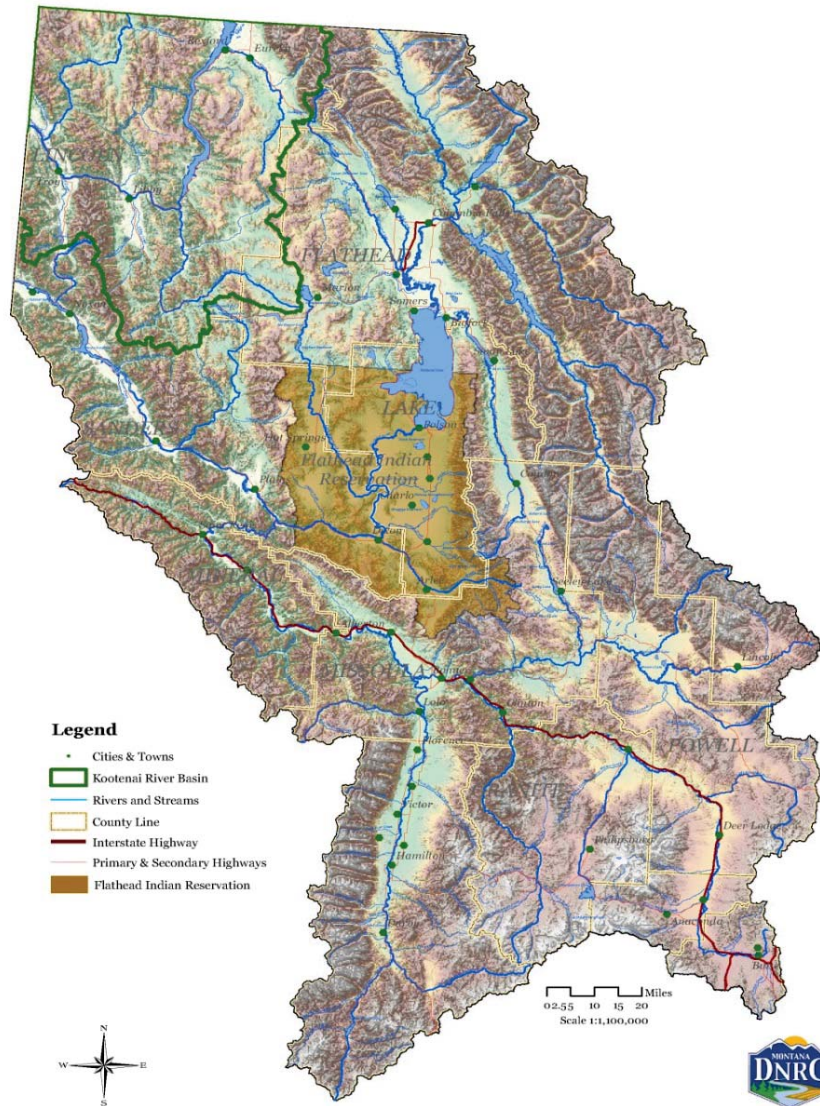


# Clark Fork River Basin Task Force

## Montana Water Supply Initiative Clark Fork and Kootenai River Basins

### RECOMMENDATIONS DEVELOPMENT REPORT



Prepared by the University of Montana  
Center for Natural Resources & Environmental Policy  
June, 2014

## Table of Contents

<b>I.</b>	<b>Introduction</b>	page 2
<b>II.</b>	<b>Process of Developing Recommendations</b>	page 3
	a. MWSI Phase One: Public Scoping and Engagement	page 3
	b. MWSI Phase Two: Information Transfer Process	page 4
	c. MWSI Phase Three: Recommendations Development Process	page 7
	d. Key Issues Limiting Implementation of the Plan	page 12
<b>III.</b>	<b>Final Recommendations</b>	
	1.0 Issue: Maintaining Water Availability	page 12
	2.0 Issue: Ensuring Natural Systems Health	page 20
	3.0 Issue: Water Rights Administration, Protection & Enforcement	page 23
	4.0 Issue: Meeting Future Water Demand	page 26
	5.0 Issue: Use of Water User Councils for Implementation of the State Water Plan and Management of the State's Water Resources	page 30
	<b>Appendix A: Clark Fork Task Force Membership</b>	page 35
	<b>Appendix B: Glossary of Terms</b>	page 36

## I. Introduction

The Clark Fork River Basin Task Force is currently working with the Montana Department of Natural Resources and Conservation (DNRC) to update and revise the State Water Plan. The process is composed of three “phases,” including public scoping, information transfer, and development of recommendations.

This report describes the process the Task Force went through to develop recommendations to address water management issues facing the Clark Fork and Kootenai River Basins, and includes the list of agreed-upon recommendations. The recommendations will become the central element of the Clark Fork and Kootenai River Basins Plan. Recommendations with statewide implications will join those from the Upper and Lower Missouri and Yellowstone River Basins to form the State Water Plan.

The recommendations in this report represent the beginning of an iterative planning process to manage water more effectively in the Clark Fork and Kootenai River Basins. Due to time and resource constraints the Task Force would like to emphasize that these recommendations have not been perfected. Going forward, the recommendations will continue to evolve and be improved based on feedback from the public and policy makers regarding needs, management implications, and implementation requirements.

The Task Force suggests that the recommendations be reviewed and potentially revised, based on legislative action, between July 1 and December 31, 2015. Following an initial review, the Task Force suggests reviewing and revising the recommendations in five-year intervals.

### Background

In 2013, under direction from the Montana Legislature, the DNRC launched the Montana Water Supply Initiative (MWSI) to work with citizens and community leaders to transform the current Montana State Water Plan into a dynamic guide to help residents and water managers in the state’s major river basins: the Clark Fork and Kootenai, Yellowstone, Upper Missouri, and Lower Missouri.

The DNRC organized Basin Advisory Councils (BACs) representing a broad range of interests and organizations in each of the four basins to develop strategies and

recommendations that address the needs and priorities of each basin. In the Clark Fork and Kootenai River Basins, the Task Force was chosen to serve as the advisory council. [Appendix A](#) lists Task Force members. The Task Force was created by the Montana Legislature in 2001 for the purpose of developing the original *Clark Fork River Basin Water Management Plan*.<sup>1</sup> Since 2001, the Task Force has collaborated to work on solutions for many of the most complex, challenging water issues in the Clark Fork River Basin, and has diligently taken the task of updating the 2004 water plan for the 2015 MWSI.

## II. Process of Developing Recommendations

### a. MWSI Phase One: Public Scoping and Engagement

To kick off the MWSI water planning process, the Task Force and DNRC engaged the public to “scope” the major water management issues in the Clark Fork and Kootenai River Basins between October and December 2013. The citizen input helped the Task Force to identify and prioritize a variety of water management issues. The University of Montana Center for Natural Resources & Environmental Policy (CNREP) was contracted to facilitate the public engagement process. Citizen input was gathered through two efforts:

- Public meetings were held in Anaconda, Deer Lodge, Hamilton, Kalispell, Libby, and Missoula, and attended by 169 participants. Meeting locations were chosen based on input from the Task Force and DNRC. All meetings were publicized through local newspaper ads, radio spots, various listservs, an online video, and word-of-mouth.

Scoping Meetings in the Clark Fork and Kootenai Basins (2013)		
Location	Date	Public Attendance
Missoula – UM Campus	Oct. 15	41
Hamilton – City Hall	Oct. 17	30
Anaconda – Fairmont Hot Springs	Oct. 24	13
Kalispell – Best Western	Oct. 29	38
Libby Dam Visitors Center	Oct. 30	21
Deer Lodge – Powell County Community Center	Nov. 13	26
	<b>Total</b>	<b>169</b>

<sup>1</sup> Clark Fork River Basin Task Force. *Clark Fork River Basin Water Management Plan* (2004). Available at: [http://dnrc.mt.gov/wrd/water\\_mgmt/clarkforkbasin\\_taskforce/water\\_mgmt\\_plan.asp](http://dnrc.mt.gov/wrd/water_mgmt/clarkforkbasin_taskforce/water_mgmt_plan.asp)

- A public survey was completed by 57 individuals from 17 different zip codes across Western Montana.

