RAGBRAI Geo-pedia

10 Years of Iowa Beach Monitoring

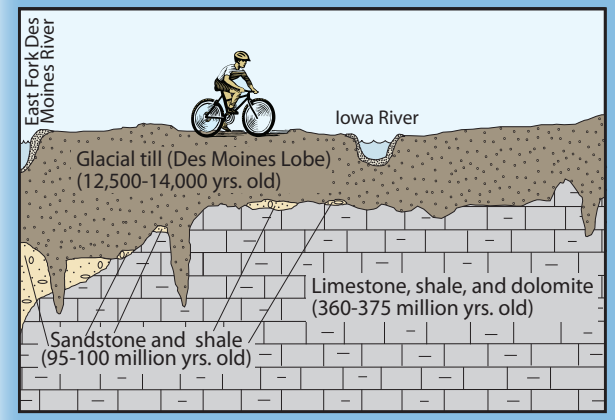
Last year (2009) marked the 10th anniversary of the Iowa DNR's Beach Monitoring Program. Although the program has experienced many modifications over the years, its ultimate goal remains to safeguard public health while striving to improve public understanding of bacterial impacts to recreational waters.

Iowa's state-owned beaches have experienced weekly fluctuations in E. *coli* bacterial concentrations throughout the past ten years, but overall, Iowa's bacterial water quality has been good. When all samples collected during Iowa's beach season (Memorial Day to Labor Day) from 2000-2009 are taken into account, beaches met or were below the one-time standard (235 organisms per 100 ml) for E. *coli* 89.7% of the time. Iowa beaches met or were below the geometric mean standard (126 organisms per 100 ml) for E. *coli* 92.0% of the time.

With improvements to monitoring and analysis techniques in the coming years, in conjunction with continued research and community outreach, the Iowa DNR Beach Monitoring Program will continue its mission to safeguard public health at beaches throughout the state into the next decade.

COVER PHOTO: *Clear Lake in the fall, as seen from a bird's-eye perspective (photo by Guy Zenner - Iowa* DNR).

Day 3 Milestones



Start: Algona
Algona Moraine (east edge): mile 11
West Fork Iowa River: mile 26
Eagle Lake Wetland Complex: mile 28
East Fork Iowa River: mile 33
Ventura Marsh: mile 54
End: Clear Lake: mile 63

For More Information...

on beach monitoring in Iowa, including the beaches that are monitored and the latest beach bacteria results, go to:
www.igsb.uiowa.edu/wqm/activities/beach/beach.htm

Iowa has one of the most active and extensive volunteer water monitoring networks in the nation. Volunteers have caught spills, characterized our surface water, and promoted a healthier environment. To learn more about becoming an IOWATER water monitoring volunteer, go to:
www.iowater.net

Wind energy is a growing resource, and Iowa is one of the nation's leaders in harnessing this 'green' energy. More information on wind energy can be found at:
www.iowawindenergy.org

Every year, Project AWARE sends hundreds of volunteers down a river for a week to pick up trash along its banks:
www.iowadnr.gov/volunteer/aware/index.html

