

# SAILING THROUGH COASTAL METADATA

WITH METADATA BOB



Your Guide to Writing Metadata



**NOAA Coastal Services Center**  
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY



# Welcome to the Wonderful World of Coastal Metadata

You're about to sail into the world of coastal metadata. On this trip, you'll find valuable information that will make your job much easier and, dare I say, fun!

Who am I? I'm Metadata Bob, and I'll be your coastal metadata guide. Throughout this trip I will be giving you hints, tips, and suggestions about writing metadata. Why me? Well, I'm probably a lot like you. I was always focused on collecting, processing, and analyzing my data, and I never really thought about metadata. That was, until my boss started asking me questions about certain aspects of my data that I couldn't answer. Boy, did I squirm! But I went back, and this time, I wrote metadata. What a difference! There wasn't a question I couldn't answer about my data. My boss was ecstatic, as was I. So you see, I've been on this journey before. Now let's get started.



# What's inside...

<b>Exactly what is metadata, anyway? .....</b>	<b>1</b>
Metadata represents a critical component of your coastal data .....	2
Metadata helps people find the data they need.....	2
In fact, you probably already have metadata in some form.....	2
<b>Why is metadata so important? .....</b>	<b>3</b>
Without proper documentation, your coastal data set is incomplete .....	4
There's more. Properly documented metadata benefits you as a professional.....	4
Metadata also helps you as a data user .....	5
Not convinced yet? More reasons why creating metadata is a good idea .....	5
<b>How do we get there from here? .....</b>	<b>7</b>
Organize your information .....	7
Follow proven writing principles when you write your metadata file .....	8
Meet the needs of your audience .....	8
Think about the long-term effects of your writing .....	9
Don't use ALL CAPITAL LETTERS .....	10
Use subheadings .....	11
Try using bulleted lists .....	11
Cite examples when you can .....	11
Follow the standard .....	11
Pick a tool if you like .....	13
Follow a sound process for writing well .....	14
<b>Plotting your course .....</b>	<b>17</b>
Create useful titles .....	17
Think about others who are searching for data files .....	17
WARNING: Titles can be helpful or misleading .....	18
Write effective key words .....	19
Learn from the pros .....	21
<b>Sailing Solo.....</b>	<b>23</b>
What if we get lost along the way? .....	24

## NOTES



# Exactly what is metadata, anyway?

If you're unfamiliar with the concept of coastal metadata, at this point you may be asking yourself, "Just what is metadata anyway? And why should I bother with it?"

Perhaps you're suspicious because you think it sounds like another newfangled government requirement that is going to be useless for your job, or will simply mean a lot more work with little professional payback.

Well, those notions are mistaken, and this guide will explain why.

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**This guide will set your course and will help you easily understand how to write quality metadata.**

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What you should know is that there are already examples of metadata all around you. You just may not realize it yet.

Imagine having two identical cans placed in front of you with the labels removed. One of the cans contains tuna, and the other contains cat food. Your task is to choose one. Here's the catch. You have to eat what you choose! Would you feel comfortable with your task? Without labels, probably not. The labels are an example of metadata. They describe the contents of the can and provide information, such as what's in the can, the nutritional value of the contents, the number of calories and fat grams, whether the contents contain preservatives, how it was processed, the weight, the name of the company that packed it and its location, and more.

Simply put, the labels on the cans contain the metadata.

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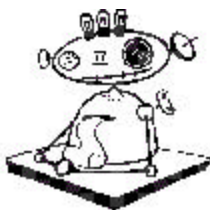
***Metadata uses common terms and definitions to document your coastal data.***

***Metadata describes your data—the who, what, where, when, why, and how, along with any other information that other people need to understand and use the data.***

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## Metadata represents a critical component of your coastal data.

It's your coastal data insurance, and you'll be surprised how often you'll use it. You may need to use metadata to substantiate a result, or to support a decision based on your data.



You'll need metadata to be able to use your data properly in future years and you'll certainly need it when the person who originally collected or processed the data leaves your organization. Think of metadata as legacy information.

## Metadata helps people find the data they need.



When it is incorporated into a clearinghouse, metadata can help the city planner, the graduate student in geography, or the natural resource manager find and use the coastal data they need for their tasks. It helps other people determine how to best use your coastal data.

But metadata also benefits the person who creates the data by maintaining the data's value, and by ensuring its reliable and continued use over a span of years.

When it's properly done, metadata answers a wide range of questions about data:

- Who created the data?
- Who maintains it?
- When were the data collected? And when were they published?
- Where is the geographic location?
- What is the content of the data? The structure?
- Why were the data created?
- How were they produced?
- Where are the data stored?

