ANNUAL FWP DROUGHT SUMMARY

2001

Prepared for:

Governor's Drought Advisory Committee

Submitted by:

Montana Fish, Wildlife & Parks

June 2002

(available on-line at http://nris.state.mt.us/drought2001/reports/2001summaries.html)

TABLE OF CONTENTS

I. INTRODUCTION

This Report is provided in fulfillment of the annual reporting requirement of the 1995 Montana Drought Response Plan. The specifics of the annual reporting requirement can be found in Chapter IV (Drought Monitoring) of the Plan, on page 12. The entire Plan is available on the World Wide Web at http://nris.state.mt.us/wis/swsi/MTDroughtPlan.html. The section of the Plan relevant to the annual reporting requirement is reproduced below:

> **Annual Report**
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> An annual report summarizing the year's drought activities will be prepared. This report will include the annual summary submitted by each participating state agency. Agency reports will include assessment and response activities taken by that agency over the preceding months, a list of drought management objectives for the year, actions taken to mitigate drought impacts, and a summary of the problems encountered and successes realized by the agency.
>
> DNRC staff will combine state agency summaries with federal agency reports into a final report of (Governor's Drought Advisory Committee) activities for the year. This report will be used to review and evaluate agency responses, draft suggestions for legislative initiatives, and amend the state drought plan as needed. The final report will be used to plan agency response during future droughts. Recommendations for improving agency response will be presented and discussed at the October DAC meeting. (Montana Drought Response Plan, 1995, p.12)

This report is the fulfillment of FWP's responsibilities under the above Plan requirement to provide FWP's "participating agency" annual report to the Committee for 2001. The remainder of the report is organized as follows, based on the elements of the reporting requirements from the Plan and the apparent intent that these reports be used to improve drought "response" in Montana:

Section II (and Appendix A) – a summary of FWP's drought assessment and response activities, both those that are ongoing, and those necessitated as drought conditions changed over the year;
Section III – FWP's drought management objectives from the Plan, and those informal objectives that arose from conditions in 2001;
Section IV – actions taken to "mitigate" drought impacts, including long-term agency actions, as well as those undertaken as drought conditions changed over the year;
Section V – successes and challenges in FWP's drought response, from our perspective; and
Section VI – suggestions, based on our experience from 2001.

Appendix A is a compilation of FWP's monthly and weekly drought updates to the Committee (and other interested parties) from 2001.
Appendix B – is FWP's chronological compilation of relevant drought headlines from newspapers across the state, as selected and forwarded from the Fisheries Division clipping service.
Appendix C is FWP's Parks Division summary of drought assessment and response activities for 2001.
Appendix D is a new wildlife Drought Contingency Plan, proposed for addition to the State Drought Plan.
Appendix E is a sample local drought plan (this one for the Big Hole River), developed and administered by a watershed group and associated agency staff.
Appendix F contains FWP's Drought-Related Fishing Closure Policy from 2001, an example of FWP's attempts to balance scientific management of Montana's fisheries, provision of recreation opportunities, and promotion of self-regulation of fishing to preserve the resource.
Appendix G is a copy of DEQ's (then-DHES) 1988 notification to junior water users of the

agency's senior instream reservation for water for water quality purposes in the Yellowstone.
Appendix H is a compilation of "key elements" for drought planning, compiled from presentations on drought response by five Montana watershed groups at the November (2000) Montana Watershed Coordination Council meeting.
Appendix I is a list of FWP's instream flow leasing objectives. Also known as "The 4 'A's", these frame how we evaluate leasing inquiries from water right holders.
Appendix J is a compilation of biologist conclusions (as of early March 2002) regarding observed drought impacts on Montana fisheries. (Note that many impacts are not evidenced until several years after low-flow periods.)

As background, the Montana Drought Response Plan defines "drought" as:

> . . . an extended period of below normal precipitation which causes damage to crops and other ground cover; diminishes natural stream flow; depletes soil and subsoil moisture; and because of these effects, causes social, environmental, and economic impacts to Montana. (ibid, p.1)

We at FWP feel that the only way to manage Montana's susceptibility to the above-described effects is a combination of effective long-term habitat (including streamflow) protection and enhancement efforts, complemented by effective and locally-tailored emergency response strategies and actions. Many aspects of this Report and our activities embody this conclusion.

As a final note, we do not intend in this report to repeat any of the specific climatic data and reporting presented to the Committee in 2001. That information continues to be available on the Committee's website at http://nris.state.mt.us/drought2001/. This Report will focus on FWP's specific responses to these reported (and other) conditions, our evaluation of those responses, and suggestions for improvement.

II. FWP DROUGHT ASSESSMENT AND RESPONSE ACTIVITIES

We feel the best way to describe FWP's drought response during 2001 is to divide it into: (1) ongoing activities (i.e., relevant activities we do on a regular basis, whether drought conditions exist or not), and (2) emergency response under drought conditions. These types of assessment and response activities are described below for 2001.

