



International Souris River Board
Clarion Hotel & Convention Center
2200 East Burdick Expressway, Minot, ND
February 20 & 21, 2020

Final Minutes

Board Members:

Garland Erbele, Nicole Armstrong, Frank Durbian, David Pattyson, Gregg Wiche, Debbie McMechan, Lorinda Haman, Jeff Woodward, John Fahlman, Joe Goodwill, Col Karl Jansen, Scott Gangle, Dave Glatt, Shelly Wepler.

Board Members Via Conference Call: Mark Lee, John-Mark Davies

Board Member Regrets –David O’Connell, Russell Boals, Debbie McMechan

Attendees:

David Ashley, Mark Gabriel, Catherine-Lee Johnston, Leeland Goodman, Wanda McFayden, Girma Sahlu, Ken Bottle, Laura Diamond, Allen Schlag, Tim Ma, Steve Robinson, Heather Husband, Joel Galloway, Tammy Hansen, Chris Korkowski, Kim Fundingland, Tom Pabian, Mitch Weier, Michael Bart, Bryanna Sherbo, Morrissa Boechers, Brad Kirbyson, Brandan Eastman, Sherese Blacksmith, Richard Aisaican, Anthony Pagliai, Brain Caruso, Dan Jonasson, Paul Smetana, Kyle Olsen

Attendees Via Conference Call: Dorothy Lindeman, Wayne Jenkinson, Dan Selinger, Rebecca Seal-Soileau

1. Introduction and Opening Remarks.

Garland Erbele opened the meeting at 1:31 p.m. on February 20th and extended his welcome wishes to all attendees. Garland thanked the U.S. Army Corps of Engineers for lending their speaker and microphone system for the ISRB meeting. Nicole echoed similar remarks and asked Board members and other participants to introduce themselves including those on the conference call.

2. Approval of Agenda.

The agenda was approved with minor modifications. An item was added after item #15 of the agenda to discuss the Indigenous engagement that has occurred with the Plan of Study and how this engagement could contribute to the ISRB. Several modifications were made to those presenting for their agencies on several agenda items.

Motion: Frank Durbian moved to accept the agenda as modified. Shelly Weppler seconded the motion. Carried.

3. Approval of Minutes:

a. June 26, 2019 Face-to-face Meeting Minutes

Motion: Joe Goodwill moved to accept the minutes as modified. Shelly Weppler seconded the motion. Carried.

4. Review of Action Items

Nicole Armstrong reviewed the Action Items from the of the June 26, 2019 meeting minutes and noted that they have been addressed accordingly. An updated list of action items is included on page 18 of this document.

5. Review of 2019 Hydrologic Conditions, Spring 2020 Hydrologic Forecast and Planned Operations

a. Saskatchewan

Jeff Woodward, Water Security Agency (WSA), gave a presentation that included a review of the 2019-2020 hydrological conditions, the forecast for spring 2020, and the 2020 reservoir operating plans for Saskatchewan.

Winter Drawdown – WSA initiated the drawdown at Grant Devine Dam on October 8, 2019 at a rate of 0.34 m³/s (12 cfs) to bring the reservoirs down to its February 1st Normal Drawdown Level (NDL) over the winter months. The winter drawdown was increased on November 25 to 0.41 m³/s (14 cfs) to meet NDL by February 1st. The NDL was achieved on January 21, 2020 and the outflow was terminated. No outflow was required at Rafferty as levels were below the February 1st NDL at freeze-up.

Jeff W. showed precipitation maps that indicated the April 1 to October 31, 2019 precipitation that were extremely high, nearing the 98th percentile, during the growing season across the Saskatchewan portion of the basin. The September 3rd to November 1, 2019 precipitation was from 100 to 300 percent of normal, showing much of the precipitation came in the fall.

According to the National Oceanic Atmospheric Administration (NOAA) Modelled Snow Water Equivalent (SWE) surveys, snow ranges from trace amounts in the east to 10 cm (4 in) in the east half of the Saskatchewan portion of the Souris River Basin.

