

DNR Waters: Highlights of CY 2009



Pat Collins

This document is made available electronically by the Minnesota Legislative Reference Library as part of an ongoing digital archiving project. <http://www.leg.state.mn.us/lrl/lrl.asp>

The mission of Minnesota DNR's Division of Waters is "Helping People Ensure the Future of Our Water Resources." With 4 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 2009* report:

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

www.mndnr.gov/waters

New Fiscal Year 2010 Funding

- **Bonding**—Flood Hazard Mitigation: \$53,800,000
- **LCCMR**—SE MN Springshed mapping – \$250,000
- **LCCMR**—County Geologic Atlas and South-Central Minnesota Groundwater: \$1,875,000 for 3 years
- **Clean Water Fund**—Accelerate County Geologic Atlas mapping through 2014: \$1,000,000
- **Clean Water Fund**—Mississippi River Critical Area Corridor rules: \$250,000
- **Clean Water Fund**—TMDL assessments, monitoring and plans: \$2,734,000
- **Clean Water Fund**—Aquifer protection and planning: \$1,125,000

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 Red River Valley with flood recovery efforts and damage estimations.
- Participated in the Minnesota Recovers Task Force for 2009 and earlier floods.
- Provided 7 training sessions on floodplain management administration and insurance for local officials.
- Assisted over 100 communities with updating their floodplain management ordinances or enrolling in the National Flood Insurance Program.
- Held formal community assistance visits with Duluth, Little Falls, Waterville & Fridley and contacted over 50 additional communities through mapping-related meetings or trainings.

Flood Hazard Mitigation—Results of funding:

- Acquired and removed over 150 structures from the floodplain.
- Provided grants for the construction of 44 farmstead ring dikes to protect residences, structures, and commodities.
- Administered bonding appropriations of \$115 million from fiscal years 2006, 2007 special session, 2008, and 2009 for a variety of flood damage reduction projects.

Flood Insurance Rate Map Modernization Project

- Assisted in the review of preliminary maps for Todd, Rice, Benton, Clay, Steele, Stearns, Blue Earth, and Sherburne counties.
- Facilitated map modernization open houses in Todd, Rice, Clay, Benton, and Steele counties.
- Secured grant funding thru FEMA's mapping partnership program for assistance to Polk, Norman, and Mahnommen counties.
- Assisted with scoping meetings in Kittson and Wilkin counties to develop updated floodplain maps.

Shoreland Management

- Five advisory committees involved with the shoreland rulemaking project completed their work.
- Three agricultural forums held to address agricultural practices in shoreland areas.
- Developed draft rules, SONAR, and supporting documentation for DNR review and approval.
- Completed "Our Water Our Choices" workshops in 5 counties in southern MN. Workshops are designed to engage local government units and citizens in protecting and restoring our irreplaceable water resources.

Mississippi River Critical Area Corridor (MRCAC)

- Coordinated with the Metropolitan Council in the review of local MRCAC plans revised as part of the Council's required 2030 comprehensive plan updates.
- Initiated rulemaking for the MRCAC as directed by the 2009 Minnesota Legislature.

Outreach

- Provided information on public waters protection and revisions of MN Rules chapter 6115 for regulating structures in Public Waters via the Minneapolis Boat Show, Home and Cabin Show, Minnesota State Fair, newspapers, a listserve, a dedicated email address, our website, radio, and public meetings.



Public Waters Protection ...cont'd

Wild and Scenic Rivers

- Integrated the statewide standards and criteria for state-designated Wild and Scenic Rivers with proposed shoreland standards as part of the Shoreland Rules Update to ease administration for local governments that administer both programs.

Lower St. Croix National Recreational River

- As a member of the Lower St. Croix Management Commission, developed and hosted 4 workshops to help communities better understand their role and options in protecting the St. Croix's scenic and natural values. Workshops attended by over 250 appointed and elected officials and staff from municipalities along both sides of the river, as well as numerous property owners, government agencies, and interest groups.

Upper Mississippi River Management and Coordination

- Issued major permits to the USACE for Lock & Dam 3 embankment and safety improvements and a General Permit for dredged materials placement.
- Pool 8 Islands Habitat Rehabilitation and Enhancement Project (HREP) - completed Phase II, Stage 2b.
- Small-scale backwater dredging projects designed for Pools 3 to 9.
- Major role in multi-stakeholder Mississippi Makeover and Lake Pepin TMDL projects.
- Chaired Recreation & Technical Section of the Upper Mississippi River Conservation Committee.
- Lock & Dam 4 embankment project completed and inspected.

