



# Managing Data with Morpho

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SEEK

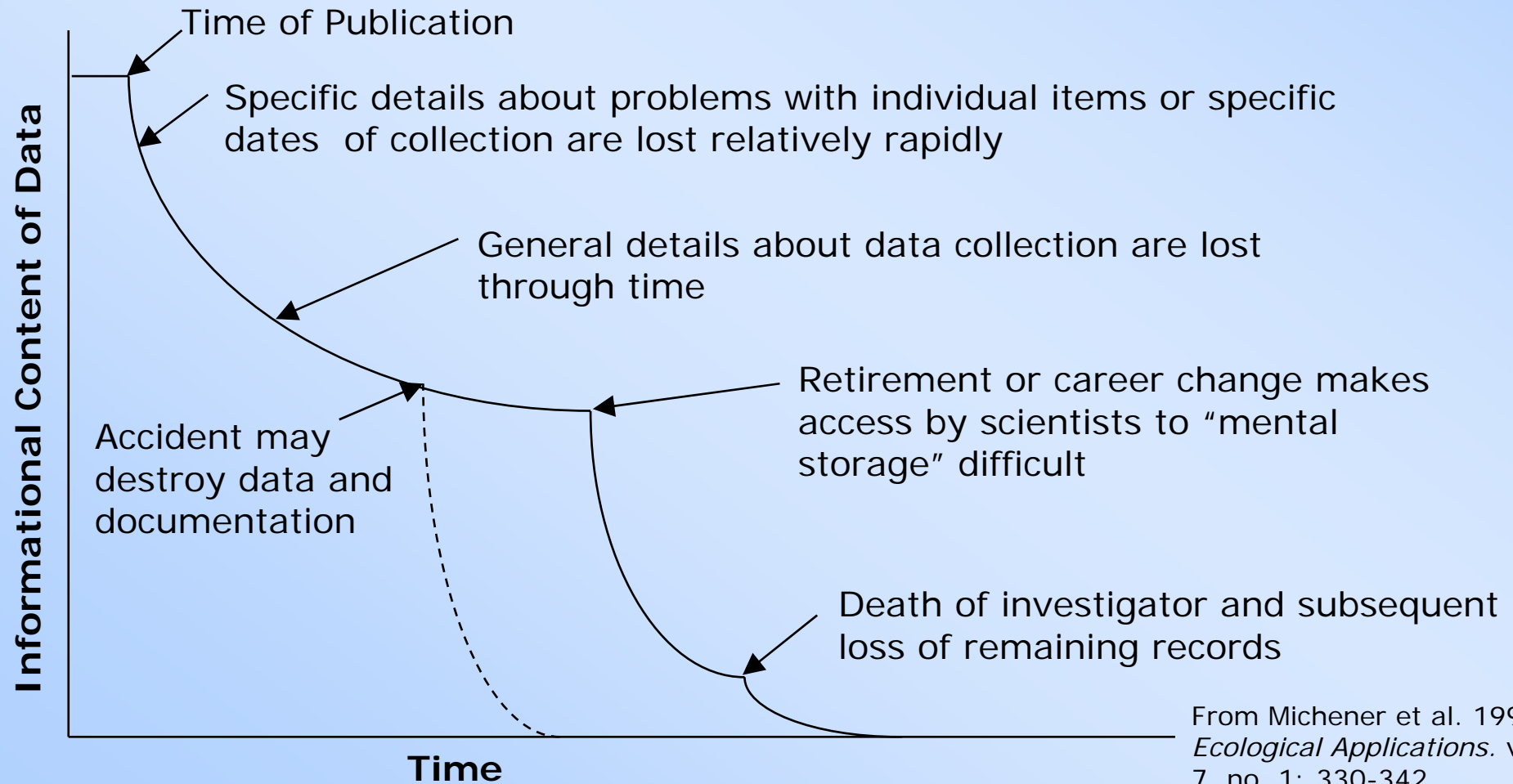
University of New Mexico



# The Problem

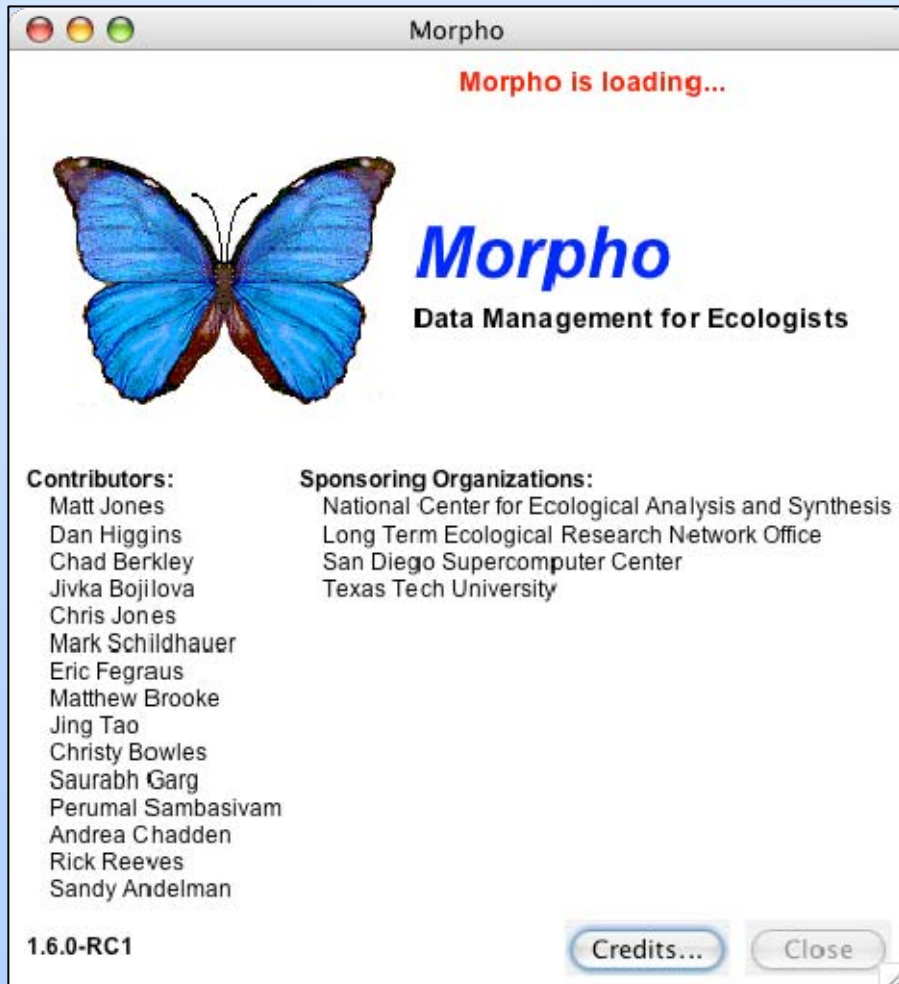


Informational loss over time reduces value of data





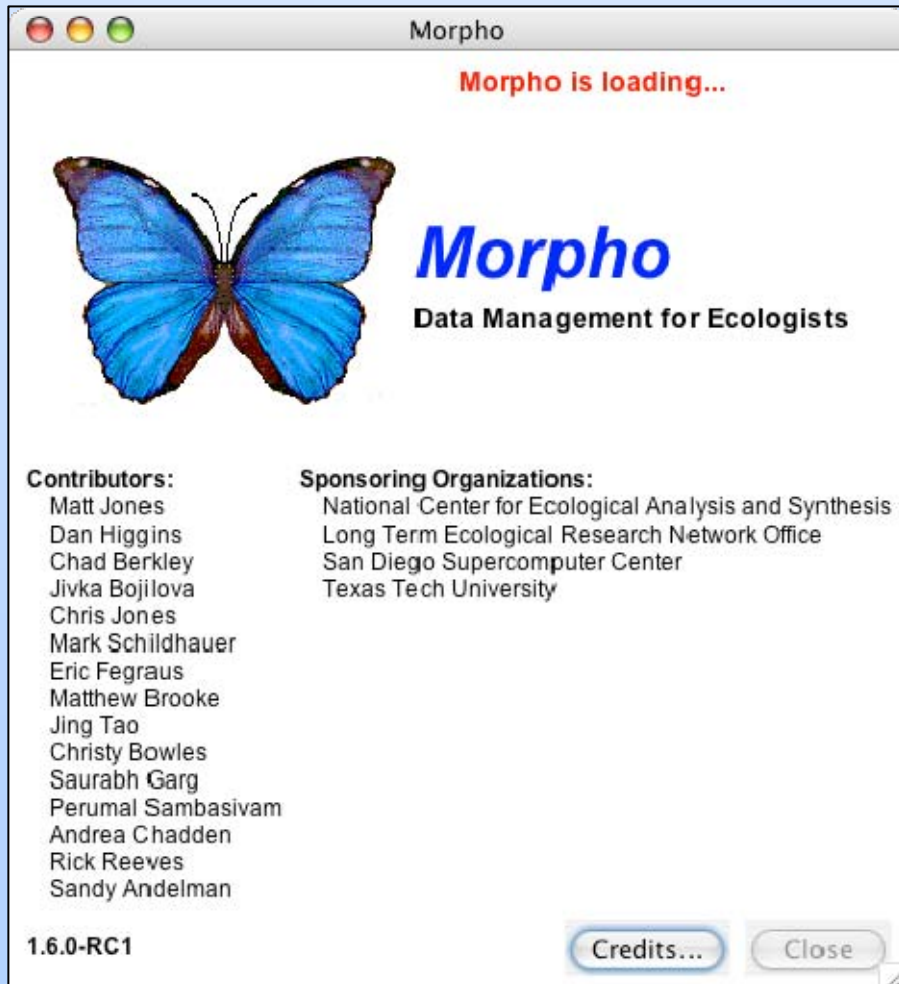
# What is Morpho?



- Graphical application for creating and editing EML
- Metacat client
- Part of the KNB
- Cross platform (java based)



# Morpho's Audience



- Targeted at individual researchers
  - Data are stored in ad hoc formats
  - Data sets are generally discrete and static
  - Interested in data documentation or archival



