

NSDI Cooperative Agreements Program
Metadata Implementation Project
Final Project Summary
September 1, 2005

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Report: Final Report

Organization: New Hampshire Department of Environmental Services
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302
<http://www.des.state.nh.us/>

Project Leader: Ellen (Biederman) D'Amico
(603) 271-7483
edamico@des.state.nh.us

Project Narrative:

The creation of standardized metadata is not only important but crucial to the maintenance, use, and distribution of spatial data at the New Hampshire Department of Environmental Services (NHDES). The process of creating standardized metadata will provide us with a precise inventory of our spatial data and enhance data integrity and accuracy. Metadata creation will not only help determine, maintain, and add value to our spatial data, but it will also encourage streamlining the storage of data, limit or remove redundancy, and help organize the data.

Since NHDES supports over 80 ArcView users, it is important that the reliability and accuracy of the data can be assessed easily. Standardized metadata will facilitate users' search for data and allow quick determination that the data fulfills their needs. Standardized metadata also encourages proper use of data.

Just as importantly the creation of standardized metadata will increase data sharing within NHDES and with outside organizations. It opens the door for communication, stimulates cooperation and encourages a sharing initiative between organizations or groups. Since NHDES maintains more environmental coverages than any other state agency we believe we would set a good example for other agencies and groups in New Hampshire.

Expected Accomplishments:

- I. Create a procedure and standard for facilitating imputing and updating of metadata.
3/1/2005
Several actions have been taken to create a procedure and standard for metadata at NHDES. A Microsoft Word document form was created and designed to follow the NSDI standard. The form is structured to be simple

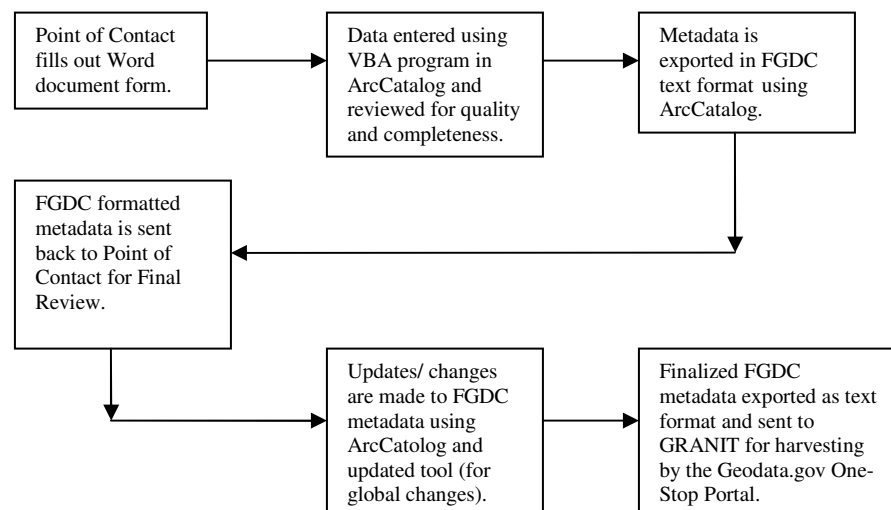
and clear while detailed enough to collect all of the necessary information required in the NSDI. The form will be given to the Point of Contacts for each GIS layer to be filled out.

A VBA program was written for ESRI's ArcCatalog which creates the metadata. It automates the standard inputs (such as organization information) that will be the same for all NHDES GIS data. It then goes through a series of forms that correlates with the word document form to insure that all of the required NDSI information is filled in.

9/1/2005

The VBA program was revised and fine tuned to eliminate errors that showed up when the metadata was sent through a metadata parser. This insured that all required data fields will be filled in correctly each time. An update program was also built to easily allow updates to individual fields in the metadata without having to rewrite existing metadata.

The following shows our procedure for metadata creation:



Following a discussion with the GIS manager for NHDES, it was decided that the metadata will be updated internally after each revision to the data. The update will focus on amending the process date, the process steps (if necessary), and adding definitions to any new fields. Scheduled updates to GRANIT will be made biannually for harvesting by the Geodata.gov One-Stop portal.

- II. Train at least 4 people that will become “metadata experts”.

3/1/2005

The two main people responsible for the project, Ellen D’Amico and Graham Chantler, have been trained in FGDC metadata creation and implementation.