Regular and Ongoing Assessment and Response Activities

There are many activities that FWP administrators and field staff conduct to regularly assess the relationships between climatic/hydrologic conditions and habitat, whether such conditions are overly dry, overly wet, or near normal. These include:

- Checking snowpack and precipitation reports and forecasts to help determine what the needs and issues of the upcoming seasons will be, both for Montana's fish, wildlife and recreational resources, as well as to the local communities and businesses associated with those resources.

- Tracking streamflow and water temperature conditions in Montana's priority streams and tributaries to determine relative conditions for fish and wildlife, and recreational activities, dependent on certain flow minimums, maximums, pulses, or timing.

- Observing in the field and noting anecdotal information regarding actual species' (including human!) response to changing moisture conditions; e.g., location of bull trout relative to flows and/or water temperatures in a stream, reported groundwater conditions (e.g., flows from springs and wells), comments from canoeists of Smith River conditions, or movement of deer and elk into or away from irrigated pastures.

- Communicating within divisions, with local communities, and with businesses to respond appropriately to impacts of unusual moisture conditions in a consistent and science-based manner.

- Participating in ongoing policy, planning, and informational efforts related to how the fish, wildlife, and recreational resources of Montana – and the habitats critical to these resources – are perceived, managed, and allocated, both now and in the future.

- Increasing our scientific understanding of the relationships between fish, wildlife, and recreation resources and climatic conditions, and working to make that information available and usable to decision-makers at various levels. Examples include: field determination of appropriate instream flows for various fish species, participating in development of water quality restoration or drought management plans at the local level, sponsoring research into specific factors (e.g., whirling disease) affecting species capability to withstand climate-related stresses, etc.

- Funding (through grant programs or direct expenditures) and conducting specific long-term projects to increase Montana's capability to sustain dry climatic conditions while also maintaining habitat quality, resource productivity, and management flexibility. Examples include: stream restoration grants, streamflow restoration through instream flow leasing, conservation easements to meet habitat and landowner objectives, native species conservation and restoration, coordination with DNRC on water allocation policy and issues, etc.

Specific Assessment and Response Activities in 2001

Fisheries

As noted in the Introduction, under dry conditions, and with limited resources, FWP's efforts in long-term drought susceptibility reduction shift to a more short-term (i.e., emergency) response mode, based on the severity of the situation and the needs it creates. Some responses can be planned; others have to be invented in the heat (literally) of the moment. A running summary of our specific response activities for year 2001 is provided in Appendix A, which provides a copy of each of FWP's drought updates that were presented to the Committee, FWP Commission, FWP staff, and posted for public viewing on the Committee's website.

Wildlife

Continued drought reduced range forage, and livestock were removed from some forest allotments early at the direction of the Forest Service or Bureau of Land Management. This was a result of standards established by the U.S. Forest Service or Bureau of Land Management being exceeded. The hunting season during the fall of 2000 exceeded harvest levels of the previous year for both deer and elk, thus reducing population levels in locations where hunter access was not significantly restricted. Reduced survival of mule deer fawns was expected because of the limited precipitation and adult females entered the 2000-2001 winter in poor condition in many areas. The mild winter conditions resulted in a higher survival of fawn and adult deer than expected and as a result increased harvest levels were proposed for the fall of 2001. The 2001 hunting season weather was very mild and the harvest of elk and mule deer was

estimated to be down approximately 10-20 percent from 2000 based on hunter check station reports. White-tailed deer harvest was up 10-20 percent west of the Divide but was significantly lower in portions of FWP Regions 4, 5, and 6 due to an EHD disease outbreak during late summer and early fall.

A Wildlife Drought Contingency Plan (Appendix D) was written as an amendment to the Montana Drought Response Plan using procedures and criteria developed during the 2000 drought and wild fire period. The plan describes actions FWP will take to protect wildlife resources, including implementing habitat management actions to prevent deterioration of wildlife habitat, focusing hunter harvest on game populations exceeding objectives, providing for recreational opportunities and mitigating for lost hunting opportunity, providing game damage assistance to private landowners, and encouraging sportsmen to support landowner assistance programs.

Conservation Education

FWP began to alert the public in April 2001 via its news releases, TV news reports, and its Internet website that a third year of drought could affect the season's recreational opportunities. Close teamwork with Conservation Education, Fisheries, and FWP's Internet team resulted in streamlined internal information gathering that produced detailed, up-to-the-minute public reports on the condition of key streams and rivers. These early and consistent communication efforts paid substantial dividends. FWP's reasoned communication about drought in Montana became a part of FWP's field biologists' and administrators' inclusive dialogue with advocacy groups, outfitters and guides and Montana citizens. Early in the season, FWP entered a communication partnership with the Fishing Outfitters of Montana to follow a series of common-sense drought-related guidelines to help conserve Montana's trout. Montana Trout Unlimited also joined the effort.

Throughout the spring, summer and early fall seasons, FWP made itself available for news interviews, issued press releases, and employed other communication tools as needed. The Montana media was constantly engaged— particularly in August and September--in the discussion and presented issues in an objective and fair manner.

