

Data, Publications, and Physical Samples

Policy and Procedures

U.S. Extended Continental Shelf Project
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The U.S. Extended Continental Shelf Project

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Since 2001, the United States has been gathering and analyzing data to determine the outer limits of its extended continental shelf (ECS) in the Arctic region. In 2009, however, that effort became a more serious national endeavor with the establishment of a multi-agency task force and dedicated funding to undertake this exciting and important work.

Under the U.N. Convention on the Law of the Sea, every coastal nation automatically receives 200 nautical miles of continental shelf. Beyond a certain shelf, a nation must establish a permanent shelf if it meets certain criteria defined in the convention. The U.S. is the only nation that has not done so.

As an Arctic nation, it is important to know and declare its outer limit of its permanent rights in the ocean. Specifically, a nation has sovereign rights over the resources on and under the seabed, such as oil, gas, minerals, hydrocarbons, and metals. It is also entitled to certain rights in certain geographical terms, including the specificity and international recognition necessary to develop, manage and conserve these resources.

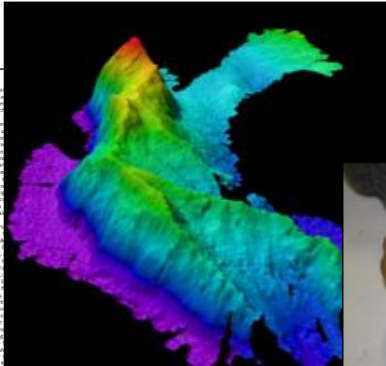
Since 2001, the United States has collected more than 200 million square kilometers of data from the Arctic Ocean. The United States has 423 in general lines, from the East Coast to the Arctic Ocean. Recent analyses and data collection suggest an outer limit to the U.S. ECS that is 1,200 kilometers from the East Coast to the Arctic Ocean. There are two primary data sets that a country needs to collect to establish the limits of its ECS. The first is bathymetric data that provides a 3D map of the ocean floor. The second is seismic data that provides a cross-sectional view of what lies beneath the ocean floor. The shape of the seafloor and the thickness of the sediment are important factors in determining whether a nation meets the criteria for an extended continental shelf.

Collecting these data sets requires sophisticated and multi-million dollar scientific and geophysical technologies. But some of the most sophisticated technology goes unexplored and the analysis of data collected is difficult.

Bathymetric data has been collected over the course of 12 cruises in the Bering Sea, Gulf of Alaska, Northern Atlantic, and Arctic Oceans and the U.S. These efforts have been led by the University of New Hampshire's Hydrographic Center (HC), in partnership with the National Oceanic and Atmospheric Administration (NOAA). All of these data are freely available from the HC's web site and NOAA's National Geophysical Data Center.

Last spring, the United States and its 17 treaty partners in a cooperative effort with Canada's hydrographic force (HCF) carried out a joint expedition to the Arctic Ocean. The expedition carried out a series of bathymetric soundings and created a straight and open path through the ice, while also following, collecting seismic data and geophysical data from the ship. When the ice gets very thick, making seismic data collection difficult, that is the point where HC and HCF would collect some bathymetric data. This joint mission successfully collected more than 2,200 kilometers of seismic profiles and more than 3,200 kilometers of bathymetric data.

Both countries have a mutual interest in utilizing the Arctic continental shelf, so it made sense to collaborate and data collectors share its work separately. Also, both countries were able to provide data for other needs, saving each other millions of dollars.



U.S.
Extended Continental Shelf
Project

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Purpose

This document specifies the policy and procedures regarding the stewardship and release of data collected as part of the U.S. ECS Project. It also clarifies the policy and procedures for published material and presentations that involve data interpretations, legal interpretations, and U.S. policy concerning the ECS Project. Finally, this document specifies the policy and procedures for handling and distributing samples collected as part of the ECS Project. Issues regarding these policies and procedures shall follow the decision-making process outlined in the March 2010 policy that defines the organization of the ECS Project. These policies and procedures are in effect for the duration of the ECS project and/or the existence of the ECS Interagency Task Force.

This policy shall be implemented in accordance with U.S. Government law and policy, including the Freedom of Information Act (FOIA) and the Open Government Directive of December 8, 2009.¹

¹ Available at: <http://www.whitehouse.gov/open/documents/open-government-directive>

Definitions

Data: A measurement, description or analysis of a geologic sample, or other scientific record.

Raw data: Data collected in the field that requires editing or processing.

Processed data: Data that have been edited or processed to facilitate analysis and interpretation.

Derived products: Maps, models, software projects, reports, and Article 76-related analyses.