In sum, participants engaged in the public scoping efforts identified 308 individual water management issues and concerns in the Clark Fork and Kootenai River basins. Staff from CNREP organized the 308 issues into 21 issue categories, including categories such as “gauges and monitoring” and “water rights enforcement.” In order to develop a realistic scope of work, the Task Force deliberated and discussed the 21 issue categories and themes from the scoping efforts, built off the public’s input, and prioritized issues to address with recommendations in the next phases of the MWSI. The Task Force selected the following categories:

- **Meeting Future Water Demand**, which includes future growth and development (industrial, municipal, and agricultural), water storage, and groundwater wells
- **Ensuring Natural Systems Health**, which includes fisheries, instream flow, riparian areas, and water quality
- **Maintaining Water Availability**, which includes water conservation and efficiency and drought readiness
- **Water Rights Administration and Protection**, which includes the water rights change process, water rights enforcement, water allocation, and adjudication

In January 2014, the Task Force and DNRC began work to frame each of the issues in a way that better explained the issue rationale and reasoning. Based on the initial framing of each issue, the Task Force was able to start developing options and alternatives for water planning strategies and recommendations. The next two sections of this report describe the process the Task Force used to move from the four broad issues to specific goals, objectives, and recommendations.

#### **b. MWSI Phase Two: Information Transfer Process**

The Task Force held monthly meetings between September 2013 and May 2014. Beginning in November 2013, members transferred information and knowledge among each other and from outside experts. The group chose each expert speaker deliberately in order to improve and invigorate the Task Force’s existing body of knowledge and directly address issues the Task Force was struggling to resolve. The Task Force membership represents a significant body of water management, conservation, law, and science expertise, so the group also benefitted from strong meeting attendance and

vigorous discussion. Below is a summary of the information transfer process, including meeting dates, times, attendance, and information presented.

### November 2013

- *Meeting Date and Time:* November 6<sup>th</sup>, 2013; 10:00 AM-3:00 PM
- *Meeting Attendance:* Twenty-eight Task Force members, DNRC conveners, members of the public, and facilitation team members were present.
- *Summary of Information Presented:*

Task Force member Stan Bradshaw discussed the framework of Montana’s water rights change process. Topics covered included “water rights 101” and an explanation of the detailed procedures involved in a water rights change (both historically and since 2012, when the DRNC began calculating historical consumptive use for the applicant).

Task Force member JR Iman discussed formation of the Painted Rocks Water Users Association in the larger context of historic water management struggles and success in the Bitterroot subbasin. JR explained that local interests must tackle local issues if they want to be effective. He also suggested that water management will continue to change in the future and – as they have done in the past - water managers will continue to improve upon their management strategies.

### December 2013

- *Meeting Date and Time:* December 4<sup>th</sup>, 2013; 10:00 AM-3:30 PM
- *Meeting Attendance:* Thirty Task Force members, DNRC conveners, members of the public, and facilitation team members were present.
- *Summary of Information Presented:*

Task Force member Mary Price presented on the topic of the “Proposed Water Rights Compact between the State of Montana, the Confederated Salish and Kootenai Tribes and the United States.” Mary’s presentation focused on the Flathead System Compact Water, which is one component of the CSKT Compact, and involves the portion of the CSKT water right that the Tribes may withdraw from the Flathead River or Flathead Lake, which includes 90,000 acre feet per year stored in Hungry Horse Reservoir.

### January 2014

- *Meeting Date and Time:* January 8<sup>th</sup>, 2014; 9:00 AM-5:00 PM



- *Meeting Attendance:* Twenty-seven Task Force members, DNRC conveners, members of the public, and facilitators were present.
- *Summary of Information Presented:*

Aaron Fiaschetti presented on the topic of “Provisional Numbers for Water Supply and Demand in the Clark Fork and Kootenai Basins.” Aaron discussed groundwater, water storage, water demand, irrigation consumption, and non-consumptive use across Western Montana.

### February 2014

- *Meeting Date and Time:* February 12, 2014; 9:00 AM – 5:00 PM
- *Meeting Attendance:* Twenty-four Task Force members, DNRC conveners, members of the public, and facilitators were present.
- *Summary of Information Presented:*

A working group charged with reviewing the status of recommendations developed as part of the 2004 Clark Fork Water Management Plan presented their findings to the group. Led by Holly Franz, the Task Force discussed each recommendation made in 2004, the status and recent developments for each recommendation, and any thoughts as to whether or not the recommendations should be carried forward as part of the updated plan. Many of the Task Force’s 2004 recommendations had been implemented.

John Wheaton, from the Montana Bureau of Mines and Geology (MBMG) Ground Water Investigation Program (GWIP), presented an “Overview of Past, Current, and Discussion of Possible Future MBMG research in the Clark Fork.” John explained GWIP’s project identification process, research focus areas, and prospects for future research.

Andrew Larson, Forest Ecologist with the University of Montana Department of Forest Management, presented on “Forest Canopy Effects on Snow Accumulation and Ablation.” While discussing recent findings and future research prospects, Andrew explained that mean winter temperatures in the Clark Fork and Kootenai River Basins suggest that high forest density may not result in greater snow retention. In some cases, lower forest density will result in greater snow retention.

### March 2014

- *Meeting Date and Time:* March 12, 2014; 9:00 AM – 5:00 PM

- *Meeting Attendance:* Twenty-four Task Force members, DNRC conveners, members of the public, and facilitators were present.
- *Summary of Information Presented:*

In order to invigorate and better inform the Natural Systems Health-focused discussions (one of the four primary issues), Bruce Sims, U.S. Forest Service Northern Region Hydrologist, discussed “The Role of Wetland, Riparian, and Floodplain Water Storage in Montana’s Water Supply Initiative.” The presentation was co-authored by Lynda Saul (Montana Department of Environmental Quality).

In order to inform and help guide the Administering/Protecting Water Rights discussions (one of the four primary issues), Holly Franz led an interactive discussion with Task Force members focused on water rights enforcement mechanisms, water commissioner operations, and Montana’s water rights legal framework.

### **c. MWSI Phase Three: Recommendations Development Process**

The Task Force began to work towards developing recommendations in January 2014. To initiate this effort, the DNRC provided a framework for writing recommendations intended to ensure consistency across the Clark Fork and Kootenai, Lower Missouri, Upper Missouri, and Yellowstone River Basins. According to the framework, an “issue statement” explains the importance and rationale of the issue. Following the issue statement, several goals and objectives specify the purpose and best possible outcome of the recommendations. Recommendations are then suggested for each objective. Implementation tasks, or specific steps needed to carry out the recommendations, add a final layer of specificity to certain recommendations.

#### **Developing Issue Statements**

The Task Force divided their efforts into four working groups at the January 2014 Task Force meeting to draft and refine issue statements for the four primary issues (*Meeting Future Demand, Ensuring Natural Systems Health, Maintaining Water Availability, and Water Rights Administration and Protection*). After drafting the statements, the entire Task Force reviewed each issue statement and suggested changes. Task Force members continually revised and improved the issue statements between January and April 2014.

#### **Developing Alternatives**



The following process was used to develop alternatives for water management planning:

*January 2014:* The same working groups that developed issue statements met via conference call to develop goals and options, or *alternatives*, to address each issue statement. The options were viewed as strategies that could be used to address the goal. For example, in order to address the goal of improving water rights enforcement, one suggestion, or *alternative*, was that DNRC should improve the training offered to water commissioners.

