

Missouri's High Resolution National Hydrography Dataset (NHD)

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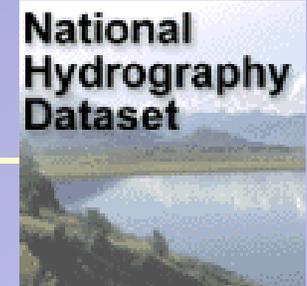
Aquatic Resource Coordinator, MoRAP

Missouri Resource Assessment Partnership



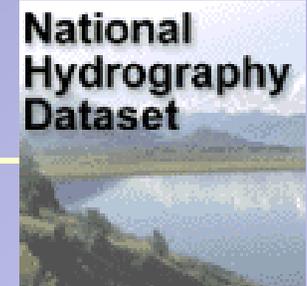
Presented at 2002 MAGIC Conference, Kansas City, MO

Outline



- **Project History**
- **NHD Production Process Explanation**
- **Missouri NHD Status**
- **Partnership Pros and Cons**

Project History

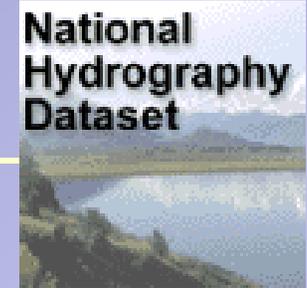


1995

Missouri Aquatic Resources Task Force identified creating 1:24,000 stream network as top priority

- **Reviewed existing network schemes (Wisconsin, Oregon, RF3, NHD)**
- **Developed own unique networking scheme**
 - **All manually digitized**
 - **Single attribute table**
 - **Included ecologically based attributes**

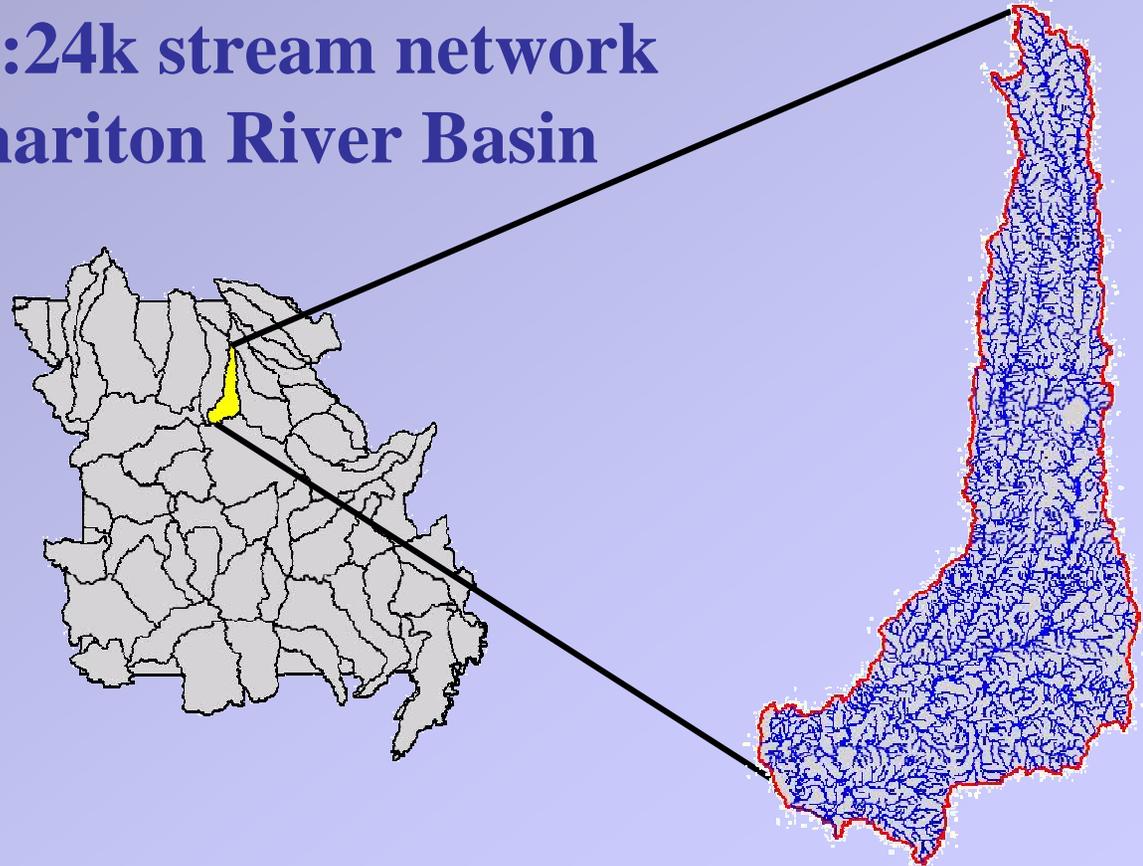
Project History



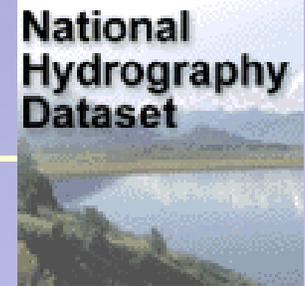
1997

MoRAP received funds from Missouri Agricultural Land Management Resources Institute (MALMRI)