Documents: Power Point presentations, planning documents, meeting minutes, budget spread sheets, plans, web pages, and documentation.

Metadata: Summary information about collection and processing of data and physical samples in ECS-compliant form created according to community-based standards using common vocabularies and templates.

Physical Samples: Rock or sediment samples recovered from the sea floor.

Science Publication: Interpretive descriptions of data that undergoes rigorous peer review and is published in a journal.

Acronyms

DOS	United States Department of State
ECS	Extended Continental Shelf Project
ECS IMS	Extended Continental Shelf Project Information Management System
IGSN	International Geo Sample Number
IRT	Integrated Regional Team
MSCL	Geotek Multi-Sensor Core Logger
NAMSS	National Archive of Marine Scientific Surveys
NGDC	National Geophysical Data Center
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
SAG	Samples Allocation Group
SESTAR	System for Earth Sample Registry
USGS	United States Geological Survey

Web Resources

ECS Website	http://continentalshef.gov
Data, Publications, and Physical Samples	http://www.ngdc.noaa.gov/mgg/ecs/dpps/

ECS Information Management System

The ECS Information Management System (ECS IMS) is the overarching framework that manages and integrates data and associated metadata from individual agency databases, as well as other documents and products for the ECS Project. The ECS IMS will create an accessible, user-friendly, rational structure with appropriate standards. It will track the transition of data from other data repositories into a central repository for all ECS material, as well as incorporate a long-term archive based on an ECS records schedule. The ECS IMS will reside at NGDC and is for government use in developing the documentation to define the U.S. ECS; it is not accessible by the public.

Data Repositories

While copies of all data relevant to defining the U.S. ECS will be provided to the ECS IMS for the purposes of defining the U.S. ECS, these same data will also be maintained by and publically available through existing data repositories within individual agencies.

For instance:

- USGS will steward the seismic data through the InfoBank and NAMSS websites.
- NGDC will steward the bathymetric, gravity, and magnetic data and data pertaining to physical samples.
- NOAA's Office of Coast Survey will steward the baseline data.

Samples Repository

The ECS-designated repository for physical samples recovered during ECS cruises will be maintained by the USGS, co-located with its existing sample repositories.

Data Policy and Procedures

Data Availability

The ECS Task Force, through the appropriate federal agency, will be the steward of the data collected for distribution and archiving as part of the ECS Project. Data collected for the purpose of defining the U.S. ECS shall be shared among U.S. agencies and made available to the ECS IMS.

It is the responsibility of the ECS Project to make data available to the public as soon as possible. Doing so provides transparency for the U.S. ECS Project and encourages other countries to also release their data. The ECS Project also has a responsibility to show the American public it is spending taxpayer money wisely; providing the raw and processed data is an essential, good Government practice. Finally, these data have a variety of uses beyond the ECS Project and will greatly inform science and management.

Bathymetric Data

- ECS IMS: All raw data, preliminary reports and metadata will be sent to the Data Repository at NGDC within three months of data collection. Processed data, ECS-compliant metadata and final cruise reports will be sent to the ECS IMS within six months of data collection.
- Publically available: Multibeam data and high-resolution subbottom (chirp) data and metadata will be released to the public within six months of the end of the cruise through the NGDC website. Duplicate copies of the bathymetric data collected by the Joint Hydrographic Center/Center for Coastal and Ocean Mapping (JHC/CCOM) are also posted on their website along with cruise reports that document the acquisition parameters, formats, navigation, and other relevant cruise information.
- Exceptions: Some data are restricted from disclosure by partnership arrangements.

Seismic Reflection and Refraction Data

- ECS IMS: All raw data, preliminary reports, and metadata will be sent to the Data Repository at the USGS within three months of data collection. Processed multichannel seismic reflection data and ECS-compliant metadata will be sent to the ECS IMS as soon as possible, not to exceed the timeline for release to the public outlined below.
- Publically available:
 - All raw multichannel seismic reflection data will be released to the public through the USGS Infobank and NAMSS websites along with the cruise report

documenting the acquisition parameters, navigation quality, and geometries, within six months of the end of the cruise.

- Preliminary processed seismic reflection data will be released coincident with a report describing the processing parameters, within one year from the end of the cruise.
- Final stacked processed multi-channel seismic reflection data and ECS-compliant metadata will be released within two years of the end of the cruise.
- Raw seismic refraction data, including sonobuoy and ocean bottom seismometer data, will be released within two years from the end of the cruise coincident with a report documenting the navigation quality, range corrections, and acquisition parameters.
- Exceptions: Some data are restricted from disclosure by partnership arrangements.

