

From:
April 28, 2014 Memorandum
To: Water Policy Interim Committee
From: Representatives Nancy Ballance and Keith Regier
Subject: Review of the Proposed CSKT Compact
Rec'd by LEPO April 28, 2014

Environmental Analysis

1. Water Use Agreement

a. What are the physical and economic impacts of a change of use from irrigation to in-stream flow on shallow ground water levels and water wells?

TWG Response:

The TWG cannot address the question of economic impacts.

With regard to the physical impacts:

There many published and unpublished reports that describe the various physical impacts of diverting surface water for irrigation for areas throughout western Montana. In general, most of the main stem river valleys in Montana are subject to artificial groundwater recharge from irrigation canals and flood irrigation. For example, groundwater levels in the lower Beaverhead River area below Dillon are 40 feet higher when the East Bench Irrigation Canal is in operation (Metesh, 2012) . Similar or smaller responses are documented in the Helena area (Waren and others, 2012), the Bitterroot valley (Smith 2006), and the Stillwater River valley (Kuzara and others, 2012). A groundwater studies within the compact area documented fluctuations on the order of 20 feet in response to irrigation canals (Patton and others, 2003; Smith and others, 2000).

[is it addressed in the WUA?]

[TWG discussion of adverse effect?]

[citing reference etc may be overkill...]

References

Kuzara, S., Meredith, E., Gunderson, P., 2012, Aquifers and Streams of the Stillwater–Rosebud Watersheds, Montana Bureau of Mines and Geology: Open-File Report 611, 130 p.

Metesh, J., 2012, Hydrogeology related to exempt wells in Montana: A Report to the 2010–2012 Water Policy Interim Committee of the Montana legislature: Montana Bureau of Mines and Geology Open-File Report 612, 24 p.

Patton, T.W., Smith, L.N., and LaFave, J.I., 2003, Ground-water resources of the Flathead Lake area: Flathead, Lake, Sanders, and Missoula counties, Montana: Montana Bureau of Mines and Geology Information Pamphlet 4, 4 p.

Smith, L.N., LaFave, J.I., Carstarphen, C.A., Mason, D.J., and Richter, M.G., 2000, Ground-water resources of the Flathead Lake Area: Flathead, Lake, and parts of Missoula and Sanders counties. Part B- Maps (open-file versions): Montana Bureau of Mines and Geology Montana Ground-water Assessment Atlas 2B, 11 sheets.

Smith, L.N., 2006, Patterns of water-level fluctuations, Lolo-Bitterroot area, Mineral, Missoula, and Ravalli counties, Montana (open-file version), Montana Bureau of Mines and Geology: Ground-Water Assessment Atlas 4B-10, 1 sheet(s), 1:350,000.

Waren, K., Bobst, A., Swierc, J., Madison, J.D., 2012, Hydrogeologic Investigation of the North Hills Study Area, Lewis and Clark County, Montana, Interpretive Report, Montana Bureau of Mines and Geology: Open-File Report 610, 99 p.

i. How are wetlands (to) be maintained?

TWG Response:

Although not well documented in Montana[?], the general relationship between groundwater and wetlands is understood. In a manner similar to wells, irrigation systems throughout the western part of the state have created artificial wetlands as well as enhanced natural wetlands. The RWRC and CSKT have indicated these have been identified and their management will be included within the Compact/WUA.

[are there documented artificial wetlands we can describe?]

b. What is a 'robust river' standard?

- i. What are the impacts of a 'robust river' (page compact) standard for fish survival, stream bank stability, erosion, and integrity of irrigation structures?
Increasing quadrupling instream flow in compact**

TWG Response:

The TWG could find no reference to the term "robust river" in the compact documents, nor is the term in general use by hydrologists or fisheries scientists. The concept of a robust river is often described in terms of stream morphology (e.g. Rosgen's Stream Classification) or biota health; these are the apparent objectives of the adaptive management policy in the compact. The information provided to the TWG, however, is that the present use by irrigation is the benchmark rather than the criteria for a robust stream.

c. What is the standard for instream flow cited in the water abstracts? Is the standard focused on fish survival, habitat maintenance, or something else?