With information changing by the day, FWP experienced a high demand for information on angling restrictions and closures and for up-to-date status reports on the state's most popular fishing waters. Again, FWP's team of Internet, communications, and fisheries professionals, worked to provide consistent and fast information to Montanans and out-of-state interests. The ability to post information on the Internet and to link to other sites allowed for effective communication of critical information. Though still demanding on staff time, the availability of the Internet and the ability to post graphics and maps, and data-base reports was essential in keeping up with the public's demand for accurate and fast information.

Parks

Drought-related fishing restrictions affected use of waterways in some areas of the state. In areas that were open, especially reservoirs and lakes, boating access issues in drought-affected areas were prevalent. In some areas (and where funding was available) Parks personnel took advantage of low water conditions to extend boat ramps. In other areas, water quality monitoring was increased and water use was reduced.

Staff noted intensified impacts to vegetation at recreational areas, increased weed growth, increased conflicts, and high fire hazard. Extra mowing was carried out to reduce ignition hazard and weed propagation. Fire restrictions, varying by area and date, were implemented. Staff coordinated early with DNRC on potential fire camp locations. Campground firewood sellers' revenue declined and visitation decreased, reducing associated direct and indirect expenditure revenues in local areas.

Additional detail, by FWP Region, on Parks staff drought assessment and response is provided in Appendix C.

III. FWP DROUGHT MANAGEMENT OBJECTIVES, 2001

The Montana Drought Response Plan (1995) includes the following objectives for FWP drought response in general:

1. Protect FWP's existing instream rights.
2. Supplement streamflows through purchase of stored water, leasing of consumptive rights, and other innovative methods.
3. Obtain reservoir operations which minimize impacts to fish, wildlife and recreation.
4. Monitor streamflow, fish populations and fishing use and harvest to ensure carry-over of wild stream fisheries while maintaining reasonable opportunity for harvest in all streams and lakes. Implement emergency regulations on streams and lakes as needed.
5. Develop and implement an Information and Education Program which informs the public and maintains consistency in the Department's programs.
6. Coordinate an updated Department Drought Summary for presentation to the Governor's Drought Advisory Committee and/or Disaster Advisory Council and the Fish, Wildlife and Parks Commission as required.
7. Develop and implement water conservation practices within the agency.

FWP feels we are continually working toward achieving these objectives, both in the short and long term, though several are difficult to attain under existing water allocation patterns and increasing competition for and allocation of water in certain areas.

Some limitations exist in achieving these objectives. For example, regarding Objective 1, FWP can only protect our instream rights to a certain point. We can issue a call for our senior water, but due to staffing constraints and the reality of water allocation, we can often not determine whether junior water users are heeding the call. Nor can we (with current resources)determine flows on streams that are ungauged. Regarding Objective 4, there are limitations to using only monitoring to "ensure" carry over of wild stream fisheries.

Fisheries Division

In addition to the above standard objectives from the Plan, FWP's Fisheries Division had some informal objectives that guided us through the drought of 2001, including:

a. Be proactive where possible
b. Minimize damage with what few tools we have; develop new tools where possible
c. Consider risks to potential long-term gains

d. Be consistent and science-based
e. Learn from this
f. Enhance public understanding of issues and long-term opportunities

Wildlife Division

FWP emphasis is to assist those landowners who have suffered losses directly related to the fires and to mitigate the loss of hunting opportunities experienced by hunters in the fall of 2001, as follows:

g. Encourage sportsmen to donate to established programs which provide livestock feed and financial assistance to private landowners who have been directly affected by the fires.
h. Provide damage assistance to private landowners who were impacted by the fires of 2000.
i. Provide recreational opportunity where possible and mitigate for lost hunting opportunity.
j. Focus additional harvest where wildlife populations are above objective.

Parks Division

The Montana State Park system contains 41 state parks and 320 fishing access sites. The following are major objectives:

k. Continue to coordinate with other agencies to provide fire-camp sites at appropriate locations during sever wildfire conditions.
l. Provide the public with accurate and up-to-date information on current drought conditions, land-use restrictions, and park/fishing access site closures.
m. Sign and post state parks and fishing access sites with current restrictions (such as campfire and fireworks bans, etc.).

IV. FWP ACTIONS TAKEN TO MITIGATE DROUGHT IMPACTS

This topic overlaps the assessment and response topic above, but we will reiterate, in list form, the actions we feel help the most in "mitigating" drought impacts.

It should be noted that under existing law and water administration patterns, there is a fairly significant limit to the ability to mitigate impacts of low flows on Montana's fisheries. Despite the below-listed actions, many of Montana's wild cold-water fisheries have been impacted by the flow conditions of 2001 (Appendix J). The extent of these impacts will be determined over time, as additional fish population information is gathered in future years. We suggest that our response to this topic be interpreted as "actions taken to reduce drought impacts" on Montana's fish, wildlife, and recreational resources.