Geologic Sample Data

- ECS IMS: All data, metadata and information associated with geologic samples will be handled as specified in the Samples Policy and Procedures.
- Publically available:
 - All sample data, information, and images generated at sea, or during the post-cruise working party will be released to the public through the NGDC website within thirty days of the completion of the working party.
 - Sample metadata will be publically available online through the SESAR website preferably within thirty and no more than 90 days after completion of the working party.
 - Research data resulting from analysis of ECS samples will be made publically available through the NGDC website two years after samples are obtained by the researcher for analysis.

Other Datasets

- Other data, such as gravity and magnetic, may also be collected on ECS cruises. The ECS Project will work to release raw and processed data as soon as possible through NGDC on the same timeframe as bathymetric data.
- These policies and procedures do not apply to data that were not collected for the purposes of the ECS Project.

ECS Data Collected Independent of the U.S. ECS Project

- The ECS project has the goal of using all data that might be relevant to establishing the outer limits of the extended continental shelf of the United States. Legacy data together with any variety of data sets collected by U.S. or foreign researchers may be geographically relevant to establishing the ECS. The most likely data sets of interest are

bathymetric data (multibeam and single-beam measurements) and seismic data (multichannel reflection, single channel reflection, and refraction data), but cores, rocks, drilling samples, and remote imaging, together with potential field measurements may also be relevant to understanding the morphology and geology of the U.S. continental margins. To the extent that these data are publicly available, the ECS project will create appropriate metadata and incorporate these data into the IMS system in digital form, or, as funding allows, digitize them with metadata and add them to the IMS.

- While the ECS project is committed to transparency and public release of data collected as part of the ECS project, this approach is not always practical or possible for sensitive or otherwise restricted data sets data collected outside of the ECS project that are not currently publicly available may need to be handled differently. The ECS project will address the terms of access and use of such data on a case-by-case basis in conjunction with the entity responsible for such data. The ECS project will encourage the owners of all non-public data to make such data public, particularly for use by the ECS project and especially if the data were collected with government funds.

Derived Products and Related

- In order to educate the public and the international community about the U.S. approach to delineating the outer limits of the continental shelf, the ECS Project shall endeavor to make the final documentation available to the public.
- Task Force members should refrain from disseminating information regarding internal discussions and interim decisions and products of the U.S. ECS Project unless otherwise decided by the Working Group or Executive Committee.
- ECS derived data and products produced throughout the project, including those produced by Integrated Regional Teams, should be submitted to the ECS IMS within three months of creation.

Publications Policy and Procedures

Science Publications

Open exchange and interpretations of data and information are central to the scientific method. U.S. Government and non-U.S. Government scientists are encouraged to study and publish on the data and samples collected by the ECS Project.

- Publications are expected to follow standards for scientific excellence, integrity, and objectivity, including openness to scientific review and debate of the findings. All methods are expected to uphold standards of quality assurance, including documenting limitations of the data for interpretation.
- Scientific publications should focus on the scientific interpretation of the data. They should refrain from speculating on policy and legal issues, such as how the data will be used to define the U.S. ECS.
- Interpretation of Article 76 of the Law of the Sea Convention and its application to the U.S. ECS must be coordinated with the ECS Task Force. If a scientist preparing a publication wishes guidance on policy and legal issues, he/she is encouraged to consult with the Executive Director. If the issue requires further consultation, the Executive Director may seek advice from the appropriate Task Force expert, Working Group, or Executive Committee.
- Science publications, especially those funded in whole or part by the ECS Project, should be deposited in the ECS IMS.
- Science Publications funded by the ECS Project should give appropriate attribution for the support. Example wording might be:

Funding for this work was provided [in whole or in part] through the [agency] as part of the U.S. Extended Continental Shelf (ECS) Project. The opinions, findings, and conclusions stated herein are those of the author[s] and do not necessarily reflect those of the U.S. ECS Project or the [agency].
- Publications that use data from the ECS Project should give appropriate attribution. Example wording might be:

Data for this work was provided by the U.S. Extended Continental Shelf (ECS) Project. The opinions, findings, and conclusions stated herein are those of the author[s] and do not necessarily reflect those of the U.S. ECS Project or the [agency].

Other Publications and Presentations

- There will be many avenues to convey the work of the ECS Project separate from formal scientific publications, such as conference presentations, less formal science publications, and web sites.

- If U.S. policy or legal interpretations are conveyed in a publication or presentation, it is the responsibility of the writer/presenter to convey it accurately. Doing so is essential to ensuring a consistent approach and message on U.S. policy and legal interpretations.
- Individuals are encouraged to utilize material for publications and presentations that have been reviewed, such as information on www.continentalshelf.gov
- If an individual preparing a publication wishes guidance on policy and legal issues, he/she is encouraged to consult with the Executive Director. If the issue requires further consultation, the Executive Director may seek advice from the appropriate Task Force expert, Working Group, or Executive Committee.
- Significant publications and presentations, especially those funded in whole or part by the ECS Project, should be deposited in the ECS IMS.

