

DNR Waters: Highlights of 2007



Michele Hanson

The mission of Minnesota DNR's Division of Waters is "Helping People Ensure the Future of Our Water Resources". With four Regional offices, 30 area offices, and 125 total staff, the Division of Waters accomplishes our mission through managing our Core Program Areas, as described in this *Highlights of 2007* report:

- Public Waters Protection
- Water Supply Protection
- Technical Information for Decision-Making



Fiscal year 2008 funding

- General Fund—operating dollars: \$11,564,000
- One-time funding for fiscal year 2008-2009
 - High-capacity water appropriation—\$500,000
 - Clean Water Legacy—\$2,250,000
- Revenue (to General Fund)—primarily from water use fees—\$4,800,000
- LCCMR 2008—Springsheds \$270,000 (DNR's portion: \$125,000)
- LCCMR 2009—South-Central Ground Water Atlases: \$894,000

Organizational/Administrative

- Restructured and expanded management team to include unit supervisors
- Work force planning—developing managers' skills & annotating the law and rules

Bonding Program Funding—2008

- Dam Safety—\$2,000,000
- Flood Hazard Mitigation—\$33,900,000
- Observation wells—\$500,000

Public Waters Protection

Public Waters Protection includes programs related to floodplains and flood mitigation, shoreland management, outreach and education programs, and special area management plans

Floodplain Management Community Assistance

- Assisted communities in Browns Valley and southeastern Minnesota with damage estimations and flood-recovery efforts.
- Participated in the **Minnesota Recovers Task Force** for both floods.
- Provided/Conducted numerous training sessions on floodplain management administration (six 1-day sessions and one half-day session) and insurance
- Assisted approximately 40 communities with floodplain management ordinance updates.
- Held formal Community Assistance Visits with five communities, and contacted another 70 communities through mapping-related meetings or training. (two half-day sessions) for local officials.

Flood Hazard Mitigation Result

- Acquired and removed approximately 100 structures from the floodplain.
- Constructed approximately 15 farmstead ring dikes to protect residences, structures, and commodities.
- Administered bonding appropriations of \$52 million from fiscal years' 2005, 2006, and 2007 special sessions for a variety of flood damage reduction projects.

Flood Insurance Rate Map Modernization Project

- Facilitated map modernization scoping meetings in Benton, Stearns, Marshall, Mahnomon, and Norman counties.
- Held open houses in Lyon and Goodhue counties for preliminary Flood Insurance Rate Maps (FIRMs) and issued preliminary digital maps (DFIRMs) for Lyon, Goodhue and Washington counties.

Shoreland Management

- Planned and presented four Government Training Services classes on the alternative shoreland standards.

Mississippi River Critical Area Corridor Oversight

- Completed a legislatively-ordered study of management options for the Mississippi River Critical Area Corridor.
- Approved comprehensive plan amendments (CPAs) for Inver Grove Heights and Lilydale, and approved the critical area plan for Minneapolis.

Lower St. Croix National Recreational River

- Provided staff support to the Lower St. Croix Management Commission and the Lower St. Croix Partnership team.
- Reviewed numerous proposals and assisted communities in project area.



Larry Duke

Flooding in Bloomington, MN, after a thunderstorm in the summer of 1978.

**Public
Waters
Protection
...cont'd**

Upper Mississippi River Management and Coordination

- Completed the Pool 5 Spring Lake Habitat Rehabilitation and Enhancement Project (HREP), including constructing four islands, dredging the channel, and building two islands in Lost Lake using dredge material.
- Summarized in two reports: the monitored results from the 2001–2002 Pool 8 drawdown and the 2005–2006 Pool 5 drawdown.
- Established photo stations in Pools 3 and 6 in future drawdown areas to monitor improved aquatic habitat.

Project WET (Water Education for Teachers)

- Conducted 22 workshops throughout the state for 450 participating educators.
- Trained 18 new facilitators, bringing our facilitator total to 59, and benefited from approximately 3,000 volunteer hours.
- Provided learning opportunities for 2600 children at water festivals, 730 children at three natural resource fairs, and 185 children at 4-day camps.

Coastal Zone Management

- Since 1999, Minnesota's Lake Superior Coastal Program has awarded more than \$8.8 million to local coastal partners to preserve, protect, develop, restore, and enhance coastal resources. About 54 percent of the funding has gone to local units of government.
- In 2008, the Coastal Program received 31 grant applications; 15 projects were chosen for a total of \$559,215 for the Lake Superior coastal area. Grant projects will enhance land-use planning, improve trails, protect water resources, and provide education and outreach on coastal issues.