## In fact, you probably already have metadata in some form.



You just may not recognize it as such. For instance, among your work records, you certainly have manila folders stuffed with notes, assorted readme files on your computer, and hardcopy data catalogs overflowing in your cabinets.

However, unless you've been unusually diligent, your information is probably not organized so that a stranger could stroll into your office at any time, and read and understand it easily.

Perhaps the most common form of metadata that you may already have is a file folder filled with notes on your data sources and the procedures that you used to build your data.



# Why is metadata so important?

Without helpful reminders and vigilance, many of us often forget about properly documenting our data so that others may confidently use it, either now or in the future. When you are missing essential information about data, its value to the entire community is severely reduced, leading other people to question the accuracy and reliability of our information.

Keep in mind that your data may be especially important to others. For example, if you are describing site-specific conditions, or if you have monitoring data that may be useful as a baseline or reference, then a metadata document that is improperly written may lead to confusion about the data.

Confusion created by uncertainty leads to a lack of confidence in the data. That lack of confidence blemishes the outcome of any subsequent analysis of that data. A properly written metadata record can help you avoid this pitfall of confusion and uncertainty.

If we all work together within the framework of a common metadata vocabulary, we won't have to wonder about the accuracy, completeness, timeliness, or availability of coastal data in the future. Our confidence in the data will be well founded.

Just think, using data from 25 years ago is not uncommon now, and in 2020 we may use data created in 1994. The long-term studies of wetlands, climate, ecosystem health, contaminants, coastal erosion, and other issues will need "old" data.

If it's done well, reliable metadata will be there long after the person who created the information has moved on.

## Without proper documentation, your coastal data set is incomplete.

Proper documentation serves several functions, both now and in the future.



- Metadata captures important information about how you collected and processed your data.
- Like information in a library's card catalog, metadata is often used as a record in search systems so that other people can find data sets they're interested in.
- In the coming years, analytic tools will assess metadata to determine whether one data set can be properly compared or processed with another.

If you commit to writing quality metadata now and thoroughly document your data, the investment of time and effort can pay for itself through

- Increased longevity of your data
- A greater ability to share your data
- Decreased user support requirements



## There's more. Properly documented metadata benefits you as a professional.

**Metadata helps professionals share and distribute reliable information;** it supports creating a data inventory. Because clearinghouses now allow us to search metadata records by key fields, you can more easily match your needs with whatever data are available. Metadata sets the stage for reusing and upgrading your coastal data.

**Metadata helps you publicize and support the data that you and your organization have produced.** Documenting coastal data and its availability gives your agency a way to measure production, and aids in building your reputation in the field as someone who consistently develops thorough metadata records.

**Metadata lightens your workload by reducing the need to answer fundamental questions about your data.** In the past, professionals complained that they spent a great deal of time answering telephone calls about their data files.

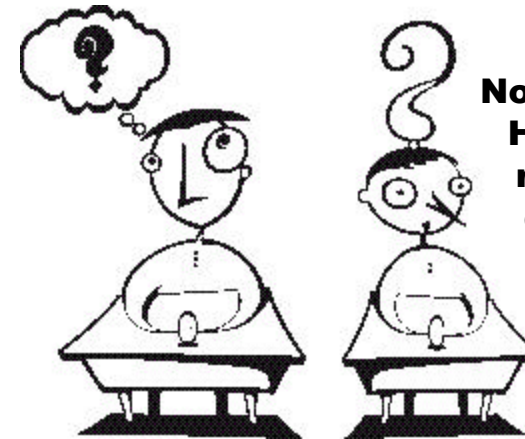
If you carefully construct and maintain your metadata records, you decrease the likelihood that people will tie up your time with basic questions that could be answered by simply reviewing your well-kept metadata records.

## Metadata also helps you as a data user.

**Metadata facilitates understanding.** As a data user, metadata gives you a quick overview of a data set, so that you can make a reasonable judgment about whether that data will meet your needs.

It helps you easily focus on the key elements of the data and not get bogged down in unnecessary detail. Because most metadata follows a standardized layout and has common terms and definitions, it allows you to knowledgeably skim records quickly and easily. As a result, you can more accurately focus on what you're looking for.

**Metadata helps you to discover data both inside and outside your organization.** Because metadata is standardized, it helps you as a user discover data that you didn't know about. You can access it through useful Web-based resources, such as lists of hypertext links that you can browse, html versions of the metadata, or queries that you can make through clearinghouse gateways.