Samples Policy and Procedures

The ECS Task Force, through the appropriate federal agencies, will be the steward of geologic samples and associated information collected as part of the U.S. ECS Project. Because samples are a finite resource, as opposed to bathymetric or seismic data, it is in the U.S. interest to require a stringent level of documentation and stewardship of these samples. This is especially true if the analysis of these samples results in their destruction.

The first priority for all ECS samples is to apply them to studies that may be relevant to delineating the U.S. ECS. Nonetheless, the ECS Task Force recognizes the important scientific value of these samples and encourages their study and the open publication of scientific findings. Once the ECS submission is completed, sample stewardship will revert to USGS policies and procedures.

There are typically five types of samples that may be collected:

- Sediment cores (tubular samples, typically in plastic liners)
- Slabs (from box cores)
- Sediment samples (*e.g.*, from core cutters, core catchers, whole core subsamples from sediment cores, subsamples from box cores)
- Dart cores (bedrock samples extruded from short steel pipes)
- Rock and mineralized samples (typically from dredges)

Samples will be allocated on the basis of the following prioritization (for more details see Appendix B: Samples Request Prioritization Criteria):

1. Research that may benefit the ECS Project
2. Research that builds upon previously approved requests
3. Other research conducted by shipboard scientists
4. Research that benefits government agency mission requirements
5. Other research with the potential for advancing science
6. All other requests

Samples Allocation Group (SAG)

For two years after the samples working party, the SAG is responsible for approving and prioritizing requests for access to samples, after which time decisions will revert to the Samples Curator in consultation with the Executive Director and the Senior Agency Leads of the Working Group. Once the submission is completed sample procedures will revert to USGS policies and procedures. The SAG is comprised of one member from the U.S. Department of State, one member from the National Science Foundation, the Chief Scientist of the ECS cruise during which the samples were recovered, and the Integrated Regional Team (IRT) Lead for the cruise region. Communication between the Samples Curator and the SAG pertaining to sample requests will be through the Chief Scientist.

The SAG has the following responsibilities:

- Evaluates the credentials of researchers requesting samples, and the merit of their requests. Prioritizes approved requests, as necessary.
- Approves or denies requests by majority vote. This process should take less than one month from receipt of request.
- Reviews annual progress reports from the Samples Curator to determine the requestor's continuing need for the samples and evaluates any requests for extension of the sample loan.
- The Executive Director will adjudicate requests where a majority vote cannot be reached. The Executive Director shall take a proactive approach in understanding the opposing sides and consult the appropriate experts, such as physical scientists and the Senior Agency Leads of the Working Group. Issues that cannot be resolved will follow the decision-making process for the ECS Task Force.
- By providing samples, the ECS Task Force is not committing to fund the research.

Samples Curator

The Samples Curator at the USGS has the following responsibilities:

- Receives all requests for ECS samples material. For the first two years, immediately upon receipt of a request, the Samples Curator will forward a copy of the request to the Chief Scientist, then evaluate the condition and availability of the requested material, and provide that information with the completed request paperwork to the SAG through the Chief Scientist. After two years decisions will revert to the Samples Curator in consultation with the Executive Director and the Senior Agency Leads of the Working Group. Once the submission is completed sample access will revert to USGS policies and procedures.
- Works with the Chief Scientist before the cruise, instructing him/her in handling and documenting ECS samples. Provides the Chief Scientist with a SESAR spreadsheet or desktop application to assign IGSNs at sea.
- Upon receipt of shipboard sample metadata from the Chief Scientist, finalizes shipboard assignment of IGSN numbers to samples and registers the appropriate metadata with SESAR [<http://www.geosamples.org/>].
- Upon receipt of ECS samples from the ship, is responsible for overseeing their archive in the Samples Repository. The Samples Curator, in consultation with the Chief Scientist and the SAG, will reserve portions of each sample, where possible, for long-term retention for no less than ten years after the U.S. has delineated the outer limits of its ECS. The remaining samples will be considered "working" material to be used by researchers. Decisions regarding the amount of material to be retained for long-term

archive will be based on the nature of the samples, the amount available, and the importance to the ECS Project:

