraisal Team will:

1. Work with the Information Provider to gather background information on the scientific records subject to this procedure.
2. Iteratively negotiate with the Information Provider what scientific records will be archived as the background information is analyzed.
3. Assemble and submit a preliminary and/or formal appraisal and a recommendation package to their respective NOAA Facility Office Director.
4. Request the formation of an External Science Review Team from DMC and/or arrange an external science review, when required.
5. After the recommendation package is submitted, resolve any issues that occur during the approval process to ensure a clear understanding between the NOAA Facility Office Director and the Information Provider.
6. Revise the recommendation package as needed until a final decision is made on the scientific records subject to this procedure. This may include resolving any issues resulting from the public comment and appeal period.

E. Information Provider

An Information Provider may be a NOAA agency or other science organization or individual collecting observation data and producing information for local, state, tribal, federal, or national or international organizations. The Information Provider will:

1. Provide the initial request that identifies scientific records subject to this procedure. The written request, in the form of a letter or email, will include basic facts about the scientific records to include a records title, volume size, spatial and temporal coverage, records format, recording media, and other descriptive information that may be considered important.
2. Work with the Appraisal Team to provide background information on identified scientific records needed to perform an appraisal.
3. Work with the Appraisal Team to resolve any issue about understanding decisions made.
4. In some instances, a NOAA Facility may identify the Information Provider from whom records are requested for inclusion in a NOAA archive and may initiate contact with the Information Provider to acquire specific data holdings of significant interest to the NOAA science mission.

F. External Science Review Team

An External Science Review Team is comprised of external to NOAA scientists or users who have expert knowledge of data management and/or the scientific records subject to this procedure. This review team may include one or more individuals, an *ad hoc* group assembled by the Appraisal Team, or a standing working group identified by the NOAA Science Advisory Board. The formation of an external team can be requested by any NOAA decision-making authority. The External Science Review Team will:

1. Work with the Appraisal Team, Information Provider, and/or DMC to review the results of the Appraisal Criteria Questionnaire and gather additional background information on the scientific records subject to this procedure.
2. Provide recommendations on the scientific records subject to this procedure. All recommendations made to NOAA will be used in accordance with the Federal Advisory Committee Act.

7. PROCEDURE REVIEW

NOAA's DMC will review this procedure as necessary for effectiveness in consultation with NOAA Facilities, Information Providers, designated communities of archival scientific records, and other interested parties.

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NOAA Policy on Partnership in the Provision of Environmental Information effective January 19, 2006. http://www.noaa.gov/partnershippolicy/#policy.

NOAA Records Disposition Handbookhttp://www.ofa.noaa.gov/~ames/Records_Management/disposition_handbook.html.

OMB Circular A-130, Management of Federal Information Resources. http://www.whitehouse.gov/omb/circulars/a130/a130trans4.html.

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The procedure was developed in response to a NOAA Science Advisory Board's (SAB) December 2007 recommendation that NOAA develop a retention policy for multiple versions of datasets. This recommendation was based on the findings of the SAB's Data Archiving and Access Requirements Working Group (DAARWG) which was established in 2006 to advise NOAA on maintaining comprehensive data archives and providing efficient access to them. NOAA agreed with the findings and expanded the effort to all NOAA scientific records, including multiple versions.

In developing this procedure, an extensive literature review was conducted on previously document work on scientific records appraisals . This included appraisal process used at the U.S. Geological Survey's Earth Resources Observation and Science Center (USGS-EROS), at the NASA Socioeconomic Data and Application Center, and at the NARA.

Past National Research Council reports on NOAA data management and NARA appraisal guidelines provided a foundation for the Formal Scientific Records Appraisal Questionnaire in Appendix II of this document. Of particular note was groundbreaking work performed by USGS-EROS in the area of appraising scientific records. John Faundeen, Archivist at EROS, provided valuable suggestions and guidance during the early development of this effort.

This document was vetted through a review process consisting of data management experts from both within NOAA and external to NOAA. In 2008, NOAA data management experts provided two reviews during the periods April 3 to 21 and May 1 to 23. In addition, two reviews were provided by data management experts external to NOAA during the periods April 23 to May 16 and May 19 to 28. In June 2008, this procedure was presented at the DAARWG summer meeting. DAARWG commended NOAA on the procedure and recommended that a final document be produced after incorporating additional recommendations received at that meeting.