Stream-Related Actions

- Working with water users, communities, and other agencies to implement long-term flow and habitat protection and enhancement projects (e.g., instream flow leasing) that reduce drought susceptibility in priority fishery areas (statewide)

- Distributing information to field offices, CDs, and upon request on how irrigators can close

irrigation ditches in a manner that encourages entrained fish to move out of ditches into streams, rather than perishing in the canal

- Where appropriate, advocating for voluntary reductions in water diversions from priority streams; providing information when requested on flow needs of fisheries

- Working with local communities to develop and implement emergency low flow/drought response plans (Big Hole, Jefferson, Blackfoot. FWP staff are active members of the drought response committee efforts, coordinating with DNRC staff in their measurement of flows, monitoring fishery condition and water temperature, informing committees of problem areas, and generally encouraging collaborative and effective water conservation to address current and projected problem areas. The Blackfoot Drought Plan incorporates a creative alternative to FWP's traditional call for senior water, whereby senior water users contributed conserved water to conceptual "water bank", which juniors that are valid Plan participants can draw against in emergency conditions if certain conditions are met.

- Obtaining instream flow increases by "calling" for water from users junior to FWP's instream rights (Yellowstone, Missouri, Blackfoot, Tobacco, Gallatin, and Smith drainages). A total of 507 junior water user warning letters were sent to holders of water permits/claims within (and in a few cases, beyond) reaches where FWP holds instream flow reservations or rights. Warning letters were also sent to a selection of junior users in the entire Blackfoot basin, as an attachment (and incentive) to the local Drought Committee's invitation to participate in the voluntary Drought Response Plan. Calls for FWP's senior water were made on junior water users on the Smith River (10 juniors), Young Creek (11), Tobacco River (8), Yellowstone River from Livingston to Sydney (36 juniors, including 4 conservation districts), East Gallatin (1), Musselshell (1), and the Clarks Fork of the Yellowstone (9). A potential call in the Blackfoot was replaced by implementation of the local Drought Response Plan.

- Closing waters to fishing where such fishing could put already-stressed fisheries into lethal stress levels (Big Hole, Jefferson, Missouri, Smith, and plans for several west-side waters) or where resource management may create safety hazards to the fishing pubic (Bynum reservoir). In 2001, voluntary fishing restrictions or mandatory closures occurred in the following drainages per FWP's Drought Closure Policy (initiated in 2000 and formalized in 2001):

  Red Rock River (from Lima Reservoir to Clark Canyon Reservoir
  7/30/2001 – 10/1/2001 - Voluntary Advisory – all fishing
  10/1/2001 – 11/30/2001 – Mandatory Closure

  Beaverhead River (from Clark Canyon Dam to Selway Bridge at Dillon)
  8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory
  10/1/2001 – 11/30/2001 – Mandatory Closure

  Beaverhead River (from Selway Bridge at Dillon to Mouth)
  8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

  Blackfoot River (including Gold, Belmont, Cottonwood, Copper, and Monture Creeks, the North Fork Blackfoot, and Landers Fork)
  8/22/2001 – 9/7/2001 - Morning Only Voluntary Advisory

  Big Hole River (Upper Reach from Rock Creek Road to the mouth of the North Fork)
  6/27/2001 – 10/22/2001 – Full Mandatory Closure

  Big Hole River (Middle Reach from mouth of the North Fork to Dickie Bridge)
  8/28/2001 – 10/17/2001 – Full Mandatory Closure

  Big Hole River (Lower Reach - Below the mouth of the North Fork)
  8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

Jefferson River
8/15/2001 – 8/28/2001 - Morning Only Voluntary Advisory
8/28/2001 - 9/13/2001 – Full Closure

Thompson River
7/24/2001 - 9/11/2001 - Morning Only Voluntary Advisory

St. Regis River
7/24/2001 - 9/7/2001 - Morning Only Voluntary Advisory

Shields River
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory
9/12/2001 - Voluntary Advisory – no fishing requested for rest of season

Smith River
7/3/2001, until superceded - Morning Only Voluntary Advisory

Sun River
8/17/2001, until superceded - Morning Only Voluntary Advisory

Bynum Reservoir
10/3/2000 - 6/6/2001 – Closed to all fishing

Boulder River (southeast of Big Timber) below Natural Bridge
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

East Gallatin River
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

Gallatin River (below Highway 191 Bridge)
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

Lower Madison River (below Ennis Dam)
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

Upper Missouri River (from Headwaters State Park to Canyon Ferry Res.)
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

Stillwater River
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

Yellowstone River (from Yellowstone N.P. to Huntley Diversion)
8/15/2001 – 9/11/2001 - Morning Only Voluntary Advisory

- Initiated an internet reporting system for priority waters where information on current conditions could be found, as well as any special drought-related angling regulations.

- Bringing purchased water down from reservoirs, with assistance from water commissioner (Bitterroot). DNRC began delivering in-stream fisheries flow contract water on 7/25 and terminated the flows on 10/4. DNRC staff recollect that the full contract of approximately 15,000 acre feet was delivered in 2001. The flows varied a little bit as needed, with starting releases at 60 cfs on 7/25, then increased to 75 cfs on 8/1, 100 cfs on 8/9, 125 cfs on 8/13, then declining to 65 cfs on 9/25, and ended on 10/4. The adjustments were called for by Vern Woolsey (Bitterroot water commissioner) and Chris Clancy (FWP Fisheries Biologist), based upon flow and fishery conditions at Bell Crossing.