- Typically, sediment cores will be split longitudinally, the archive half will remain unsampled in the Samples Repository, and only the working half will be available for subsampling by researchers. Exceptions to this procedure (e.g., whole-core subsampling and/or subsamples from archive halves) will be considered only under unique and compelling circumstances.
 - i. If possible, biostratigraphic analysis of the core cutter/core catcher should be completed prior to the working party.
 - ii. Logging of all sediment cores with USGSs Multi-Sensor Core Logger (MSCL) prior to splitting and subsequently photographing the archive half is strongly encouraged unless specified otherwise by the Chief Scientist.
- Typically, all box core slabs shall be retained intact and unsampled in the ECS Samples Repository as an archive of the core. Subsampling of slabs will be authorized only under unique and compelling circumstances.
- A representative portion of all dart core samples will be retained in the ECS Samples Repository.
- The working volume of materials from dredges will vary. Whenever possible, representative subsamples of each sample distributed will be retained in the archive.
- Preferably within 30 and no more than 90 days after the samples reach the Samples Repository and in cooperation with the Chief Scientist:
 - Holds a working party for the detailed characterization, documentation, and photography of samples.
 - During the post-cruise working party, the Samples Curator will oversee registration of each subsample to be distributed and update SESAR.
- Coordinates the distribution of ECS samples; this is done in cooperation with the SAG for the first two years post-cruise. After two years, sample access will be at the discretion of the Samples Curator in consultation with the Executive Director. The ECS Project will still have first priority access to ECS samples; other procedures and obligations outlined in this policy will remain in effect.
- Uses existing USGS protocols to track requests and samples. Also ensures that ECS samples are identified as part of the ECS Project and tagged with an IGSN. Updates the SESAR database to reflect any changes of ECS sample status or location.
- Provides all relevant information on ECS samples to the ECS IMS within 30 days of receipt, including sample requests, annual status reports, metadata, photographs, analyses, and other information.

ECS IMS

The ECS IMS has the following responsibilities:

- Stewardship of all data and information relevant to ECS geologic samples.

- Receives and coordinates submissions of data and information pertaining to analyses and descriptions of ECS geologic samples.
- The ECS IMS will provide publicly available (non-proprietary) ECS sample data and information on-line and facilitate public discovery of ECS sample inventories and all non-proprietary photographs, descriptions, and analyses through the Index to Marine and Lacustrine Geological Samples database [<http://www.ngdc.noaa.gov/geosamples/>] on the NOAA/NGDC website, providing links to related geologic sample metadata at SESAR [<http://www.geosamples.org>], and related cruise data in the USGS InfoBank [<http://walrus.wr.usgs.gov/infobank>].

Chief Scientist

The Chief Scientist for the cruise collecting the samples has the following responsibilities:

- As part of initial cruise planning, works with fellow SAG members to announce opportunities to perform research on the geologic samples that are expected to be recovered. Also works with the IRT Lead and other ECS Task Force members to determine those analyses that will be a priority for the ECS Project.
- Oversees creation of metadata while on the ship including:
 - Assign IGSNs for each whole sample (grab, core, or dredge) via either a pre-populated SESAR spreadsheet or a SESAR desktop application by making an entry into a station data worksheet for each core, dredge, or other geologic sample collected, as specified in Metadata Requirements for ECS Samples (Appendix A).
 - Make an entry into a sample data worksheet for each subsample identified for distribution during the cruise, as specified in Metadata Requirements for ECS Samples (Appendix A). Shipboard identification of other subsamples identified is at the discretion of the Chief Scientist.
- In general, samples may not be distributed to scientists while at sea, but the Chief Scientist may designate specific samples for distribution to specific scientists prior to the meeting of the working party provided that the SAG grants authorization. To expedite distribution to the scientists prior to the working party, the Chief Scientist and the Samples Curator will facilitate the required characterization, documentation, and photography.
- Within 30 days after a cruise, forwards copies of all shipboard sample metadata to the Samples Curator and the ECS IMS. This includes the completed SESAR metadata, sample photographs and descriptions, and all other available documentation of sampling procedures, including event logs.
- Preferably within 30 and no more than 90 days after the samples reach the Samples Repository and in cooperation with the Samples Curator, holds a working party for the detailed characterization, documentation, and photography of samples.

- For two years post-sample working party, he/she is a member of the ECS Samples Allocation Group (SAG) for the samples that came from his/her cruise, and during that time coordinates correspondence between the Samples Curator and the SAG.