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APPENDIX I: SCIENTIFIC RECORDS COVERED AND NOT COVERED BY THIS PROCEDURE

Information was grouped into seven broad categories in the November 6, 2006, *NOAA Information Quality Guidelines*. Four of the seven categories are relevant to scientific records and are covered by this procedure. These records could be produced by NOAA or a by a national or international organization. The four categories covered by this procedure appear bolded in the following list: **1) Original Data; 2) Synthesized Products;** 3) Interpreted Products**; 4) Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories;** 5) Natural Resource Plans; **6) Experimental Products;** and 7) Corporate and General Information.

Original Data are data in their most basic useful form. These are data from individual times and locations that have not been summarized or processed to higher levels of analysis. While these data are often derived from other direct measurements (*e.g.*, spectral signatures from a chemical analyzer, electronic signals from current meters), they represent properties of the environment. These data can be disseminated in both real time and retrospectively. Examples of original data include oceanographic and meteorological observations from buoys, geophysical observation data from surface-based sensors, living marine resource inventories, bathymetric data from hydrographic surveys, biological and chemical properties of sediments, or weather observations and observation data from satellites.

Synthesized Products are those that have been developed through analysis of original data. This includes analysis through statistical methods; model interpolations, extrapolations, and simulations; and combinations of multiple sets of original data. While some scientific evaluation and judgment is needed, the methods of analysis are well documented and relatively routine. Examples of synthesized products include summaries of fisheries landings statistics, weather statistics, model outputs, data overlays displayed through Geographical Information System techniques, and satellite-derived maps.

Interpreted Products are those that have been developed through interpretation of original data and synthesized products. In many cases, this information incorporates additional contextual and/or normative data, standards, or information that puts original data and synthesized products into larger spatial, temporal, or issue contexts. This information is subject to scientific interpretation, evaluation, and judgment. Examples of interpreted products include journal articles, scientific papers, technical reports, and production of and contributions to integrated assessments.

Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories are time-critical interpretations of original data and synthesized products, prepared under tight time constraints and covering relatively short, discrete time periods. As such, these warnings, forecasts, and advisories represent the best possible information in given circumstances. They are subject to scientific interpretation, evaluation, and judgment. Some products in this category, such as weather forecasts, are routinely prepared. Other products, such as tornado warnings, hazardous chemical spill trajectories, and solar flare alerts, are of an urgent nature and are prepared for unique circumstances.

Natural Resource Plans are information products that are prescribed by law and have content, structure, and public review processes (where applicable) that are based upon published standards (*e.g.*, statutory or regulatory guidelines). These plans are a composite of several types of information (*e.g.*, scientific, management, stakeholder input, and policy) from a variety of internal and external sources. Examples of Natural Resource Plans include fishery, protected resource, and sanctuary management plans and regulations, and natural resource restoration plans.

Experimental products are products that are experimental (in the sense that their quality has not yet been fully determined) in nature, or are products that are based in part on experimental capabilities or algorithms. Experimental products fall into two classes. They are either 1) disseminated for experimental use, evaluation or feedback, or 2) used in cases where, in the view of qualified scientists who are operating in an urgent situation in which the timely flow of vital information is crucial to human health, safety, or the environment, the danger to human health, safety, or the environment will be lessened if every tool available is used. Examples of experimental products include imagery or data from non-NOAA sources, algorithms currently being tested and evaluated, experimental climate forecasts, and satellite imagery processed with developmental algorithms for urgent needs (*e.g.*, wildfire detection).

Corporate or general information includes all non-scientific, non-financial, non-statistical information. Examples include program and organizational descriptions, brochures, pamphlets, education and outreach materials, newsletters, and other general descriptions of NOAA operations and capabilities.

In addition, the following records were specifically listed as not being subject to the November 6, 2006, *NOAA Information Quality Guidelines*. They are specifically listed here as NOT being subject to this procedure:

- Information with distribution intended to be limited to government employees or agency contractors or grantees.
- Information with distribution intended to be limited to intra- or inter-agency use or sharing of government information.
- Responses to requests for agency records under the Freedom of Information Act, the Privacy Act, the Federal Advisory Committee Act or other similar law.
- Information relating solely to correspondence with individuals or persons.
- Press releases, fact sheets, press conferences or similar communications in any medium that announce, support the announcement or give public notice of information NOAA has disseminated elsewhere.
- Reference records, including library holdings and World Data Center holdings.
- Archival information disseminated by NOAA before June 30, 2008, and still maintained by NOAA as archival material.
- Public filings.
- Responses to subpoenas or compulsory document productions.
- Information limited to adjudicative processes, such as pleadings, including information developed during the conduct of any criminal or civil action or administrative enforcement action, investigation or audit against specific parties, or information distributed in documents limited to administrative action determining the rights and liabilities of specific parties under applicable statutes and regulations.
- Solicitations (*e.g.*, program announcements, requests for proposals).
- Hyperlinks to information that others disseminate, as well as paper-based information from other sources referenced, but not approved or endorsed by NOAA.
- Policy manuals and management information produced for the internal management and operations of NOAA, and not primarily intended for public dissemination.
- Information presented to Congress as part of legislative or oversight processes, such as testimony of NOAA officials, and information or drafting assistance provided to Congress in connection with proposed or pending legislation, that is not simultaneously disseminated to the public. (However, information, which would otherwise be covered by applicable guidelines, is not exempted from compliance merely because also presented to Congress.)
- Documents not authored by NOAA and not intended to represent NOAA's views, including information authored and distributed by NOAA grantees, as long as the documents are not disseminated by NOAA (see definition of "dissemination").
- Opinions where the presentation makes it clear that what is being offered is not the official view of NOAA.