Once the forms have been finalized, two additional people will be trained to create the metadata.

9/1/2005

Two metadata training workshops were held to train the Point of Contacts in the importance of FGDC metadata and how to use the word document form as the first step in creating standardized metadata. Eleven staff members received training during the workshops.

In addition the GIS Manager for NHDES and one other data manager were instructed on the entire process including the ArcCatalog VBA program.

- III. Conduct training/informational seminars that will focus on the importance of metadata, how to use it, and how metadata can facilitate usage of the data.

3/1/2005

An informational presentation about metadata and the introduction of the Word document form will be held at the March 1st NHDES Watershed Management Bureau (WMB) meeting. The WMB is responsible for about half of the coverages maintained by NHDES.

9/1/2005

Two metadata training workshops were held for NHDES employees. A presentation focusing on NHDES' experience establishing a process to create and maintain FGDC metadata was made at the August meeting of the New Hampshire GIS Advisory Committee. The talk at the NH GIS Advisory Committee was well received. Several of the other state agencies expressed interest in creating FGDC metadata for their organizations. A brief presentation will be given at the September 6th NHDES Watershed Management Bureau meeting. Examples will be shown of how the metadata can be retrieved through the Geodata.gov One-Stop Portal as well as how NHDES employees can access the metadata internally. An article about creating FGDC metadata for NHDES is also being submitted to the *Environmental News*, an NHDES' newsletter.

- IV. Create metadata for the majority of the approximately 40 environmental GIS layers maintained by NHDES.

3/1/2005

Several data layers will be chosen to be beta tested for the procedures and forms we have set up. This metadata will also serve as test cases for upload onto the GRANIT website.

9/1/2005

FGDC metadata has been created for almost all NHDES' core GIS data layers (97%). Three data layers have had FGDC metadata created but the data layers will only be available internally for use by NHDES. Two of these

layers are undergoing major updates; the other data layer was created specifically for internal use only.

Non-restricted data layers will be available for download through the NHDES FTP site accessed through the On-Line Linkage in the metadata. Restricted data will be available through NHDES' ArcIMS site (<http://www.des.state.nh.us/gis/onestop/>) after the user has been issued the appropriate approval from NHDES.

- V. Submit metadata to GRANIT (www.granit.sr.unh.edu) for publication on their registered z39.50 Clearinghouse server.

3/1/2005

Contact has been made with the person responsible for metadata at GRANIT. Procedures about how to submit our metadata into their system was discussed.

9/1/2005

A sample metadata file was sent to GRANIT to be checked by their metadata parser (mp 2.4.0 supplied by the USGS). Corrections were made to our procedure based on errors that appeared during the parsing. After rectifying any problems that occurred, several more layers (that were created using our procedure) were sent and processed through the metadata parser to confirm that our procedure was working properly and producing error-free FGDC metadata.

The following metadata has been submitted to GRANIT:

Aboveground Storage Tanks

Air Monitoring Stations

Automobile Salvage Yards

Biomonitoring Stations

Boat Pumpout Facilities

Dams¹

DES Lands²

Designated Rivers

Drinking Water Source Protection Area¹

Exotic Weed Infestation Sites

Hydrologic Areas of Concern¹

Lake Bathymetry

Lake Water Quality Stations (includes Acid Outlet Sampling Stations, Lake Survey Stations, Remote Pond Sampling Stations, and VLAP Stations)³

Local Inventory of Potential Contamination Sources

Local Resource Protection Priorities (REPP)¹

New Hampshire Coastal Beaches

New Hampshire Freshwater Beaches

¹ Restricted data layer - To address homeland security concerns, access to this data layer is available only to users who present a valid personal identification number (PIN) and password. These data sets have an access constraint set to Upon NHDES Approval.

² Data layer is for internal use only or is undergoing revisions. Data layer is not available for download – only metadata is available.

³ Data layer was originally four different data layers. They have been combined into one data layer.

National Pollutant Discharge Elimination System Outfalls (NPDES)
Point and Non-Point Pollution Sources
Public Water Supplies¹
Registered Water Withdrawals¹
REPP (Regional Planning Program) Features²
RCRA/ Hazardous Waste Generators
Site Remediation and Groundwater Hazard Inventory
Underground Storage Tanks
Water and Sewer Line Distribution Areas²
Water Quality Program Sampling Stations
Water Well Inventory¹
Well Head Protection Areas¹

Measurable Project Results:

Please see II, IV, V in the above section.