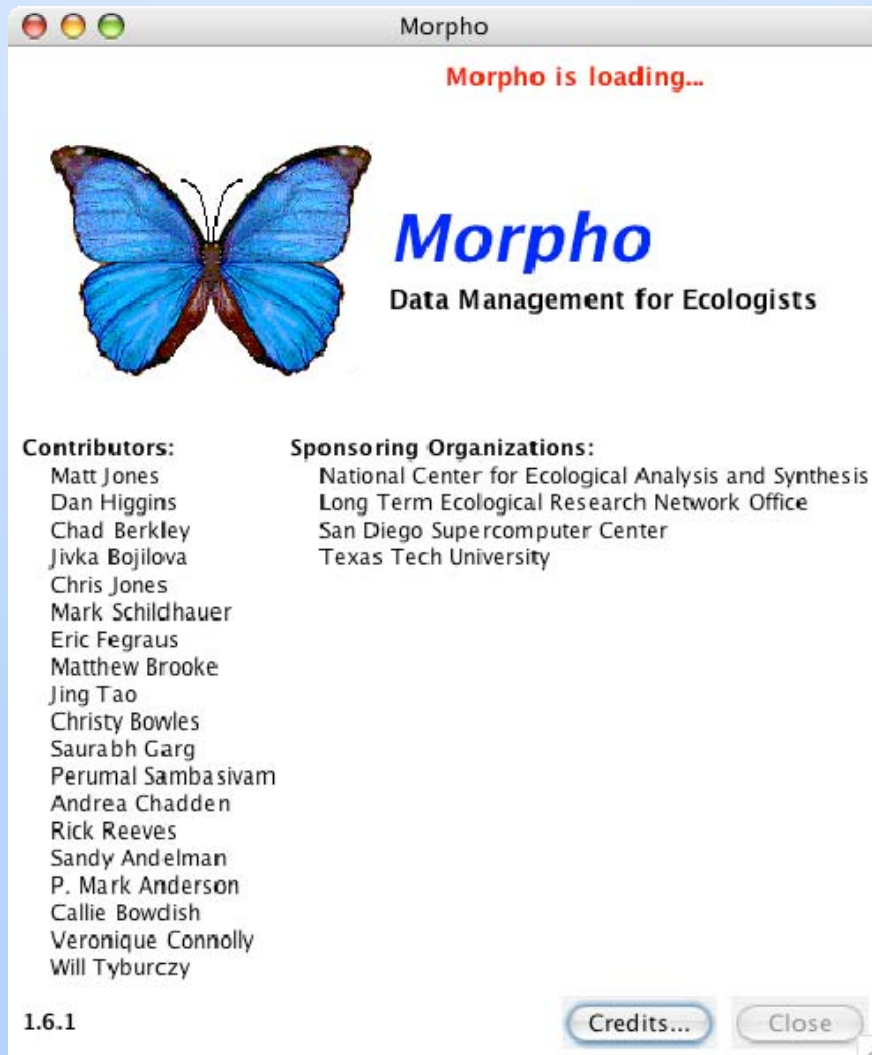
# Advantages of Morpho



- Keeps data and metadata organized (compare with files on your hard drive)
- Advanced search functionality
  - Taxonomic, spatial search options
- More complete support for EML specification
- Ability to archive data alongside metadata
- Can reuse information from prior data packages



# Main Features



- Document data fully with structured metadata
- Archive data alongside metadata
  - Store data locally or on the KNB
- Search for related data on the KNB
  - Search by taxonomy, geography, or keyword

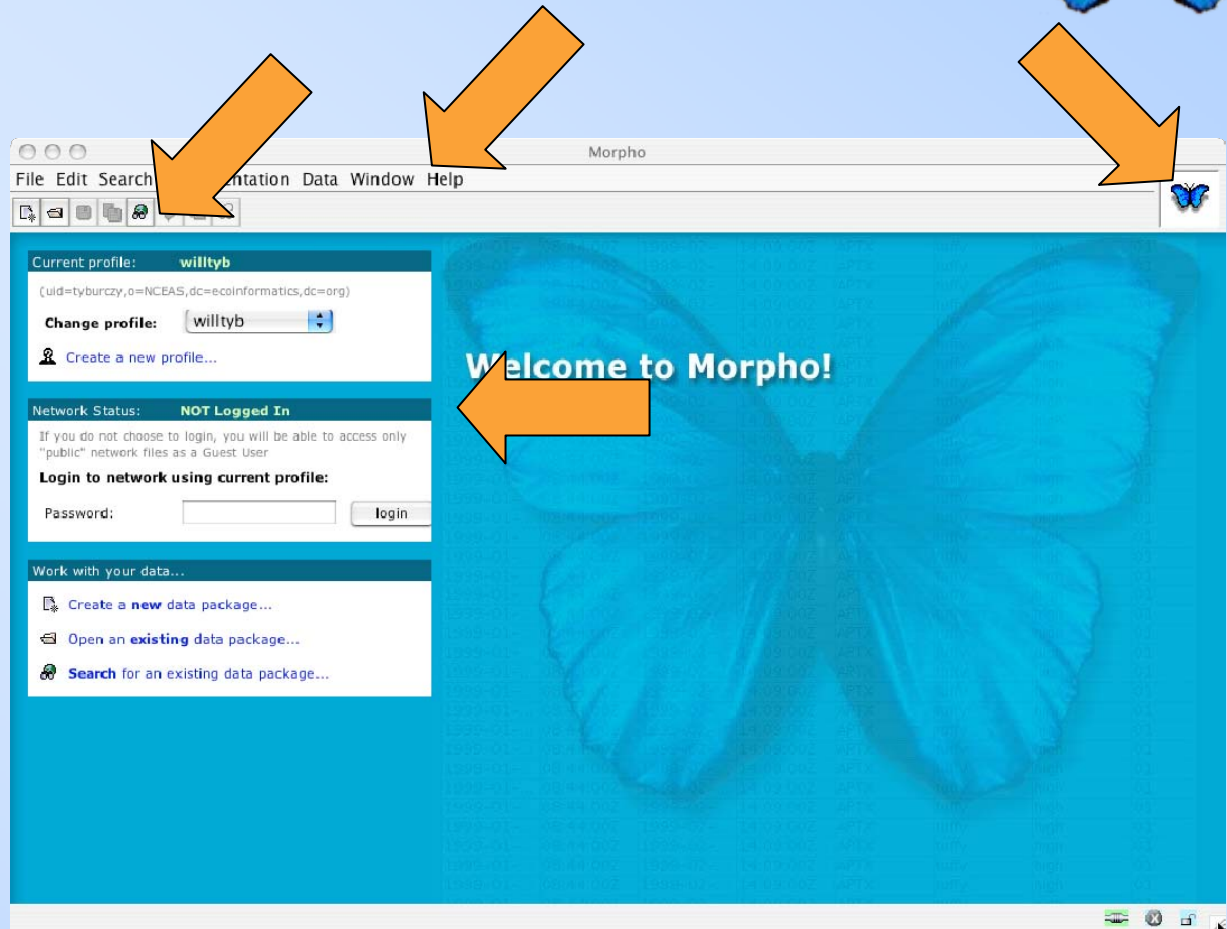




# The Main Window



- All controls accessible via the menu bar
- Common tasks also in graphics toolbar
- Center window provides access to main functions
- Butterfly icon indicates that program is processing