- **Developed 1:24k stream network for Little Chariton River Basin**



Project History



1998

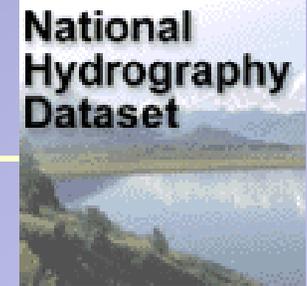
MoRAP received funds from Missouri Department of Conservation (MDC)

- **Developed 1:24k stream network for Meramec River Mainstem and Current River Mainstem**

MoRAP approached by USGS

- **Asked to switch 1:24k stream network production to newly developed High Resolution NHD**
- **MoRAP agreed**

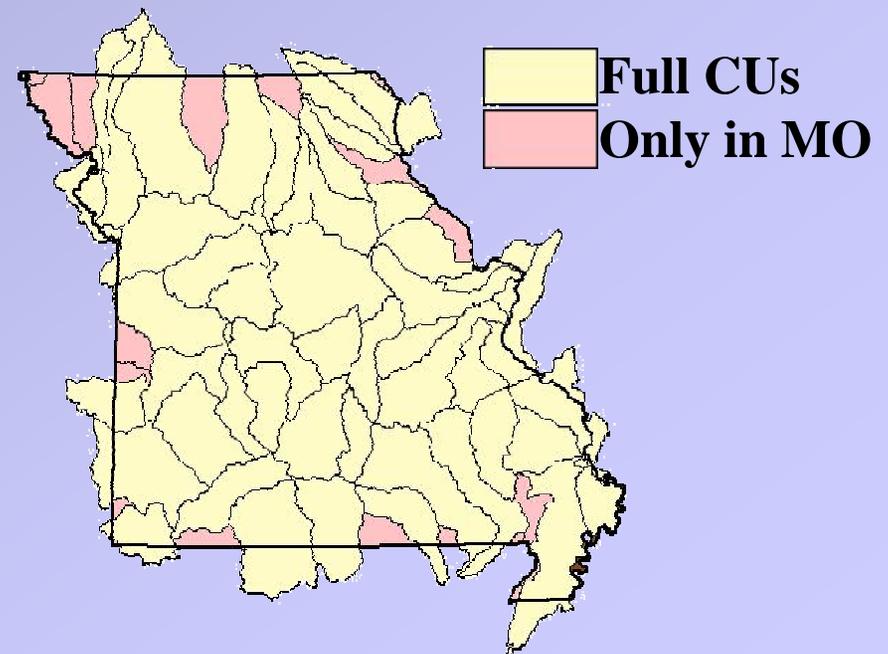
Project History



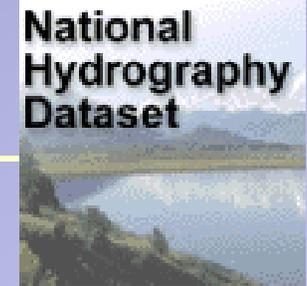
1999

MoRAP entered workshare agreement with USGS

- **USGS to provide all digital linework**
- **MoRAP must secure funding for project**
 - **Missouri Department of Conservation**
 - **U.S. Forest Service**
- **MoRAP to complete processing of 8 digit Catalog Units (CUs) within Missouri**
 - **50 full CUs**
 - **10 partial CUs**