Jeff W. presented the Forecast and Operating Plan based on the February 15, 2020 forecasts for Rafferty, Grant Devine and Boundary Reservoirs. According to the February 15, 2020 spring runoff forecast, slightly above normal runoff is expected across the basin, therefore non-

flood operations will apply. There is no need for additional drawdown. Apportionment will be based on a 60/40 split as the natural flow at Sherwood is expected to be greater than 50,000 dam³. Jeff W. stated based on current conditions, the reservoirs in Canada are not expected to fill in spring 2020. If Boundary fills, the excess will be diverted to Rafferty. If Rafferty is filled, the excess will be released at a controlled rate and return to Full Supply Level (FSL) by June 1st. No drawdown is required from Grant Devine, as well. A release from Grant Devine will be at a controlled rate if there is excess and return to FSL by June 1st. Releases from Grant Devine will be used for apportionment requirements.

b. North Dakota

Steve Robinson, United States Geological Survey (USGS), presented a summary of 2019 flow conditions for the US portion of the basin. According to Steve's report, the total volume of flow past the Long Creek at the Noonan gage through December 31, 2019 calendar year was 9,995 acre-ft (12,329 dam³). This volume is about 66% of the median flow for the past 60 years. The peak discharge for the reporting period January 1 to December 31, 2019 is 470 ft³/s (13.31m³/s) on March 25, which ranks 34th in 60 years of record.

The total volume of flow past the Souris River near Sherwood gage through December 31, 2019 calendar year was 31,160 acre-ft (38,436 dam³). The total flow is 62% of the median flow for the past 89 years. The peak discharge for the period January 1 to December 31 was about 717 ft³/s (20.3 m³/s), which occurred on March 25th and ranks 57th in the last 89 years of record.

Flow recorded at the Souris River near the Westhope gage, through December 31, 2019 calendar year was 212,620 acre-feet (262,267 dam³). The calendar year's total flow is about 177% of the median flow for the past 90 years. The peak discharge for the period January 1 to December 31, 2019 was 1,190 ft³/s (33.7 m³/s) on October 31st, which ranks 42th in 90 years of record.

Steve R. noted that the peak record flows for the fall were set this year on the Souris River.

Allen Schlag with the National Weather Service (NWS) presented a slideshow with an overview of 2019 and implications for the 2020 spring runoff. As of June 18, 2019, much of the Souris River Basin in North Dakota was in a severe drought. Alan's presentation backed up Steve's comments on an extremely wet fall, showing that the fall precipitation that occurred throughout much of North Dakota made 2019 the August to October period the wettest on record out of 125 years of recorded data. Allen also presented slides showing that the soil moisture for North Dakota for February 13, 2020 was in the 95- to 99-percentile.

Allen presented slides showing the snow water equivalent on the landscape as of February 14, 2020, showing trace to near 1-inch snow water equivalent snowpack within the Souris River Basin. Alan noted that the springs outlook is for slightly above normal precipitation with near normal temperatures.

Garland Erbele asked Allen if there were any ways of predicting the potential for ice jams that could lead to flooding. Allen stated that ice jams are nearly impossible to forecast, but mentioned that there are things that are known to improve and lower the risk of ice jams. He noted that in the Souris River basin when the snowpack is high, operators of the systems reservoirs typically release a lot of water in early spring, which helps soften the ice. Allen stated that this year, without the need to release extra water, the ice sheet may be more rigid,

but the likely hood of the ice sheet causing jams was still low because so little runoff is expected. Garland Erbele prompted that the reason he had asked the question was based on the ice jams on the Missouri River System this year. Allen says that the ice that floats downstream of Garrison Dam collects on sandbars and other structures and flips making them near vertical, which is typically the type of ice formation that occurs on the Missouri River.

Garland Erbele also asked if the increase in soil moisture this fall impacted the frost depth. Allen noted that soil moisture isn't as big of a factor as the snow cover on the landscape. In places that had high snowpack in October, the frost depth underneath is extremely shallow. Allen stated that typical frost depths on the Souris River Basin are nearly 2.5-3 feet and this year the depths are approximately 30 inches on the northern North Dakota counties. Allen said this depth is pretty much average for this region.

c. US Fish and Wildlife Service (USFWS)