Project WET (Water Education for Teachers)

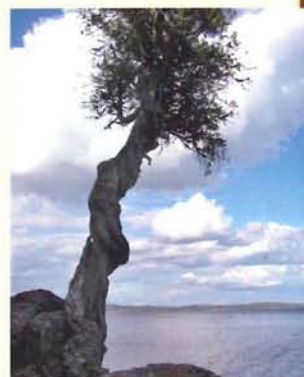
- Conducted 18 workshops throughout the state for 491 participating educators.
- Maintained volunteer facilitator network and benefited from approximately 1889 volunteer hours.
- Provided learning opportunities for 2680 children at water festivals and natural resource fairs.

Coastal Zone Management

- In its first 10 years, Minnesota's Lake Superior Coastal Program has brought more than \$12.2 million in federal funding to the area. Nearly \$9 million of that has been awarded in grants for more than 350 projects along Minnesota's Lake Superior coast and in the watershed.
- In FY 2009, grantees completed 36 projects including preparing the nomination of two shipwrecks to the National Historic Registry; acquiring land for the St. Louis Trail in Carlton county; constructing an accessible trail at the Temperance River State Park wayside; and digitally mapping 13,500 parcels within the City of Duluth.
- Staff organized and coordinated a total of 18 educational field trips for over 350 high school students in conjunction with the 2009 Lake Superior Youth Symposium.
- Minnesota's Lake Superior Coastal Program produced "Stories from the Coast: The First Ten Years of Minnesota's Lake Superior Coastal Program" - 1999-2009" to document the impact of the program.

Permits

- Drafted rule revisions for MN Rules chapter 6115 for regulating structures in Public Waters.
- Continued the electronic record retention of issued permits and have scanned approximately 85% of more than 74,000 permits issued during the past 70+ years.
- Assisted more than 700 stakeholders with permitting needs for projects involving water appropriations and work in public waters.
- Issued over 50 orders to restore public waters.



Water Supply Management

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

Water Supply and Planning

- Approved 34 Public Water Supply plans, including 8 with 10-year permit/approvals.
- Approved water conservation rate structures for 37 communities.
- Revised *State Drought Plan* to be more relevant to watershed conditions.

Water Use Management

- Updated the online State Water Use Database Service (SWUDS) with year 2008 water use data from nearly 7,000 water appropriation permit holders.
- Resolved 4 well interference complaints.
- Water use fees generated nearly \$5M for the State General Fund.

Great Lakes Compact

- Minnesota and Ontario co-chaired an initiative that developed protocols for annual reporting of water use information to a regional database. This committee also developed guidance for providing baseline information on existing water users and water management program descriptions, which Minnesota submitted to the Compact Council on December 8, 2009.

Outreach

- Joined with local governments, state and federal agencies, and interested parties in the Bonanza Valley & Buffalo Aquifer areas to discuss water supply problems and to develop action plans.
- Worked with the Metropolitan Council on the development of the *Master Water Supply Plan* for the Twin Cities Metro Area.
- Collaborated with the University of Minnesota Water Resources Center and the Freshwater Society as well as other organizations on a workshop on "Groundwater Sustainability: Towards a Common Understanding."
- Responded to approximately 350 inquiries regarding implementation of the water conservation rate law; gave 3 presentations to explain conservation rate structure requirements.

Sustainability

- Completed report to the legislature on monitoring needs for the 11 county Metro Area.
- Convened a Ground Water Technical Work Group comprised of state, federal, and private sector experts to look at priority data needs.
- Participated on an interagency team to coordinate ground water protection and monitoring efforts.



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

Dam Safety

- Inspected all state-regulated high-hazard dams and conducted Emergency Action Plan training for owners of high-hazard dams (in conjunction with FERC).
- Assisted 3 communities with dam safety projects, issued 21 dam safety permits, and inspected approximately 200 of the 800 dams.
- Administered \$270,000 in dam safety grants for dams owned by local governments.
- Oversaw completion of design plans for the New London Dam.
- Conducted dam safety inspections of three fly ash storage dams in response to the Tennessee fly ash dam failure.
- Inspected 25 taconite tailings basins and reviewed EIS documents regarding the Polymet, Keetac, and Mesabi Nugget projects.
- City of Dawson and City of Jackson Dam Removal and River Restoration Projects; restored fish passage to the Des Moines and Lac Que Parle Rivers and eliminated 2 low head dam/dams' drowning machines.