Great Lakes Compact

- Interstate Compact provides an enforceable mechanism to protect the Great Lakes from diversions.
- Minnesota was the first state to pass compact legislation, which was signed by Governor Pawlenty.



Michèle Hanson

**Water
Supply
Protection**

Water Supply Management programs ensure that appropriate sources of water are available for both current and future generations

Permits

- Assisted 700 stakeholders with permitting needs for new projects involving water appropriations and work in public waters.
- Continued electronic record retention, two-thirds of about 70,000 permits issued during the past 70 years have been scanned.
- Improved internet access to water appropriation permit data.
- Expedited approvals and permitting related to Hwy 35W bridge collapse.
- Held 5 public meetings regarding dock issues.

Water Supply Plans

- Worked with local government units to develop 10-year water supply plans for improved conservation and resource management.
- Approved 20 plans, including the first combination 10-year appropriation permit/water supply plan (City of Stillwater).

Water Use Reports

- Gathered 2006 water use data from nearly 7,000 permit holders and entered results into the online State Water Use Database Service (SWUDS).
- Published Water Year Data Summary 2005–2006, which reports the distribution and availability of Minnesota's water resources.
- Provided water use data and analyses, including historical use of the Mt. Simon aquifer in the Mankato area, water use efficiency at ethanol plants (working with MNTAP), and water appropriation data to Metropolitan Council for its metropolitan ground-water model.
- Water Use fees generated \$4,700,000 for the State General Fund.

Underground Gas Storage

- Hired new staff to guide the state's oversight of the gas storage facility.



Molly Shodeen

Technical Information for Decision-Making

Hydrologic Information for Decision-Making programs ensure that decisions on water resources prevent negative impacts on the environment, yet encourage healthy economic and community growth in Minnesota

Geographic Names

- Provided information and assistance concerning proposals to change the names of geographic features pursuant to M.S.84A.

Dam Safety

- Inspected all high-hazard dams and accelerated work with owners of high-hazard dams to update their emergency action plans.
- Assisted four communities with dam safety projects, issued 15 dam safety permits, and performed 130 inspections of dams.
- Administered \$232,000 in dam safety grants for dams owned by local governments.
- Obtained peer review and recommendations for Minnesota's dam safety program from the Association of State Dam Safety Officials.
- Conducted 30 special dam safety inspections following the 2007 flood in southeastern Minnesota.
- Responded to numerous requests for information on Minnesota dams after the I-35 bridge collapse.
- Low hazard dam inspections are being accelerated.

Dam Maintenance

- Provided maintenance on 21 of the 500 state-owned dams.

County Geologic Atlases and Regional Hydrogeologic Assessments

- Provided training to local government staffs in Pope County on how to use the Pope County Geologic Atlas, Part B.
- Finished the Crow Wing County Geologic Atlas, Part B, and continued work on the Traverse-Grant Regional Hydrogeologic Assessment, Part B, and the Todd County Geologic Atlas, Part B.
- Assisted the Minnesota Geological Survey in obtaining acceleration funding from the Legislative-Citizen Commission on Minnesota Resources (LCCMR) for FY08-09 to start work on two additional Part A atlases.

Lake Level Monitoring

- Installed, surveyed, and read 1,020 lake level gages.
- Compiled 20,000 readings of lake levels submitted by more than 800 volunteer gage readers who contributed more than 6,200 hours of service.

Ground-Water Level Monitoring

- Collected data on ground-water levels from 748 monitoring wells and compiled data related to the 118 water appropriation permits that have monitoring requirements.
- Administered agreements with 72 soil and water conservation districts for reading ground-water levels in monitoring wells.
- Participated in a state and federal agency effort to implement nearly simultaneous water-level measurements in approximately 250 metro area wells (spring and late summer 2008).
- Began a systematic assessment of the physical condition and water-level measurement history of all ground-water level monitoring wells, including 250 wells in 18 of Minnesota's counties to date.
- Began to define the additional needs for the ground-water monitoring network to a density adequate to evaluate ground-water sustainability.