APPENDIX II: NOAA SCIENTIFIC RECORDS APPRAISAL CRITERIA QUESTIONNAIRE

Using the Appraisal Criteria Questionnaire: The Appraisal Team will use the background information collected from the questions found below to make decisions about scientific records currently within, or requested to be included, in a NOAA archive. This will result in more consistent appraisal decisions that can be readily explained both within NOAA and to its constituents. Additional appraisal questions and answers can be added by the Appraisal Team when needed and can be used in the appraisal process. A web-based system is anticipated for this questionnaire that will provide for easier data entry and analysis.

The appraisal questions were developed from guidelines produced by National Archives and Records Administration (NARA), from National Research Council (NRC) reports that contained recommendations to NOAA on data management, and appraisal processes used by other Federal Agencies. All questions have one or more references from the NARA and/or NRC reports indicating the origin or basis for the question. These references contain the actual wording in italics extracted from the NARA/NRC reports. The intent for this is twofold. The actual reference wording will: 1) further explain the question to those answering the questions and 2) provide context to the Appraisal Team during their evaluation of the answer to the question.

As described by NARA (2007), applying these questions to specific scientific records "... is not a mechanical process akin to adding up points or checking boxes. The questions should be considered together, rather than in isolation." Finally, it is not the intent that this is a static list of questions. Rather, it is expected that these questions will evolve over time based upon experience gained by using the Criteria Questionnaire tool and by incorporating new information from future assessments of NOAA data management activities.

Outline of the Appraisal Criteria Questionnaire:

Section 0: Administrative Metadata
Section 1: NOAA Mission Relevancy
Section 2: General Facts
Section 3: Physical Facts
Section 4: Metadata Facts
Section 5: Record Processing Level Facts
Section 6: Research and Development (R&D) Records
Section 7: External Records Review Processes
Section 8: Records Restrictions
Section 9: Records with Intrinsic Value
Section 10: Resources
Section 11: References for Questionnaire

SECTION 0: ADMINISTRATIVE METADATA

Collection Name, Date of Submission, and Date of Review:

Information Provider Name and Organization:
Address:
Team Lead and Team Members:
Lead Telephone & Email address:

Appraisal Team Information Organization:
Address:
Team Lead and Team Members:
Lead Telephone & Email address:

SECTION 1: NOAA MISSION RELEVANCY

1. **Where do these records fit within NOAA's mission?**
    a. See ***current NOAA strategic plan (www.ppi.noaagov/spo.htm)***
    b. *NRC **Principle #1 (2007):** Environmental data should be archived and made accessible*

2. **Are these scientific records Environmental Data or Geospatial Data as defined in NOAA Administrative Order (NAO-212-15) entitled *Management of Environmental and Geospatial Data and Information?* <www.corporateservices.noaa.gov/~ames/NAOs/Chap_212/naos_212_15.html>**
    a. ***Environmental Data** - recorded observations and measurements of the physical, chemical, biological, geological, or geophysical properties or conditions of the oceans, atmosphere, space environment, sun, and solid earth, as well as correlative data and related documentation or metadata. Media, including voice recordings and photographs, may be included.*
    b. ***Geospatial Data** - information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the Earth. This information may be derived from, among other things, remote sensing, mapping, and surveying technologies. Statistical data may be included in this definition at the discretion of the collecting agency.*

3. **Do the records have legal mandates, which require their archiving? If yes, list them. Are there existing NARA dispositions schedules that pertain to these records?**
    a. **NRC (2007):** *NOAA must continue to archive and provide access to all data as required by law.*