Dam Maintenance

- Provided maintenance on 25 of the 500 state-owned dams, such as replacing stop logs. —→

Ground Water and Surface Water Technical Studies

- Conducted hydrologic and hydraulic analyses of Okabena, Trout, and Turtle Lake water budgets, Mud-Goose Lake Outlet, and Lake Bronson dam.
- Completed 2 case studies on culvert sizing for Dobbins Creek and utilized the results to analyze other best management practices in support of the drainage code revisions.
- Began work on Gridded Surface Subsurface Hydrologic Analysis models for the Straight River TMDL and also for the Shakopee Creek watershed analysis as part of the *Minnesota River Integrated Watershed Study*.
- Updated DNR catchment drainage area delineations for Crow Wing county using new LIDAR-based topographic information.
- Completed an additional 500 DNR Catchment delineations.
- Published 4 new DNR watershed datasets and supporting Metadata for internal employee and public consumption.
- Provided enhanced data and watershed-related assistance to numerous partners, including DNR Fish and Wildlife, U.S. Fish and Wildlife Service, and other state, federal and local resource agencies.
- Conducted 10 fluorescent dye traces for spring source determination in SE MN trout streams; collected temperature and conductivity data from a network of 20 springs in SE Minnesota.
- Completed seismic refraction surveys in Sibley County to support development of depth to bedrock and bedrock topography maps for geologic atlases by the Minnesota Geologic Survey.
- Completed 1 resistivity imaging survey in Chisago County to better define surface sand thickness for use in the geologic atlas.
- Continued work on the Todd County Geologic Atlas, Part B report and began work on the Carlton County Geologic Atlas, Part B.



Surveying

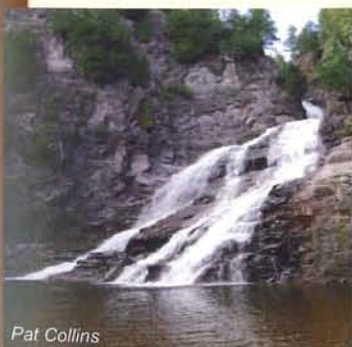
- Completed 76 survey requests for OHWL determinations, assumed datum ties, observation well ties and topographic surveys.
- Completed 8 survey-related drawings.
- Presented at the 2009 MN/DOT technical conference in St. Cloud on *Ordinary High Water Level Determinations*.
- Developed web-based interface to retrieve summaries of Ordinary High Water Level reports for each county.

Lake Level Monitoring

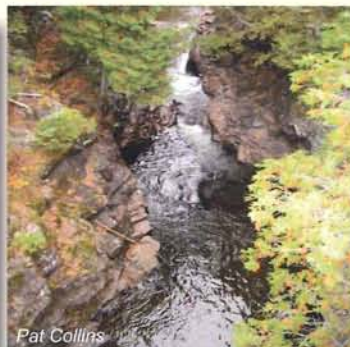
- Installed, surveyed, and read 1000 lake level gages.
- Compiled over 20,000 readings of lake levels submitted by more than 800 volunteer gage readers and local unit of government partners, who contributed more than 6500 hours of service.
- Responded to over 1000 requests from staff, public, LGUs, media, etc. for information, data sets, customized reports and graphs, analyses, historic lake and dam information, and information contained in the lake database and lake files.
- Partnered with PCA on the collection and exchange of annual ice-in and ice-out information from our respective volunteers.

Climatology

- Developed a monthly *Hydrologic Conditions Report* summarizing on a monthly basis the condition of the state's climate, lakes, rivers and ground water.
- Managed ongoing climate monitoring program involving nearly 1500 volunteer observers and other climate data resources.
- Provided comprehensive climate analyses of 2009 drought and spring flooding conditions.
- Extensive analyses and preparation of high-spatial-detail, long-term precipitation data sets in support of the National Weather Service - Midwest Precipitation Frequency and Duration Assessment update project.
- Climate change adaptation activities including: active participation in committees, conferences, briefings involving the topic; acquisition of global climate model output files for use in adaptation studies.



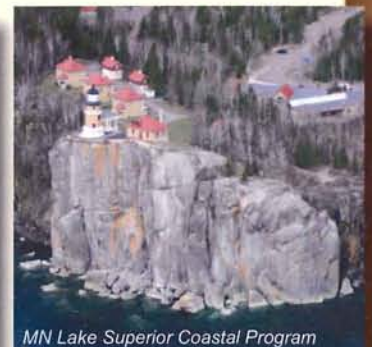
Pat Collins



Pat Collins



Pat Collins



MN Lake Superior Coastal Program

Ground Water Level Monitoring

- Collected data on ground water levels from 738 monitoring wells.
- Continued assessment of the physical condition of all past and present ground water level monitoring wells. This year 215 actively measured wells and approximately 190 inactive (no longer measured) wells have been visited in 15 counties. The assessment is complete in 51 counties.
- Completed development of a new obwell database. System is easier to use, provides more information to the data collection partners, and makes management of the data faster and more efficient.
- Replaced 5 monitoring wells, abandoned 5 monitoring wells and repaired 5 monitoring wells.
- Drilled and sampled 18 Mt. Simon wells and 21 shallower wells to create 18 Mt. Simon aquifer monitoring well nests in south-central Minnesota and in the metro area.

