RAGBRAI

Day 2 2014

Monday, July 21

Learn About the Land

Lakes & streams

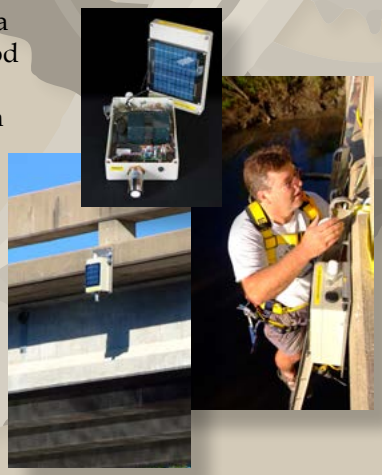
What's That on the Bridge?

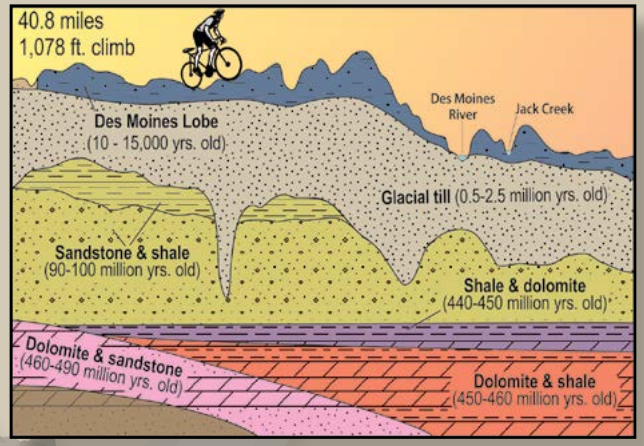
IFC

http://iowaflood center.org/

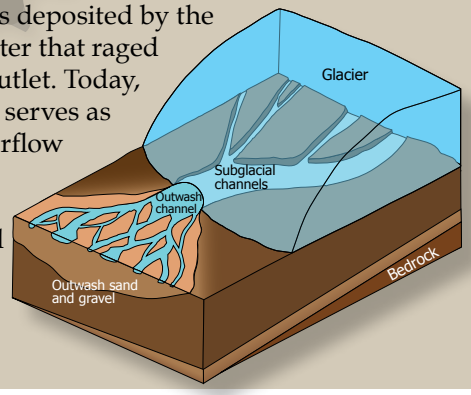
The Iowa Flood Center (**IFC**) is working with the Iowa DNR to inform Iowans about potential flooding by building and installing stream-stage sensors on bridges across the state. The IFC sensors are a system of electronics, modems, and antennas, all encased in weather-resistant aluminum and installed on the downstream side of bridges. Each sensor emits an electronic pulse to measure the distance to the water below and sends that data to a central database every 15 minutes. The IFC has built a total of about 250 sensors deployed statewide.

The IFC is the only academic flood center in the nation, and is based at the University of Iowa. Iowans can view real-time stream-stage sensor data on the Iowa Flood Information System (**IFIS**), a free online application. For more information about IFIS, see the article in Day 3.





Day 2 finds RAGBRAI in an area known as the "Iowa Great Lakes". The Okoboji area sits along the southwest edge of a former continental glacial ice sheet that surged into Iowa about 14,000 years ago. This ice sheet is known as the Des Moines Lobe because the City of Des Moines rests on top of the terminal moraine, marking its furthest advance. This ice surged and stagnated across the landscape several times resulting in the typical high-relief hummocky "knob and kettle terrain". The Altamont Moraine is evidence of one of these resurgent advances of debris rich ice. The disintegrating ice formed a maze of tunnels which funneled large volumes of glacial meltwater through an outlet channel known as the "Okoboji Outlet Channel" and later into the Little Sioux River valley. As you ride east out of Milford you will pass through the outlet channel and get a good view of a large exposure of sand and gravel that was deposited by the glacial meltwater that raged through this outlet. Today, this outlet still serves as a drainage overflow channel for a series of interconnected lakes in the area.



IOWA GEOLOGICAL SURVEY

IIHR Hydroscience & Engineering

USGS science for a changing world

IOWA LIMESTONE PRODUCERS ASSOCIATION
Your limestone resource since 1945!

DNR

Mapping the Nation's Wind Turbines

Windfarm Maps

http://eerscmap.usgs.gov/windfarm/

As you travel through northwest and north-central Iowa, you will notice many wind farms, putting Iowa in first place for per capita wind generated electricity and third place for total number of wind turbines. The USGS has recently undertaken a project to develop a methodology for assessing wind energy impacts on wildlife at a national scale. **Windfarm**, a product from the USGS Energy Resources Program, lets users visualize, inspect, interact, and download the most current wind turbine dataset through a simple web browser.