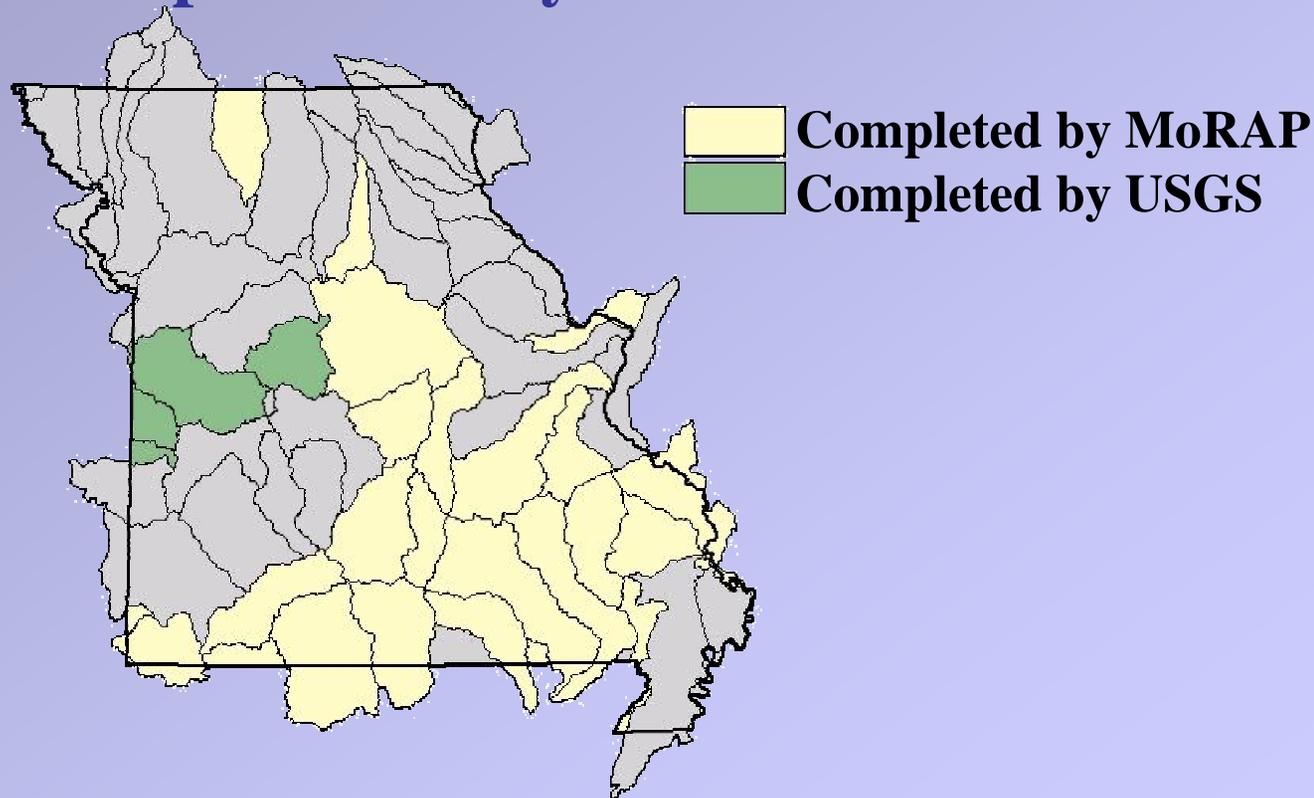
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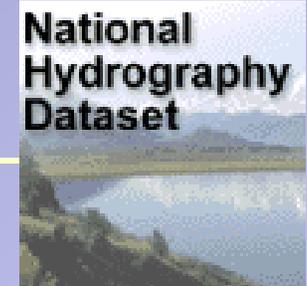
2000-2002