Researcher

- All geologic sample requests are to be submitted to the Samples Curator. To request access to ECS geologic samples, researchers are required to complete an ECS Samples Agreement Form (Appendix C) and an ECS Samples Request Form (Appendix D).
- Requests for ECS samples will be made to:
 - Samples Curator
U.S. Geological Survey, Woods Hole Coastal & Marine Science Center
384 Woods Hole Road, Woods Hole, MA 02543
Email: bbuczowski@usgs.gov
Phone #: (508)457-2361
- Researchers are responsible for the security of the samples and documenting their use. Samples may not be transferred or redistributed unless it was approved as part of the scientist's request or amended request.
- Researchers are strongly encouraged to publish their results. Researchers will send copies of all analyses in digital form to the ECS IMS at NGDC as detailed in the ECS Samples Agreement Form (Appendix C), with a completed ECS Samples Data Submission Form (Appendix G). Access to samples for research comes with the commitment to make the analyses available in digital form for ECS use. The ECS Project will not publically release the results of this research for a maximum of two years after the samples are obtained for analysis.
- Data and related publications will be sent to:
 - ECS Data Manager for Marine Geology
National Geophysical Data Center
E/GC3 325 Broadway, Boulder, CO 80305-3328
Email: geology.info@noaa.gov
Phone #: (303)497-6339
- To encourage expediency in studying the samples, all researchers will provide a status update each year to the Samples Curator using the ECS Samples Status Report Form (Appendix E) that explains the status of their study, describes how much longer they need the samples, including progress on analyses conducted to date and data submitted to the ECS IMS. The Samples Curator will provide copies of these reports to the SAG and the ECS IMS.
- Researchers will return all unused sample material to the Samples Repository along with the ECS Samples Return Form (Appendix F) within three months of expiration of the approved loan period (Appendix D).
- Publications that use samples from the ECS Project should give appropriate attribution. Example wording might be:

Samples for this work were provided by the U.S. Extended Continental Shelf (ECS) Project. The opinions, findings, and conclusions stated herein are those of the author[s] and do not necessarily reflect those of the U.S. ECS Project or the [agency].

Appendix A: Metadata Requirements for ECS Samples

The minimum acceptable sample metadata, to be completed at sea and returned to the Samples Repository with ECS samples is one fully completed line on the station data or core worksheet of a SESAR Dredge or Core spreadsheet for each core, dredge, or other geologic sample collected during the cruise.

Attribute (red=mandatory)	Definition
IGSN	International Geo Sample Number specific to the sample
Name	ECS name for a sample – e.g. HLY0805-DR1
Other Name	(Optional) other name used for a sample
Current Archive	ECS Samples Repository for shipboard use, to be modified by Samples Curator to the name of the institution to which a sample is loaned/temporarily resides, e.g. Stanford
Original Archive	ECS Samples Repository
Sampling Method	Controlled vocabulary, see worksheet LIST>Sampling. Method
Sampling Method Description*	* Mandatory only if not fully described by Sampling Method
Description	Preliminary visual description of the sample if shipboard entry, more detailed characterization if post-cruise
Comment*	* Mandatory only if necessary to adequately describe the sample, e.g. details of a partial recovery
Latitude (start)	Decimal Degrees, negative for South
Longitude (start)	Decimal Degrees, negative for West
Latitude (end)*	* Mandatory only for dredges or trawls, form as above
Longitude (end)*	* Mandatory only for dredges or trawls, form as above
Elevation min [meters]	Negative for depth below sea surface, e.g. -3600
Elevation max [meters]	Negative for depth below sea surface, e.g. -3100
Feature Type	e.g. submarine fault block. For recommended terms, see worksheet LIST>Primary location
Feature ID	Name of the feature, e.g. Alpha Ridge
Location Description	e.g. South central border with Nautilus Basin
Locality	Name of a locality
Locality Description	e.g. Near top of ridge with 30 degree slope above debris from slump at contact with abyssal plain
Cruise or Field Program	The official ECS-designated cruise name, e.g. HLY0805
Platform Type	e.g. Ship
Platform ID	The official Rolling-Deck-to-Repository (R2R) ship name [http://www.rvdata.us/]
Platform Description	Optional additional information about the ship
Collector/Chief Scientist	The ECS-designated Chief Scientist
Collection Date: Start	e.g. 31-Aug-08

Classification (USGS)	Geologic classification of material (igneous, metasediment, etc.)
Tension*	*Mandatory only for dredges, number and range of tension spikes from winch while dredging
Core Length*	*Mandatory only for cores

The minimum metadata required for each subsample identified for distribution within a dredge or core, whether at sea or by the ECS Samples Repository, is illustrated in the table below. Preferred metadata includes all known fields in a SESAR sample level worksheet within a SESAR Dredge or Core spreadsheet, as appropriate.