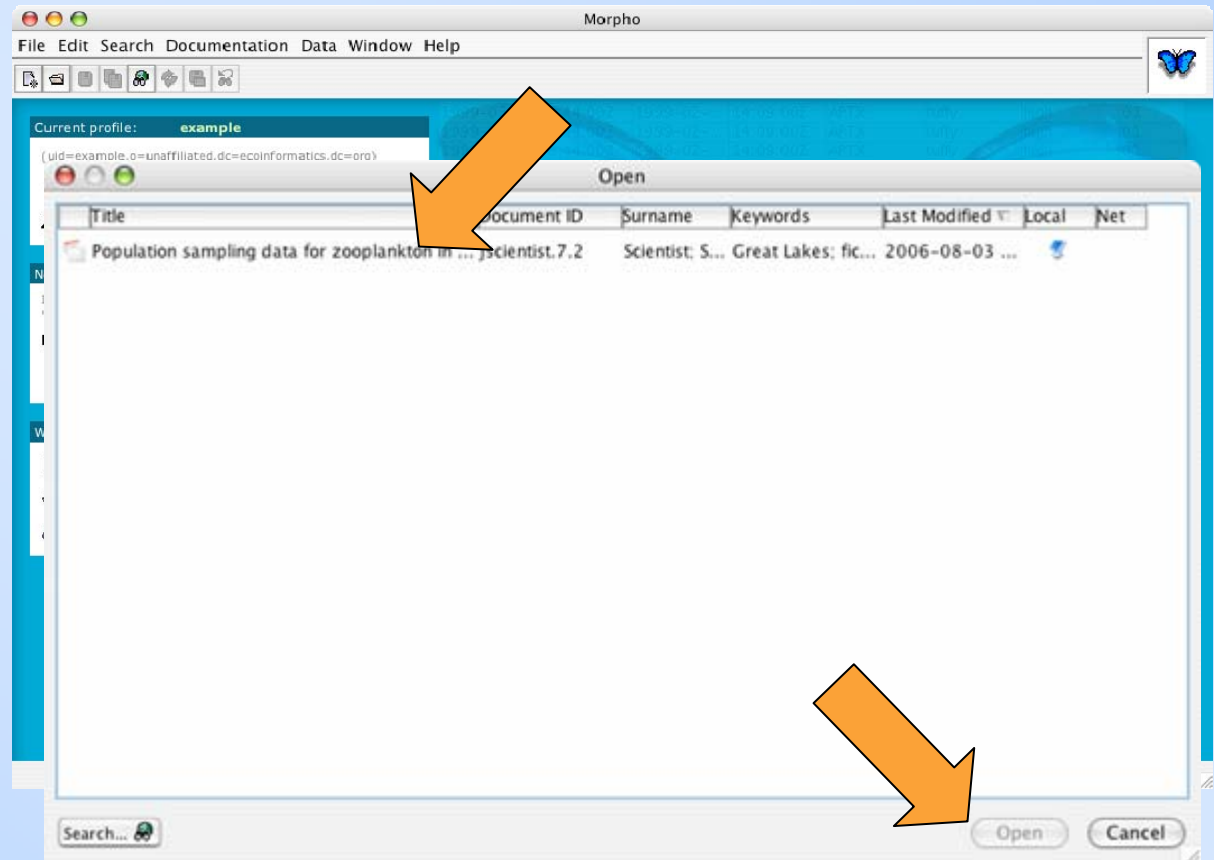




# Opening a Data Package



- Click "Open an existing data package"
- Select the data package you want, then hit "Open"



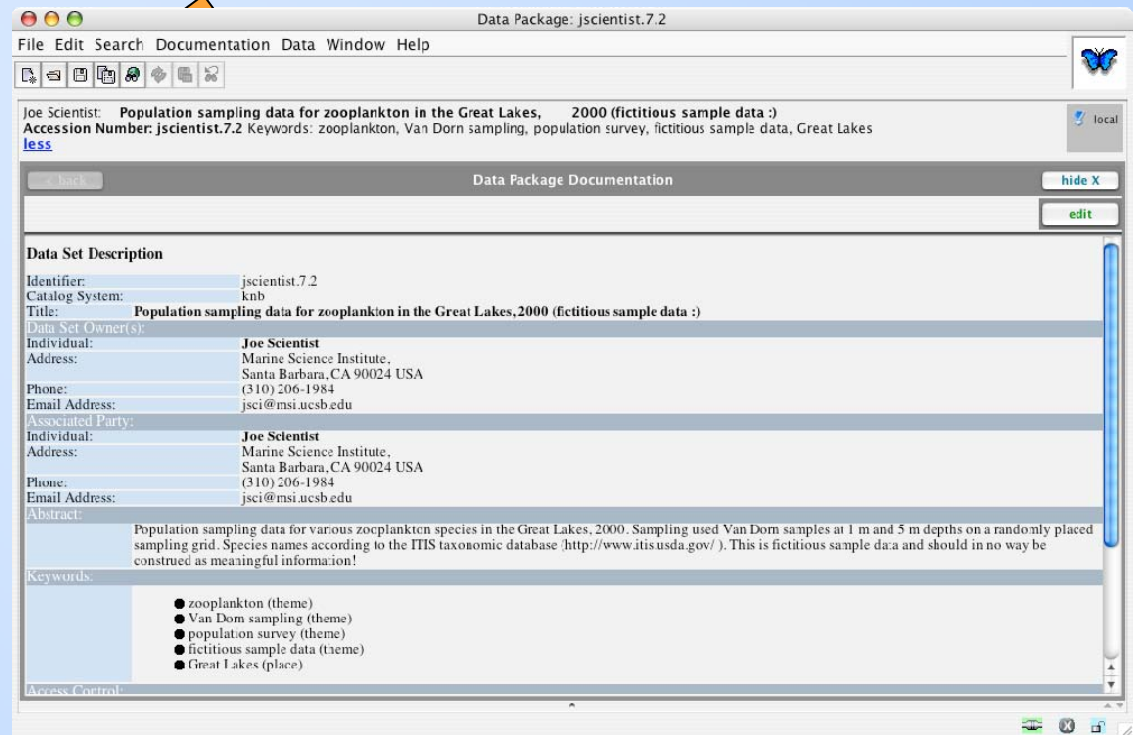




# Data Package Window



- Click on a table tab to view that table
- Click on column header to see metadata specific to the column
- Click "More" to see general metadata