NHD production in progress

- 33 CUs processed at MoRAP
- 4 CUs processed by USGS



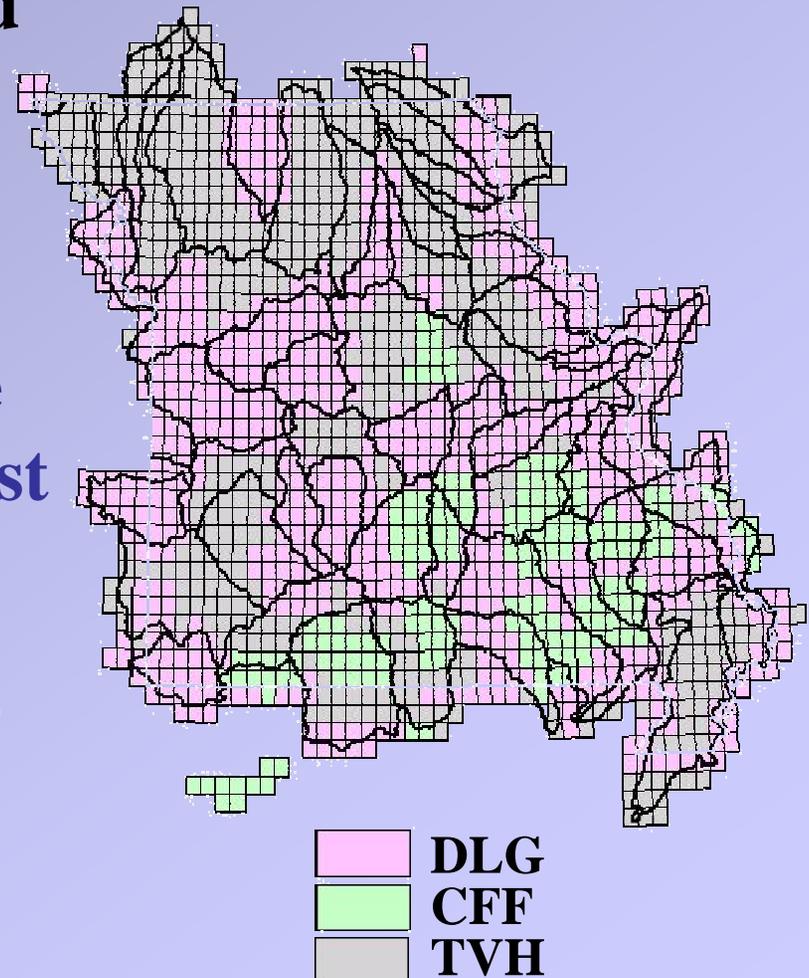
Project History



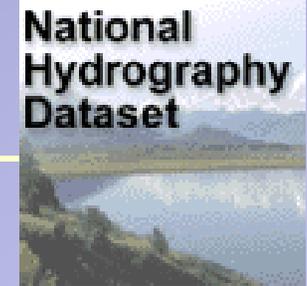
2000-2002

24k digital linework received

- 767 Digital Line Graph (DLG) quads from USGS
- 187 Cartographic Feature Files (CFF) from US Forest Service
- 739 Tagged Vector Hydro (TVH) quads from USGS

