Michigan Integrated Water Management Database

Synopsis

Michigan is steward of internationally significant water resources, located in the center of the largest freshwater ecosystem in the world. Part 327, Great Lakes Preservation, of the Natural Resources and Environmental Protection Act, created innovative technical and regulatory structures to protect these resources from adverse resource impacts potentially caused by localized over withdrawal of water. This program combined with other surface and groundwater programs, collectively seek to comprehensively protect our water resources' quantity, quality, and biological integrity. All of these programs rely on sophisticated models and technical analysis to accomplish their goals. These all require high quality data, and enough data to adequately define water resources in Michigan to make proper management decisions. Because of the abundance of water in Michigan, data collection has not historically been a high priority.

What data have been collected were frequently "compartmentalized" to meet the needs of narrowly defined programs. Therefore, existing data are found in many locations and formats. The creation of an Integrated Water Management Database will increase the effectiveness and efficiency of all water related programs by making all water resources data easily accessible. Many efforts sought to make portions of the data available to certain users. Typically the data are housed by categories of surface water (quantity and quality), groundwater (water levels and quality), and geologic data (stratigraphy). These data bases can be brought together, some merely linked to, while others need to be transformed, to make them all readily accessible.

The Michigan Hydrologic Framework, another proposal from the Council, will facilitate the creation of models to support statewide sustainable water management of both surface and groundwater. It recognizes the critical importance accessing a wide range of water related data bases. Work elements will link and bring together many water related data bases. That proposed work will be coordinated to meet the needs of this proposal, combining some of the elements should create efficiency of scale and avoid duplication of effort. These will include existing data sets of: hydrologic data, water quality (surface and groundwater), aquifer properties, geologic strata, static water elevations, water use/water return, water infrastructure, stream channel characteristics, landscape data, and climate/weather data.

There is also a need to develop a new data base that can be linked to the MHF. This includes data that exist in paper files, or not in modern data base structures. Much groundwater data are in this form. It will be necessary to gather and collate data on glacial geology, static water levels and aquifer characteristics collected by state and federal agencies, as well as by universities and private industry. It will utilize a common set of accepted geologic and hydrogeologic terms and fields.

Finally, there is a need to collect new data, covered in another Council recommendation. The Integrated Water Management Database must have a process to ensure the data are verified and stored, and made accessible through the MHF.

Recommended Actions

The WUAC recommends that the legislature appropriate $170,000 to be expended over two fiscal years by an external contractor who will compile and derive the Michigan Integrated Water Management Database according to the protocols approved by the Council.

Implementing Organization

The WUAC will coordinate with the department as work plans are developed and contractors selected. A multi-agency GIS committee, composed of representatives from EGLE, MDNR, MDARD and DTMB, should be established. Through this committee, led by the EGLE, Water Resources Division, each agency will assume stewardship of selected elements of the Integrated Water Management Database and work with DTMB to develop an appropriate maintenance schedule for them.

Timeframe

Two years from start of contracts.