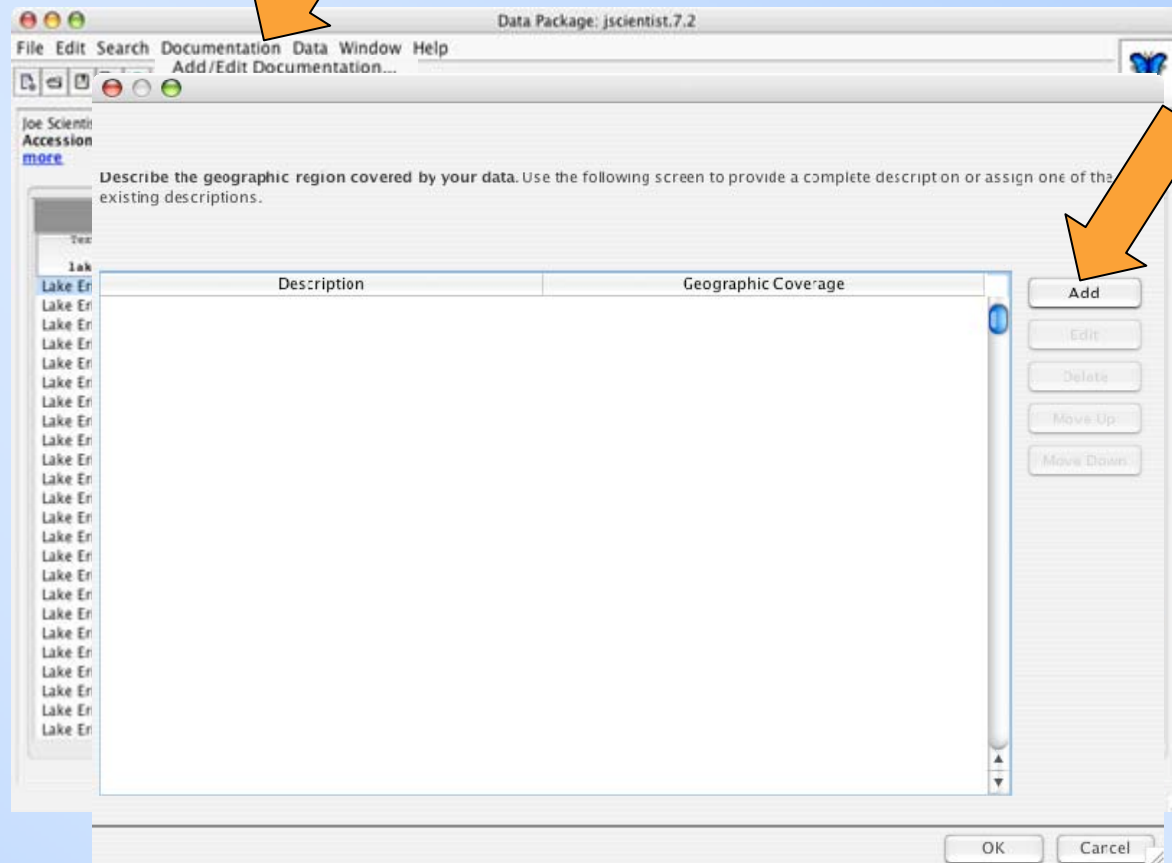




# Adding Geographic Information



- Select "Geographic Coverage" from the "Documentation" menu
- To add an area of spatial coverage to the data, hit "Add"





# Adding Geographic Information




- Enter a description for the area
- Select the general area, then zoom in
- Click and drag to select the area, then click "OK"
- Click "OK" again to finish