## Not convinced yet? Here are more reasons why creating metadata is a good idea.

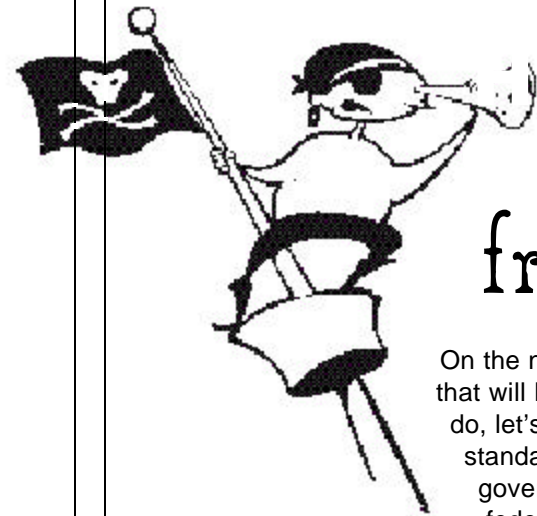
**Maintaining solid, accurate metadata can reduce your organization's costs.**

Although initially metadata does have a price tag, the costs are identifiable, manageable, and tend to be up front. Your organization's costs decrease as your experience grows.

**Metadata is a key component of data lineage.** It gives you basic information about the source and derivation of a data set. By searching external metadata, your organization can quickly determine the availability, quality, structure, and content of data from other organizations.

Now that you know why quality metadata is so important, let's look at some ways to get there.

## NOTES



# How do we get there from here?

On the next few pages, we'll examine some ideas that will help you write quality metadata. Before we do, let's talk briefly about writing metadata in a standardized form. Currently in the U.S., government agencies or organizations receiving federal funds are required to document their geospatial data in accordance with the Content Standards for Digital Geospatial Metadata (CSDGM), Version 2, developed by the Federal Geographic Data Committee (FGDC). Metadata written following this standard format produces a document that can be easily indexed and searched through one of the over 250 clearinghouse nodes that are linked together. The ability to search effectively and efficiently for metadata is the true strength of standardized metadata. If you are not currently writing metadata that is compliant within the framework of the CSDGM, please consider it. Although it may take a short time to become familiar with the CSDGM, the long-term benefits to you and others who might have need of your data far outweigh this initial effort.

### **Organize your information.**

Poor organization is one of the primary factors that contributes to poor information. Before you can create accurate, complete metadata files, you have to worry about being organized in several different ways.

**First, your approach must be organized.** When you start your data collection effort, be aware of the types of information you'll need to document later. This information might include collection dates, collection methods, bounding coordinates of your study area, entity and attribute information, processing information, and data quality and accuracy information. Having this information in mind throughout the process will help you avoid having holes in your data when you sit down to write your file in a more formal fashion.

**Then you must collect your data in an organized way.** Make sure you keep your information in an accessible place throughout your data collection and data processing steps. Don't wait until you've completed the entire data collection task before you begin to write things down. Write as you go. It's much easier than trying to recall information later.

**When you do sit down to actually begin your metadata file, gather your tools and organize the information that you have collected.** Your task will be easier if you have all the files you need in front of you, along with your resources. It's a good idea to review some examples of metadata records that are considered thorough and complete. Doing so will give you a concrete template to model and will help you feel more confident when you develop your first few records. To see some examples of metadata documents, sail on over to [www.csc.noaa.gov/metadata/](http://www.csc.noaa.gov/metadata/).

**Finally, make sure you're focused on your task and have put everything else out of your mind.** If you don't think clearly, you can't write clearly. Free up a block of time in your day to begin your writing task. Reduce the possibility for interruptions and give yourself enough time to create a substantial part of your first draft before you take a long break.

### **Follow proven writing principles when you write your metadata file.**

Use these long-established writing principles to guide you as you create your first metadata records. For that matter, these principles are so reliable they will help you in most of the writing you need to do throughout your professional career.

#### ***Meet the needs of your audience***

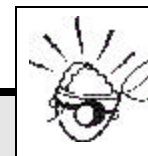
Since you never know how your information will be useful to someone, you can't assume that your readers will always understand your subject the way you do. In fact, you're better off if you pretend that you're writing to explain your data to someone who is outside of your field.

Think of a busy person who is searching for records, quickly scanning a great number of files on-line. Someone completely unfamiliar with your data should be able to grasp your purpose and quickly surmise why you created the data set.

Even if the details of your records are outside your readers' area of expertise, if you write well, others will be able to understand the gist of your data and will be able to determine whether they need it for their own use. Writing to suit their needs should be your goal.