Metadata Service:

The metadata is posted on the GRANIT website (www.granit.sr.unh.edu). The website is the central repository for GIS metadata and coverages for the state of New Hampshire. It is run and maintained by the Complex Systems Research Center at the University of New Hampshire. It is a registered z39.50 Clearinghouse server and is harvested by the Geospatial One-Stop. See Section V. for a list of metadata submitted to GRANIT.

Next Steps:

5/1/2005

The next step in our process will be to beta test our forms that were built for inputting metadata. A group of about 10 employees at NHDES will be chosen to participate in an hour long training seminar. The seminar will focus on the proper use of the forms and establishing a procedure for when metadata needs to be created and updated. The seminar will also provide us with feedback on the clarity and use of the forms. We also will establish a procedure to QA/QC the metadata before it is formally published.

We will submit the metadata for several of our coverages to GRANIT for review and uploading onto their system. After successful uploading, a procedure will be established for the submittal of the rest of our metadata as well as updates. Once complete, an article about the metadata procedures and the availability of the metadata through the GRANIT website will be published.

9/1/2005

The next step in our process will be to ensure that existing FGDC metadata continues to be updated. We will continue to create FGDC metadata for additional/ new GIS data layers created by NHDES.

We are exploring the option of compiling the VBA program and packaging it with the Word document so that we can offer it to other State agencies for their use in creating FGDC metadata.

We also will be creating a NHDES webpage which will include links to download NHDES' non-restricted data as well as updated metadata. We plan on updating the data on our webpage as the data is revised internally.

Feedback on Cooperative Agreement Program:

- What are the program strengths and weaknesses?

I found the initial kickoff workshop helpful. The materials and training I received during the workshop were essential for successful implementation of FGDC metadata at NHDES. When I had questions, I often referred to the Content Standard for Digital Geospatial Metadata Workbook or my notes from the workshop to find the answers.

- Where does the program make a difference?

The Category 1 CAP Grant allowed NHDES to complete a task that has long needed to be done. It provided the required momentum to get the task started. Creating FGDC metadata has had a couple of positive side effects as well. The creation of FGDC metadata required that we take a good look at our data. As a result we were able to remove redundant fields, update out of date definitions, get a feel for the quality of our data, and overall improve our data.

- Was the assistance you received sufficient or effective?

As stated above, the assistance I received during the kickoff workshop was excellent. After the workshop I did not seek assistance directly from this program. I believe it would be helpful to have a Commonly Asked Questions section on the FGDC web page as an additional resource.

- What would you recommend doing differently?

I noticed that in 2005 you are not offering this category in the CAP grant. I found the grant very useful; I would encourage offering this category again in the future.

- Are there factors that are missing or need to consider that were missed?

The workshop was thorough. The only suggestion I would make is to have a session for people just getting started with metadata creation that would focus on how to get co-workers in the agency motivated and encouraged to help with the metadata creation (particularly collection of information about the data layers). Since we had data coming from different bureaus throughout NHDES, it was essential that we get the cooperation from co-workers throughout the agency.

- Are there program management concerns that need to be addressed? Time frame?

At NHDES we came across some problems with the time frame due to our state approval process to accept money from grants. It was impossible to have all of the appropriate approvals in place between when we were notified that we received the grant and when the grant began. Although I was able to attend the kickoff meeting in September, I was not able to work on the grant until several months later when the acceptance of the grant was “officially” approved by the state. Although I still had all of the materials and my notes from the meeting, I was not able to maintain the momentum that going to the kickoff meeting produced. Therefore, holding the kickoff meeting a little later would have been more helpful.

- If you were to do this again, what would you do differently?

The hardest part of creating the FGDC metadata was simply getting people motivated to fill out the Word document form. The GIS data layers we have at NHDES cover a wide range of bureaus and groups of people. It was challenging to get co-workers to understand the importance of what we were asking them to do. For the most part people responded well, but there was also a fair amount of begging and pleading that also had to be done. Enlisting the help of a higher level managerial person for each bureau/ group and having them make the request to their employees may have helped encourage people to prioritize the metadata higher in their workload.