Frank Durbian presented a summary of refuge operations and flows for 2019. The total provisional inflow measured at Sherwood for the first five months of the year was 23,733 acre-ft (29,275 dam³). This was only 29% of the historic January-May inflow, which was 81,842 acre-ft (100,952 dam³) for the period 1938 through 2019. Total Upper Souris Refuge pool volume increased an estimated 8,310 acre-ft (10,250 dam³) during the first five months. The total provisional outflow measured at Foxholm on the south end of the Upper Souris Refuge for the first five months of 2019 was 17,851 acre-ft (22,019 dam³). This was only 26% of the historic record for the January-May outflow, which was 69,992 acre-ft (86,335 dam³) for the period 1938-2019. Lake Darling elevation increased 0.78 ft (0.24 m) from 1596.05 ft (486.48 m) on January 1st to 1596.83 ft (486.71 m) on May 31, 2019. The lake elevation on June 1st 2019 was 1596.83 ft (486.71 m).

Total yearly provisional flow at Sherwood was 31,190 acre-ft (38,194 dam³). This was 27% of the historic average annual inflow (based on calendar year), which is 115,965 acre-ft (143,042 dam³) for the period of record from 1938-2019. Total yearly provisional outflow measured at the Souris River near Foxholm on the south end of the Refuge was 31,403 acre-ft (38,735 dam³). This was 27% of the historic average annual outflow which is 118,494 acre-ft (146,162 dam³) for the period of 1938-2019. Total outflow was 213 acre-ft (262 dam³) less than total measured inflow. On December 31, 2019, Lake Darling was at an elevation of 1596.20 ft (486.52 m).

The total provisional flow measured at J. Clark Salyer National Wildlife Refuge from the Souris River to the Refuge from January 1 through May 31 was 52,435 acre-ft (64,679 dam³). This was 49% of the historic January-May inflow, which was 106,334 acre-ft (131,163 dam³) for the period of 1938-2019. Total Pool volume on May 31 was 40,737 acre-ft (50,249 dam³). This was 7,954 acre-ft (9,811 dam³) above the January 1st volume. Approximately 68,555 acre-ft (84,563 dam³) was passed to Manitoba during the five-month period.

Total outflow measured at Westhope for the 2019 calendar year was 216,109 acre-ft (266,570 dam³). Total inflow at Bantry was estimated to be 70,830 ac-ft (87,369 dam³) more than the total measured outflow on the Souris at Westhope. Outflow during the June 1 to October 31 period was 73,386 ac-ft (90,522 dam³), or 67,317 ac-ft (83,036 dam³) above the 6,069 ac-ft (7,486 dam³) required minimum.

The average daily flow at the Westhope gage did not fall below the minimum 20 cfs (0.57 cms) requirement during the period of June 1 through October 31, 2019.

Garland Erbele asked Alan Schlag about the forecast for the Souris River, noting that the significance of flooding increased as you moved downstream, and if the snowpack was more significant in the downstream portions of the basin. Alan stated that Garland's assumption was correct and that there is minor risk of flooding above Lake Darling. Alan mentioned that downstream of Verendrye there is a risk of minor flooding due to the snowpack.

d. Manitoba

Mark Lee presented a summary of the hydrologic conditions for the Souris River in Manitoba. Mark L. stated that his update of hydrologic conditions echoes the previous presentations in that the fall was extremely wet, but there currently isn't much snow on the landscape. The spring melt started in early to late-march. Flood peaks corresponded to 1-in-2-year flow event, indicating that these peaks are very close to the median of the record. The Souris River at Wawanesa peaked at 55.5 cms (1,960 cfs) on March 31st.

In early October a snow storm and subsequent melt resulted in record flows for October at Wawanesa. The Souris River peaked at Wawanesa on October 19 with a flow rate of 88.6 cms (3130 cfs), which was higher than the spring peak. Record flows for October were observed across southern Manitoba. Antecedent moisture conditions at freeze up were above to well above normal in the basin, including Manitoba's portion. Snow accumulation in the Manitoba portion of the basin is tracking below normal to well below normal.

Flow entering Manitoba from releases from the J. Clarke Sawyer Wildlife Refuge have been approximately 8.5 cms (300 cfs) over the winter. The flow is "well above normal" for this time of year.