- **Write for an uninformed audience.** Since you can't predict who will need to use your data in the future and since you don't know your readers' level of expertise, write for a novice audience.

- **Keep your writing simple.** Use clear, familiar, conversational words. Remember that although clear communication is simple, it is not simple-minded. It's effective, normal language that we use every day. Don't be afraid of using everyday words. People understand them more readily than long, multi-syllabic words.



### **BOB'S METABITS OF WISDOM**

- **Establish a style for presenting titles and use this style for all titles in your agency.** (For more detailed information about titles, see Create Useful Titles on page 17.)
- **Set your rules for capitalization and hyphenation, and stick to them.**
- **Always place similar references in the same spot in your metadata files,** such as always putting a URL in the last line of the Supplemental Information section.
- **Make it a habit to give credit to anyone who worked on the project.** Doing so gives your document credibility and appropriately acknowledges the professional contributions of others.

#### ***Think about the long-term effects of your writing***

**Steer away from industry jargon and technical terms.** You can usually replace jargon with more broadly understandable terms. When you must use technical terms, define them the first time you use them so that your readers understand from the beginning what you're trying to tell them.

Remember, you are writing for both general and future audiences.

**Help readers understand your terminology.** If your document contains many technical terms and acronyms, consider creating a key, a list, or a table for reference.

If you must use an acronym within your text, always define it the first time it appears in the document so that your readers clearly understand your meaning.



Acronyms are particularly troublesome for readers because they may take on different meanings over time. For instance, think of the simple term *CD*.

What does it mean to you? Compact disk? Cadmium? Chad? Civil Defense? Coastal Defense? All are reasonable definitions, but none may be the intended meaning within a given document.



**What's intuitive to you may not be clear to your reader.**

**Clearly state the limitations of your data.** If you know that your data have some limitations, don't hide them. Clearly explain those limitations early in your document so that the reader forms a valid context for the information. For example, in the abstract, you could state:

*Because of funding limitations, Global Positioning System technology was not used for all roads; Topologically Integrated Geographic Encoding and Referencing system (TIGER) files were instead used for county roads.*

### ***Don't use ALL CAPITAL LETTERS***

Text written in ALL CAPITAL LETTERS is more difficult to read. Research shows that using all upper-case type for blocks of text slows reading speed, decreases comprehension, and introduces greater possibility for proofreading errors. Why run the risk of someone misreading your carefully constructed files?

See the results for yourself:

RESEARCH SHOWS THAT USING ALL UPPER-CASE TYPE FOR BLOCKS OF TEXT SLOWS READING SPEED, DECREASES COMPREHENSION, AND INTRODUCES GREATER POSSIBILITY FOR PROOFREADING ERRORS. WHY RUN THE RISK OF SOMEONE MISREADING YOUR CAREFULLY CONSTRUCTED FILES?

### ***Use subheadings***

When readers come across long passages in a document, they easily lose their place and their eyes can glaze over as they struggle with endless pages of unbroken text. Although they may not be aware of it, readers tend to look for resting places to aid comprehension and ease the strain on their eyes.

Because people more comfortably read "chunks" or blocks of text, adding subheadings helps the reading process.

In long text passages, such as *Supplemental Information* or *Process Step*, subheadings also can help you organize the material, allowing your readers to more comfortably follow your lengthy descriptions. It also gives you a handy tool to review the structure of your document.

### ***Try using bulleted lists***

- Bulleted lists are effective tools to help readers skim your information quickly and easily. Using them helps you convey your message, shorten your text, and clarify your meaning.
- When you write bulleted lists, make sure that you have constructed them consistently, or they will appear to be illogical and ill planned. For instance, if you begin your first item with a verb, you must begin all your items with verbs.
- Also note that how you make your bulleted lists can sometimes create formatting problems within a metadata file. For instance, for the process of transferring information to run smoothly from your computer to the clearinghouse, you won't be able to use traditional bullets that may be available to you from typical word-processing programs. You'll have to use a more standard keystroke that is available on your keyboard, such as an asterisk or a dash.

### ***Cite examples when you can***

Keep an eye out for particularly effective words and phrases that you find in other writers' metadata sets. Look for good examples of phrasing, collect them in a working file, and use them in your future documentation.

### ***Follow the standard.***

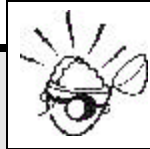
Bridges are built among users of coastal data when we use a common approach to documentation. When we agree on how we describe our data, we begin to develop a common vocabulary and an improved understanding of the information. We follow a common path to the same goal.