SECTION 2: GENERAL FACTS

4. **Are the records unique? If not unique, where else do they exist?**
    a. *NARA **(2007):** Appraisals must be conducted in context with other records. The appraisal must determine whether the records under consideration are the only or are the most complete source for significant information. Records that contain information not available in other records (including other Federal records as well as files accumulated by state and local governments) are more likely to warrant permanent retention than records containing data that is duplicated in other sources. However, NOAA may decide to retain records that contain information available elsewhere in the case of records that are more complete or more easily accessible than the alternative source.*
    b. *NRC **Guideline (2007):** The most obvious candidates for reduced archiving requirements are data that are obsolete or redundant, that could be regenerated on demand, or clearly have only short-term uses. This includes older versions of reprocessed data and model output.*
    c. *NRC **Guideline (2007):** NOAA should establish close partnerships with other national and international data holding institutions and engage these institutions as part of the archiving process. It is important to have clear agreement on which partner has what archival responsibility*
    d. *NRC **(1995):** For both observational and experimental data, the following retention criteria should be used to determine whether a data set should be saved: uniqueness.*

5. **Are the records related to other records in a NOAA archive, *i.e.*, extensions, new versions, improved quality, *etc.*? If yes, to what degree do the records add value to other records held by NOAA or others?**
    a. *NARA **(2007):** Other things being equal, records that add significantly to the meaning or value of other records already appraised as permanent are more likely to warrant retention than records lacking such a relationship. Records that are chronological continuations of records already in the NOAA archive are likely to warrant permanent retention, particularly if the older segments of the records are subject to high reference use.*

6. **Are the records judged to have authenticity, reliability, integrity and usability (see Definitions Section)?**
    a. *NARA* **(2007)**: *To be appropriate for long-term temporary or permanent retention, observational data should possess authenticity, reliability, integrity, and usability (as defined in ISO 15489-1:2001 entitled "Information and documentation -- Records management." Intellectual linkage with the related metadata is essential. <**http://www.whitefoot-forward.com/iso_15489-1.pdf**>*

7. **What was the original purpose of the records? Do the records provide information and value beyond their original purpose and user community?**
    a. *NARA* **(2007)**: *Records are more likely to be appraised as permanent if they not only can be used for scientific purposes but also for legal, commercial, educational, engineering, resource management, or other purposes.*

8. **What is the value (scientific, public, government) of the records to be archived in terms of current and anticipated future benefits and levels of service required to achieve these benefits**?
    a. **NARA (2007)**: *The future research potential of records is the most difficult variable to determine. What is of relatively low research use today may become of great research use in the future. Perhaps even more important and difficult to predict are the issues and topics that will be considered of significance in the future. Nevertheless, it is important to consider this question in making appraisal decisions. It is necessary to consider the kinds and extent of current research use and to try to make inferences about anticipated use both by the public and by the Government.*
    b. **NRC (2007):** *Not all data sets are of equal value, and practical constraints prevent all data from being archived and made readily accessible, so at some point certain data will need to be designated for reduced archiving and/or access requirements. Ideally, this decision would be made based on the current utility and potential future value of the data, but … it is extremely difficult to assess even the current value of any particular environmental data stream. Likewise, it is virtually impossible to anticipate its potential future uses. The decision-making process also needs to be ongoing, with data managers/stewards continually reviewing the data holding under their purview to determine the appropriate level of service for each data set given legal and mission requirements, user needs, and available resources.*

SECTION 3: PHYSICAL FACTS

9. **What is the volume of the records (archive storage size)? Is the record collection static or growing? If the collection is growing, what is the expected volume?**
    a. *NARA* **(2007)**: *Volume will play a role only in the appraisal of records whose archival value is marginal. Other things being equal, records that are compact are more likely to be appraised as permanent than those that are voluminous.*

10. **What are the time period (temporal range) and location (spatial area) that are covered by these records?**
    a. *NARA* **(2007)**: *Observational records covering a long time period tend to have more value because they enable long-term patterns to be identified and thereby increase confidence in the reliability of data and the conclusions drawn from them.*

11. **What is the data format of the records?**
    a. *NARA* **(2007)**: *Some records may pose such technological challenges that extraordinary measures may be required to recover the information, while other records containing similar documentation (either electronic records or records in another format) may be usable with much less effort.*
    b. *NRC* **(2007)**: *The best archive formats are those where the digital content of each data record can be described in elementary terms (for example, number of bytes, numeric type, character string, pixel, etc.). This is one feature of an open format standard that helps minimize software and computer operating system dependencies that could render the data inaccessible in the worst case. So-called proprietary formatted data (non-open format description) should in general not be considered as a good candidate for long-term archiving unless a plan and a process are in place to translate the data to an open format standard.*