Limestone is used for:

- *Construction of buildings, homes, retaining walls, a home's foundation, driveway, sidewalks, patio and septic lateral system.*
- *Purifying the water we drink in your community's water system.*
- *Water erosion control*
- *Aggregate in asphalt, portland cement concrete and ready-mix. A base for paved roads, driveways and parking lots. Most "gravel" roads are actually limestone.*
- *Part of athletic tracks, bike paths, tennis courts, horse tracks, and baseball fields.*
- *Aglime, which neutralizes acidic soil on our farm fields, lawns, and golf courses. Calcium in feed for livestock.*
- *Manufacturing of roofing materials, caulking and glass.*
- *Settling our stomachs, as the main ingredient in Rolaids, Tums, and Mylanta. An additive in chewing gum.*
- *Limestone is the most used material extracted from beneath Iowa's top soil.*

Bathymetric Contour Maps

The USGS, in cooperation with the Iowa DNR have conducted bathymetric surveys (the study of depths and shapes of underwater terrain) on six lakes in Iowa, two of these are at Minnewashta and Upper Gar lakes in the Okoboji chain. The studies were conducted to provide the DNR with information for the development of total maximum daily load (TMDL) limits, particularly for estimating sediment load and deposition rates. The bathymetric surveys can provide a baseline for future work on these lakes. The bathymetric data were collected using a boat-mounted differential global positioning system, echo depth-sounding equipment, and computer software.

USGS Publications

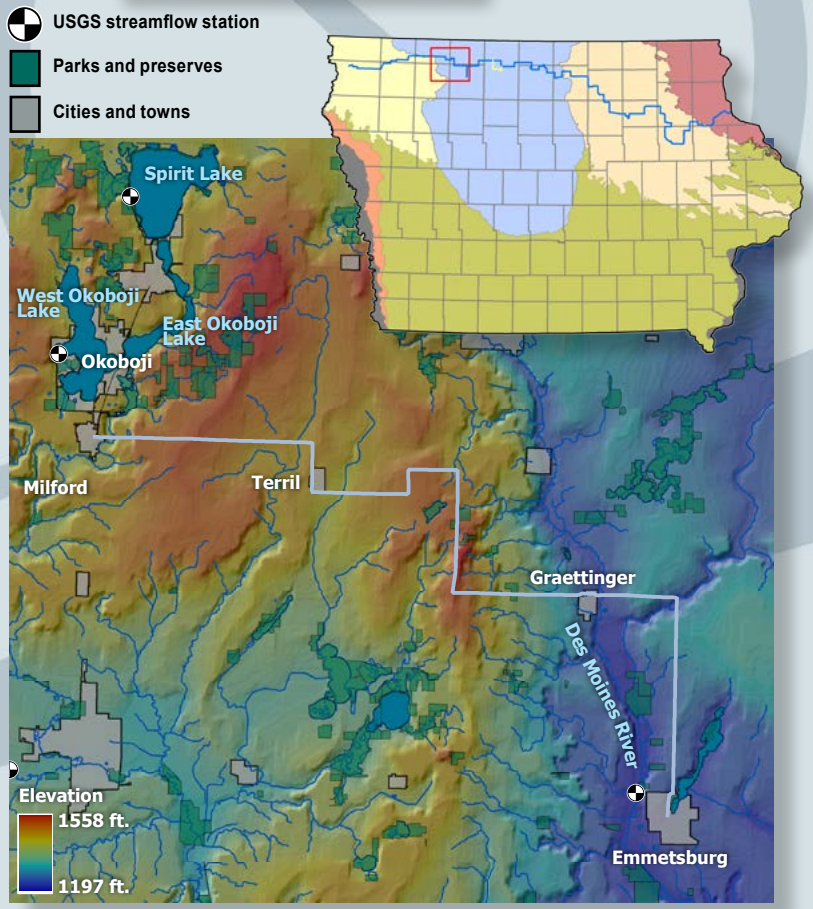
http://pubs.usgs.gov/sim/2006/2949/

Streamgaging for Everyone

The USGS has two streamgages in the Okoboji area – one on West Okoboji and one on Spirit Lake. These gages are especially important to those who fish the Okoboji chain of lakes as not only do they provide stage information, they are also instrumented to provide water temperature. This information helps fishermen on a daily basis as well as canoeists, whitewater rafters, and swimmers who want to know how high or low the water in a stream is (stage). Streamgage information is available to everyone via the internet.

West Okoboji

http://waterdata.usgs.gov/ia/nwis/uv?site_no=06604200

Spirit Lake

http://waterdata.usgs.gov/ia/nwis/uv?site_no=06604000