- Through information management, redirecting fishing use from impacted areas to others, to both reduce impacts on stressed fisheries, and reduce impacts to the fishing public from reductions in opportunities

- A few “fish rescues”, where fish certain to die were moved to other locations (Gallatin River –

more than 900 fish, including 389 rainbow trout, were salvaged from irrigation diversions and returned to the river). Note: rescues are seldom done, as opportunities to do so successfully are rare.

- Initiated a special drought-related Future Fisheries funding cycle to specifically fund water enhancement projects. This resulted in FWP funding 3 projects: 2 soil moisture monitoring projects to help increase irrigation efficiency in the Jefferson and Blackfoot basins, and a water lease on Locke Creek in the Yellowstone River basin, where 7.5 cfs was leased for a period of 30 years.

- FWP improved its water rights database to allow instantaneous gauge data to be compared to applicable water right levels for an immediate statewide picture of the status of streamflows in relation to FWP instream rights and reservations.

- The three individual drought plans, two of which were new in 2000, were again successfully implemented and refined in 2001 (Big Hole, Jefferson and Blackfoot). Due in large part to the Plan, conditions skirted the need for a fishing closure on the lower Big Hole in 2001. Field staff also noted that the Jefferson drought plan extended its effects lower into the basin in 2001 than in 2000. Jefferson irrigators on three major canals operated an average of 46 cfs below capacity, accounting for a 3,000-acre foot contribution of water to the River.

- Provided training and information on drought planning and response at the American Fisheries Society's (Montana Chapter) January 2001 continuing education session.

- Compiled information on known and suspected impacts of drought on specific fisheries, as reported by FWP fisheries field staff (Appendix J).

Wildlife-Related Actions

- Authorized landowners cooperating in FWP Upland Game Bird Habitat Enhancement Program to hay or graze lands enrolled in the Conservation Reserve Program (CRP) in cooperation with emergency designations by the FSA. This primarily affected CRP acreages in northeast (Region 6) and central (Region 4) Montana.

- Increased antlerless elk and deer quotas in hunting districts with populations exceeding objectives and with significant landowner game damage complaints. Additionally, use of antlerless elk licenses (A-7s) and permits was extended to December 15 in several hunting districts in the final regulations adopted in February 2002.

- The FWP Commission curtailed the sale of surplus antlerless whitetail B licenses in portions of Regions 5 and 6 in response to an EHD outbreak that reduced whitetail populations in portions of Regions 4, 5, 6, & 7 (2,180 licenses surplus to the annual drawings were not sold; 177 in Region 5 and 2,003 in Region 6). Drought conditions extended into the late fall resulting in a lack of frost which would normally kill the midge which carries the disease organism between individual deer.

- FWP made preparations to insure a rapid response to game damage complaints in the event that the 2001-2002 winter is more severe than that experienced in 2000 –2001.

V. SUCCESSES AND CHALLENGES

The following is an abbreviated list of successes and challenges noted by FWP staff, primarily in the Fisheries Division.

Successes

- Although a result of the unfortunate circumstance of two drought years in a row, FWP staff felt better prepared to assess and respond to drought in 2001, than in 2000. Drought-related fishing closure decision criteria were determined in advance, not under immediate, emergency conditions. The temperature-based criteria and inter-staff dialogue to develop them were considered by many to be a successful cross-agency coordination effort in a short timeframe.

- The FWP-implemented fishing restrictions were more systematic and resulted in less angler displacement and activity impacts than the broad, land-based closures in 2000.

- The availability and delivery of Painted Rocks water down the Bitterroot was once again critical to this important fishery surviving drought conditions. (A related challenge is the imminent expiration of the Painted Rocks water contract.)

- FWP Wildlife Division staff produced a Wildlife Drought Response Plan in 2001 (Appendix D), which will provided important policy direction for future drought cycles (see Appendix J). The additions include a modification of FWP's Game Damage Policy for drought and fire; a new Wildlife feeding policy; and procedures for hunting season modifications due to drought or fire.

- The Bureau of Land Management provided sufficient funding to keep the Mudd Creek real-time stream gauge operating on the Big Hole for several more years, and to provide for a new gauge on the Judith River (the largest formerly-ungauged basin in the state). FWP finance staff authorized a waiver of overhead costs, so that the full BLM contribution could become part of the state portion of the USGS Cooperative Stream gauging program.

- NRIS and FWP GIS staff assisted in further automating FWP's water rights information. Although placed on the Web in 2000, improvements allowed instantaneous gauge data to be compared to applicable water right levels for an immediate statewide picture of the status of streamflows in relation to FWP instream rights and reservations.

- The three individual drought plans, two of which were new in 2000, were again successfully implemented and refined in 2001 (Big Hole, Jefferson and Blackfoot). Due in large part to the Plan, conditions skirted the need for a fishing closure on the lower Big Hole in 2001. Field staff also noted that the Jefferson drought plan extended its effects lower into the basin in 2001 than in 2000. Jefferson irrigators on three major canals operated an average of 46 cfs below capacity, accounting for a 3,000-acre foot contribution of water to the River. The hiring of a watershed coordinator in the Jefferson is a recent success, and should help that group more efficiently address drought issues in both the short- and long-term.