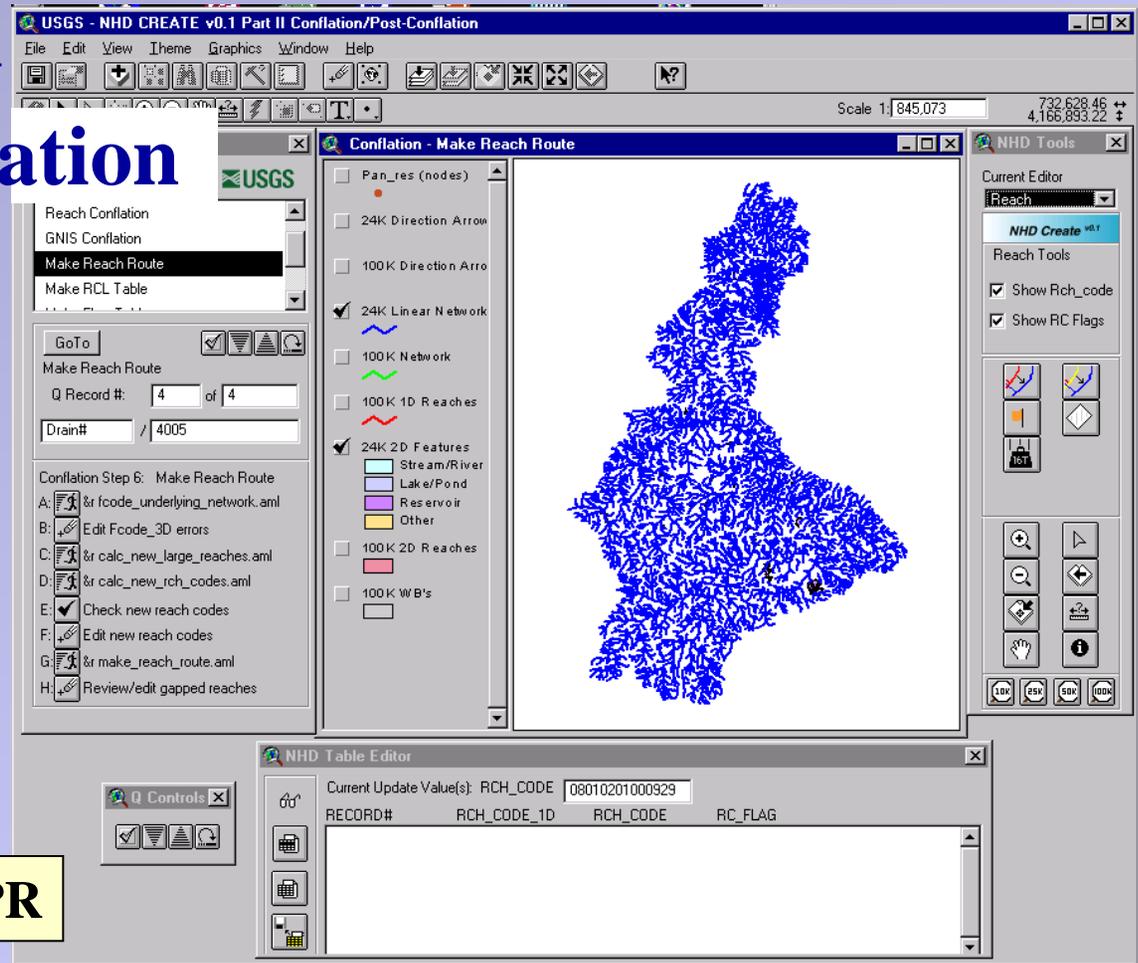


NHD Production Process



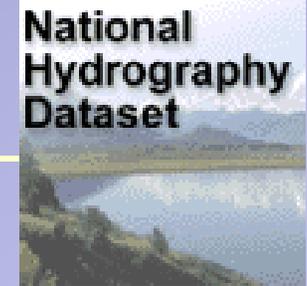
4 Step Process

- 1) Preconflation
- 2) Conflation
- 3) Post Conflation
- 4) QAQC



NHD_CREATE.APR

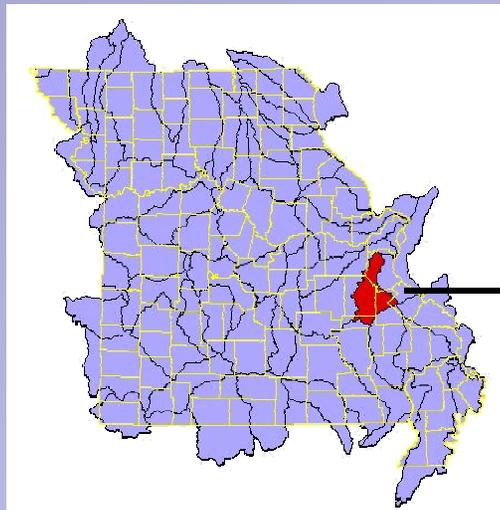
NHD Production Process



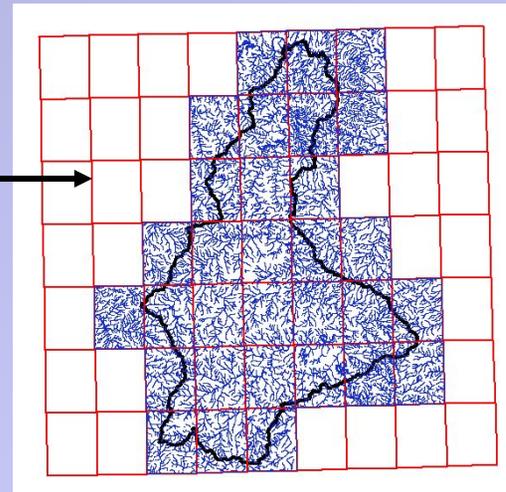
4 Step Process

1) Preconflation

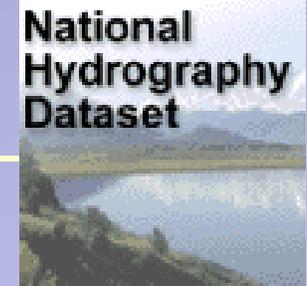
- All 24k quads of digital linework (**DLG**, **CFF**, or **TVH**) within a CU are gathered and paneled



Big River 07140104



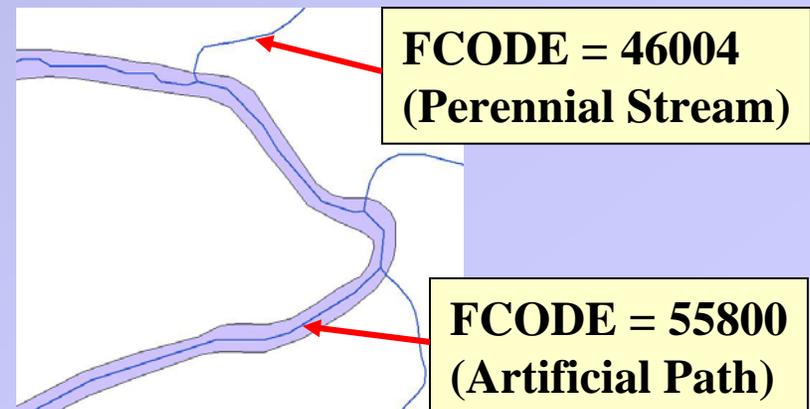
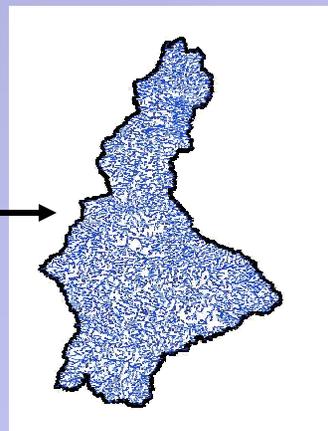
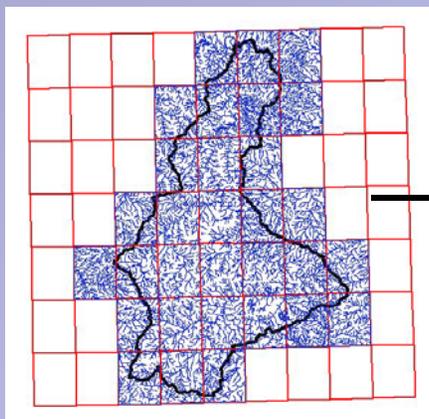
NHD Production Process



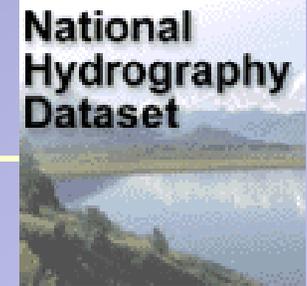
4 Step Process

1) Preconflation

- Paneled linework is clipped to the CU boundary
- All waterbodies are given centerlines
- All network lines are given a single descriptive feature code (**FCODE**) used to identify stream v. canal, lake v. river