*February 2014:* Working groups met during and between Task Force meetings to draft goals and brainstorm objectives for each of the four issues. During the February Task Force meeting, members also agreed on a list of evaluation criteria, or criteria used to screen recommendations. The criteria are below.

- *Is it [the recommendation] specific?*
- *Is it technically feasible?*
- *Is it politically feasible (with the governor's likely support)?*
- *Is it financially feasible?*
- *Is there public support?*
- *Are there likely willing partners (for implementation)?*
- *Is it actionable?*
- *Does the pertinent agency have the authority to implement?*
- *Does the pertinent agency have buy in?*
- *Is it in accordance with the MT Constitution?*
- *Is it in accordance with statutory & administrative law?*
- *Is it in accordance with case law?*

*March 2014:* Task Force members finished drafting and refining issue statements, goals, and objectives, and began to draft recommendations. In order to better develop the recommendations, members chose a five-person team of "point people" to represent each of the four issue-based working groups. The team put in a tremendous amount of work to draft recommendations and refine documents containing issue statements, goals, and objectives.

*April 2014:* As a plenary The Task Force evaluated and screened all drafted recommendations, along with the goals, objectives, and issue statements. In addition to evaluating recommendations for each of the four issues, a proposal for continued funding of the Task Force was included as a fifth issue. The product of the April meeting was therefore a set of preliminary, draft issue statements, goals, objectives, and

recommendations. The Task Force was able to reach preliminary agreement via consensus on roughly 80% of the draft recommendations. However, several recommendations represented “areas of disagreement,” and were therefore discussed in more depth at the May meeting discussion

### Gathering Public Input

The Task Force and DNRC hosted a public review and comment period between April 28 and May 16, 2014. The Task Force decided at the March 2014 meeting to gather public input via a two-part approach. First, participants decided to schedule a series of informal public discussions. Task Force members volunteered to “host” the public discussions in their communities, and took responsibility for scheduling the meetings and advertising the meetings to their networks. DNRC and CNREP staff assisted with advertising, including press releases, flyers, and legal notices.

Second, the Task Force asked the DNRC to develop an online survey to distribute widely to the public. DNRC staff developed the survey in SurveyMonkey, and prepared a “portal” for each of the five issues. The survey yielded thirteen online survey responses. In addition, the Task Force received three public comment letters, including one official letter from the Montana Department of Fish, Wildlife and Parks.

A summary of the public meeting location, dates, and attendance is below.

<b>Public Discussion Sessions in the Clark Fork and Kootenai Basins (2014)</b>		
<b>Location</b>	<b>Date</b>	<b>Public Attendance</b>
Missoula – Holiday Inn Downtown	April 30	3
Kalispell – Flathead Conservation District	May 1	2
Hamilton – City Hall	May 1	13
Libby – Venture Inn Hotel	May 5	9
Deer Lodge – Powell County Community Center	May 7	30
Deer Lodge – Elks Lodge	May 7	5
	<b>Total</b>	<b>62</b>

### Refining and Reaching Agreement on Recommendations

*May 2014:* At the meeting held May 29, in order to refine and reach agreement on the draft recommendations, Task Force members:

- (1) Refined the issue statements, goals, objectives and recommendations based on public input;

- (2) Revisited areas of disagreement from the April meeting;
- (3) Discussed specific implementation steps for certain recommendations;
- (4) Prioritized recommendations within each of the five issues; and,
- (5) Reached agreement on recommendations from each of the five issues.

Members used the following “test for consensus” to arrive at agreement for each of the five issue areas (and therefore all of the goals, objectives, and recommendations falling within the issue area):

- 1- Wholeheartedly agree
- 2- Good idea
- 3- Supportive
- 4- Reservations – would like to talk
- 5- Serious concerns – must talk
- 6- Cannot participate in the decision – must block it

If all participants fell between one and three, members reached consensus. During the discussions to “test for consensus” for the Water Availability issue one Task Force member was at level five. He believed a “who” (*who* needed to complete each item) and “when” (*when* the recommendation should be completed) needed to be added to each recommendation. However, after discussion with other members the member agreed that he could “live with” the package of recommendations.

During the tests for consensus a majority of members were “supportive” of the final product (level three), most likely due to the lack of time to fully develop and perfect the recommendations. Based on the discussion, all members present agreed that a statement specifying the iterative nature of the process – this is the beginning, not the culmination – must be included in the Recommendations Report. This language is now included on page one of this report.

At the May meeting, the Task Force also chose two representatives, Maureen Connor and Marc Spratt, to represent the Clark Fork and Kootenai River Basins during the process to “roll up” the basin plans into the State Water Plan, which will take place in Helena on July 22 and 23, 2014.

The final recommendations Task Force members reached agreement on will become part of the Clark Fork and Kootenai River subbasin plan, and recommendations with statewide implications may become part of the 2015 State Water Plan. The DNRC will host a formal public review process in fall 2014 once the State Water Plan is drafted.

*d. Key Issues Limiting Implementation of the Plan (Identified at the May 2014 Clark Fork Task Force Meeting)*

Implementation of many recommendations developed by the Task Force hinges on an understanding of the legal availability of water. Absent a full picture of water availability in the basins, many of these recommendations will be difficult or impossible to implement. Therefore, the Task Force recommends:

- (1) Completion of basin-wide adjudication for the Clark Fork and Kootenai River Basins, and,
- (2) Settlement of the Confederated Salish and Kootenai Tribes' (CSKT) water rights through the Montana reserved water rights compacting process.

### **III. Final Recommendations**

*Montana Water Supply Initiative – Clark Fork and Kootenai River Basins*  
**Basin Issues & Recommendations**

#### **1.0 Issue: Maintaining Water Availability**

##### **1.1 Statement of the Issue:**

Occurrence of water in the Clark Fork and Kootenai Basins is limited by climatic conditions, precipitation, and snowpack. Water availability varies among years and dramatically between seasons of a given year. Recent data suggest changing trends in water availability, with earlier onset of spring snowmelt and runoff.

Montanans use water for many purposes. Whether used for commercial, conservation, domestic, flood control, industrial, irrigation, power generation, or recreation purposes, water availability can be increased or decreased by the associated method of diversion, amount of consumption, and timing. These influences will continue to affect water availability into the future. It is also important to be mindful that changing how the water is used in the future could result in associated changes in water availability.

Looking ahead, we must focus on finding innovative strategies to use water more wisely and educate water users about their role in conservation. Water regulations and

management should be modified to recognize the limited nature of the resource. With proper regulatory and physical measures in place, we can maintain water availability for existing uses and help accommodate future growth.

1.2 **Goal:** Implement measures that improve the ways in which we manage and conserve water resources.

1.2.1 **Objective:** Encourage existing programs that implement and support conservation measures from all types of water users at the watershed, subbasin and basin levels.

1.2.2 **Recommendations:**

1.2.2.1 Implement water conservation incentives within three years that are adaptable to the needs of individual watersheds. These incentives should focus on encouraging programs such as irrigation efficiency, water banking, drought management plans, etc.

1.2.2.2 Ensure that water regulations clarify that water users participating in water conservation measures will not be penalized.

- a. For example, DNRC could investigate the existing options to avoid abandonment by evaluating code section 85-2-404, "Abandonment of appropriation right" subsection 3 and develop provisions that insulate water right holders who participate in voluntary drought response efforts from the risks of water right abandonment.

1.2.2.3 The State should collaborate with other agencies, local entities and non-governmental organizations (NGOs) to establish additional, shared resources for coordinated education and outreach that encourages water conservation and efficiencies, along with a portal to disseminate those education resources.