The National Weather Service's probabilistic forecast at the North Dakota-Manitoba border (Westhope, ND) is attached and shows the probability of spring flooding in 2020 is higher than the historical average. Due to below normal snow accumulation, the flood risk for Manitoba tributaries is currently lower than normal (see attached figures). With wet antecedent conditions, the flood outlook will be heavily dependant on future snow accumulation and melt conditions. The Manitoba Hydrologic Forecasting and Coordination Branch will release their first 2020 conditions report at the end of February (www.gov.mb.ca/mit/floodinfo for more information).

Garland E. asked about the depth of frost penetration in the soil. Allen S. responded the ground is not still frozen from last year's late fall precipitation. Normally the average frost depth would be about 30 inches (76 cm).

6. Compilation of Souris River Flows to December 31, 2019

Dan Selinger presented the results of the natural flow computations by Environment and Climate Change Canada (ECCC). Dan outlined the results of natural flows determined by ECCC for the period ending December 31, 2019. The total diversion in the Souris Rivers basin was 37,978 dam³ (30,789 acre-ft). Recorded flow at Sherwood was 38,436 dam³ (31,160 acre-ft). The natural flow computed at Sherwood was 73,930 dam³ (59,935 acre-ft). According to

these computations, the US share at 40% was 29,570 dam³ (23,972 acre-ft). The flow received by the US was 43,190 dam³ (35,014 acre-ft), which constitutes a surplus delivery of 13,620 dam³ (11,042 acre-ft).

The annual flow requirement/apportionment at Long Creek station has also been met with a surplus of 2,012 dam³ (1,631 acre-ft).

Dan Selinger also mentioned that there were a couple of days in August where the 4cfs criteria at Sherwood that were not met.

Motion: John Fahlman motioned to accept the natural flow computations made by ECCC. Frank Durbian seconded. Carried.

7. Update from the Hydrology Committee

Ken Bottle provided a brief update on the Hydrology Committee. Ken stated that since Darin Schepp became the U.S. cochair committee, he had moved on to new employment, vacating his role as cochair. Ken also noted that there has been little work done within the hydrology committee since the International Plan of Study has been underway.

Garland Erbele stated that it would be wise to determine a new U.S. cochair prior to the end of the winter ISRB meeting, but wanted some time to think about potential candidates. The decision to appoint a U.S. cochair was held off until the “Other Business” section of the agenda.

8. Water Quantity Monitoring

a. Report on United States Water Quantity Monitoring Plans for 2020

Steve Robinson with the USGS provided an update on the United States Water Quantity Monitoring Plan for 2020. Steve mentioned that he wasn't too concerned about issues on the Souris River, but much of the USGS's staff would be focused on the eastern half of North Dakota, which could cause issues if flood risk does increase along the Souris.

As for changes to the monitoring plan, Steve mentioned that a new stream gage was being installed on the Broadway Bridge, in Minot, ND. The stream gage was being installed the week following the meeting and would record open water flows.

b. Report on Canada Water Quantity Monitoring Plans for 2020

Dan Selinger with ECCC provided an update on the Canadian Water Quantity Monitoring Plan for 2020. Dan said there is not a lot of snow on the ground and mentioned that it would be an opportune time for the USGS and ECCC to make comparison shots at the Sherwood and Noonan gages.

Jeff Woodward made a comment on the conditions and the Sherwood gage forecast being close to 50,000 dam³. Jeff stated that WSA may be requesting more information on the apportionment calculations under these conditions and that the conditions may warrant some additional interim reporting.

9. Water Appropriations in the Souris River Basin during 2019

Jeff Woodward provided an update on Saskatchewan's appropriations for 2019. Jeff noted that no new permits were approved in 2019, but the City of Estevan did change the location of its water intake to Rafferty Reservoir. Jeff stated that the change may necessitate a change to the apportionment spreadsheet in the future.

Chris Korkowski provided an update on appropriations in North Dakota in 2019 and provided a handout to the group. Chris reported the following temporary water permits that were issued in North Dakota in 2019:

- 8 permits were allocated under the use "Dust Control" for a total approved allocation of 15.2 acre-ft (18.7 dam³).
- 1 permit was allocated under the use "Environmental Remediation" for a total approved allocation of 6.1 acre-ft (7.5 dam³).
- 22 permits were allocated under the use "Industrial – Water Depot" for a total approved allocation of 2,094.4 acre-ft (2,583.4 dam³).
- 1 permit was allocated under the use "Irrigation" for a total approved allocation of 165.0 acre-ft (203.5 dam³).
- 5 permits were allocated under the use "Road Construction" for a total approved allocation of 12.0 acre-ft (2,583.4 dam³).