NHD Production Process

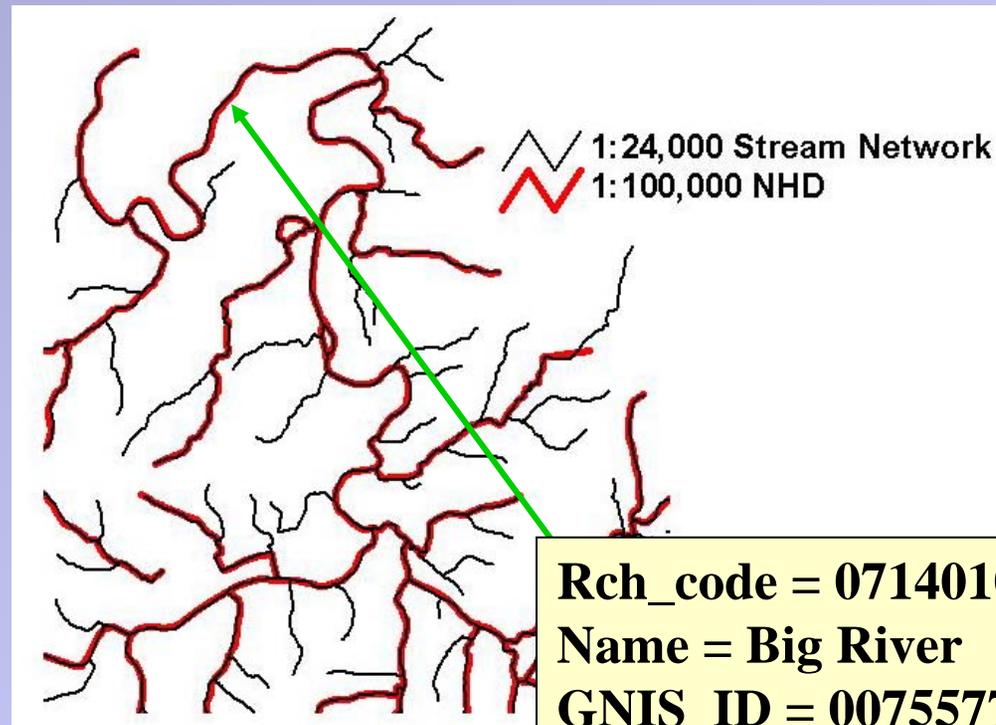


4 Step Process

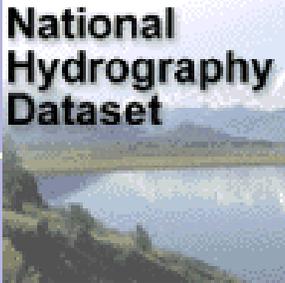
- 1) Preconflation
- 2) Conflation

- Attributes from the 100k scale NHD and 24k GNIS data are transferred to the 24k stream network

- Reach Code
- Name
- GNIS ID

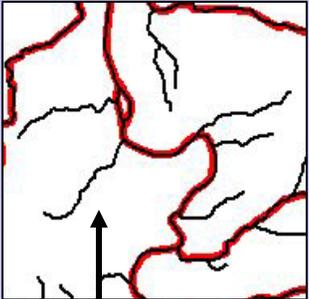


NHD Production Process



4 Step Process

- 1) Preconflation
- 2) Conflation
- 3) Post Conflation



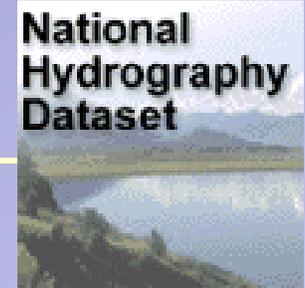
- All “new” streams are given reach codes, com_ids
- Flow table (**NHD.RFLOW**) is created

| Rel_com_id | Com_id_1 | Com_id_2 | Sequence | Direction | Dir_text | Delta_Ln |
|------------|----------|----------|----------|-----------|-------------|----------|
| 1 | 2294 | 2295 | 0 | 709 | In | 0 |
| 2 | 2295 | 0 | 0 | 713 | Network End | -9999 |
| 3 | 1146 | 2270 | 0 | 709 | In | 1 |

- Reach Cross Reference table (**NHD.RCL**) created

| Old_reachcode | Old_reachcode | New_reachcode | New_reachcode | Old_upm | New_upm | Chg_code | Process | Fl_ver |
|----------------|---------------|----------------|---------------|---------|---------|----------|---------|------------|
| 10280203000128 | 19970430 | 10280203001434 | 20010823 | | | PP | 100_24 | H001.00000 |
| 10280203000150 | 19970430 | | | | | D | 100_24 | H001.00000 |
| 10280203000575 | 19970430 | | | | | D | 100_24 | H001.00000 |
| 10280203000005 | 19970430 | 10280203002564 | 20010823 | | | 1P | 100_24 | H001.00000 |

