

Minutes
International Souris River Board
Holiday Inn Airport West
Winnipeg, Manitoba
Wednesday, February 6, 2002

The meeting was called to order at 10:05 a.m. (CST) by Mr. Boals. Mr. Boals welcomed the Board members and other participants and introduced the new secretary, Cathy Martin.

02-A-01 Review of the Agenda

Mr. Eaton requested rewording of Agenda Item 9 from "Presentation of the 1999 Souris Flood Report" to "Status of the 1999 Souris Flood Report."

02-A-02 Review of Minutes of the June 19, 2001, Meeting and the September 28, 2001, Teleconference Call

It was moved by Mr. Wiche and seconded by Mr. Bowering that the June 19, 2001, meeting minutes be approved.

Carried

It was moved by Mr. Frink and seconded by Mr. Dybvig that the September 28, 2001, teleconference call minutes be approved.

Carried

02-A-03 Compilations of Souris River Flows to December 31, 2001

(Mr. Renouf; handouts provided) A significant amount of water (312,600 dam³) passed through the system at Sherwood. The rest of the basin had an ample supply of runoff to meet needs. The flow volume recorded at Long Creek at Western Crossing was 58,200 dam³, which was a gain of 14,620 dam³. Boundary Reservoir received inflow of 72,820 dam³ during the year. Of that inflow, 29,300 dam³ was released into Long Creek, and 23,800 dam³ was transferred to Rafferty.

Inflow at Rafferty was 195,400 dam³, and the release at Rafferty was 162,100 dam³. At yearend, the reservoir essentially was at the same level as at this time in 2000.

In the lower Souris River Basin, the diversion at Short Creek was minor, and the diversion at Moose Mountain Lake was 2,090 dam³. Most inflow to Alameda was passed through the reservoir.

The total addition from non-contributory basins was 77,600 dam³.

The total diversion for the Souris River Basin was 71,810 dam³; the recorded flow at Sherwood was 312,600 dam³; and the calculated natural flow at Sherwood was 306,810 dam³. The United States share on a 60/40 split was 122,720 dam³ (the United States received 314,190 dam³ of flow). Surplus to the United States was 191,470 dam³.

The United States received more than 100 percent of natural flow because of the non-contributory basins.

It was moved by Mr. Bowering and seconded by Mr. Wiche that the natural flow computations be accepted as provided.

Carried

02-A-04 Review of 2001 Hydrologic Conditions and Current Flow Conditions

Saskatchewan (Mr. Banga; handout provided) A well-above-normal spring runoff was recorded for Boundary Reservoir. About 29,200 dam³ was released down Long Creek during the spring, and about 23,900 dam³ was diverted from Boundary Reservoir to Rafferty Reservoir in 2001. The elevation of Boundary Reservoir on December 31, 2001, was 559.53 m (1.3 m below the full supply level).

Peak releases from Rafferty Reservoir occurred in May, and releases were reduced to zero in September. The elevation of Rafferty Reservoir on December 31, 2001, was 549.31 m (0.19 m below the February 1 drawdown target elevation of 549.5 m).

Alameda Reservoir showed two widely separated peak inflows. After spring runoff, releases were made through the summer and fall. The elevation of Alameda Reservoir on December 31, 2001, was 560.91 m (0.09 m below the February 1 drawdown target elevation of 561.0 m).

The Souris River Basin experienced fair to very dry conditions in the summer and fall of 2001. Soil-moisture conditions at freezeup were well below normal except in a small area of southeast Saskatchewan; conditions were near normal in that area. Precipitation through January 2002 was well below normal throughout the basin, and snowfall was in the range of 50 to 85 percent of normal. Temperatures were mild, and warm spells melted much of the snowpack.

Spring 2002 runoff is expected to be well below normal. The operation plan is to capture runoff in Boundary Reservoir (no releases); Rafferty Reservoir (no releases in winter, spring, or summer); Moose Mountain Reservoir (no releases); and Alameda Reservoir (releases for apportionment purposes and to try to meet 50 percent of natural flow at Sherwood).

The year 2002 is expected to be a 50-percent sharing year because anticipated natural runoff is less than 50,000 dam³. The amount of runoff forecast for the Souris River Basin in Saskatchewan is well below a 1- and 2-year runoff event. Year 2002 will be a year for testing the procedures to satisfy the 4-cfs criteria at Sherwood Crossing.