Attribute (red=mandatory)	Definition
IGSN	International Geo Sample Number for the sample
Name	Personal or Institutional name – e.g. HLY0805-DR1-IRD
Other Name	(Optional) other name used for a sample
Current Archive	ECS Samples Repository for shipboard use, to be modified by Samples Curator to the name of the institution to which a sample is loaned/temporarily resides, e.g. Stanford
Original Archive	ECS Samples Repository
Sampling Method*	*dredges, Controlled vocabulary, see SESAR dredge spreadsheet
Sample Type*	*cores, Controlled vocabulary, see SESAR core spreadsheet
Sampling Method Description*	Detailed description if not fully described by Sampling Method
Size*	*dredges only, Length, weight, other dimension of sample
Size Unit*	*dredges only; e.g. meters, kilograms
Top Depth in Section (cm)*	*core samples only
Bottom Depth in Section (cm)*	* core samples only
Core Section Name*	* core samples only
Material Type	See worksheet “Material Type” e.g.
Classification	If applicable, see worksheet “Classification”
Field Name	
Description	
Comment	
Age_Min	
Age_Max	
GOT	
GOC	
Parent Type	The “Name” of the dredge, core, from which sample is taken
Parent IGSN	Pasted from the Station Data IGSN Field if at sea/preassigned

Appendix B: ECS Samples Request Prioritization Criteria

Protocols for evaluating ECS sample requests as described in this sample policy are in place to promote the goals of the ECS Project, as well as maintain integrity and transparency in practice. To ensure that all responses to ECS sample requests are clear and equitable, all decisions made will be in accordance with the following criteria:

Request Prioritization

1. **Research that may benefit the ECS analysis and determination of the outer limits of the U.S. ECS as defined by the mission of the ECS Project.** All samples collected are for the primary purpose of defining the U.S. ECS. Any samples requested for analysis specifically directed to aid this definition get first priority. Cruise participants whose research is determined by the SAG to meet these criteria will have priority over other researchers.
2. **Research that builds upon previously approved requests.** Further research with new techniques and ideas can build upon the current knowledge of the U.S. Continental Shelf, and may aid in defining the ECS. Any requests for samples with proposed research that will build upon previous work done in evaluating other ECS samples will get second priority.
3. **Other research conducted by shipboard scientists.** Shipboard scientists have been approved to participate in ECS fieldwork because their research has been deemed by the ECS Task Force to have scientific value, even if only marginally applicable to the U.S. ECS submission. If these scientists substantially contribute to the collection and documentation of geologic samples during the ECS cruise, their requests for ECS sample material will get third priority. However, if they were sanctioned to collect samples other than those of interest to the ECS Task Force during the cruise, they will have first priority access to those “non-ECS” samples.
4. **Research that benefits government agency mission requirements.** Any request from a researcher funded by a Federal agency for ECS samples to help further mission goals for these agencies will get fourth priority.
5. **Other research with the potential for advancing a field of science.** Research proposed on ECS samples using analyses that do not clearly help define the U.S. ECS will get fifth priority and be evaluated on merit.
6. **All other requests.** All other sample requests will be considered, but will get lowest priority.

All requests will be filled in order of the priority designated during their approval. Other factors being equal, requests received resulting from shipboard inspection will be filled first and requests identified during a post-cruise working party will be filled second.

Future requests for samples by researchers will be evaluated in light of their previous compliance with ECS sample policies and procedures in effect at the time of their acknowledgement of sample policies. Past research productivity, including report and publications history will be considered as part of the review process.

Appendix C: ECS Samples Agreement Form

Forms available online at: http://www.ngdc.noaa.gov/mgg/ecs/samples_forms/

We are delighted that you have chosen to collaborate in the study of physical samples collected for the U.S. Extended Continental Shelf (ECS) Project. We require that you acknowledge the following conditions associated with the distribution of the samples:

1. Researchers are only authorized to use ECS geologic samples for the approved loan duration and agree to be responsible for the security of the samples.
2. Researchers may not redistribute, transfer or share ECS samples with other researchers unless approved in their original request or amended request.
3. Any analyses that could involve sample destruction shall be clearly identified on the ECS Sample Request Form.
4. Researchers will provide annual updates to the Samples Curator on January 15th of each year. These updates will use the ECS Sample Status Form attached to this sample request, which seeks all International Geo Sample Numbers (IGSNs) for samples in the researcher's possession; all analyses performed on the samples during the previous twelve-month period; details of data submitted to the ECS IMS; any alterations made to the samples; amount of sample remaining; and future analytical plans for the samples.
5. Researchers will return all unused sample material to the Samples Repository within three months of expiration of the approved loan period. Researchers will first contact the Samples Curator for the appropriate return information and document all sample use in the ECS Sample Return Form.
6. Researchers will submit electronic copies of all data derived from their analyses to the ECS Information Management System (ECS IMS) at the National Geophysical Data Center (NGDC) upon completion and no later than six months after the researcher deems the data to be of publication quality, coordinating with NGDC on appropriate data forms and documentation, and analyses will be linked to samples via IGSN.
7. Researchers agree to acknowledge the ECS Project in all reports and publications resulting from sample use/analysis, and to reference samples by the designated IGSN.
8. Researchers shall submit copies of all interpretive reports and other research results to the ECS IMS, upon completion.
9. All data and information submitted to the ECS IMS will be made publically available no earlier than two years after the sample material is obtained for analysis, unless authorized by the researcher.

