



Groundwater Management Area #1 – GMA#1

MEMORANDUM

To: Honorable Chairman and Members

From: Kyle G. Ingham, Local Government Services Director

Date: August 19, 2014

Re: Agenda Item #11

RECEIVE AND DISCUSS – PRESENTATION REGARDING ENVIRONMENTAL IMPACTS, INCLUDING IMPACTS ON SPRING FLOW AND OTHER INTERACTIONS BETWEEN GROUNDWATER AND SURFACE WATER OF POTENTIAL DESIRED FUTURE CONDITIONS IN THE MAJOR AQUIFERS OF GMA#1. [TEXAS WATER CODE §36.108(D)(4)]

SUMMARY

Texas Water Code §36.108 (d)(4) requires that before voting on the proposed desired future conditions of the aquifers, the districts shall consider other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water within a management area. Texas Administrative Code §357.30 requires regional water planning groups to describe current groundwater, surface water, and reuse supplies including major springs that are important for water supply or protection of natural resources. GMA-1 Joint Planning Committee reviews the available information regarding environmental impacts, including impacts on spring flow and other interactions between surface water of potential desired future conditions.

As part of its evaluation of water related threats to agriculture and natural resources, the 2011 Panhandle Regional Water Plan says that reservoir development; groundwater development and invasion by brush have altered natural stream flow patterns in the area. Spring flows in the area have generally declined over the past several decades. Much of the impact to springs is because of groundwater development, the spread of high water use plant species such as mesquite and salt cedar, or the loss of native grasses and other plant cover. High water use plant species have reduced reliable flows for many tributary streams. Reservoir development also changes natural hydrology by diminishing flood flows and capturing low flows. Continued depletion of the local aquifers will likely continue to impact base flows of local streams and rivers in the area.

Spring flows can be affected by changes in groundwater levels. Of the counties pumping from the Ogallala aquifer, Moore County experienced the greatest decreases in groundwater levels since 1950 (up to a 200 ft decrease). Sherman, Dallam, Carson, Hartley, Hutchinson, and Hansford Counties experienced draw-downs of up to 120 ft. Spring flow in these counties could be decreasing due to increased pumping from the Ogallala aquifer, but in areas with known springs the draw downs have not been significant. Also the areas with the largest draw downs tend to coincide with the non-contributing portions of the watershed.

The eastern counties within GMA 1 continue to have annual flow in many of the creeks and streams located in Lipscomb, Hemphill and Wheeler counties. The Ogallala aquifer is a water source for these creeks and streams because the stream beds are incised below the water table making them gaining streams or incised below the Ogallala aquifer rebedded creating springs that drain the aquifer at its base.

Changes in historical water levels in the Dockum aquifer could also be contributing to declining lake levels in Lake Meredith. The area of greatest drawdown in the Dockum occurs beneath Lake Meredith and the 30 miles of the Canadian River leading up to the reservoir. According to this analysis, groundwater levels have dropped by more than 250 ft in some areas of the watershed since the 1960s. The precipitous decline in inflows to Lake Meredith could be related to draw downs in Dockum water levels during same period of time.

Under regional planning guidelines, each planning region may recommend specific river or stream segments to be considered by the Legislature for designation as ecologically unique. The Legislative designation of a river or stream segment would only mean that the State could not finance the construction of a reservoir that would impact the segment. The intent is to provide a means of protecting the segments from activities that may threaten their environmental integrity.

Texas Parks and Wildlife Department requires that, in part, segments and spring resources that are significant due to unique or critical habitats and exceptional aquatic life uses dependent on or associated with high water quality be used when recommending a unique river or stream segment. TPWD compiled a listing of ecologically significant stream segments located in PWPA. As part of the planning process, fourteen segments were evaluated by the PWPG for potential recommendation as unique stream segments. After careful consideration of the unknown consequences of recommendation, the PWPG makes no recommendations for river and stream segments of unique ecological value.

Discussion

1. In review of the information contained within this summary, what other information does the Joint Planning Committee wish to consider?
2. Are there other data resources that you are aware of related to the environmental impacts?

Notes:

1. This memo/summary is intended to help educate and facilitate discussion & joint planning among GMA#1 members at this time. It is not anticipated that this memo/summary will be acted upon in relationship to the Explanatory Report at this time.

2. Supporting documents related to this Factor will be included in a folder entitled with the Factor Number under the GMA#1 Shared Dropbox folder. These folders shall contain all factor related documents going forward.