- We appreciated Lt. Governor Ohs' participation in the special drought segment of the pilot Wild Montana television program. We felt the coordinated media effort with Montana outfitters (FOAM) was a broad success in both process and product.

- We felt the Committee website was further refined in 2001 with much more helpful information on "what can be DONE" (i.e., action-oriented resources) to respond to drought. As in 2000, the Internet proved to be an invaluable and updateable communication tool.

- The American Fisheries Society's (Montana Chapter) January 2001 continuing education session on drought was considered by many to be a success. A similar session for the regional (multi-state) meeting is planned for 2002 in Spokane.

- We appreciate the Governor's Office support of a FWP request to the Environmental Contingency Account for a small amount of funds to install aeration on Bean Lake, a pothole lake and popular fishery along the Rocky Mountain Front.

- Web-based drought condition reporting for priority fishery streams was new in 2001. It worked reasonably well for users, though improvements are planned to decrease staff time requirements on this system in 2002.

- The regular drought conference calls with Fisheries Division administrators and staff, initiated in 2000, continued to be a successful way to communicate and coordinate drought assessment and response activities and related public information.

- As in 2000, FWP field staff greatly appreciated the flow measurement and analysis assistance provided by DNRC field staff.

- Internally at FWP, we felt we had another successful year in our relationship with our Commission in the delegation of drought-related fishing closure authority. The trust they have for the Department staff and local Commissioner to make those decisions in the heat of the moment made for a relatively smooth response in multiple crisis conditions.

- Although odd to call a success, in a way, the drought likely indirectly caused solution to a 20+-year problem on the Yellowstone with a subdivision with an inadequate water supply. Their continued problems, plus the added difficulty of being a junior user to FWP, encouraged the community to (as has been suggested for many years) sign on for future City water. Although this does not benefit the stream, as they will still be diverting water, it does remove a compliance problem, as they had extreme difficulty in adhering to the prior appropriation doctrine of Montana water law.

- A flare-up over a steam plant's concern that they couldn't get to their water from the Yellowstone ultimately resulted in improved internal and external coordination for the plant and associated agency staff. An initial proposal (that would have essentially dammed the Yellowstone), through intense and timely action on the part of the Conservation District, plant staff, and associated agency staff and consultants, was modified to a less destructive proposal, that met the plant's needs, and improved methods and lines of communication for the long term.

- Drought-related media coverage appeared to be much more sophisticated and in-depth in 2001 than in 2000, including coverage of fisheries issues.

- What could be considered a success and a challenge, FWP staff were in high demand early in the season to address local drought committees across the state and assist in their drought planning efforts. Given the scope of the requests, and the lack of fisheries objectives in many of them, it was extremely helpful that DNRC Water Management staff stepped up their efforts to offer such assistance, creating the oft-ballyhooed (in name only, of course) "Drought Dream Team", to conduct triage with FWP water staff in assisting local groups.

- FWP Fish Managers felt good support and coordination between regions and Helena staff – response went well in 2001.

- Although one region lamented insufficient DNRC staff to follow up on known violations, other regions felt DNRC staff were helpful in following up on crisis situations (with water following DNRC's efforts in some cases). We also appreciated DNRC's assistance with water call violations in northwestern Montana.

- The use of water commissioners in some areas seemed to greatly increase the efficiency of water deliveries, in some places benefiting stream flows as well.

- We felt that reservoir operators, faced with unique energy-based demands and constraints, under emergency conditions were very willing to incorporate FWP recommendations while they were "reinventing" their own management (e.g., the timing of the flow reduction at Lake Koocanusa).

- The Future Fisheries Improvement program's emergency streamflow-related funding cycle resulted in a very successful leasing opportunity on a tributary to the Yellowstone River east of Livingston. The lease will significantly benefit Yellowstone cutthroat trout recruitment to the Yellowstone River. The special window would not have been offered if DNRC did not commit to "expediting" any related water right changes. They did, and the Locke Creek lease benefited from their willingness to make it a priority. The special FFI funding window also allowed support of important soil moisture-related irrigation scheduling investigations in two critical watersheds.

Challenges

- FWP staff are frequently asked during periods of low flow to help mediate polarized groups. We will help where we can, where solutions may help priority fisheries, but the demand for this greatly outstrips our ability to assist. Historically, and into the future, there have been and will continue to be water disputes, but this aspect certainly qualifies as "challenging". There is a misconception that FWP has some authority over low flows in the western portion of the state where we do not have many instream water rights.

- Voluntary fishing restrictions were successful in some areas, and less so in others.

- FWP's instream flow leases on Mill Creek experienced the worst failure in their history, with no water provided for much of the summer. This stream continues to be a challenge due to lack of adequate training for the water commissioner, inappropriate "coaching" from local landowners, questions yet to be resolved by the District Judge, and FWP staff inability to respond regularly and frequently to these site-specific issues when other drought emergencies are erupting all over the state. Unless administering of this senior water improves, these leases will likely not be renewed upon their expiration. This year's failure was extra disappointing, as it was the first year that fish benefiting from the initial lease years would have returned to spawn. There was spawning, but limited survival.