12. **If these records are currently in electronic format, do these records still exist on other media (*e.g.*, paper, film)? If yes, is it required to maintain copies on other media?**
    a. *NARA* **(2007)**: *Many data series now collected in electronic format were formerly created and maintained in other formats such as paper or photographs. Agencies may still maintain older data in such formats for use in conjunction with the related electronic data. Appraisers should extend their review of electronic systems to include any related data in other formats, as these older data may add to the usefulness of the electronic data if they are still in a usable format. All formats should be considered during the appraisal.*
13. **What is the current storage media for the records? How does the physical condition of the media affect their usability? Is the current storage media at risk?**
    a. *NARA* **(2007)**: *Some records may have deteriorated to the point that the information they contain is not readable.*
    b. *NRC* **(1995)**: *The appraisal process must apply the established criteria while allowing for the evolution of criteria and priorities, and be able to respond to special events, such as when the survival of data sets is threatened.*

14. **Does appropriate hardware and software technology exist to enable usability of the records? If yes, describe.**
    a. *NARA* **(2007)**: *Some records may pose such technological challenges that extraordinary measures may be required to recover the information, while other records containing similar documentation (either electronic records or records in another format) may be usable with much less effort.*
    b. *NRC* **1995**: *For both observational and experimental data, the following retention criteria should be used to determine whether a data set should be saved: availability of hardware to read the records*

15. **Have the records ever physically resided at a scientific data center or center of data where stewardship was provided? Where do they reside now? What scientific expertise would best provide stewardship for the records?**
    a. *NARA* **(2007)**: *It is appropriate for many observational data of long-term temporary or permanent value to be maintained on a continuing basis by a scientific data center that possesses the necessary expertise to ensure preservation and access.*
    b. *NRC* ***Principle*** *# 6* **(2007)**: *Data and metadata require expert stewardship.*
    c. *NRC* ***Guideline*** **(2007)**: *Good stewardship requires systematic, ongoing assessment and improvement of data and metadata.*

SECTION 4: METADATA FACTS

16. **What metadata exists and is the metadata sufficient to support the broad understanding of the scientific records?**
    a. *NARA* **(2007)**: *Metadata should include information such as purpose and time period of data collection; location of collection site; methods and instrumentation used in collection; units of measurement, acceptable values, and error tolerance; data aggregation methods; processing history; and quality assessment. The types of metadata required vary with the nature of the data and their likely future uses*
    b. *NRC* ***Principle*** *#5* **(2007)**: *Metadata are essential for data management.*
    c. *NRC* ***Guideline*** **(2007)**: *Metadata that adequately document and describe each archived data set should be created and preserved to ensure the enhancement of knowledge for scientific and societal benefit.*
    d. *NRC* **(1995)**: *For both observational and experimental data, the following retention criteria should be used to determine whether a data set should be saved: adequacy of documentation (metadata). Complete metadata should define the content, format or representation, structure, and context of a data set.*

17. **Is the metadata in a standard format or can it be automatically translated into a standard format? What other important metadata exists that is not standardized?**
    a. *NARA* **(2007)**: *It is preferable for metadata, whenever possible, to conform to standards issued by such broad-based organizations as the Federal Geographic Data Committee (FGDC) and the International Organization for Standardization (ISO).*

b. *NRC **Guideline (2007)**: The application and expansion of metadata and related standards are essential for good stewardship; NOAA and its partners should continue to expand their usage of standards and reference models.*
c. *NRC **(2007)**: Metadata should be stored in similarly open formats and should be tightly coupled with and managed in conjunction with the data so both are always readily available to the user.*

SECTION 5: RECORD PROCESSING LEVEL FACTS

18. What is the completeness and quality of the scientific records and metadata?

a. *NARA **(2007)**: Additional factors favoring long-term or permanent retention are the completeness and quality of observational data; quality and completeness of metadata*

19. Describe the data processing level of the scientific records. For example are the records "raw" or minimally processed, quality controlled or calibrated, *etc.*?

a. *NARA **(2007)**: Raw or minimally processed records are more difficult for anyone except the primary user(s) to understand and use but are essential for conducting a reanalysis, such as to verify findings or support a new hypothesis. These observational records are likely to be appraised as either long-term temporary or permanent. Unlike laboratory experimental data, observational records typically document phenomena that can never be repeated. Observational records establish a baseline to help determine future rates of change and frequency of occurrence of unusual events. Moreover, observational records frequently can be processed and used in novel ways, for example, to verify new scientific concepts.*
b. *NRC **Guideline (2007)**: It is especially important to save the most primitive useful forms of all environmental data.*
c. *NRC **(1995)**: As a general rule, all observational data that are non-redundant, useful, and documented well enough for most primary uses should be ... maintained.*