- 1.2.2.4 Identify, protect, maintain, and restore constructed and natural storage features that can maintain and improve seasonal water availability.
- 1.2.2.5 Identify potential options for new constructed storage, evaluate the conditions, and, where appropriate, develop new storage.
- a. In the short-term, DNRC, as part of the 2015 State Water Plan, should develop a summary of actions taken and accomplishments made under the Water Storage Policy Act of 1999 (85-1-701 through 704), including:
    - i. Accomplishments made using the state water storage development fund and well as other funding sources used to complete those projects;
    - ii. A summary list of priority water projects identified in bi-annual reports from 1999 to 2014 and delineate those project completed and those projects still pending and their ranking in priority (the bi-annual report and as required by 85-1-704 (1)(a));
    - iii. An evaluation of the potential of the Act to facilitate the protection or restoration of natural recharge functions; and,
    - iv. Recommendations to improve the Act.
- 1.2.2.6 The State should maintain a strong voice or role in how flows are maintained from federal dams in Montana.



- 1.2.3 **Objective:** Montana should be fully represented and engaged in trans-boundary water management planning efforts that affect federal dam operations in the state.
- 1.2.4 **Recommendations:**
- 1.2.4.1 Montana should ensure that federal dams are managed in a way that protects state water interests through continuous engagement in the Northwest Power Planning Council and other forums. In Western Montana, this includes operation of Libby and Hungry Horse Reservoirs.
- 1.2.4.2 Montana should ensure that re-negotiation of the Columbia Basin Treaty with Canada protects state interests.
- 1.2.4.3 DNRC should ensure that state residents and water interest are continuously informed on trans-boundary or regional water management efforts, and that stakeholder groups such as the Flathead Basin Commission and Task Force have opportunities to provide input on these processes.
- 1.3 **Goal:** Better understand surface and ground water resources and the potential for future natural and human changes to those resources.
- 1.3.1 **Objective:** The State of Montana, in coordination with local and federal agencies, should continue to participate in, improve and expand efforts to gather the best scientific information available to better understand physical water availability.
- 1.3.2 **Recommendations:**
- 1.3.2.1 State agencies, universities and others should identify and pursue research needed to develop new water management and conservation options, including but not limited to:
- Gray water use options;
  - Return flows;

- Stream depletion zones / groundwater-surface water connections; and,
- Cost-benefit analysis of both natural and built storage options.

- 1.3.2.2 The DNRC should determine the accuracy of existing water rights claims to understand actual physical and legal availability. The water court should continue examining water rights to determine existing water rights.
- 1.3.2.3 State and federal agencies and private entities should collaborate to develop more information and data on consumptive water use.
- 1.3.2.4 Montana Bureau of Mines and Geology should characterize and assess groundwater resources in the greater Tobacco Valley.
- 1.3.2.5 Agencies and partners should evaluate proposed water conservation actions, such as converting to sprinkler irrigation or lining ditches, to define benefits and impacts to water supply and existing water uses.
- a. DNRC should conduct, facilitate or fund additional subbasin hydrologic studies.
    - i. Emphasis for studies should be placed on water bodies with dewatering conditions or those with high levels of diversionary water use
    - ii. Study examples include, but are not limited, to the “*North Fork Blackfoot Hydrology Study*” (March 2001) or “*Flint Creek Return Flow Study*” (December 1997).

- iii. Future study reports should include options for water conservation and improved water management with some evaluation of potential benefits and impacts to the water supply system and flow conditions.

1.3.2.6 The state should encourage land management agencies to manage forest vegetation (e.g., prescribed fire, harvesting, etc.) to promote healthy forest conditions and increase physical water availability.

1.3.2.7 The DNRC should implement improved methods of water use measurement for management and enforcement.

- a. DNRC should continue its annual water commissioner training but should enhance that activity by:
  - i. Providing more online materials and resources related to water measurement and control, and
  - ii. Expanding classes on water measurement and enforcement to a larger audience of water users with priority given to new administration of water rights under a Water Court Enforceable Decree or areas of known water use conflict.
- b. DNRC should continue or increase funding for installation of water measurement and water control devices at stream points of diversion.
- c. DNRC and the Montana Water Court should host and fund a round table to evaluate, and if warranted, make recommendations for improving the

effectiveness of the state's water commissioner regulations. Invited participants should include water users, Water Commissioners and District Court judges involved in water right enforcement, and legislators from the Environmental Quality Council (EQC) and the Water Policy Interim Committee (WPIC).

- 1.3.2.8 Support partnerships among federal, state, tribal and local governments, agencies, and organizations to prioritize and fairly pay the costs of installing and maintaining existing and new stream flow gages.
- a. Governor's Office and state agencies (DNRC, the Department of Environmental Quality [DEQ] and the Department of Fish, Wildlife and Parks [FWP]) should actively work with Montana's Congressional Delegation to support and increase funding for both the U.S. Geological Survey (USGS) National Stream Gauging Network and the USGS cooperative program for stream gauging.
  - b. Governor's Office should actively promote state funding for Montana's participation in the USGS cooperative stream gauge program.
  - c. Governor's Office and state agencies (DNRC, DEQ and FWP) should actively work with Montana's Congressional Delegation to restore and enhance the USDA Natural Resources and Conservation water supply program including support for Snotel and manual snow courses, web based real time data sharing and monthly water supply forecasts and reports.
  - d. Evaluate the development of a state sponsored and maintained stream gauging network on tributary

streams.

- 1.3.2.9 Investigate the role of seasonal recharge on groundwater availability.
- 1.3.2.10 Repeat and update the Montana Water Resources Survey.
  - a. The Montana Water Resources Survey was collected and published from 1943 through 1965 by the State Engineers Office and from 1966 through 1971 by the Water Conservation Board. Survey data was derived from courthouse records in conjunction with landowners, field investigations and aerial photography, and other data sources.
  - b. Although the Survey is an excellent resource for various state and federal agencies, water users, and the public, the Survey's age (which many believe is outdated) represents a large data gap. Many water use changes have occurred since the Survey data was collected and published.

1.4 **Goal:** Facilitate collaborative responses to issues of water availability

1.4.1 **Objective:** In recognizing that water availability depends on conditions that vary locally at the watershed level, pursue opportunities to increase interaction among water users and develop collaborative stakeholder approaches to maintaining water availability.

1.4.2 **Recommendations:**

1.4.2.1 Continue to fund the Clark Fork Task Force as a mechanism for water user networking, knowledge sharing, public engagement, and interaction on current water availability issues in the Clark Fork and Kootenai River Basins. Consider

broadening the group's name to be more inclusive of both basins.

- 1.4.2.2 Provide public forums for water information sharing among scientists, technical experts, communities, landowners, NGOs, policy-makers, and others.
- 1.4.2.3 Offer funding, capacity-building, and technical assistance mechanisms to support the work of collaborative local watershed groups.
- 1.4.2.4 Develop better data on the local variability of watershed conditions and provide data at the watershed level to assist communities, agricultural producers, NGOs and others in collaborative planning.

## 2.0 Issue: Ensuring Natural Systems Health

### 2.1 Statement of the Issue:

Western Montana's natural water bodies and watersheds and associated biological resources support our recreational opportunities, quality of life and economy. The availability of water in the appropriate quantity, quality, timing and duration is necessary to ensure the health of water-dependent natural systems. Challenges and threats associated with water availability have resulted in natural systems impacts. Population growth, associated development, and increasingly uncertain weather patterns will increase risks to these systems in the future. Proactive policies and management practices which balance natural systems health with other important priorities must be pursued to support the health of these valuable systems.

- 2.2 **Goal:** Restore and/or maintain surface water flows and groundwater levels needed to protect natural systems health over seasonal and long-term climate cycles.

- 2.2.1 **Objective:** Establish a more effective partnership between DNRC, DEQ and FWP to proactively identify and address current flow-related



impairments of waterways, and to effectively address associated future threats to these systems.

## 2.2.2 Recommendations:

2.2.2.1 Agencies that designate waterways with flow related impairments and/or chronic or period dewatering should make maps and data on impairments and dewatering accessible through the Montana State Library.