On January 31, 2002, Boundary Reservoir was at an elevation of 559.48 m; on January 3, 2002, Nickel Lake was at an elevation of 562.46 m; and on February 4, 2002, Rafferty Reservoir was at an elevation of 549.31 m, and Alameda Reservoir was at an elevation of 560.92 m.

North Dakota (Mr. Harkness; handout provided)

The 2001 hydrograph for Sherwood shows more water in the Souris River Basin than in calendar year 2000. The Sherwood gauge has been monitored closely in recent years to define near-real-time flow for the internet.

In mid-February, releases were started from the Canadian reservoirs. The releases arrived at Sherwood rapidly, but it was more than a month later that conditions allowed for the first discharge measurement. The releases were increased in small steps and the weather turned colder during the time of the releases. As a result, several layers of ice were created at the Sherwood gauge. Measurements were attempted five times before an accurate measurement could be made. Similar stepped releases from Lake Darling also resulted in ice conditions that prohibited measurements until late March or early April.

Gradual stepped increases should be avoided if at all possible. If such releases are made early in the year, temperatures should be monitored and the releases made when the weather turns warmer. The releases then should be steady rather than stopping and starting.

Flow at Sherwood remained well above the 10-cfs alert level from May through October. Flow at Westhope remained well above the 20-cfs minimum throughout the June to October period.

North Dakota (Ms. Prindiville; handout provided)

Precipitation totals for 2001 generally were below normal. Runoff in North Dakota began during the second week of March, and the first flood warning for the Souris River was issued on March 19. Prolonged flooding occurred until June 5. Minor-to-moderate flooding occurred in the lower part of the Souris River Basin, and multiple crests occurred from mid-April to mid-May.

Fall moisture was below normal throughout the basin, and 3-month precipitation totals generally were 20 to 50 percent of normal. Seasonal snowfall totals were 10 to 20 in., or 15 to 25 in. below the seasonal averages. Frost depths were 2 to 3 ft. Precipitation totals by month were normal for all sites except in June and July.

The 90-day outlook for February through April 2002 is for normal temperatures and precipitation.

Weighted soil-moisture percentages indicate dry conditions in southeast Saskatchewan, Manitoba, and eastern North Dakota.

North Dakota (Mr. Anderson)

For 2002, even with normal precipitation, minor flooding (flood stage or below) is expected for the 12 forecast points on the United States side of the basin. If conditions change, a numeric rating will be issued. After this year, a probabilistic forecast giving stage/volume probabilistic exceedance values will be issued once each month (mid-month) throughout the year.

Manitoba (Mr. Warkentin; handout provided)

Flood conditions developed during the first week of November when 80 mm of precipitation fell in parts of the Souris River Basin. Snowfall for the rest of the winter was well below average, but a slow sporadic melt prolonged runoff and flooding. A snowstorm at the end of March produced significant additional runoff, and precipitation during April and May added substantially to the runoff. Flooding in Manitoba began in late March and continued until mid-June.

Peaks for the Souris River in Manitoba in 2001 were in excess of those in 2000 but less than those in 1999. Flows were much less than in 1999 but still were great enough for runoff to occur. Weekly discharges for the Souris River near Westhope and the Souris River at Wawanesa from March 22 through June 28 were above the median for the entire period and above the upper decile for a short time in April. Daily stages for the Souris River near Melita were well below 1999 stages but were above flood stage until mid-June. The flooding was caused by a significant amount of water in Saskatchewan and the lower part of North Dakota.

For 2002, snowfall is well below average. A satellite microwave map of snow cover indicates a fair bit of snow in southeast Saskatchewan and southwest Manitoba, but the water content probably is overestimated.

02-A-05 Water Apportionment in 2002 It was moved by Mr. Bowering and seconded by Mr. Wiche that the apportion approach in 2002 will use 50-percent sharing at Sherwood and releases be made according to natural conditions.

Carried

Discussions centered on information and data requirements. Although the first apportionment reporting is now done for May 31, an estimate of natural flow would be helpful by the end of April to make releases from the reservoirs while the channels are still prime. Runoff starts at the end of February in some areas, so those hydrographs need to be looked at to see if 50 percent of the natural flow has been delivered following the natural hydrograph. New measures state that Saskatchewan is to deliver, prior to June 1, 50 percent of 50,000 dam³ (natural flow from January 1 to May 31). If information is received by the end of April, releases can be made while the channels are primed and the state of deliveries to the United States at Sherwood can be determined.