The FGDC metadata standard was developed to help us all write accurate metadata that we can easily grasp and share. By giving us uniformity, the standard establishes the names of data elements and compound elements, the definitions of these elements, and information about the values that are to be provided for the data elements.

Although your first experiences in following the standard may be intimidating because it seems complex, stick with it. Don't be put off by the standard's length. Its length is necessary to convey the definitions of the hundreds of different metadata elements and their production rules. Plus, many sections may not even apply to your data set.



A metadata document is meant to be a reference, not recreational reading, so you're not alone in your uncertainty. Once you gain familiarity with the structure of the FGDC standard, your metadata generation will become faster and easier.



### BOB'S METABITS OF WISDOM

- Don't create your own standard; you'll confuse people and dilute the benefits of having a standard at all.
- Find those fields in the standard that are pertinent to your data and your organization.
- Build a template with those fields in mind.
- Use the template in future work to lighten your load.

Following the standard will help you answer typical questions that most users have about data, and will systematically guide you to make sure that your records are complete.

**Here are the questions you'll answer when you follow the standard:**

- **What does the data set describe?** How should it be cited? What geographic area does it cover? What does it look like? Does it describe conditions during a particular time period? What is the general form of the data set? How does the data set represent geographic features? How does it describe geographic features?
- **Who produced the data set?** Who are the originators? Who also contributed? To whom should users address questions about the data?
- **Why was the data set created?**

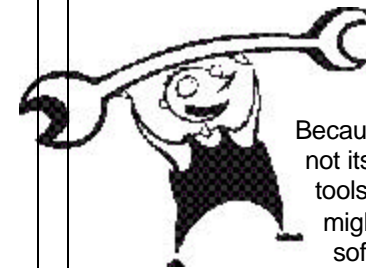
- **How was the data set created?** From what previous works were the data drawn? How were the data generated, processed, and modified?

- **How reliable are the data?** What problems remain in the data set? How well have the observations been checked? How accurate are the geographic locations? How accurate are the heights or depths? Where are the gaps in the data? What is missing? How consistent are the relationships among the data, including topology?

- **How can someone get a copy of the data set?** Are there legal restrictions on access or use of the data? Who distributes the data? What's the catalog number to order the data set? What legal disclaimers are there? How can the data be ordered or downloaded?

- **Who wrote the metadata?**

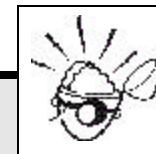
You can find out more about the details of the standard by going to the coastal metadata Web page at: [www.csc.noaa.gov/metadata/](http://www.csc.noaa.gov/metadata/) or the FGDC Web site at: [www.fgdc.gov/](http://www.fgdc.gov/).



### Pick a tool, if you like.

Because the standard specifies only the content of the metadata, not its format, not all metadata looks the same. Fortunately, tools exist to bring some sort of order to the differences that might occur. However, you don't need specific hardware, software, or technology to meet the metadata standard.

You can find more information about metadata tools at [www.csc.noaa.gov/metadata/](http://www.csc.noaa.gov/metadata/) or [www.fgdc.gov/](http://www.fgdc.gov/).



### BOB'S METABITS OF WISDOM

- Although tools can help you create, validate, or distribute your metadata, no tool can check the accuracy of metadata. You need to review it for accuracy.
- Tools can help you enter your metadata, but you must check the output records in separate steps for both conformance and accuracy.
- Don't invest a great deal of time creating metadata with a particular tool that may become obsolete.

Protect your investment by ensuring that the tool you use can produce discrete metadata documents that will require minimal editing. In the future, the XML form will probably be the form for exchangeable metadata because the expectation is that metadata tools (and databases) will accept metadata in XML form as a normal import function, giving you a way to migrate metadata between tools, databases, and users.

For more in-depth information about selecting tools, visit [www.csc.noaa.gov/metadata/](http://www.csc.noaa.gov/metadata/).



### Follow a sound process for writing well.

As your experience may already tell you, creating any effective document requires following a process of writing, editing, reviewing, revising, and reviewing again. No sound document was ever developed in one try, on the first draft. That rule applies to developing quality metadata as well.

To create truly useful and responsible metadata, you have to be willing to revisit your data after you first write it, review it several times for different types of errors, and have other reliable readers examine it before you publish it.

Since your metadata records will live for many years, the time you invest now will pay off in the long run.

**First, check your file for accuracy and completeness.** Before you move on to analyzing the grammatical structure and style of your records, put your data on solid ground.

Make sure that the content is correct and that all the details are accurate. Check your coordinates and location, ensure that your citation information is complete and accurate, and re-read your abstract several times for clarity, consistency, and flow.