2.2.2.2 The Task Force is proposing that the Montana Legislature direct DNRC, DEQ, FWP and other entities to work together to determine the flows needed to address these impairments and dewatering so as to support beneficial uses and system health, including fisheries health.

2.2.2.3 The Montana Legislature should request that the Water Policy Interim Committee complete a study to proactively identify and report future threats and solutions to natural system health from increased water demands of population growth and development and other environmental changes within the Clark Fork and Kootenai River Basins.

2.2.2.4 The Task Force is proposing that the Montana Legislature direct DNRC, DEQ, FWP and other entities to work together to identify and report adaptive management and mitigation options to avoid/mitigate/adapt to future threats.

2.2.2.5 The Task Force or DNRC should propose legislation to enable the permanent change of an existing water right to instream use, similar to all other beneficial uses.

2.2.3 **Objective:** More effectively manage (i.e., restore and/or maintain) natural storage systems to promote retention and infiltration of surface runoff resulting in beneficial release during low flows.

#### 2.2.4 Recommendations:

- 2.2.4.1 Relevant state agencies should adopt best management practices to promote natural infiltration and preserve natural storage systems.
- 2.2.4.2 In managing storm runoff, consider natural storage options, or combined natural and artificial storage (e.g. detention and retention basins, wetlands, etc.) options that protect natural system health and store water for later use.
- 2.2.4.3 Allow use of water development funding for natural storage restoration projects.
- 2.2.4.4 Relevant state agencies should investigate feasibility and cost effectiveness of using and improving natural storage options like ground water recharge, wetland restoration, headwater ponds/reservoirs, beaver dams, etc.
- 2.2.4.5 Relevant state agencies should identify obstacles to restoration of natural storage.

2.2.5 **Objective:** Establish a more effective coordination mechanism between DNRC (and appropriate sister agencies) and citizen watershed restoration groups to implement flow restoration projects and programs throughout the basin.

#### 2.2.6 Recommendations:

- 2.2.6.1 The State Water Plan should prioritize coordination among DNRC and watershed groups or other relevant entities carrying out watershed restoration projects with a significant flow-restoration aspect.
- 2.2.6.2 The State Water Plan should prioritize coordination between the DNRC and the Department of Justice Natural Resource

Damage Program in order to implement the flow restoration projects identified in the Final Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plan (December 2012) within the 20 year timeline established by the Plan.

2.2.7 **Objective:** Establish a more effective partnership between DNRC, DEQ, FWP, the Montana Department of Transportation (DOT), and the U.S. Department of Agriculture (USDA) to pro-actively manage and reduce risk of introduction and spread of Aquatic Invasive Species (AIS).

2.2.8 **Recommendations:**

2.2.8.1 In managing water resources, consider AIS that reduce water supply (e.g. salt cedar), species that become problems when flow is reduced (e.g. milfoil) or temperature increases due to lower flows.

2.2.8.2 Develop preapproved AIS responses for water management actions, such as herbicide applications, needed to prevent spread of harmful AIS.

2.2.8.3 Increase funding for watercraft inspection stations and public education in Montana in order to prevent introduction and spread of AIS.

### 3.0 **Issue: Water Rights Administration, Protection and Enforcement**

#### 3.1 **Statement of the Issue:**

Montana water users of both surface and groundwater sources rely on a clear expectation of their rights to water. There is an opportunity to improve complex issues through modified procedures.

These complex issues include:

- Protection of water rights through enforcement of existing rights.

- Consistent, transparent, and streamlined administration of water rights and adjudication processes; measurement and monitoring; and planning.

3.2 **Goal:** Maintain a system and process for changing existing water rights and allowing new water rights that both protects existing water rights while providing a transparent, coherent, and expeditious process for reviewing proposed water rights changes and new uses.

3.2.1 **Objective:** Currently, DNRC requires change applicants to provide detailed explanations of how water rights were used prior to July, 1973. At times, this evidence is difficult to produce. DNRC should review its pre-1973 historic use criteria to ensure that it accurately assesses the effect of a change of use on other water rights. If the historic use criteria is modified, DNRC should assure that any modifications not sanction any post-1973 illegal expansions of use.

3.2.2 **Recommendations:**

3.2.2.1 DNRC should explore the issue of pre-1973 historic use criteria described in objective 3.2.1 and, if appropriate, propose administrative or legislative action that may implement a solution.

3.2.3 **Objective:** Review of change and new use applications from one region to another continues to vary as to the standards applied and as to the level of documentation expected of applicants. DNRC should work to assure consistency and clarity in DNRC's review process from one region to another and from one application to another.

3.2.4 **Recommendation:**

3.2.4.1 DNRC should establish a statewide point of contact for water rights review process questions. The Task Force envisions this as a clearinghouse where questions would be answered with consistency and authority, thereby solving the problem of current regional inconsistency.

3.3 **Goal:** Protect water rights through enforcement of existing rights.

3.3.1 **Objective:** Increase the DNRC's role in enforcement as it relates to illegal water use under the Montana Water Use Act.

3.3.2 **Recommendations:**

3.3.2.1 Increase DNRC's on-the-ground enforcement capability by providing it with more FTEs dedicated to water rights enforcement under the Montana Water Use Act.

3.3.2.2 Provide DNRC with express statutory authority to issue cease and desist orders against and administratively levy civil penalties for illegal water use (i.e. water use not authorized under an existing water right or permit) and increase civil penalties from the current \$1,000/day to an amount sufficiently large to act as a deterrent against illegal water use.

3.3.2.3 The DNRC should determine the accuracy of existing water rights claims to understand actual physical and legal water availability.

- a. State of Montana must continue funding and support of the Montana Water Court as it continues the process of adjudicating pre-1973 water rights.
- b. State of Montana must continue funding DNRC's adjudication staff as the Water Court's technical assistant. (DNRC's technical expertise is provided to the Court upon request to evaluate technical issues that arise during the settlement and potentially litigation phases.)
- c. DNRC's claims examination process should be funded, allowing the Water Court to review the interlocutory decrees known as Temporary Preliminary Decrees that

were adjudicated prior to the establishment of the Supreme Court's "Claim Examination Rules".

3.3.3 **Objective:** Assure that the mechanisms for the enforcement of existing water rights (i.e., the appointment of water commissioners) are clear to existing water users and are adaptable to decrees that will be issued from the adjudication.

3.3.4 **Recommendation:**

3.3.4.1 The water court, in concert with DNRC and district courts in the state, should clarify how decrees within subbasins will be administered when a water rights dispute arises within the subbasin.

3.3.5 **Objective:** Explore and adopt additional strategies in advance and in lieu of litigation for the resolution of water rights disputes.

3.3.6 **Recommendations:**

3.3.6.1 DNRC and the Water Court should create and actively fund a water rights dispute mediation unit and promote it to water rights holders as an alternative to traditional litigation.

3.3.6.2 DNRC should offer mediation training to water commissioners.

#### 4.0 **Issue: Meeting Future Water Demand**

##### 4.1 **Statement of the Issue:**

Montana needs to address future demands for water while meeting existing water rights and uses. The economies of our communities are dependent upon water availability. This requires projecting where and when demand will occur and what type of supply will be required to meet that demand. Ascertaining future demand for water is a precursor to planning for and anticipating opportunities within the Clark Fork and



Kootenai basins, and assessing those opportunities against potentially competing demands within the larger Columbia Basin.

4.2 **Goal:** The availability of water in Montana to meet future demands is supported by a concise, predictable, and defensible legal framework.

4.2.1 **Objective:** Montana's existing laws regarding the availability of water should be complete, concise, and defensible.

4.2.2 **Recommendations:**

4.2.2.1 The 2015 Montana Legislature should authorize and fund a comprehensive independent review of existing laws regarding water rights in Montana and forward recommendations to the 2017 Legislature, CFTF, WPIC, and the governor to ensure, to the best of our collective abilities, that Montana has a predictable and transparent legal framework that can guide future water use.