Mining Hydrology-Environmental Review

- Draft EISs issued for PolMet Mining - Proposed Copper/Nickel Mine and the Keewatin Taconite Expansion.
- Continued EIS work for the proposed Mesabi Nugget Phase II/Taconite mine.
- Provided technical assistance for the Canisteo Pit Outlet Project and the longterm watershed reclamation for Northshore Mining.
- Started work on an EAW for Cooperative Mineral Resources proposed Manganese Mine.
- Completed work with all mining companies that could be affected by the Great Lakes St. Lawrence River Basin Water Resources Compact.
- Started working with 2 mining companies on the Initial Phases of Pre-EIS work for possible future Copper/Nickel mining projects.
- Started work on a supplemental EIS for Essar Steel Minnesota proposed expansion of Thess Taconite Mine.
- Monitor the water use and water levels and flows as required in water appropriation permits issued to mining companies.

Underground Gas Storage

- Monitored storage of up to 7 billion cubic feet of natural gas stored underground near Waterville.
- Continued to modernize data collection and monitoring of the gas storage facility.
- Expanded a program to monitor dissolved gasses in water above the storage zone.
- Began to create a detailed geologic atlas of the Waterville area, made possible by wells and borings completed for the gas storage project.

Information Management

- LAKESDB, the department's official data base for lake information, was upgraded and improved to make information more accessible and to make the data base more user friendly. It now incorporates several different ways to locate lakes of interest; it contains basic lake information and historical water level data; it incorporates links to many other data sources, and allows the creation of water level hydrographs to get a graphical representation of water levels over time.

Stream Flow Monitoring

- Installed 8 new, year-round, real-time satellite telemetry stations. Five sites are located in priority watersheds to support the *Clean Water Legacy Amendment*.
- Increased stream flow monitoring sites to 187 locations under cooperative arrangements with other state agencies and watershed organizations.
- Installed 5 soil temperature probes at five DNR real-time satellite telemetry stream gaging sites across the state in cooperation with the Department of Agriculture. Data from these sites will help farmers in timing fertilizer application to reduce quantities and potential runoff to surface water and infiltration to underlying aquifers.

Flood Warning

- Continued to maintain and operate 37 flood warning gages and are currently upgrading equipment at all 37 flood warning gages using a Federal Flood Hazard Mitigation Grant. Approximately 20 sites have been upgraded to date.
- Provided flow measurements and coordinated field efforts with the National Weather Service during the 2009 spring flood in the Red River Valley.

Geographic Names

- Provided information and assistance concerning proposals to change the names of geographic features pursuant to Minnesota Statute 83A.

Outreach

- Participated with karst training for MPCA staff; made several presentations on karst systems to SE MN educational and community groups.
- Made several presentations to local government boards on active atlas and observation well projects.
- Provided training to local government staffs in Crow Wing County on how to use the Hydrogeologic portion of the Crow Wing County Geologic Atlas.
- Made presentations on the Watershed Delineation Project at the Minnesota Water Resources Conference and the Minnesota GIS-LIS Conference.
- Participated in the Drainage Work Group and Drainage Management Team.
- Made a presentation at the Homeland Security and Emergency Management Conference regarding *Dam Safety and Emergency Action Plans*.
- Completed 2007-2008 Water Year Data Summary Report.



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

Minnesota
Department of Natural Resources
Waters
500 Lafayette Rd.
St. Paul, MN 55155-4032
(651) 259-5700

www.mndnr.gov/waters

© 2009 State of Minnesota,
Department of Natural Resources



Twin Cities: (651) 296-6157
Minnesota Toll Free: 1-888-646-6367 (or 888-MINNDNR)
Telecommunication Device for the Deaf: (TDD): (651) 296-5484
TDD Toll Free: 1-800-657-3929

Equal opportunity to participate in and benefit from programs of the Minnesota Department of Natural Resources is available regardless of race, color, national origin, sex, sexual orientation, marital status, status with regard to public assistance, age, or disability. Discrimination inquiries should be sent to Minnesota DNR, 500 Lafayette Road, St. Paul, MN 55155-4049; or the Equal Opportunity Office, Department of the Interior, Washington, DC 20240.

This information is available in an alternative format upon request