It was moved by Mr. Wiche and seconded by Mr. Ball that natural flow be estimated to the end of April 30, 2002, and the estimate be delivered to the Board within 5 working days thereafter.

Carried

Saskatchewan (Mr. Banga; handout provided)

There was one new project approved during 2001. The net effect of three cancelled projects and a typographical error in the data base resulted in a decrease of the total diversions by 43 dam³ within the contributing drainage area. There was no change in the total diversions within the noncontributing drainage area.

North Dakota (Mr. Frink; handout provided) Two new surface-water permits and 11 new ground-water permits were issued in 2001. The annual water use for the surface-water permits was 135.0 acre-ft (166.5 dam³), and the annual water use for the ground-water permits was 1,879.5 acre-ft (2,318.3 dam³). The total amount of water to be used annually for the surface- and ground-water permits is 2,014.5 acre-ft (2,484.8 dam³).

Manitoba (Mr. Bowering; handout provided) No new appropriations were made in 2001. Water in the Souris River has been fully allocated.

02-A-06 Operation of U.S. Refuges and Reservoirs on the Souris River

(Mr. Knauer, handout provided) The water level for Lake Darling on January 1, 2001, was 1,595.96 ft (486.4 m). A total of 98,940 acre-ft (122,041 dam³) was in storage and one sluice gate was open to discharge 50 cfs (1.4 cms). An event return period of greater than one in ten years was forecast for the Sherwood Crossing (unregulated) flow.

The forecast triggered a series of flood-control events, including the first-ever pre-flood drawdowns of Boundary and Alameda Reservoirs. Total provisional inflow at Sherwood for the first 5 months of the year was 213,438 acre-ft (263,276 dam³). The elevation of Lake Darling increased slightly from 1,595.96 ft (486.4 m) on January 1 to 1,596.26 ft (486.5 m) on May 31. The elevation on June 1 was 1,596.34 ft (486.6 m).

Total yearly provisional inflow at Sherwood was 253,485 acre-ft (312,674 dam³) or 254 percent of the historic average annual inflow (water year). Total yearly provisional outflow at the Souris River near Foxholm gauge was 247,960 acre-ft (305,859 dam³) or 260 percent of the historic average annual

outflow (water year). Total outflow for Lake Darling was 5,525 acre-ft (6,815 dam³) less than total measured inflow.

The elevation of Lake Darling on December 31 was 1,595.91 ft (486.4 m). The elevation on February 1, 2002, was 1,595.98 ft (486.5 m). Water releases from Lake Darling for 2002 will be determined after spring runoff and may be changed during the summer as circumstances and weather influence marsh water levels.

If conditions during 2002 permit, Pool 326 will be dewatered to an elevation of 1,417.1 ft (431.9 m) by mid-summer. Pools 332 and 341 will be managed at the same approximate level to facilitate the drawdown. The Rubble Masonry Unit will be held at 1,425.8 ft (434.6 m) if adequate water is available. Pools 320 and 357 will be managed at intermediate levels. The Benson Unit will begin the summer at 1,422.0 ft (433.4 m).

Mr. Frink brought forth a request by the North Dakota Department of Health on the possibility of making a spring release for Minot because of an anhydrous ammonia spill in the city. Liquid anhydrous ammonia reached the river and froze on top of the ice. No ammonia was discovered in the river, and the concentrations in the river are at the lower end of toxic levels. The deep aquifers in Minot have not been affected by the spill, but shallower aquifers have been affected. The request for a spring release is to dilute the ammonia to ensure that the Souris River does not become contaminated.

The estimated amount of anhydrous ammonia in 22,000 ft² of ice is 1,300 lbs. Concern was expressed about the impact of the ammonia on the water quality of the river. Concentrations of 250 mg/l ammonia as nitrogen are considered to be the hot zone and lead to dissolved oxygen sags and fish kills. Concentrations usually are about 0.5 mg/l. A 100- to 200-cfs release would ensure that the nitrogen level in the river is below a few milligrams per liter.

02-A-07 Report by the Natural Flows Method Committee

(Mr. Renouf; handout provided) The Board currently is using the storage-change/evaporative-loss method to determine diversion at Alameda Reservoir and a modified inflow-outflow approach to determine diversion at Rafferty Reservoir. Data that can be used for other methods also are collected at both reservoirs.