20. If not "raw" or minimally processed, describe the data processing level of the scientific records.

a. *NARA **(2007)**: Appraisal decisions should take into account that the uses of data vary according to the level of processing. Processed records are more likely to have long-term value if they would be costly to recreate from the raw data. It may be warranted to appraise as permanent both a raw version and one or more processed versions of certain records. With each higher level of processing, records generally become easier to use but less subject to reanalysis. To facilitate future reanalysis, it is usually appropriate to preserve processed records at the lowest level of processing compatible with effective use.*
b. *NRC **Guideline (2007)**: It may be more cost-effective to regenerate certain kinds of environmental data on demand.*
c. *NRC **Guideline (2007)**: The most obvious candidates for reduced archiving requirements are data that are obsolete or redundant, that could be regenerated on demand, or clearly have only short-term uses. This includes older versions of reprocessed data and model output.*

21. If these records are processed, do multiple versions of the same processed records exist?

a. *NARA **(2007)**: Processed data are more likely to have long-term value if they would be costly to recreate from the raw data. It may be warranted to appraise as permanent both a raw version and one or more processed versions of certain data.*
b. *NRC **Guideline (2007)**: It may be more cost-effective to regenerate certain kinds of environmental data on demand.*
c. *NRC **(2007)**: In situations where multiple versions of derived products have been generated, it would be helpful to have a defined process in place to determine which versions need to be archived. The following three questions, for example, could form the basis for such decisions. If the answer to all three questions is positive, then multiple versions should be archived:*
    i. *Is it feasible to retain multiple versions of the data?*
    ii. *Are the differences among the various versions sufficiently large and scientifically important to make it worth preserving multiple versions?*
    iii. *Is it too technically difficult to regenerate earlier versions?*

SECTION 6: RESEARCH AND DEVELOPMENT (R&D) RECORDS: RECORDS GENERATED AS A RESULT OF AN EXPERIMENT USING THE WORKFLOW PROCESS BASED UPON THE SCIENTIFIC METHOD. SKIP TO THE NEXT SECTION IF RECORDS ARE NOT R&D.

22. Are the R&D records unprocessed (original or raw) or processed (compiled or analyzed products)?

a. *NARA (2007): Raw data are generated by an experiment, whereas processed data consist of raw data manipulated to help identify patterns in the data. Research data commonly have short-term value when they are narrow in scope and can be replicated by a new experiment if necessary. For data to be valuable over the long term, they should be unique, complete, valid, and accompanied by appropriate metadata. Data with long-term research value often are most appropriately maintained by the R&D agencies, which created them because the creating agencies usually possess the scientific expertise essential for providing effective access to the data.*

b. *NRC (1995): Laboratory data sets are candidates for long-term preservation if there is no realistic chance of repeating the experiment, or if the cost and intellectual effort required to collect and validate the data were so great that the long-term retention is clearly justified.*

23. If the R&D was performed by a non-NOAA entity, was the project funded by a Federal funding source contract or grant?

a. *NARA (2007): For projects funded by contracts, records specified in the contract as deliverables generally are Federal records and, in conformance with the contract requirements, may be maintained by either the contractor or the funding agency. By contrast, the primary records of grant-funded projects usually are not considered to be Federal records and are maintained by the grantee. Recordkeeping for collaborative projects is affected by the diversity of funding sources and institutions (including non-Federal institutions) involved. Effective appraisal of these records requires a determination of which institutions have responsibility for the records and their disposition.*

SECTION 7: EXTERNAL RECORDS REVIEW PROCESSES

24. Have the records undergone user evaluation and/or scientific peer review, been used extensively in publications, and/or subjected to other appraisal processes such as the NOAA Satellite Products and Services Review Board (SPSRB)? If yes, please describe.

a. *NARA (2007): In general, data are more likely to be appraised as permanent if the data have successfully undergone the scientific peer review process. This is especially true for processed records.*

b. *NRC **Principle** # 3 (2007): Environmental data management activities should recognize user needs.*

c. *NRC **Principle** # 7 (2007): A formal ongoing process, with broad community input, is needed to decide what data to archive and what data not to archive.*

d. *NRC **Guideline** (2007): It is essential to solicit user input when making decisions on whether to archive or continue archiving a data set.*

e. *NRC **Guideline** (2007): Because the decision to stop archiving is normally irrevocable, extra attention to community engagement is needed before final disposal of any data.*

f. *NRC (1995): For both observational and experimental data, the following retention criteria should be used to determine whether a data set should be saved: evaluation by peer review. All stakeholders-scientists, research managers, information management professionals, archivists, and major user groups-should be represented in the broad, overarching decisions regarding each class of data.*