Surveying

- Completed 58 survey reports involving more than 60 lakes.
- Provided testimony in a judicial hearing about Little Lake in Nicollet County.
- Prepared a formal report of the ordinary high-water level for Rabbit Lake, Crow Wing County.
- Answered numerous phone requests for lake information.

Climatology

- Provided comprehensive analyses of drought conditions and the historic precipitation that led to the 2007 flood in southeastern Minnesota.
- Developed new analytical tools for LCCMR climate change projects.
- Enhanced data gathering, data analysis, and tools to provide data on the web.

Stream-Flow Monitoring

- Monitored stream flows and stage at approximately 90 locations across the state under cooperative arrangements with other state agencies and watershed organizations.
- Provided low-flow information during drought conditions, and high-flow information during the 2007 flood in southeastern Minnesota.
- Established and upgraded stream gages and created a cooperative stream information web site with the Minnesota Pollution Control Agency (PCA).

Flood-Warning System

- Maintained and operated 38 flood-warning gages.
- Conducted flow measurements during high-flow conditions in southeastern Minnesota for flood forecasting, which provided real-time rainfall data and warnings of river stages and flows to the National Weather Service and affected communities.



Ground-Water Technical Studies

- Reviewed 34 municipal water supply plans for sustainability issues and monitoring needs.
- Analyzed data from 18 aquifer tests that were conducted to evaluate ground-water availability for proposed appropriations.
- Analyzed high-capacity ground-water withdrawals and evaluated ground-water monitoring where new, large appropriations are being planned.
- Completed a study of lake and ground-water interaction in Crow Wing County with the Thirty Lakes Watershed District.
- Completed seismic refraction surveys in McLeod County to support development of depth to bedrock and bedrock topography maps for a geologic atlas by the Minnesota Geological Survey.

Mining Hydrology–Environmental Review

- Completed work on environmental impact statements (EISs) for taconite mining projects proposed by Mittal Steel and Minnesota Steel.
- Started work on EISs for proposed taconite mining projects by Keewatin Taconite and Steel Dynamic/Mesabi Nugget.
- Continued work on an EIS for the proposed PolyMet copper/nickel mining project.

Surface-Water Technical Studies

- Provided technical analysis for the Canisteo Mine Pit project, the Crow Wing County Geologic Atlas, and two research projects for the DNR Division of Fish and Wildlife.
- Conducted hydrologic and hydraulic analyses of Pelican Lake and Side Lake outlets.
- Completed comprehensive analyses of dam failure scenarios at Pelican Rapids, New London, and southeast of Windom.
- Completed watershed delineations for the multi-year Lake Watershed Delineation Project.
- Provided enhanced data and watershed-related assistance to numerous partners, including the University of Minnesota, Natural Resources Research Institute, and state and federal resource agencies.

Information Management

- Completed statewide delineations of watersheds for lakes over 100 acres.
- Provided real-time web access to streamflow information via the DNR/PCA Cooperative Stream Gaging web page.
- Continued work on a new GIS data layer for public waters basins and watercourses.
- Conducted a GIS user survey of DNR Waters employees to define software and training needs.

Outreach

- Partnered with PCA to conduct a training workshop for ethanol producers and consultants.
- Made a presentation to the Crow Wing County Board on the relationship between lakes and ground water.
- Made a presentation on hydrogeology at the Minnesota Ground Water Conference.
- Prepared several new brochures for distribution and the website covering topics such as docks, vegetation buffer strips, and boat storage structures.
- Participated in the Minnesota Lake, Home, and Cabin Show and the annual meetings of the Minnesota Association of Soil and Water Conservation Districts, Minnesota Association of Watershed Districts, Minnesota Rural Water Association & Minnesota Association of State Floodplain Managers.
- Produced information sheets and 10 brochures on zoning, shoreland management, and bluff protection for the 12 public meetings of the shoreland rules effort and for assistance to local governments across southern Minnesota.



Publications for 2007

Crow Wing County Geologic Atlas and Regional Hydrogeologic Assessment

- Finished the Crow Wing County Geologic Atlas, Part B

2005–2006 Water Year Report

- Printed copies for circulation and libraries
- Posted final report on Waters website

Mississippi River Critical Area Report

- Printed copies for legislative committees, libraries, and individuals
- Posted final report on Waters website

Water Facts

- 11,842 lakes
- 90,000 miles of streams
- 9.2 million acres of wetlands

Local Units of Government Served

- 447 cities
- 87 counties



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