In mid-September 2001, Environment Canada distributed a number of spreadsheets that contained natural flow diversion values computed by two methods for Alameda Reservoir and three methods for Rafferty Reservoir. On January 14, 2002, the Committee met by teleconference to discuss the information that had been distributed and to determine what actions to take. The Committee agreed that it will produce and distribute an electronic version of the 1973 report, review the distributed spreadsheets, conduct an analysis to determine the part of gauged and ungauged drainage into Rafferty and Alameda Reservoirs, and make recommendations on how gauged data may be transferred to ungauged areas. The committee will meet briefly following the February 6, 2002, meeting of the International Souris River Board.

Mr. Harrison will replace Mr. Bowering on the Natural Flows Method Committee. It was suggested that a procedures manual be developed by the Committee.

02-A-08 Update by the Flow-Forecasting Liaison Committee

(Mr. Banga; handout provided) Updates are given on tables 3 and 6 of the handout entitled "Souris River Flow Forecasting Liaison Committee Membership and Networks Update, February 2002." There was a good exchange of information during 2001.

02-A-09 Status of the 1999 Souris River Flood Report

(Mr. Eaton; handout provided) Mr. Eaton reported that he has been working on the report full time. A draft, which will be reviewed by the forecasting group, is scheduled to be ready in mid-February. After this review, the draft report will be provided to the International Souris River Board for review (scheduled for the end of March).

A Task Force is being formed to answer the “terms of reference” given in the handout entitled “Status Report 1999 Souris River Basin Post-Flood Report.” The outline of the report and the considerations identified in the report were discussed. The Task Force noted that the flood triggers are well defined but there is nothing in place if a disagreement arises. Additional forecasts should be available to verify the flood-trigger forecast, recognizing the uncertainty in forecasts being done as early as February.

02-A-10 Discussion and Update on Water Management Projects

NAWS (Mr. Frink) The Bureau of Reclamation informed the State of North Dakota that the State could move forward on the Northwest Area Water Supply (NAWS) project. The NAWS project was designed to transfer water from Garrison Dam to Minot and to 14 smaller communities and several water- supply systems. An advertisement for bids was prepared and the bids were opened last week. The North Dakota State Water Commission is hoping to approve a bid soon.

Manitoba is still considering a lawsuit against the Bureau of Reclamation on procedure. The issue arises from the transfer of water from the Missouri River Basin to the Hudson River Basin. However, Mr. Frink reported that the Missouri River water is treated and is moved by a pipeline to Minot, so Mr. Frink suggested that the risk to Manitoba is very minimal.

Lake Metigoshe (Mr. Frink) The natural overflow elevation for Lake Metigoshe is 2,136 ft. A small weir has been constructed, which raises the lake a couple of feet, and flash boards raise the lake approximately another foot. A cabin owner on the Manitoba side has filed a complaint on the issue. It appears that water permits were never obtained for the structure. The Water Board has applied for the permits, and flood easements need to be obtained from all landowners. The structure also is not licensed by the International Joint Commission. The structure floods about 60 acres in Manitoba. Discussions are taking place and the Water Board is in the process of applying for the required permits.

Other (Mr. Bowering)

Manitoba is conducting a review of potential sources of additional water supplies.

02-A-11 Discussion of Revised Mandate for ISRB

Revised Directive for ISRB:

Comments were provided by Mr. Dybvig and Mr. Frink on clause 6 (concerning alternate Board members) of the revised mandate. Both suggested that the clause be worded so that a Board member may appoint an alternate to act in place.

Concerning clause 9, Secretaries of the Board are appointed by the Co-Chairs of the Board.

It was moved by Mr. Frink and seconded by Mr. Dybvig that the revised mandate be accepted.

Carried

Mr. Boals has reviewed the draft of the discussion document. He will finish the document and distribute it for review as soon as possible.

02-A-12 Preparation of the 2001 Annual Report to the IJC The annual report is being drafted. The report is the responsibility of the outgoing secretary. Water-management projects will be included in the report, and the map is being updated.

02-A-13 IJC Spring Meeting Update

The spring meeting has been set for April 8-12. The ISRB has been scheduled to appear on Tuesday of that week.

02-A-14 Other Business

IJC Invitation to Workshop, March 2002 (Ms. Bourget; handout provided)

A workshop has been organized for March 5-6 to develop guidance and discuss issues facing the IJC Boards as they move to implementing a watershed approach. IJC Guidelines for Release of Board Minutes to the Public (Ms. Bourget; handout provided) Guidelines were submitted for the release of Board minutes to the public.