NHD Production Process

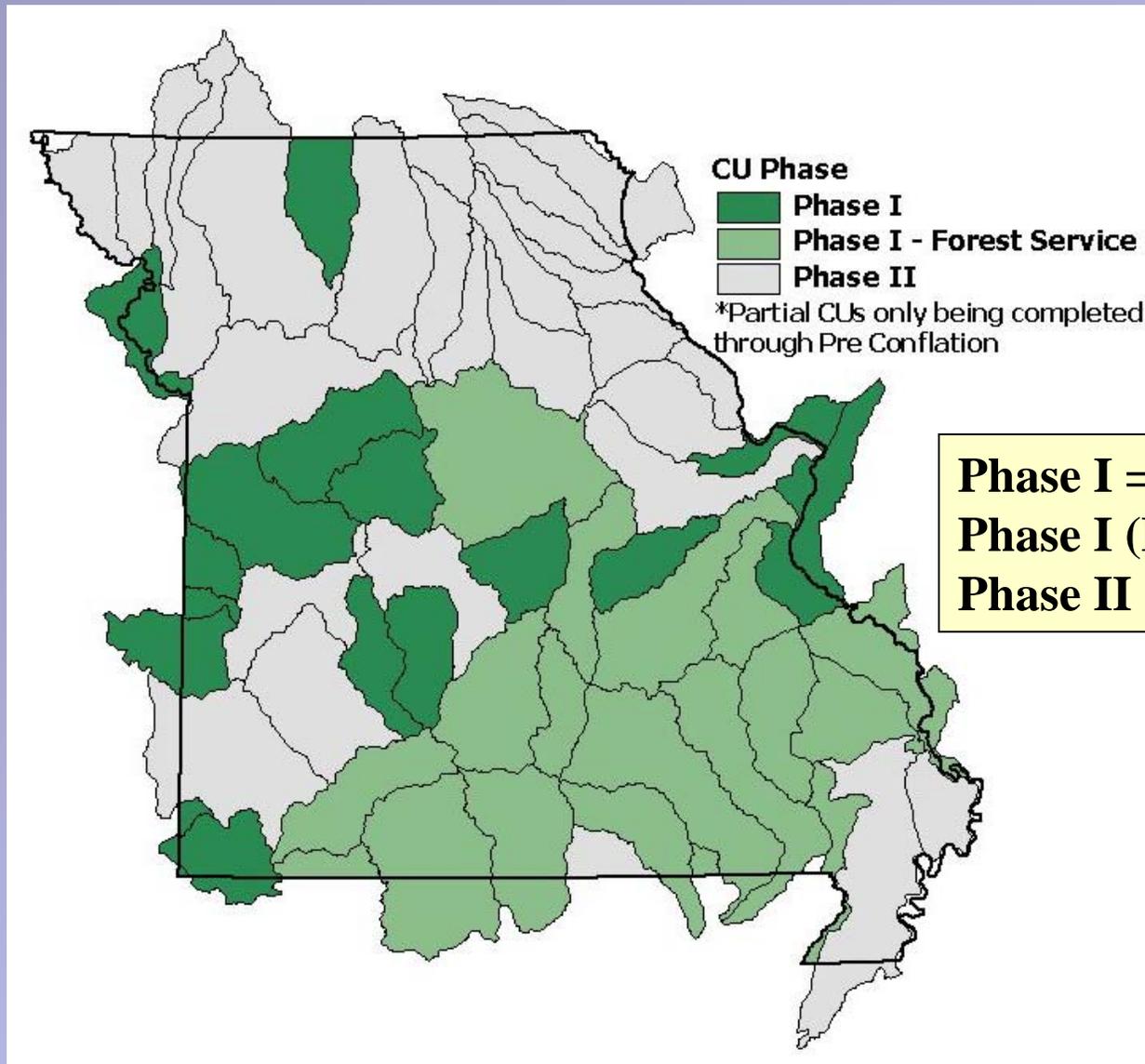
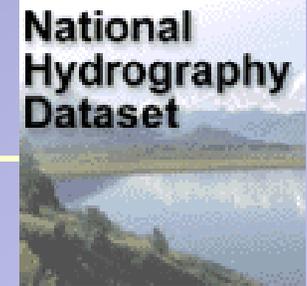


4 Step Process

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- Reaches are checked for proper composition
- Flow table is checked using NHD Toolkit
- RCL table checked to include all 24k and 100k reach codes
- Loaded into the Feature Object Database (**FOD**)