4.2.2.2 Identify regulations and legislation that impede the implementation of sound water use or water allocation practices because the regulations and legislation do not recognize site- and watershed-specific conditions. Forward recommendations for changes to the 2017 Legislature, CFTF, WPIC, and the governor.

4.2.3 **Objective:** Encourage the development of water use plans, including drought and conservation plans, while protecting water rights.

4.2.4 **Recommendations:**

4.2.4.1 Based on a review of existing laws regarding water rights (as described above), DNRC should develop and fund programs to present to the CFTF and 2019 Legislature that encourage the implementation of watershed-based collaborative water use plans while protecting existing and future water rights.

- 4.2.4.2 DNRC will review the process and incentives for transferring water in support of a watershed-based collaborative water-use plan.
- 4.2.5 **Objective:** Determine if existing laws need to be modified to address concerns regarding water availability.
- 4.2.6 **Recommendations:**
  - 4.2.6.1 Modify state subdivision rules to recognize the need for an applicant to identify a path to a legally available water supply as a component of the subdivision review process.
  - 4.2.6.2 Modify state subdivision rules to incentivize the implementation of community wells.
  - 4.2.6.3 Water rights of the CSKT should be quantified.
- 4.3 **Goal:** Montana actively pursues the development of water resources to meet future water demands with specific attention given to the spatial and temporal (seasonality) of those resources and the associated demand.
  - 4.3.2 **Objective:** The quantification of water resources and water demand should be advanced to support the prioritization of opportunities that can improve the physical availability of water to meet anticipated demand.
  - 4.3.3 **Recommendations:**
    - 4.3.3.1 DNRC, in cooperation with other state agencies, should complete a quantification of potential future water demand increases of water with a 20-year outlook with review and revision every 10 years.
    - 4.3.3.2 Where demand warrants, the Montana Bureau of Mines should identify possible sites for aquifer storage and determine the feasibility of aquifer storage and recovery.

- 4.3.3.3 Building from the Montana Bureau of Mines work and warranted water demand, DNRC should determine if the deep aquifer in the Kalispell area can be developed without impacting other users or the resource itself.
  - 4.3.3.4 DNRC should explore the use of Hungry Horse stored water, Flathead System Compact Water and Libby Dam storage water for use by the State of Montana.
- 4.4 **Goal:** Montana meets future demand through education, outreach, and a shared understanding of the importance of water to the economic, social, and environmental well-being of the citizens of Montana.
- 4.4.2 **Objective:** Agencies and relevant NGOs should continue to invest in an outreach program to engage existing water users.
  - 4.4.3 **Recommendations:**
    - 4.4.3.1 Agencies and relevant NGOs should educate water users regarding the existing processes to obtain water for new uses.
    - 4.4.3.2 Agencies and relevant NGOs should initiate a systematic effort to develop and fund community driven, place-based drought and flood plans for each watershed within each basin. Provide grants to incentivize community-driven, placed-based watershed scale drought planning.
    - 4.4.3.3 Agencies and relevant NGOs should develop a subbasin water plan/assessment program, perhaps patterned after the Bureau of Mines Groundwater Assessment Program (GWAP), to incorporate into future planning. Subbasin plans will assess vulnerabilities and opportunities for water supply and water quality relative to future water demands.

- 4.4.4 **Objective:** Invest in a program to educate individuals and communities on water use and availability in Montana.
- 4.4.5 **Recommendations:**
- 4.4.5.1 DNRC should work with the Montana State Library’s Water Information System, other state agencies, and stakeholder groups to continue to advance a one-stop clearinghouse for the citizens of Montana on resources for water availability, water quality, and water rights in Montana. Recommendation 2.2.2.1 could also be addressed by this recommendation.
  - 4.4.5.2 DNRC should enhance the Montana Water Information System to allow the public to visualize the spatial and temporal nature of water right information in an intuitive and interactive manner.
  - 4.4.5.3 DEQ should create a GIS overlay with comprehensive septic system information.
  - 4.4.5.4 DNRC will work with stakeholder groups to develop a common approach, such as the Global Water Footprint Standard, as a method for quantifying and communicating water use, re-use, and availability.
- 5.0 **Issue: Use of Water User Councils for Implementation of the State Water Plan and Management of the State’s Water Resources**

5.1 **Statement of the Issue:**

The Clark Fork Task Force (CFTF) was created in 2001 with passage of House Bill 397 (MCA 85-2-350). The CFTF’s work in developing a water management plan for the Clark Fork Basin and in the implementation of that plan serves as a model for similar organizations in the other major Montana river basins. Given that water in the Clark Fork and Kootenai Basins is a limited resource, carefully structured allocation and

management is necessary to sustain and improve the economic health of the basin communities while meeting the needs of various competing uses.

Moreover, the CFTF is charged with coordinating various entities in order to achieve long-term sustainable water management. Per MCA 85-2-350, the CFTF is mandated to coordinate local basin watershed groups, water user organizations, and individual water users and provide a forum for all interests to communicate about water issues. The CFTF must also advise government agencies about water management and permitting activities in the Clark Fork Basin and consult with local and tribal governments within the Clark Fork River basin. The CFTF's role, which has expanded in the last six months to include the Kootenai River basin, is of great importance.

#### 5.2.1 **Recommendations:**

5.2.2 The Water Use Councils defined in the Montana Water Supply Initiative (MWSI) should be permanently recognized as continuing organizations tasked to implement and modify the basin plans as needed, and to make recommendations regarding proposed changes in the state water management.

5.2.3 Council activities receive continuing support, including a professional facilitator to organize monthly meetings, keep records, and speak for the council as directed by the Council. Other needs include funding for organizing and conducting public meetings and symposia, publications, and coordination as needed between subbasin groups and the major basins themselves. These activities include:

- i. watershed meetings to evaluate/propose actions for solving problems;
- ii. annual symposia regarding forecasts water availability and related issues;
- iii. educational publications regarding plan changes, descriptions of program/legal requirements, experiences in managing water requirements, differing program approaches in other areas, etc.; and,

- iv. collaboration with DNRC and other appropriate entities in the implementation of the Clark Fork and Kootenai Basins water management plan.

- 5.2.4 Legislative amendments should be considered to redefine the tasking of the current Clark Fork Task Force under any revised Water Use Council system (i.e., rename the CFTF the Clark Fork and Kootenai Basins Water User Council). Current CFTF reporting requirements should be retained for each council as well as routine coordination between councils and the state water management program.
- 5.3 The initial, and perhaps only, question is why an advisory council structure is needed in addition to permanent state water management program staff. Based on CFTF experience, **the proposed structure presents the following advantages:**
- 5.3.1 **The councils would be a powerful tool for communication of management actions and problems between the state program and local users.** Each council would bring together a group of volunteer, concerned individuals with significant expertise and knowledge regarding the local needs of the basin. *This may be extended to persons or groups representing local subbasin concerns.* Councils would regularly report to WPIC and other state bodies, serving as a critical link and continual interface between the Legislature, state agencies, and local water users, enabling a more proactive approach for state programs.
  - 5.3.2 **Councils would provide a local contact point for concerned citizens.** This allows problems to be recognized and perhaps solved on the local level prior to required state action. A local judgment may also be made that local problems do represent something requiring state program attention. This is a special advantage if, as is expected, most problems have specific local circumstances.
  - 5.3.3 **Councils will develop a wide network of contacts with local basin citizens, groups, and government interests through representation by council members, council contacts with local groups, and public**

**meetings and education.** This can provide an ongoing review by the public of water management issues that should facilitate any needs for state program public hearings.