SECTION 8: RECORDS RESTRICTIONS

25. Do any restrictions apply to the records (*e.g.*, redistribution, proprietary, national security, classified, sensitive natural resource, others)? If yes, describe the restrictions.

a. *NRC (2007): There are some data for which access restrictions are clearly needed, such as the location of rare in situ specimens or data with national security implications. Some data sets NOAA will want to archive are proprietary in nature, particularly data derived from international and/or commercial sources. There should be provisions in data management systems for incorporating such data.*

b. *NRC (1995): Classified data must be evaluated according to the same retention criteria as unclassified data in anticipation of their long-term value when eventually declassified. Evaluation of the utility of classified data for unclassified uses needs to be done by stakeholders with the requisite clearances to access such data.*

SECTION 9: RECORDS WITH INTRINSIC VALUE

26. Do the records have intrinsic value?

a. *NARA (2007): Records with intrinsic value are rare and possess one or more specific qualities or characteristics as defined by NARA. These include but are not limited to records in an original form that document an early media type (e.g., glass plate negatives, wax cylinder recordings, etc. – Note that only a representative sample would have intrinsic value and not the entire collection), Aesthetic or artistic quality (e.g., manuscripts; photographs; pencil, ink, or watercolor sketches; maps, etc.), Age (e.g., Generally, records of earlier date are of more significance than records of later date).*

SECTION 10: RESOURCES

27. What are the cost considerations for long-term maintenance of the records? Are resources available for archiving and providing access to these records? If pertinent to the appraisal decision, has a detailed cost / benefit analysis of the records been completed (*e.g.*, USGS cost/benefit analysis located at: <http://eros.usgs.gov/government/ratool/view_questions.php>)?

a. *NARA (2007): This consideration should play a significant role only in marginal cases. In such cases, an appraisal should balance the anticipated research potential of the records with the resource implications of retaining them permanently. Other things being equal, records with low long-term cost implications are more likely to warrant permanent retention than those records that carry high long-term costs.*

b. *NRC **Principle** #2 (2007): Data generating activities should include adequate resources to support end-to-end data management.*

c. *NRC **Guideline** (2007): Archiving and access decisions are closely related. In general, when resources are limited, access to older or less commonly used data should be scaled back rather than removing data from the archive.*

28. Are resources available for Data Stewardship that will enable activities that preserve and improve information content, accessibility, and usability of the records based upon technology changes and future discoveries that advance the understanding and knowledge of the records?

a. *NRC **Guideline** (2007): Good stewardship requires systematic, ongoing assessment and improvement of data and metadata.*

b. *NRC **Guideline** (2007): NOAA should establish and maintain data and metadata migration plans for all current and future long-term archive systems to adapt to information technology evolution.*

SECTION 11: REFERENCES FOR QUESTIONNAIRE

NARA, 2007: National Archives and Records Administration Strategic Directions: Appraisal Policy. Excerpted from the internal NARA Directive 1441 dated September 20, 2007. Available at: http://www.archives.gov/records-mgmt/initiatives/appraisal.html.

NRC, 2007: Environmental Data Management at NOAA: Archiving, Stewardship, and Access. Washington, DC: National Academy Press. Available at: http://www.nap.edu/catalog.php?record_id=12017.

NRC, 1995: Preserving Scientific Data on Our Physical Universe: A New Strategy for Archiving the Nation's Scientific Information Resources. Washington, DC: National Academy Press. Available at: http://www.nap.edu/openbook.php?isbn=030905186X.

APPENDIX III: INTENT OF NOAA PROCEDURE FOR SCIENTIFIC RECORDS APPRAISAL AND ARCHIVE APPROVAL

The overall intent of this procedure is to put in place a universal process that NOAA will use that defines what scientific records are preserved in a NOAA archive. Recognizing that different appraisal and approval processes currently exist at the NOAA Facilities, the intent of this procedure is to:

a. develop a universal process based upon commonalities found among existing NOAA processes and integrating common processes used by other Federal Agencies including NARA,

b. maintain the autonomy and authority of the individual NOAA Facilities by keeping the appraisal and approval decision authority about what scientific records are preserved at the same location as where the NOAA scientific data stewardship expertise exists,

c. allow for a higher level NOAA approval authority when required or when requested by the NOAA Facilities,

d. provide for a formal mechanism to acquire recommendations from external NOAA scientists and users of the scientific records subject to this procedure in concurrence with FACA,