Immunity guidelines also were distributed to Board members.

Other

Mr. Boals will begin discussions with Board members on security concerns. **02-A-15 Date and Location of Spring 2002 Meeting**

The meeting was adjourned at 3:00 p.m. by Mr. Boals. A conference call will be set for May 9 at 10:00 a.m. The next meeting will be held on Tuesday, June 25, in Boissevain, Canada.

AGENDA
INTERNATIONAL SOURIS RIVER BOARD
Winnipeg, Manitoba
10:00 (CST)
February 6, 2002

1. Review of the agenda
2. Minutes of the Meeting held June 19, 2001
3. Compilations of Souris River Flows to December 31, 2001
4. Review of 2001 Hydrologic Conditions and Current Flow Conditions
 - a. Saskatchewan
 - b. North Dakota
 - c. Manitoba
5. Water Apportionment in the Souris during 2001
6. Operation of U.S. Refuges and Reservoirs on the Souris River
7. Report by the Natural Flows Method Committee
8. Update by the Flow-Forecasting Liaison Committee
9. Presentation of the 1999 Souris Flood Report
10. Discussion and update on Water Management Projects
 - a. NAWS
 - b. Lake Metigoshe
 - c. Other

11. Discussion of revised mandate for ISRB
12. Preparation of the 2001 Annual Report to the IJC
13. IJC Spring meeting update
14. Other Business
15. Date and Location of Spring 2002 Meeting

FINAL MINUTES DISTRIBUTION LIST
INTERNATIONAL SOURIS RIVER BOARD
Winnipeg, Manitoba
10:00 (CST)
February 6, 2002

MEMBERS FOR CANADA

Russell Boals, A/Chief, Water Survey Division, Environment Canada, Regina, Saskatchewan

Wayne Dybvig, Vice President, Water Management, Saskatchewan Water Corporation, Moose Jaw, Saskatchewan

Rick Bowering, Manager, Surface Water, Manitoba Conservation, Winnipeg, Manitoba

MEMBERS FOR UNITED STATES

Gregg Wiche, District Chief, U.S. Geological Survey, Bismarck, North Dakota

Dale Frink, State Engineer, North Dakota State Water Commission, Bismarck, North Dakota

Robert Ball, Commander, U.S. Army Corps of Engineers, St. Paul District, St. Paul, Minnesota

SECRETARY OF THE BOARD

Cathy Martin, Technical Editor, U.S. Geological Survey, Bismarck, North Dakota

OTHERS

Edward Eaton, Chief, Water Control Section, U.S. Army Corps of Engineers, St. Paul, District, St. Paul, Minnesota

Alex Banga, Director, Basin Operations, Saskatchewan Water Corporation, Moose Jaw, Saskatchewan

Bob Harrison, Senior Hydrologist, Manitoba Water Branch, Winnipeg, Manitoba

Annette Verley, MB District Manager, Environment Canada, Water Survey Division, Winnipeg, Manitoba

Alf Warkentin, Senior River Forecaster, Manitoba Water, Winnipeg, Manitoba

Lisa Bourget, Engineering Advisor, International Joint Commission, Washington, DC

Don Williams, Farmer/Irrigator, Medora, Manitoba

Jim Downey, President, James E. Downey Int. Ltd., Melita, Manitoba

Bob Howard, Refuge Manager, U.S. Fish and Wildlife Service, J. Clark Salyer National Wildlife Refuge, Upham, North Dakota

Megan Estep, Refuge Hydrologist, U.S. Fish and Wildlife Service, Denver, Colorado

Dean Knauer, Refuge Manager, U.S. Fish and Wildlife Service, Upper Souris National Wildlife Refuge, Berthold, North Dakota

Russ Harkness, Chief, Hydrologic Records, U.S. Geological Survey, Bismarck, North Dakota

Mike Renouf, Manager, Saskatchewan District, Environment Canada, Water Survey Division, Regina, Saskatchewan

Dan Luna, Hydrologist-in-Charge, National Weather Service, North Central River Forecast Center, Chanhassen, Minnesota

Charlene Prindiville, Service Hydrologist, National Weather Service, Bismarck, North Dakota

Mike Anderson, Hydrologic Forecaster, National Weather Service, North Central River Forecast Center, Chanhassen, Minnesota