- 5.3.4 **Councils would encourage solutions such as local drought management plans.** Organization such as that described for the councils seems essential to encouraging and supporting any drought management plan.
- 5.3.5 **Councils may assist in drafting of workable and effective legislation from water users' points of view.** Frequently legislation prepared by local legislators fairs better in the legislative process, especially when the legislation requires additional funds. Councils may also independently propose budget changes from water users' perspectives.
- 5.3.6 **Selection of Council members with applicable levels of expertise enables consideration of local technical problems and may result in proposed solutions that have not occurred to state program staff.** Such coordinated state/local "brainstorming" offers an efficient approach to the best possible program. Obviously, such volunteer work may greatly reduce state costs as opposed to developing and overseeing similar contract work. These technical solutions may involve specific planning activities to increase water availability, consideration of various types of connections between surface and ground water, ongoing evaluation of priority for state hydrological research and measurement, and coordination meetings between major basin representatives. Watershed meetings could be held to evaluate and/or propose actions for more widespread concerns, as well as annual symposia regarding forecast water availability and related responses and problems, as well as publications addressing citizen concerns.
- 5.3.7 **Council members will represent a number of different types of water users, including irrigators, public water system managers, hydrologists, tribal governments, ecologists, ranchers, real estate developers, hydropower generators, and other special interests (e.g., watershed groups, hunters, anglers, guides, tourism representatives,**

conservationists, forestry professionals, etc.). When a particular issue is reviewed by a council it will be considered from many different points of view resulting in a more thorough evaluation and possible prevention of unintended adverse impacts.

## 5.4 Clark Fork Task Force Operations

### 5.4.1 *Task Force Administration*

- Facilitator
- Meeting Expenses (lunch, reproduction costs, speaker stipends, video conferencing)
- Travel Expenses

### 5.4.2 *Task Force Conferences*

- Biannual water supply conferences
- Annual technical conference (focus on water availability and allocation)
- Annual Watershed Council coordination for Clark Fork & Kootenai Basins (may already be done by others).

### 5.4.3 *Task Force Publications-Research & Education*

- Public outreach – coordinate with existing entities (e.g. Montana Water Center)
- Publish topical documents (e.g. Prior Appropriation booklet) and conference proceedings.
- Define needed research, and oversee completion of such projects. Coordinate research among the various agencies and academic institutions to facilitate water management.

### 5.4.4 *Task Force/Agency Coordination*

- Coordinate water use and regulation among State and Local agencies (annual meeting?).
- Review and make recommendations for Columbia River Treaty negotiations to State and Federal entities.
- Review water right process and make recommendations to DNRC and Legislature. Potentially prepare necessary legislation.
- Develop water management structure for Basins - Based on experience in the Ogallala, management from the bottom up is working better than top down.



**Appendix A: Clark Fork Task Force Membership**

Last Name	First	Primary Affiliation	Organization
Bradshaw	Stan	Conservation	Trout Unlimited
Connor	Maureen	Agriculture/Public Interest	Upper Clark Fork Steering Comm.
Doney	Kerry	Agriculture	Jocko Irrigation District
Franz	Holly	Energy	PPL Montana
Hacket	Harvey	Agriculture	Bitterroot Irrigation District
Hall	Nate	Energy	Avista
Hall	Barbara	Conservation	Clark Fork Coalition
Iman	JR	Agriculture	Ravalli Irrigation District
Irvine	Lloyd	Tribes	Confederated Salish & Kootenai Tribes
Jackson	Verdell	Government / Agriculture	MT Senate District 5
Lammers	Paul	Mining	Revett Minerals
Miller	Ross	Municipal	Mountain Water
Patton	J. Gail	Agriculture	Sanders / Mineral Counties
Schoonen	Jennifer	Conservation	Blackfoot Challenge
Skorpik	Molly	Agriculture	Mt Assoc. Dams & Canals Systems
Spratt	Marc	Agriculture	Flathead Conservation District
Sugden	Brian	Timber	Plum Creek Timber
Turner	Susie	Municipal	City of Kalispell
Watson	Vicki	Public Interest	Academia
Williams	Ted	Conservation / Recreation	Flathead Lakers

**Ex Officio Members:**

Edge	Derek	Consulting	ARCADIS, u.s., Inc.
Hoffman	Gregory	Libby Dam & Lake Koocanusa	U.S. Army Corps of Engineers
Magruder	Ian	Consulting	Kirk Engineering
McLane	Mike	Government	Department of Fish, Wildlife and Parks
Miske	Caryn	Flathead Basin Commission	DNRC
Philmon	Dennis	Government	Bureau of Reclamation
Sweet	Michael	Academia	Montana Climate Office
Trum	Eric	Government	Department of Environmental Quality

**Proxy & Alternate Members:**

Fyant	Shelly	Tribes	Alternate for CSKT/Lloyd Irvine
Price	Mary	Tribes	Proxy for CSKT/Lloyd Irvine
Sirucek	Dean	Agriculture	Proxy for Marc Spratt
Stevens	Patty	Tribes	Alternate for CSKT/Lloyd Irvine
Susan	Lake	Agriculture	Proxy for Kerry Doney

## Appendix B: Glossary of Terms

**abandonment**—The intentional, prolonged, non-use of a water right, resulting in the loss of the right.

**adjudication**— In the context of Montana water law this refers to the statewide judicial proceeding to determine the type and extent of all water rights claimed before July 1, 1973.

**adverse effect**— In water rights, something that impedes the ability of a water user to make use of water. Change in use must avoid an adverse effect to other water users.

**appropriate**—To capture, impound, or divert water from its natural course and apply toward a beneficial use.

**appropriator** —One who applies water to a beneficial use. An appropriator owns a water right.

**aquatic invasive species**— Are organisms that were unintentionally brought into Montana from other places. These include clams, fish, mussels, plants, weeds, and disease-causing pathogens.

**basin**—The area drained by a river and its tributaries, such as the Clark Fork River or Kootenai River basin.

**beneficial use**—Use of water for the benefit of the appropriator, other persons, or the public, including but not limited to agricultural (including stock water), domestic, fish and wildlife, industrial, irrigation, mining, municipal, power, and recreational uses; a use of water to maintain and enhance streamflows to benefit fisheries pursuant to conversion or a lease of a consumptive use right.

**change in appropriation right**— A change in the place of diversion, the place of use, the purpose of use, or the place of storage of a water right. These changes need the approval of the Department of Natural Resources and Conservation (DNRC) to assure that the change will cause no adverse effect to other water users.

**claim**—An assertion that a water right exists, usually occurring during the adjudication process.

**compact**—A legal agreement between Montana and a federal agency or an Indian tribe determining the quantification of federally or tribally claimed water rights.

**conservation district**— A political subdivision of state government, possessing both public and private attributes, that primarily distributes irrigation water in a given region and that may also administer electric power generation, water supply, drainage, or flood control.

**consumptive use**— A beneficial use of water that reduces supply, such as irrigation or household use.

**cost-benefit analysis** – Can be explained as a procedure for estimating all costs involved and possible profits to be derived from a business opportunity, proposal, project or activity.

**dewatering of streams, chronic and periodic** – Dewatering is a reduction in stream flow below the point where stream habitat is adequate to support healthy fish populations. Chronic dewatering is a significant problem in all years while periodic dewatering is a significant problem only in drought years.

**detention basin** – See retention and detention basins.

**diversion**— An open, physical alteration of a stream’s flow away from its natural course.

**existing water right** – “Existing right” or “existing water right” means a right to the use of water that would be protected under the law as it existed prior to July 1, 1973. The term includes federal non-Indian and Indian reserved water rights created under federal law and water rights created under state law. (MCA Section 85-2-102)

**flow augmentation** – The addition of water to a river system from reservoir storage.

**flow dependent aspects of watershed restoration projects** – Many efforts in watershed restoration projects are focused on flows. Watershed restoration projects attempt to improve water quality, the viability of fisheries, the stability of stream banks, the condition of stream side vegetation – and all of these depend on flows. Hence watershed restoration projects often strive to bring flows closer to their natural pattern by managing how water is yielded from the watershed and how it is used. Measures frequently include conservation measures to reduce the amount of water diverted from streams and land restoration to increase infiltration of water (which recharges the groundwater and ultimately helps support base flows in surface water).