- Several of FWP's fish hatcheries experienced drought-related problems. Conditions at Murray Springs hatchery compromised that facility's ability to overwinter fish. Hatchery workers and managers had to respond quickly and in areas that are difficult to do so (e.g., changing stocking locations and species to minimize potential losses and restock areas that winter killed).

- An extreme challenge for an agency and staff that has worked hard to nurture and protect a world-class resource is to watch flows recede to almost nothing, and not be able to do anything about it. Streams that experienced total dewatering in portions in 2001 included Red Rock, Musselshell, Young, Middle Creek/Hyalite, Rock Creek (near Noxon), Battle Creek, Clear Creek, and many Bearpaw Mountain streams. We also watched major streams hit record low flows time and time again, notably the Yellowstone. And we watched streams where we have water rights continue to decline in flows without the tools and resources to determine whether it was due to junior users violating our calls, or otherwise. These challenges continue into good flow years, with those waters that are regularly dewatered, even in non-drought years (e.g., West Gallatin below Gallatin Gateway, Musselshell, Teton, etc.).

- A fierce challenge in low-flow years is water users lack of understanding of "junior" status and lack of familiarity with their own rights and what they mean. FWP received some extremely "strident" responses to its junior water user warning letters, several of which showed blatant misunderstanding of water law. We acknowledge that water law is often not mastered by even the wizened water user, but it continues to be a challenge to take time out from administering FWP's instream rights to attempt to approach a hostile water user to clear up misconceptions. We requested help with this from DNRC staff and have received good assistance in some areas, and less than desired in others. We did not request assistance to be absolved of dealing with the problem, but under the opinion that these water users would be more likely to listen to the "water agency" than the "fish agency" in explaining their water rights to them.

- A unique twist to the drought emergencies and experiences from 2000 was the addition of the energy challenges of 2001. Energy demands, especially in the Columbia basin altered the release regimes of Montana reservoirs, and introduced unknowns to Montana's agricultural industry already beset by negative economic factors.

- We continue to receive phone calls from citizens who are incredulous that streams in Montana can legally be dewatered.

- We experienced reports of problems associated with discharges to the Yellowstone River, but were unable to dedicate the time to investigate beyond our limited authority. It seemed likely that dischargers on streams with new record low flows were likely having trouble meeting their permit requirements, but heard of no investigations or mitigation for these likely problems. One location's cooling water discharge likely created a thermal barrier on the Yellowstone, limiting the migration of drought-stressed fish upstream to cooler waters. This issue may be solved through our obtaining more information.

- Back-to-back drought years provides a variety of challenges to many Montanans. For FWP, it is extremely challenging to ask for voluntary water conservation in multiple drought years, knowing that there can be very little additional that can be sacrificed. This begs the question as to whether voluntary water conservation should be relied on in the long-term for low-flow years, and encourages us all to pursue long-term solutions with greater vigor.

- A continued frustration in 2001 was the lack of drought planning in critical fishery basins (e.g., the Smith).

- In early 2001, FWP provided recommendations for minimum pools and flows within and out of State water projects. As in 2000, FWP still finds the management of state water projects to be less than optimal for fisheries in drought conditions. The Drought Plan seems to envision more proactive drought response related to Montana's state water projects. In one instance in 2001, a severe drawdown was justified at a state project based on the ability to restock fish – losing a mature and diverse fishery can take many years and resources to rebuild.

- The situation pertaining to how much water is available for release from Georgetown Lake persisted into 2001. An Advisory Committee obtained broad agreement on recommendations for management of the reservoir under low-flow conditions, but their recommendations were not implemented so the issue has gone to court. The situation is not yet resolved.

- Although less prevalent than in the past, there appears to be an undercurrent of opinion that a "fish kill" is the first indicator of a problem, when FWP considers it to be the last. It is important that citizens and decision makers understand that drought-related impacts on fisheries can be severe and long-lasting, even if a visible fish kill does not occur (or occurs but cannot be researched in time to be documented).

- The pulse flows out of Hebgen on the Madison went well. There was no documented mortality, and the operation should improve further with proposed automation of the pulsing.

- In southeastern Montana, applications for emergency 310 permitting activity were even more numerous than in 2000, with little CD follow-up and many applicants that later had to go back and provide mitigation for projects already implemented.

- With many impacts to Montana's fisheries documentable only after low flows occur (except in severe events causing fish kills that FWP is able to respond to quickly enough to document), it is difficult to show the effects of immediate drought in time to motivate non-fisheries advocates to conserve water. This is the nature of the science associated with fisheries biology, but it proves challenging in the throes of drought, to not be able to show immediate impacts.

- There is a broad expectation that FWP staff and tools actually can solve low-flow impacts on fisheries, and that such impacts actually can be fully mitigated. Although Montana's fisheries received a lot of assistance from other agencies and water users, there really are very few tools to deal with low-flow concerns on a broad scale in Montana.