RAGBRAI 2010

Learn about the Land

Tuesday, July 27

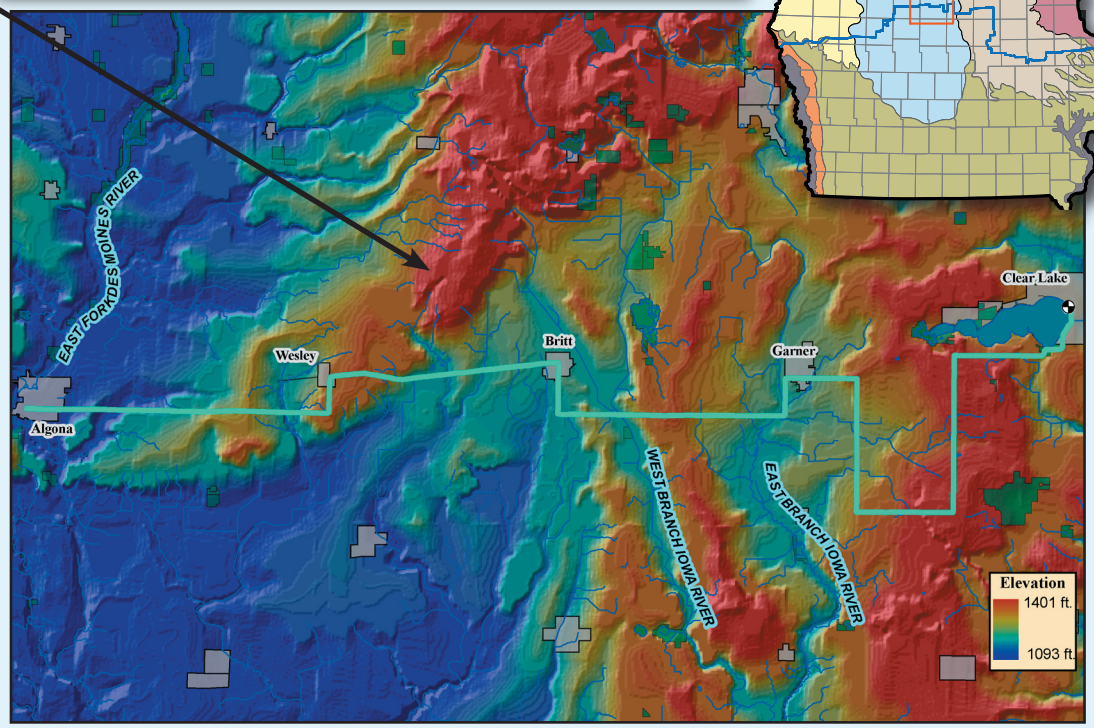
Day 3

Iowa DNR – Geological and Water Survey
109 Trowbridge Hall
Iowa City, IA 52242
www.igsb.uiowa.edu

US Geological Survey - IA Water Science Center
400 S. Clinton St.
Iowa City, IA 52240
http://ia.water.usgs.gov

Iowa Limestone Producers Association
5911 Meredith Dr.
Des Moines, IA 50322
www.limestone.org

Many of the region's natural lakes and wetlands owe their origin to the Des Moines Lobe glacier: Eagle Lake, Ventura Marsh and Clear Lake are good examples you'll see along the route. Today's ride provides ample opportunity to traverse the hummocky terrain of the **Altamont Moraine Complex** which formed in debris rich ice at the ice margin. Features of note are the cobble strewn conical mounds (kames) and winding ridges (eskers) which were formed as meltwater flowed into holes, tunnels and cracks on the melting glacier.

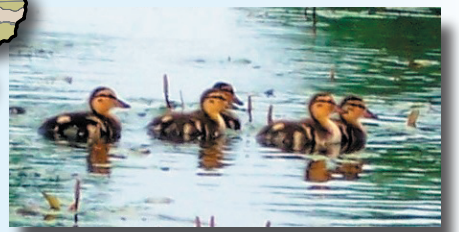


With its flat relief and open landscape, north-central Iowa is a perfect place to harness the natural energy of wind using **wind turbines**. Wind turbines have been around a long time; Dutch windmills and metal-frame farm windmills are two examples of this historic technology. Today most turbines, especially those in wind farms, would dwarf their ancestral cousins. Some of the tallest wind turbines have a height of 394 feet and a rotor diameter of 308 feet; compare that with the height of Iowa's State Capitol at 275.5 feet and the Statue of Liberty at 305 feet.

As the blades of a wind turbine rotate, a generator inside the turbine converts the motion of the blades from kinetic energy into electricity. Wind turbines for large-scale power generation can produce up to several megawatts and are usually grouped in large wind farms. Wind turbines used for individual homes and farms generally produce below 100 kilowatts. These smaller turbines are usually used in connection with batteries, photovoltaic cells, and generators to supplant wind energy when it's not windy. With proper maintenance, the expected lifetime of a wind turbine is 20 to 30 years.

Expect to see even more wind farms in Iowa over the coming years. Currently, with 3,670 megawatts, Iowa is ranked second in wind energy capacity, behind Texas and in front of California. If Iowa were an independent country, it would rank 9th in the world as of 2009. In 2009 Iowa produced slightly over 10% total wind capacity of the United States.

Before the City of Garner today you'll be biking next to the **Eagle Lake Wetland Complex**. Dedicated in 2007 as a Bird Conservation Area, Eagle Lake Wetlands are one of Iowa's largest and most important wetland complexes. Wetlands provide vital habitats for nesting and migratory birds, such as the Northern Harrier, Bobolink, Sedge Wren, and meadowlarks. Additionally, several species of marsh birds such as ducks (photo below), geese, and terns nest in the complex. At one time much of the landscape in this region looked similar to Eagle Lake; however, over a century ago the landscape was drained to make way for modern farming.



Clear Lake, one of Iowa's "Great Lakes" of glacial origin, offers many water-based recreational opportunities. To ensure that the public beaches at Clear Lake are safe for swimming, the State of Iowa has been monitoring the beaches at Clear Lake State Park and McIntosh Woods State Park since 2000. The Clear Lake city beach has been monitored since 2007. Bacteria results during that time indicate that Clear Lake State Park and McIntosh Woods State Park have been safe 83% and 95% of the weeks sampled, respectively, and Clear Lake city beach has been safe 92% of the time.

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