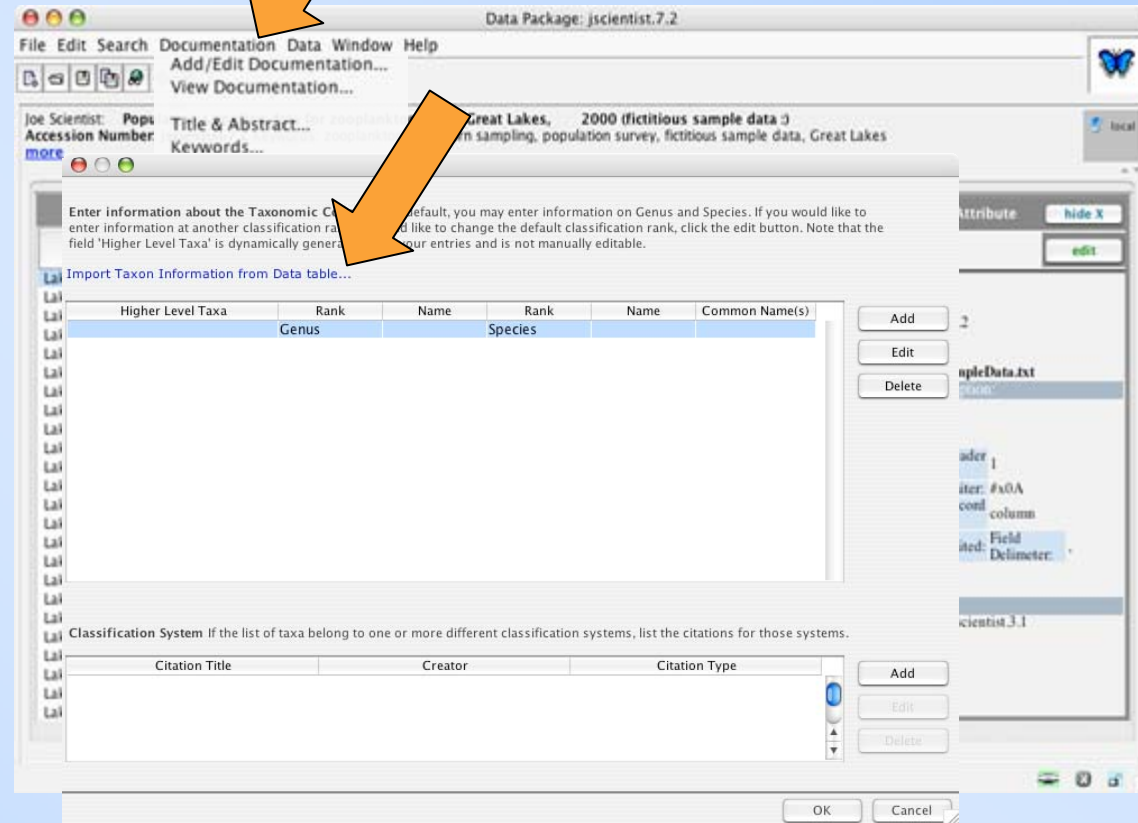
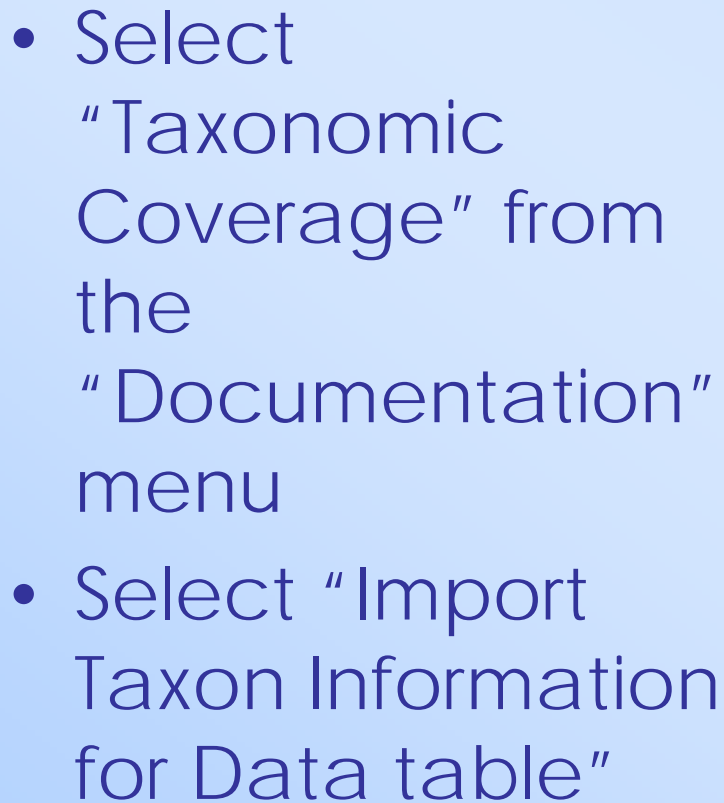
Describe the geographic region covered by your data. Use the following screen to provide a complete description or assign one of the existing descriptions.

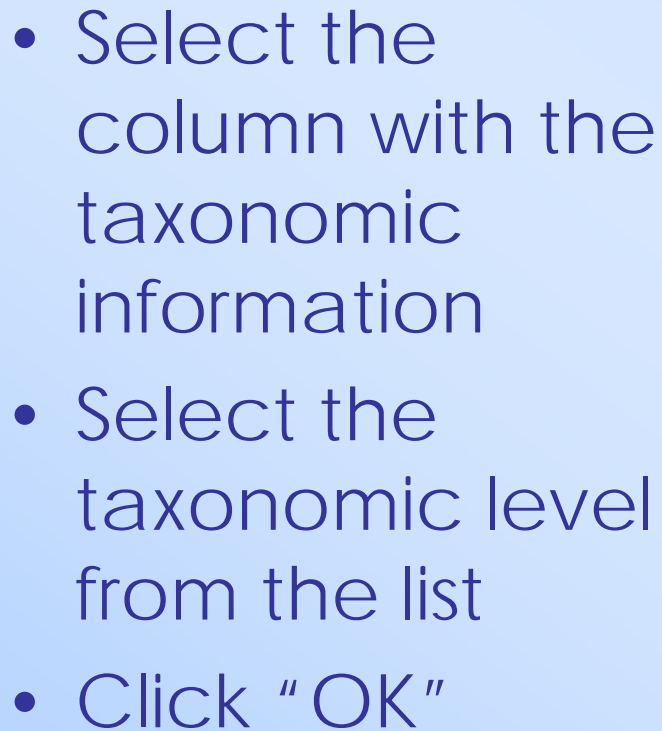
Description	Geographic Coverage
Great Lakes	West: -92.5; East: -75.5; North: 49.875; South: 40.5

Buttons: Add, Edit, Delete, Move Up, Move Down

Buttons: OK, Cancel









# Adding Taxonomic Information



- Click "OK" again to finish

Enter information about the **Taxonomic Coverage**. By default, you may enter information on Genus and Species. If you would like to enter information at another classification rank or would like to change the default classification rank, click the edit button. Note that the field 'Higher Level Taxa' is dynamically generated from your entries and is not manually editable.

Import Taxon Information from Data table...


Higher Level Taxa	Rank	Name	Rank	Name	Common Name(s)
	Genus		Species		

Add  
Edit  
Delete

**Classification System** If the list of taxa belong to one or more different classification systems, list the citations for those systems.

Citation Title	Creator	Citation Type

OK Cancel







# Control Access to Your Data



- Select "Access Information" from the "Documentation" menu
- Select whether you want the data to be publicly viewable
- Click "OK"

File Edit Search Documentation Data Window Help  
Add/Edit Documentation...

Joe Sr  
Access  
more

Would you like to allow the public to read your data package?

☐ Yes. Give read-only access to public.

☒ No.

Would you like to give special access rights to other people? You can specify access for other members of your team or any other person. Use the table below to add, edit and delete access rights to your data package.

