

**Topics for the Models Committee  
Water Use Advisory Council  
Draft for 2021 (December 7, 2020)**

1. The WWAP needs to develop tools to better represent streamflow depletion for use in site specific reviews (SSR), water management areas (WMA) that are close to adverse resource impacts (ARI), and in complex situations, including evaluating horizontal wells. The committee will review what the department has available and make additional recommendations. (EM 2.4) (*formed Technical Workgroup*)
  - a. Develop criteria describing the required features of groundwater-flow models to be used in the WWAP focusing on streamflow depletion. (TU 7.1)
  - b. Develop criteria describing site specific analyses to estimate potential streamflow depletion by a new well. (TU 6.1)
  - c. Consider what evidence from aquifer performance tests is sufficient to justify the use of analytical models authorized in the Alternative Process.
  - d. Consider under what hydrogeological conditions the use of any, or all, of these analytical models would not be appropriate.

Lead: Jim Nicholas

Status: A Technical Workgroup was formed and is exploring options.

Topics for Models  
Committee 2021

2. Develop a framework for return flow accounting and downstream accounting for withdrawals. These are two sides of the same issue. Currently, the WWAT and WWAP do not track the cumulative return flow or depletions of index flows from large quantity water withdrawals, downstream across subsequent connected Watershed Management Areas. Not correcting this could contribute to allowing an ARI to occur in downstream areas. (from WUAC, 2014) (*Technical Workgroup exists*)
  - a. Criteria for crediting return flows.
  - b. Accounting system to track return flows within the WWAP.
  - c. Accounting system that will appropriately translate withdrawals and return flows to downstream Watershed Management Areas.
  - d. How existing registered users could be incorporated into proposed accounting system.

Lead: Troy Zorn

Status: Developed a simple process that will accumulate withdrawals moving to downstream WMAs. Need to consider if other hydrologic processes should be incorporated, and how. Considered changes in precipitation patterns over time and impacts on baseflow. Determined best estimates for return flows by sector. Will expand the draft process to incorporate return flows.

3. Review existing model applications and recommend potential use in the MHF (eventually) or how they could assist the WWAP now, especially if the information can be incorporated into the screening tool. Possible model applications: USGS studies on

Wolf Creek, Skunk Creek and Kalamazoo County; Nestles studies; Cass County. (EM 1.6) (EM 2.4)

Lead: Dave Hamilton and Jim Nicholas

*Status:* The co-chairs agreed to facilitate a small technical workgroup to develop a workplan and process to move the Cass County modeling effort forward. The Workgroup met, funding was secured, and it is proceeding.

4. Consider revising the “1/2 Max Rule” used to allocate stream flow depletions between WMAs in the Water Withdrawal Assessment Tool (WWAT). The status quo may result in under prediction of withdrawal allocations to some WMAs and potentially omitting others from consideration and record keeping. (from WUAC, 2014)

*Status:*

5. Determine if a statistical update of the index flows is necessary. (EM1.7) This was referred by the Data Committee. Also, consider the period of record and how to incorporate gage data collected since 2008.

*Status:*

6. The Department requested advise in dealing with Depleted Water Management Areas.
  - a. A number are concentrated in 3 or 4 areas that could be covered by regional models.
  - b. Wiscoggin Drain is located in backwater from Saginaw Bay, which complicates the technical analysis.

*Status:*

**Topics where the committee provided comments to the Department and additional interaction may be needed:**

1. Review “Groundwater Model Report Format Guidance.”

Lead: Jim Milne

*Status:* Comments were sent to Jim Milne in January 2020. He will redraft and send back to the Committee.

2. Review “Aquifer Testing Work Plan Guidance.” (*formed Technical Workgroup*)

Lead: Jim Nicholas

*Status:* A workgroup, that included a number of consultants, developed comments that were sent to EGLE in April 2020.