TWG Response:

"Instream flow" is defined as: "CSKT water right recognized in Article III.C.1.d.ii (the FIIP Nodes) of the Compact that is allocated here in this Agreement to stream flows reserved for fish and wildlife purposes, with a time immemorial priority date." Specific values have been declared in Minimal Enforceable Flows (MEF) and Target Instream Flows (TIF) in Appendix A1 of the WUA.

The term instream flow has several qualifiers:

The interim instream flow was established at 27 sites in the FIIP in the late 1980s and are a single value at each site. Minimum Enforceable Flows (MEF) are part of the proposed WUA and incorporate seasonal variability at each site. Target Instream Flows (TIF) are applied in wet or normal years. MEF and TIF were determined from the HDYROSS modeling effort in a 3-step process: 1) establish water supply required for existing crop irrigation consumptive use, 2) identify potential improvements to current system that would reduce diversion requirements while maintaining current crop irrigation consumptive use, and 3) establish the new increased (?) instream flow (TIF and MEF) resulting from the improvements in step 2. TIF and MEF sites were established at sites that will be monitored as part of the Adaptive Management program.

Thus, no standard was used to establish MEF or TIF, both are described as the instream flow remaining after improvement of efficiency has been applied to current consumptive use.

References:

Presentation to TWG by CSKT and RWCC,
Online presentations by CSKT and RWCC,
Compact
WUA

[no fisheries or morphology standard is described in the compact or WUA other than indicating the use or the basis of the water right]

[was this developed adequately by Bill G or do we need to put to CSKT or RWCC?]

[is the hydross model the focus of this issue or is the estimate of ET used in the model the focus?]

d. What are the growth inducing or socioeconomic growth inhibiting impacts of the on reservation "robust river" standard for instream flow (economic)

TWG Response:

As identified in the question, this relates to the economic analysis beyond the scope of this working group.

e. Is there enough information available to definitively determine the 'water savings' components of irrigation rehabilitation?

TWG Response:

The HYDROSS model constructed by CSKT and the management model constructed by RWCC made estimates of water savings based on specific assumptions. For example, the increase instream flow from reducing or eliminating tail water returns by replacing early/late canal operation for stockwater with groundwater wells was estimated for several areas. Other examples provided included lining canals to reduce loss, improvement of diversion structures etc. were also provided.

f. Is there a process to ensure that extra duty water will be received by those who apply for it?

i. Does or will the time period for this application for extra duty water (5 years) risk the economic viability of his/her agricultural operation?

ii. Could there be an added charge for this water?

TWG Response:

These questions cannot be addressed directly by the TWG. As noted in the question, there is a deferral period during which extra-duty water "shall be continued as practiced by CME management" (Section XV.41.(a)). During the deferral period, the on-farm efficiency fund would provide for "irrigation efficiency improvements for water users" (Section XV.41.(c)).

2. Off-reservation instream flow claims

a. What are the growth inducing or growth inhibiting impacts of the off-reservation instream flow claims?

i. Is there enough information to assess this question, including the aspects of basin closure, call results?

ii. How many times in 20 years will an irrigator be called on its water rights?

TWG Response:

These questions cannot be addressed by TWG

3. Compact

a. What precedential components of the proposed Compact would commit the state to future actions with significant impacts or a decision in principle about such future actions?

b. What are the growth inducing or growth inhibiting impacts of the proposed Compact?

c. Does the proposed Compact or any part thereof restrict the use of private property, or impose undue governmental regulation that would prohibit the use and enjoyment of private property?

d. Are there alternatives to the proposed CSKT Compact that were not considered which would minimize or eliminate impacts to the human environment?

TWG Response:

These questions cannot be addressed by TWG