Name	Organization	Email/Description	Permissions
uid=jscentist,o=NCEAS...	NCEAS		Allow All

Add  
Edit  
Delete  
Move Up  
Move Down

OK Cancel



# Editing Information for Data Columns



- Select the Column, then Select "Edit Column Documentation" from the "Data" menu
- Select the type of data in the column
- Enter the date format
- Click "OK"

Data Package: jscentist.7.2

File Edit Search Documentation Data Window Help

Create/Import New Data Table...  
Delete Current Data Table

**Define Attribute or Column:**

**Name:** sampdate Name of the attribute as it appears in the data file

**Label:** sampdate A more readable label for the attribute

**Definition:** the date of collection in DDMMYYYY format Define the contents of the attribute (or column) precisely, so that a data user could interpret the attribute accurately.  
e.g.: "spden" is the number of individuals of all macro invertebrate species found in the plot.

**Storage:** Text Storage type for this field e.g.: integer, float

**Storage System:** The system used to define the storage types e.g.: C, Java, Oracle

**Category:**

- ☐ Unordered categories or text (statistically **nominal**) e.g.: Male, Female
- ☐ Ordered categories (statistically **ordinal**) e.g.: Low, High
- ☐ Measurement from a scale with equidistant points (statistically **interval**) e.g.: 12.2 meters
- ☐ Measurement scale with a meaningful zero point (statistically **ratio**) e.g.: 273 Kelvin
- ☒ Date or time values from the Gregorian calendar e.g.: 2002-10-24

**Datetime:**

**Format:** DDMMYYYY e.g.: YYYY-MM-DDThh:mm:ss, YYYY-MM-DD, hh:mm:ss.sss

**Precision:** Precision of a date or time measurement, interpreted in the same units represented by the datetime format. e.g.: 1 day, 1 hour, 1 minute

**Bounds:** Min. Max. Range of permitted values, in same date-time format as used in the format description above. e.g.: "YYYY-MM-DD", a valid min would be "2001-05-29"

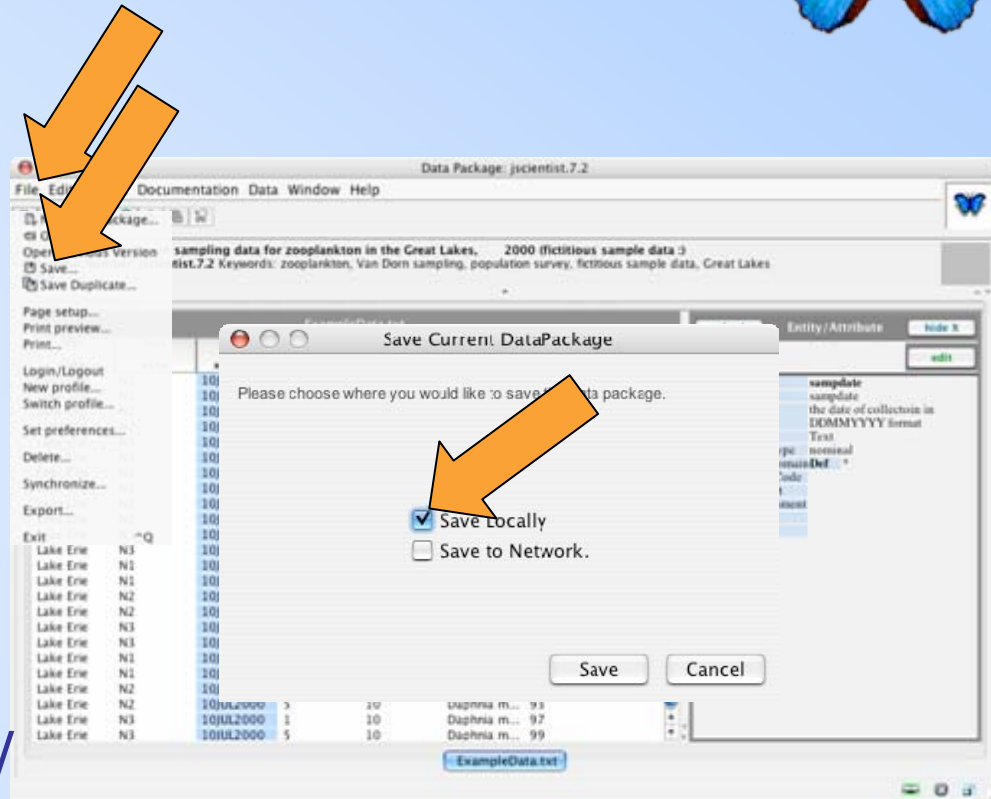
OK Cancel



# Saving



- Select "Save..." from the "File" Menu
- Select "Save Locally" from the pop-up window, then deselect "Save to Network" if necessary





# Saving



- You should see “local” and a computer icon in the upper right hand corner below the butterfly
- Notice that the accession number has incremented

Data Package: jscientist.7.2

File Edit Search Documentation Data Window Help

Joe Scientist: **Popular** Sampling data for zooplankton in the Great Lakes, 2000 (fictitious sample data :)  
Accession Number: **jscientist.7.2** Keywords: zooplankton, Van Dorn sampling, population survey, fictitious sample data, Great Lakes  
[more](#)