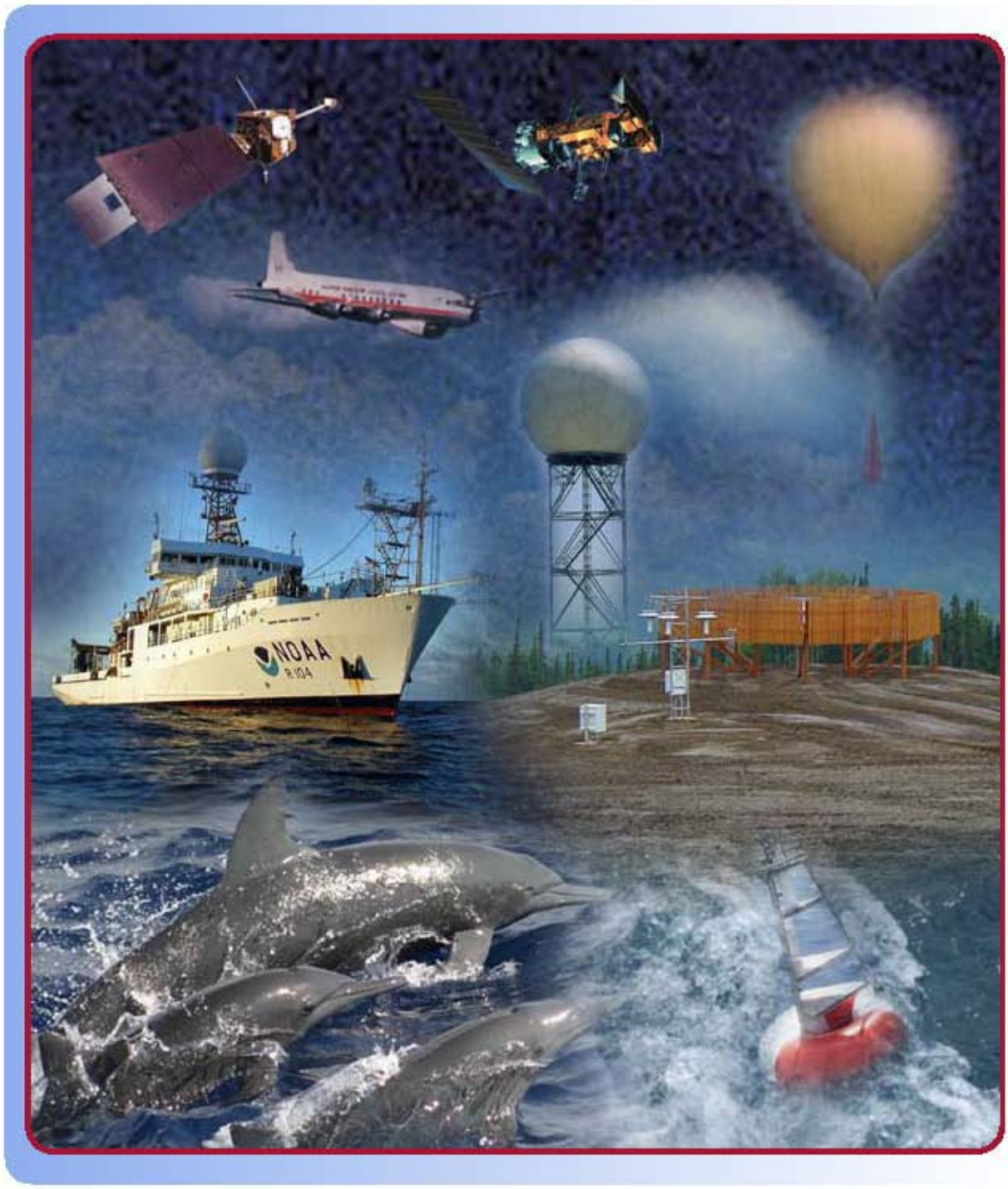
e. provide for a formal mechanism that allows public comments and appeals of the decisions NOAA makes as a result of this procedure,

f. provide for a process that summarizes the NOAA decisions made as a result of this procedure, especially when resources are not sufficient to implement those decisions, and

g. formally document and maintain all the steps that NOAA takes in identifying, appraising, and approving what scientific records are preserved in a NOAA archive.

The procedure described in this document was sponsored by the NOAA Data Management Committee (DMC) which is responsible for coordinating the development and implementation of data management policy across NOAA. DMC reports to the NOAA Observing System Council (NOSC). Further information on NOSC and DMC can be found at: http://www.nosc.noaa.gov/

The montage below depicts examples of observing systems that produce scientific records where this procedure would be used to determine what records are preserved in a NOAA archive.



Artwork: Deborah B. Riddle, NOAA
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