Missouri NHD Status



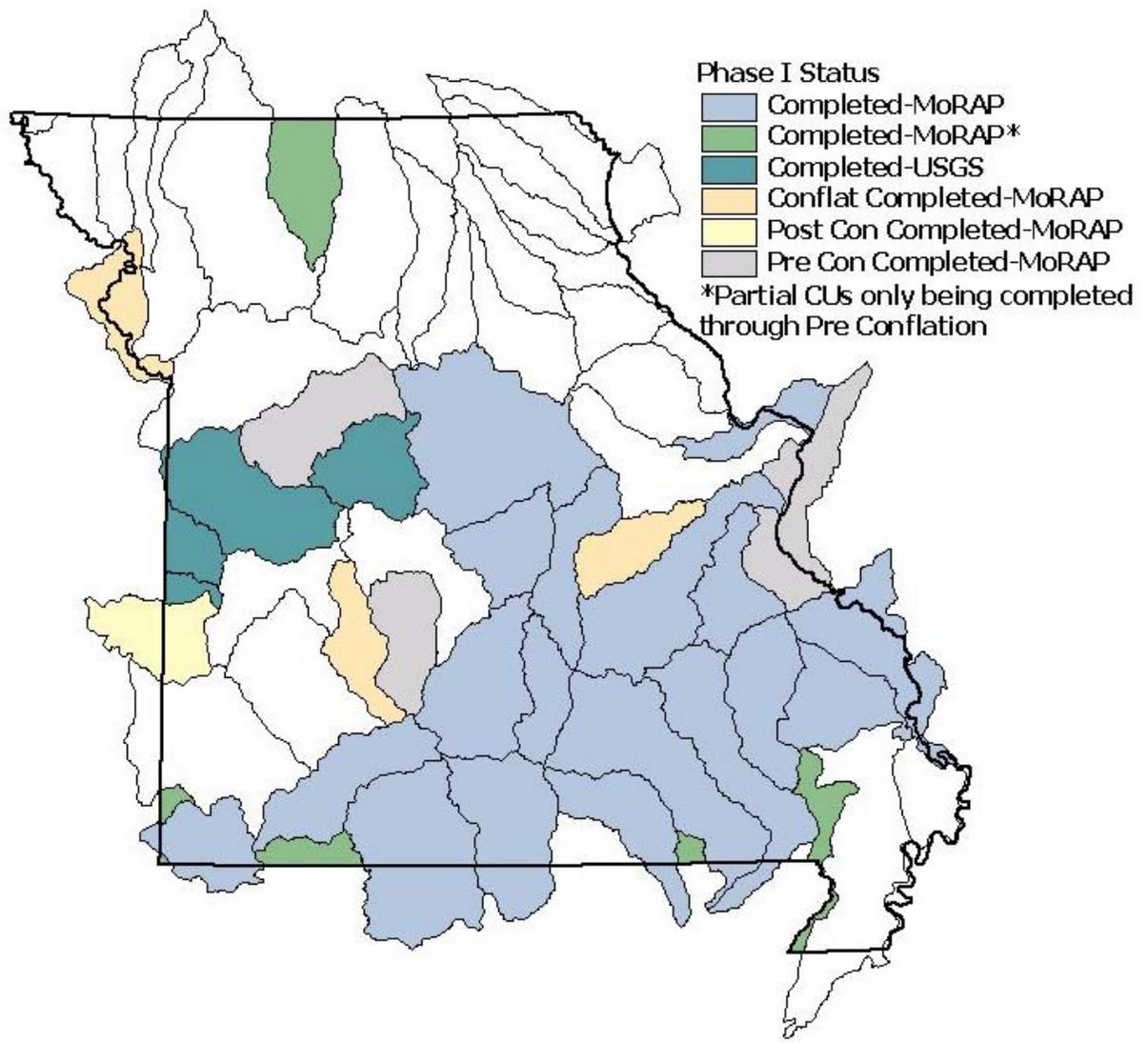
Phase I = 16 CUs
Phase I (Forest Service) = 18 CUs
Phase II = 26 CUs



National
Hydrography
Dataset

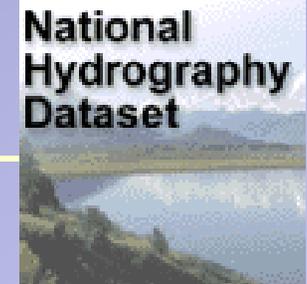


Missouri NHD Status



**Phase II CUs
currently
starting
production**

Partnership



Pros

- Benefit of expertise from many people/organizations
- Fosters relationships among organizations
- DLG availability
- End users creating the data
- Detailed understanding of HOW the data was created
- Refinement of data production process
- Testing of programs on UNIX platform
- Training availability

Cons

- Dependency on other organizations and time tables
- Information lags when updates are made
- Frustration with constant changes in procedures
- Different computer platforms
- TVH production problems

Patience
Flexibility
Sense of Humor

Thank You

USGS/Mid Continent Mapping Center

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