**flow restoration**— Usually involves attempting to restore as much as possible of a stream’s natural flow pattern over the year. Sometimes the focus is on restoring critical low summer flows to natural levels or to minimum target flows.

**flow rate**—That rate at which water is diverted, impounded, or withdrawn from the source of supply for beneficial use, and commonly measured in cubic feet per second (cfs) or gallons per minute (gpm). Put in everyday terms, when you turn on the faucet in your kitchen sink, the water comes out at a certain rate of flow (gpm).

**flow related impairments** –Waterways are considered impaired when the water is too polluted or degraded to meet water quality standards & support beneficial uses. Almost all impairments are related to flow. Lower flows often contribute to warmer stream temperatures, lower dissolved oxygen levels, and more concentrated levels of dissolved pollutants. Higher flows contribute to erosion & scour, mobilizing sediment bound pollutants.

**Global Water Footprint Standard**—A water footprint is an indicator of freshwater use that looks at both direct and indirect water use of a consumer or producer. The water footprint of an individual, community or business is defined as the total volume of freshwater used to produce the goods and services consumed by the individual or community or produced by the business. The water footprint is a geographically explicit indicator, showing not only volumes of water use and pollution, but also the locations. The *Global Water Footprint Standard* is a scientifically credible, internationally recognized methodology developed to make all water footprints comparable. For more information, visit <http://www.waterfootprint.org>.

**gray water**—Wastewater generated from baths, sinks, washing machines, and other household sources.

**ground water** — Any water beneath the land surface, bed of a stream, lake, or reservoir.

**ground water area**—An area enclosing a single, distinct body of ground water.

**ground water recharge or aquifer recharge**—This can refer both to the natural process of ground water recharge (achieved by infiltration of precipitation or discharge from surface water) OR can refer to human efforts to store more water in groundwater. Artificial aquifer recharge (AR) is the enhancement of natural ground water supplies using man-made conveyances such as infiltration basins or injection wells. Aquifer storage and recovery (ASR) is a specific type of AR practiced with the purpose of both augmenting ground water resources and recovering the water in the future for various uses. More at <http://water.epa.gov/type/groundwater/uic/aquiferrecharge.cfm>

**healthy forest conditions**—Conditions sufficient to achieve management goals. For example, healthy forest conditions may be present if insect and disease are at endemic levels, if a mosaic of trees and openings is available to provide wildlife habitat, if the forest is disturbed by fire at a severity and frequency that mimics what once happened naturally, or if a forest is capturing snow and releasing water as snow melts. In short,

what is considered a “healthy forest” depends on how and for what purpose the forest is managed.

**instream flow**—Water left in a stream for nonconsumptive uses such as preservation of fish or wildlife habitat.

**junior appropriator**—A secondary user on a watercourse who holds a water right inferior to previous (senior) users.

**legal water availability**—See water availability.

**Montana Code Annotated (MCA)**—The laws of Montana classified by subject.

**natural storage of water**—See storage of water, natural.

**natural system health**—Natural systems include all landscapes and water bodies that were not created by human technology. However, the water plan is mostly focused on waterways and watersheds, so see ‘waterway health’ and ‘watershed health’.

**nonconsumptive use**—A beneficial use of water that does not reduce quantity, quality, or timing of water in the source of supply, such as an instream use.

**permit**—An authorization to use water, issued by the state, specifying conditions such as type, quantity, time, and location of use.

**physical water availability**—See water availability.

**Preapproved AIS Response** – Required whenever the eradication of AIS species poses less environmental harm than allowing the species to infest a given area. Prompt response is essential to prevent exponential growth of some species and to reduce the area of treatment needed. This may not allow the normal time periods needed for environmental regulatory impact studies, and other means are needed to make these early decisions. This appears to require predicted possible scenarios and an evaluation of responses for effectiveness and acceptable environmental impact under limits of the scenario prior to actual occurrence of AIS infestations.

**priority date**—The official date of an appropriation, generally the date of established intent; used in determining seniority among water users.

**recharge**—The resupply of water to rivers or aquifers.

**reserved water right**—A special water right accompanying federal lands or Indian reservations, holding a priority date originating with the creation of the land.

**retention and detention basins**—Depressions in the landscape used to store stormwater runoff, hence reducing flooding and erosion and improving water quality. A DETENTION BASIN is an area where excess stormwater is stored or held temporarily and then slowly drains when water levels in the receiving channel recede. In essence, the water in a detention basin is temporarily detained until additional room becomes available in the receiving channel. A RETENTION BASIN also stores stormwater, but the storage of the stormwater would be on a more permanent basis. In fact, water often remains in a retention basin indefinitely, with the exception of the volume lost to evaporation and the volume absorbed into the soils. This differs greatly from a detention basin, which typically drains after the peak of the storm flow has passed, sometimes while it is still raining. Additional uses for stormwater retention are to help recharge large underground water aquifers.

**return flow**—Part of a diverted flow that is applied to irrigated land and is not consumed and returns underground to its original source or another source of water, and to which other water users are entitled to a continuation, as part of their water right.

**senior appropriator**—An original user on a watercourse who holds a water right superior to all subsequent (junior) users.

**storage of water, artificial or constructed**—Storing water in reservoirs or other human made impoundments.

**storage of water, natural**—Storage of water in natural landscape features such as groundwater aquifers, ponds (including beaver ponds, floodplain ponds), wetlands & swales . Note that humans may manage water to store more of the water in natural storage – through land application and land management to increase infiltration.

**stream depletion zone**—An area where hydrogeologic modeling concludes that as a result of a ground water withdrawal, the surface water would be depleted by a rate equal to a rate of at least 30% of the ground water withdrawn within 30 days after the first day a well or developed spring is pumped at a rate of 35 gallons a minute. (MCA Section 85-2-102)

**subbasin** – A structural geologic feature where a basin forms within a larger basin. For example, the Bitterroot river is sometimes referred to as a subbasin of the Clark Fork River basin.

**surface water** — Water above the land surface, including lakes, rivers, streams, wetlands, wastewater, flood water, and ponds.

**wasteful use**—The unreasonable loss of water through the design or negligent operation of an appropriation or water distribution facility or the application of water to anything but a beneficial use.

**waterway and water body**—Usually refer to surface water features like rivers, streams, lakes, ponds.

**waterway health**—Waterways are considered to be healthy when surface & groundwater flows & levels are of a timing and duration that provides habitat capable of supporting self-sustaining populations of native fish species and water dependent wildlife. In addition, waterway health refers to flows that help meet water quality standards, support beneficial uses, and support stream renewal functions.

**water commissioner**—Local water users can petition for a water commissioner after the water rights in a basin have been verified by the Montana Water Court. The commissioner ensures that daily water allocations in the basin occur in accordance with the users' rights. The local district court appoints the commissioner, and oversees his or her work.

**Water Court**—Located in Bozeman, the Water Court's primary function is to carry out the state-wide adjudication. Disputes between water right holders are still handled in local district court, and the local district courts still oversee any water commissioners in their area.

**water quality**—Chemical, physical, and biological characteristics of water that determine its suitability for a particular use.

**watershed**—All the land that drains to a river or lake, with boundaries defined by surface water (and includes wetlands, floodplains, riparian areas and uplands). For the purpose of this planning document, the term "watershed" is referring to a subunit of a subbasin (smaller area).

**watershed health**—The health of ecosystems and landscapes is much more complex to define than the health of an organism. However, a watershed is often considered healthy if the watershed is being used sustainably so that it can continue to perform without depletion or degradation of watershed services such as: water collection storage & delivery, flood and drought moderation; water purification, wildlife habitat and support of waterway health.