local

Text	Text	Text	Integers	floating Point	Text	Integers
lake	site	sampdate	meter	cubicMeter	species	dimensionless
			depth	sampvol		count
Lake Erie	N1	10JUN2000	1	10	Daphnia p...	78
Lake Erie	N1	10JUN2000	5	10	Daphnia p...	71
Lake Erie	N2	10JUN2000	1	10	Daphnia p...	74
Lake Erie	N2	10JUN2000	5	10	Daphnia p...	81
Lake Erie	N3	10JUN2000	1	10	Daphnia p...	87
Lake Erie	N3	10JUN2000	5	10	Daphnia p...	77
Lake Erie	N1	10JUN2000	1	10	Daphnia m...	78
Lake Erie	N1	10JUN2000	5	10	Daphnia m...	70
Lake Erie	N2	10JUN2000	1	10	Daphnia m...	75
Lake Erie	N2	10JUN2000	5	10	Daphnia m...	75
Lake Erie	N3	10JUN2000	1	10	Daphnia m...	78
Lake Erie	N3	10JUN2000	5	10	Daphnia m...	79
Lake Erie	N1	10JUL2000	1	10	Daphnia p...	96
Lake Erie	N1	10JUL2000	5	10	Daphnia p...	97
Lake Erie	N2	10JUL2000	1	10	Daphnia p...	97
Lake Erie	N2	10JUL2000	5	10	Daphnia p...	98
Lake Erie	N3	10JUL2000	1	10	Daphnia p...	97
Lake Erie	N3	10JUL2000	5	10	Daphnia p...	96
Lake Erie	N1	10JUL2000	1	10	Daphnia m...	91
Lake Erie	N1	10JUL2000	5	10	Daphnia m...	92
Lake Erie	N2	10JUL2000	1	10	Daphnia m...	99
Lake Erie	N2	10JUL2000	5	10	Daphnia m...	93
Lake Erie	N3	10JUL2000	1	10	Daphnia m...	97
Lake Erie	N3	10JUL2000	5	10	Daphnia m...	99

ExampleData.txt

Entity/Attribute hide X

edit

Entity Description

Identifier: jscientist.7.2

Catalog: knb

System: knb

Name: ExampleData.txt

Physical Structure Description:

Object: jscientist.6.1

Name: jscientist.6.1

Size: 1152 bytes

Number of Header Lines: 1

Record Delimiter: #x0A

Text Format: Maximum Record Length: column

Simple Delimited: Field Delimiter: .

Case Sensitive? no

Number Of Records: 24

Online Distribution Info: ecogrid://knb/jscientist.3.1

ExampleData.txt



# Searching for data packages



Search

Query Title:

☒ Network Search ☒ Local Search

Subject Taxonomic Spatial Options

Check boxes determine which metadata fields are searched.

☒ Title  
☒ All ☒ Abstract   
☒ Keywords

☐ And ☒ Or

☐ Combine constraints from all tabs

- Search on local disks or network
- Search multiple terms using "More"
- Combine subject search with taxonomic and spatial constraints

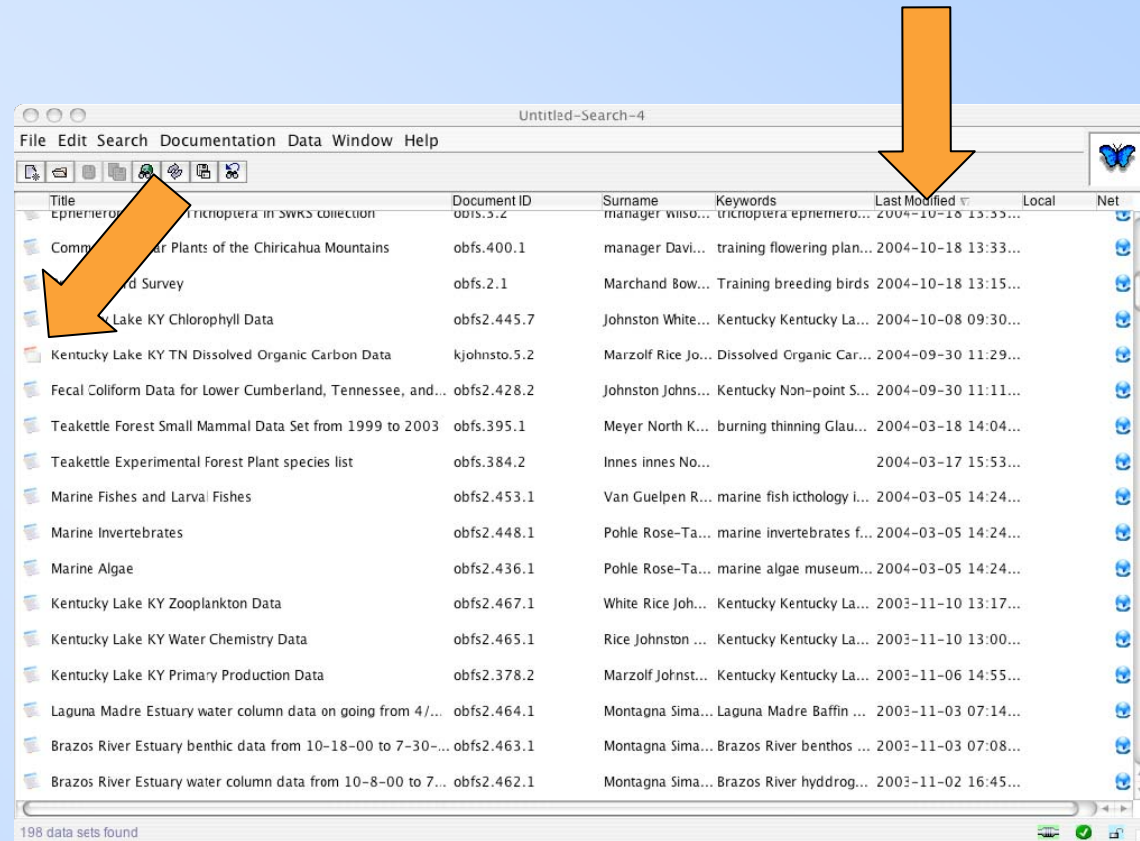




# Searching for data packages



- Data packages matching criteria are listed by last modification date
- Red icon indicates the package may include data along with the metadata
- Double click a package to open it







# Join in the Effort



- Morpho is an open collaboration to benefit the community
- Contributions, feedback and feature requests are welcome
- Most commonly requested features to be included in next major release are:
  - Save state during metadata entry so it can be done over several sessions
  - Import and export improvements
  - separate access rules for metadata and data



# Morpho Help

- The Morpho User Guide
- Metadata Coordinators
  - Callie Bowdish
  - Will Tyburczy
  - 805-892-2160
- <http://knb.ecoinformatics.org>
- [knb-help@nceas.ucsb.edu](mailto:knb-help@nceas.ucsb.edu)