**Then, double-check your work.** You need to look for all types of errors before you can be confident that your file is in good shape. Begin by reviewing the data for inconsistencies and inaccuracies. Then look for grammatical errors, mistakes in sentence structure, and typographical errors.

Check your title to make sure it is descriptive, re-read keyword list for completeness, and review all numerical entries to make sure that nothing was transposed or mistakenly typed.

Good writers often find it useful to take several independent sweeps through a document, looking for one type of flaw at a time. Doing so helps you focus your efforts and can actually save time.

**Check for agency, state, or regional compliance** before you make your records final. For instance, North Carolina State Public Records Law requires that certain elements be included within the abstract. Become familiar with any requirements that apply to your area or agency, and make sure you follow them completely.

**Ideally, give your metadata to someone else to review**, preferably someone who has neither worked on your project nor is very familiar with the subject matter. This peer review can ensure that your document is clear, easy to understand, and meaningful to all types of users.

If you use this system, however, be prepared to receive sometimes pointed and direct criticism, and consider heeding it. Even though negative comments are often difficult to hear, they usually have some valid element.



**Look for the positive note in the negative comment and remember that your goal is to make your work the best it can be.**



#### BOB'S METABITS OF WISDOM

- Can anyone understand what you wrote?
- Are your data properly documented for posterity?
- Does your metadata file include enough specific information to uniquely identify and locate any coastal data based solely on your documentation?
- Does the documentation adequately present all the information needed to use or reuse the data represented?
- Are any pieces of information missing (such as projection information, source citations, and process steps)?
- Did you check your spelling?
- Are your sentences complete?

**If you are the only reviewer, let some time pass before completing your final product.** Often we find mistakes and omissions on a second reading, so it might help to put your file away and focus on something else for awhile. If you can, review it again after several days. You'll be surprised how different the information will look and how many mistakes you'll spot.

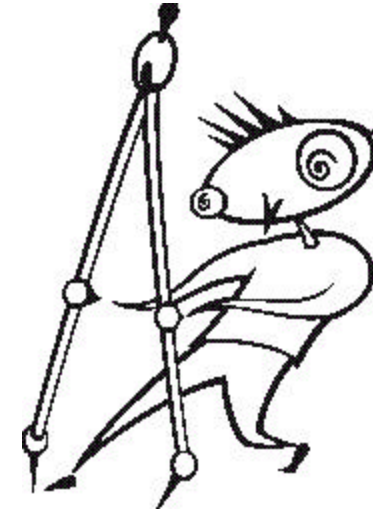
**Have your manager review the record after you are certain that it is as good as it can be.** Doing so helps to ensure that your organization/authorship is properly recognized (and, perhaps helps for political reasons, as well). Also, having your managers review your work will help them recognize the value of creating the metadata and will help them more fully value what you do. The professional payoff can be well worth the effort you put into the process.




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**It is critical that you review your final documentation to check for clarity and omissions.**

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## Plotting your course.

Now that you have an understanding of how to write a quality metadata document, let's look at some content specific issues to help get you on your way.

### **Create useful titles.**

It may seem like an unimportant item for your first metadata trip, but the title of your metadata is critical to its usability. When your data goes to a clearinghouse, potentially thousands of people will look at it, and it is possible that many things will be unclear to them.

As a matter of fact, the title of your metadata set may be the only item that people see when they search a clearinghouse. That's why you have to make sure that your title is a good one. When you're not available to translate, others may not know what you meant. You'll have interns and new employees reading your data, and when you retire, you won't be on hand to answer readers' questions.

### ***Think about others who are searching for data***

To get you in the proper mindset, let's look at these two titles.

**One title:** Erosion

**Another title:** Five-year Barrier Island Erosion Rates for Folly Beach, Sullivan's Island, and Isle of Palms, South Carolina, 1990-1995.

If you entitle the data only *Erosion*, people who find it will have to read more of the metadata before they can determine if your coastal data will help them. If you call your data, *Five-year Barrier Island Erosion Rates for Folly Beach, Sullivan's Island, and Isle of Palms, South Carolina, 1990-1995*, people who search for data will immediately know whether this data is of interest to them.

**WARNING: Titles can be helpful or misleading**



When you write your metadata, use a title that helps readers interpret your file quickly. You need to:

- Avoid ambiguity
- Consider all the possible misreadings of your word choices
- Include as many details as you can so that readers can surmise what's in your data before they go further



**BOB'S METABITS OF WISDOM**

Make sure that your title is complete and includes:

- The topic
- Timeliness of the data
- Specific information about the place and geography that the data describe.