I agree to the above conditions. Failure to adhere to these conditions may result in an immediate recall of all ECS samples and will be considered in evaluation of future sample requests.

Print, sign, and return with ECS Sample Request Form

Appendix D: ECS Samples Request Form

Tracking No _____ (to be assigned by ECS Samples Curator)

Forms available online at: http://www.ngdc.noaa.gov/mgg/ecs/samples_forms/

Date of Request: _____

Investigator's Name: _____

Title/ Affiliation: _____

Email Address: _____

Phone Number: _____

Fax Number: _____

Mailing Address: _____

Shipping Address: _____

if other than mailing address

Duration of Loan Requested: _____

Funding Agency: _____

Proposal/Grant Number: _____

National Program: _____

if applicable

Collaborators: *Names, affiliation, roles in data analyses, e.g. what samples will they access and for what purpose*

Describe samples requested, including sampling interval:

Attach spreadsheet of samples requested after consultation with the ECS Samples Curator

Describe analyses proposed, and which analyses will be destructive:

Indicate analyses proposed for each sample on the attached spreadsheet

Mail all sample requests to:

ECS Samples Curator
U.S. Geological Survey
Woods Hole Coastal & Marine Science Center
384 Woods Hole Road, Woods Hole, MA 02543
bbuczowski@usgs.gov
(508) 457-2361

ECS Samples Request Form (page 2)

Tracking No _____ (to be assigned by ECS Samples Curator)

Project Summary:

A brief (<200 words) summary stating why these samples are necessary to meet your project goals. State the issues to be addressed, the objectives of the project, significance to scientific questions, and facilities needed, all in terms that do not require technical translation.

Anticipated analyses:

Describe to the best of your knowledge any and all analytical tests to be performed on the samples. What laboratory equipment will be used and what laboratory/researcher will perform the test? What processing will be involved that could alter the original state of the sample?

Potential Impacts, major products, and timelines:

Describe expected outcomes. What products will you produce to contribute to the desired outcomes? When do you expect to publish data based on these samples?

Appendix E: ECS Samples Status Report Form

Tracking No _____ (to be assigned by ECS Samples Curator)

Forms available online at: http://www.ngdc.noaa.gov/mgg/ecs/samples_forms/

Date of Initial Request: _____

Date of Status Report: _____

Investigator's Name: _____

Title/ Affiliation: _____

Email Address: _____

Phone Number: _____

Fax Number: _____

Mail all status reports to:

*ECS Samples Curator
U.S. Geological Survey
Woods Hole Coastal & Marine Science Center
384 Woods Hole Road, Woods Hole, MA 02543
bbuczowski@usgs.gov
(508) 457-2361*

List all analyses and alterations performed on the samples in the last year, and a list of data submitted to the ECS IMS since the previous report:

For each sample analyzed during the last year, please provide the IGSN, the amount remaining, and a brief description of any future analytical plans including any requests for extension to the sample loan period:

Use spreadsheet available at the ECS sample information webpage if necessary

IGSN	Amount Remaining	Future use
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____
_____	_____ %	_____

Appendix F: ECS Samples Return Form

Tracking No _____ (to be assigned by ECS Samples Curator)

Forms available online at: http://www.ngdc.noaa.gov/mgg/ecs/samples_forms/

Date of Initial Request: _____
Date of Return: _____
Investigator's Name: _____
Title/ Affiliation: _____
Email Address: _____
Phone Number: _____
Fax Number: _____

Mailing Address: _____

Mail sample return form to:

*ECS Samples Curator
U.S. Geological Survey
Woods Hole Coastal & Marine Science Center
384 Woods Hole Road, Woods Hole, MA 02543
bbuczowski@usgs.gov
(508) 457-2361*

**DO NOT SEND SAMPLES TO THE
ABOVE ADDRESS**

Initial Research Goals:

Analyses Performed:

Date Analytical Data submitted to ECS IMS: _____

IGSNs for all samples requested:

Use spreadsheet available at the ECS sample information webpage if necessary

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