- Drought response in Montana should focus on reducing drought susceptibility in the long run, not solely on emergency response and opportunities for compensation for losses. The Montana Drought Response Plan envisions a proactive approach to drought, but long-term fixes need long-term work, continued incentives and resources to accomplish that work, a variety of tools to undertake such fixes, and the commitment of multiple agencies to work together for common goals. All of this takes much more work on everyone's part, rather than going about our own business until the drought cycle returns, then frantically trying to respond. The "fixes" are often complicated, requiring varied study and cross-jurisdictional collaboration, and patience on the part of water right holders as the wheels of evaluation and funding assistance processes roll forward. Again, these win-win projects often take years to develop, and are difficult to implement successfully under "emergency" conditions.

VI. SUGGESTIONS

As with Successes and Challenges, above, an abbreviated list of suggestions follows. These were general responses from a variety of FWP personnel and administrators. Some apply solely to FWP drought response; others focus more broadly. We expect a more thorough discussion of potential improvements in drought assessment and response in the Annual Summary for 2002. We also refer readers to suggestions made in the Annual FWP Drought Summary from 2000 (http://nris.state.mt.us/drought2001/reports/DACFWP2000summ.html), many of which are still applicable.

- October is too early for FWP to conduct an effective drought wrap-up report. We are still responding to drought conditions at that time, and effects are still occurring. For such reports to include biological impact information, fall fish population sampling may have occurred, but spring sampling is months off. We are not sure whether the solution to this situation is for the Committee to provide FWP increased flexibility, given our unique circumstances, or for this topic to be discussed in a broader context (if other parties are of the same opinion). We have addressed the issue by providing extensive reporting during the spring/summer/fall drought period regarding current conditions.

- DEQ drought response reporting should include information on water quality issues beyond those applicable to public water supplies. The reporting on the latter topic is good, but with stream flows setting new record lows, it is likely there were problems with compliance with discharge permits. It would be helpful to hear what was tracked, assessed and done about this issue in the past, and approaches for the future. Also, DEQ holds water quality streamflow reservations (see Appendix G), yet we did not hear whether those were invoked, or under what circumstances they would be.

- Some internal suggestions for FWP included:
    - Move the conference calls from 8 a.m. Monday to 9 a.m. Wednesday, to allow Fish Managers necessary consultation with field staff prior to the call.
    - Change the Internet drought reporting system so that reports can be updated, rather than having to re-enter all information (including aspects that may not have changed).
    - The 2001 experience evidenced some needed updates to FWP's Dewatered Streams List.
    - FWP needs to improve our senior water right call strategy, so it works more smoothly, addresses the correct water users, is timely and equitable, and automated enough to accommodate the need to make multiple calls simultaneously.
    - Ensure landowners and the public are aware of the means that FWP and the FWP

Commission have to address game management and landowner game damage complaints.
    - Develop new strategies to improve hunter access to private land in order to achieve an adequate harvest of elk to maintain populations within established objectives.
    - Revise FWP's Elk Management Plan incorporating new strategies to address game damage and hunter access issues.

- Montana should have a minimum instream flow law. People should not be able to dewater streams. (Suggestion was from an FWP Regional Supervisor.)

- Basin closures would be appropriate in Young Creek and Tobacco River.

- It might be advisable for the DAC to send a letter to LDACs/County Commissioners at the end of the year describing potential for drought to continue.

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- A Vice Chair should also be named. Especially in the Work Session mode, lack of Committee leadership and continuity to the morning meetings was detrimental. It is too much (and a conflict of interest) to ask Committee staff to assume a leadership role. A Vice Chair might also allow for additional leadership involvement in the development of the agenda and tracking and pursuit of action items by the Committee as a whole.

- The DAC should foster greater coordination and involvement from local drought coordinators. This could be accomplished under a specific agenda item, encouraging more diverse Committee membership, The November local drought coordinator meeting was a step in this direction, but they likely would appreciate additional coordination and communication, and to have that enhanced networking happen earlier.

- Committee membership should be more fluid, with membership and activities tailored to issues and opportunities pertinent to the time. There should definitely be a specific discussion item at a meeting early in the year related to Committee membership, ground rules, roles, and expectations. (See suggestions from 2000.)

- The Committee should encourage more local response planning and foster exchanges between basins, including possibly providing funding for exchanges and/or a training session.

- A basic Committee need is accurate and timely minutes of meetings and action items. The Committee should invest in staff capable of focusing solely on taking minutes at the meetings.

- Additional coordination with Conservation Districts would be helpful, including their providing additional information to their constituents on water conservation methods and continued diligence with their approaches to emergency 310 permits. Conservation District and watershed group representation on, and involvement in, the Committee are noticeably absent.

FWP staff appreciate the opportunity to make these suggestions. We hope they are helpful in increasing the efficiency and effectiveness of the Committee in being a catalyst for continued creativity in drought preparation and response in Montana. Please contact Kathleen Williams with any questions regarding the information in this report.

APPENDICES