Answer the questions:

- What
- Where
- When
- What scale
- Who

**Try something like this, for example.**

*Monitoring Change to Submerged Aquatic Vegetation and Related Benthic Habitats of Maine Using Analytical Photogrammetry and the Coastal Change Analysis Program protocol (C-CAP), 1993 to 1997.*

**Write effective key words.**

Effective key words are another critical element in your metadata file. In addition to the title, users typically search for data by key words. People may never find your data if you don't choose your words well.



**Select your key words wisely.** Since others will use key words to find your file through a search engine, your key words play an important role in helping users find what they need.

**Make sure that your key words are clear and unambiguous.** For example, *erosion*, *waves*, and *currents* are all useful words, but they mean different things to people in different fields or under different circumstances.

Are waves mentioned in your metadata sound waves? Waves that result from earthquakes? Coastal waves? Are currents ocean currents? Electrical currents?

**Use a variety of descriptive key words** to help users zero in on the meaning behind your data set. They are useful as quick indicators of the contents of your data set.

As an example, one file we found, called *Remote Sensing of South Carolina's Coastal Areas Using LIDAR, Satellite Imagery, and Orthophotography, 1990-1997: A Coastal Resource Management Tool* used all these keywords:

Airborne Topographic Mapper, arc and point data, barrier island base, maps, beach erosion, beach, benchmarks, block groups, block group, building footprints, census tracts, census data, change detection, analysis, coastal, coastal maps, coastal, contour map, county boundaries, digital elevation model, elevation measurement, elevation change, geomorphology, hydrography, hydrology, index, interstates, lakes, land cover analysis, laser altimetry, LIDAR, monitoring stations, monuments, morphology, ocean governance, ortho-photographs, planimetric features, sand dunes, shoreline, streets, T-Sheets, tide-controlled photography, topographic map, vectorization

**Fully qualify geographic locations** (city, state, county) to avoid questions such as, "Portland, Maine or Portland, Oregon?"

**Use standard references to determine proper usage;** if no standard reference is determined, enter the keyword in as many ways as it may commonly appear.

Hyphenation and word combining are especially tricky in the English language. Since the language is constantly changing and usage is evolving, the rules for whether to hyphenate any given word combination could change. Therefore, even if it takes a little more effort, if you really want people to find your keyword through searching, consider entering your key words in a variety of formats.

**For example:** nonindigenous  
non-indigenous  
non indigenous

**Think broadly.** For example: hydrology, stream networks, rivers, environmental quality

**Then think narrowly.** For example: (specific compounds measured), monitoring, water intakes

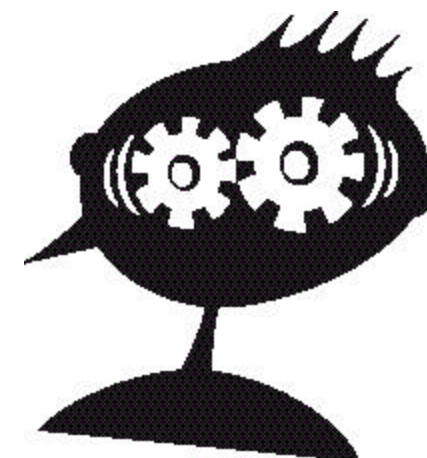


**Avoid using symbols or other conventions that could be misinterpreted by a computer.**

Metadata will be parsed and indexed, formatted, and displayed in a variety of browsers. Therefore, you can't predict how readers will encounter your documentation or how much of your original formatting will actually appear in the final product. For instance, **avoid these characters:**

! @ # % { } | / \ < > ~

- Don't use characters that may have dual or ambiguous interpretations.
- Don't use tabs and indents. They may be "unformatted" along the way.
- Be careful if you use carriage returns in certain tools. They may cause problems for particular documentation tools.
- *None* or *Unknown* can be useful responses, but they have specific meanings. Be sure to distinguish between their meanings. *None* usually means that you knew about data and nothing existed; *Unknown* means that you don't know whether that data existed or not. Check the standard to make sure that you are using these terms correctly.



## Learn from the pros.

As we compiled training materials for beginners, several metadata experts told us about common errors that are typically made when people create metadata records. So that you start on the right foot from the beginning of your journey, we thought it would be a good idea to give you some of the tips now.

You might find it helpful to keep this list handy when you write your first few data sets. Try looking it over several times during your writing process. Remember, if we learn from others' experience, we can all create more reliable and accurate metadata for the future.

**Don't put too much faith in metadata tools.** Human review is the only thing that matters. The tools are there to help you, but they can't do the job alone. Remember: *Garbage in, garbage out.*

**Don't take the minimalist approach.** A common overreaction to the expansive nature of the standard is to adopt "minimal compliance" as an operational approach. Limiting your documentation to the required portions of some sections, or even to required fields will limit the value of your effort and the metadata records you produce. Instead, identify those fields that apply to your organization and to your data. Then create functional templates or subsets of the standard and use them.

**Don't define your data set too finely or too broadly.** It's easy to become overwhelmed trying to individually document every data table and resource. However, trying to cover all of your data sources with a single metadata record will drive both you and your data users crazy. A good rule of thumb is to consider how the data resource is used—as a component of a broader data set or as a stand-alone product that may be mixed and matched with a range of other data resources.

**Don't think of metadata as something that you do at the end of the data development process.** Metadata should be recorded throughout the life of a data set, from planning (entities and attributes), to digitizing (abscissa/ordinate resolution), to analysis (processing history), through publication (publication date).

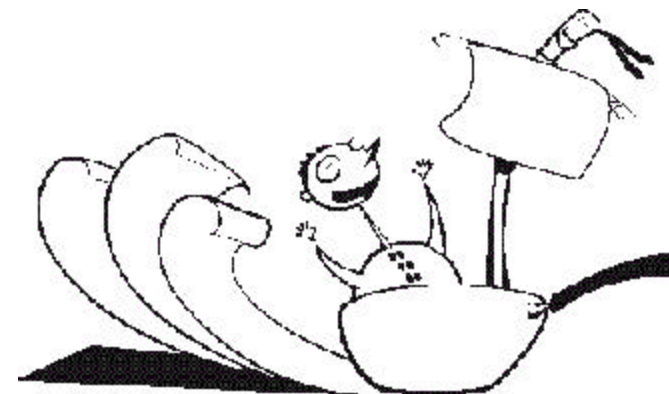
We are all encouraged to develop procedures to institutionalize metadata production and maintenance and to make metadata a key component of your data development and management process.



**Don't avoid metadata!** If you think the cost of producing metadata is too high, you haven't compiled the costs of NOT creating metadata. Think about

- Loss of information with staff changes
- Data redundancy
- Data conflicts
- Liability
- Misapplications
- Decisions based on poorly documented data

Now you are ready to complete  
your metadata journey.



# Sailing Solo

Well, we are nearing the end of our journey. We've steered a course that has taken us through many of the components of metadata. Many of you may be asking yourself, "Now that I've committed to writing metadata according to the FGDC standard, when do I have to write it?"

Well, the answer is that you can't just write it once. You have to be willing to revisit your data several times, for different reasons.

### ***In short, you have to write your metadata:***

- **When you collect data, so that you're conscious of the type and breadth of information you have to provide from the start.**

To make sure that others know that your source is reliable, as soon as you get data in hand, you'll want to document how you collected it or who you got it from.

- **When you process data, so that you are continuously reviewing the requirements along with your data set.**

You'll need to carefully document all your processing steps. You don't want to forget what you've done to the data.

- **When you complete your data.**

Close the circle of data collection by preparing to share your records with the data community.

- **When the information changes.**

Update your records when changes in your name, address, and phone number occur, and when changes in where the data are located occur.

- **When you add more information to update your records and to keep them current.**

Remember to change your metadata files.

If we are all going to rely on your data, you need to make sure that it is accurate, complete, and up to date. Revisiting your metadata will help you keep a fresh eye toward the information.



### **What if we get lost along the way?**

We've completed our tour of metadata. The responsibility is now yours to prepare for your solo trip.

When you do venture out on your own, you may want to know where to turn if you happen to get lost along the way. Point your browser to [www.csc.noaa.gov/metadata/](http://www.csc.noaa.gov/metadata/) for links to a variety of sources of information. If you don't find what you are looking for there, e-mail the metadata specialist at the National Oceanic and Atmospheric Administrations (NOAA) Coastal Services Center at [metadata@noaa.gov](mailto:metadata@noaa.gov).

For additional support, you should also consider some of the training workshops that are available throughout the country, including those at the NOAA Coastal Services Center. Sessions are tailored to suit the experience level of the audience members, so you'll find them helpful in addressing your needs.

You can find more information at [www.csc.noaa.gov/metadata/](http://www.csc.noaa.gov/metadata/) and [www.fgdc.gov/](http://www.fgdc.gov/).

Good luck and Happy Sailing!

Metadata Bob

Metadata Bob