The total temporary water permits issued was for 2,292.0 ac-ft (2,828.0 dam³). There were no other types of permits issued in North Dakota in 2019.

Nicole Armstrong had mentioned that in the handout it says that "No temporary water permits with the use 'Industrial – Water Depot' were issued from streams within the Souris River Basin" and that it didn't match the table in the handout. Chris Korkowski mentioned that he would provide clarification in the minutes.

Clarification: The table provided in the handout are allocations out of the Souris River, while the text refers to tributaries within the Souris River Basin.

10. Update from the Flow Forecasting Liaison Committee (FFLC)

- a. Laura Diamond with the NWS provided the board with an updated FFLC contact list with new membership for approval.

Motion: Shelly Weppler motioned to approve the membership list for the FFLC. John Fahlman seconded the motion. Carried.

- b. Laura Diamond provided the board with the FFLC's report, which is summarized below:

With spring runoff in 2019 being a non-flood event, the Flow Forecasting Liaison Committee (FFLC) has had minimal formal activity since the last ISRB meeting. The Water Security Agency (WSA) was diligent in communicating routine operational changes at the Canadian Reservoirs, including the Grant Devine winter drawdown operation, to the committee. In keeping with the terms of the Canada-US Agreement on Water Supply and Flood Control in the Souris River Basin, two forecasts have been issued by the WSA thus far in 2020 (Feb 1 and Feb 15). These forecasts were developed in collaboration with the US National Weather Service (NWS) and circulated to the group via email. They are also available on www.wsask.ca.

With the expectation of normal to below normal snowmelt runoff above Lake Darling and no operational decisions to discuss, the FFLC did not host conference calls to discuss these forecasts.

Should the committee have a need to become more active in 2020 in response to high or low flow events, the co-chairs have circulated their contact list to ensure that it is up to date. Changes to the committee membership have occurred, and an updated contact list has been provided to the Board. The committee has no ongoing work items but many members, including the co-chairs, are actively involved in Souris River Plan of Study tasks, including the forecasting tasks under Work Plan Item HH10. The forecasting and regulating agencies are also involved in the development and/or have an interest in many of the modelling tools being developed under the study, as some have the potential to be used operationally. Several of the HH10 tasks have been completed and many of the FFLC members participated in the review of that work. Should some of the tasks identified under HH10 not get completed as part of the Plan of Study, the committee will look into seeing their completion outside of the study, possibly utilizing IWI funding.

Nicole Armstrong mentioned based on current forecast (less than 1:10-year event) flows at the Sherwood crossing will be greater than 50,000 dam³ (40,535 acre-feet). Therefore, the apportionment will be 60/40 split between Canada and the United States.

Motion: Jeff Woodward motioned to declare 2020 a non-flood year and that the apportionment to be 60/40 split between Canada and United States. David Pattyson seconded the motion.
Carried.

The Board agreed to hold a conference call to revise the declaration if flow conditions change.

11. Update from the Aquatic Ecosystem Health Committee (AEHC)

a. Report on activities of the AEHC.

Heather Husband and Dorothy Lindeman reported on the activities of AEHC in 2019. Heather provided the board with a handout including all activities conducted in the 2019 calendar year which are as follows:

- February 20 & 21, 2019 – Brief group discussion in conjunction with the board meeting with available AEHC members.
- March, 2019 – USGS deployed three continuous DO monitoring sensors as part of the IWI grant.
- June 25 & 26, 2019 - Brief group discussion in conjunction with the board meeting with available AEHC members.
- October 31, 2019 – Submittal of the IWI proposal for a basin-wide trends analysis to the IJC. The group's cochairs and the USGS held conference calls to address comments for the final submission.
- November 4, 2019 – The group held a conference call to discuss comments received from the IJC on the proposed E. coli objective. The group began discussions on the feasibility of using a 90-day rotating geomean.

- December 10, 2019 – The IWI basin-wide trends analysis proposal was edited and accepted.

Heather reported that the E. coli objective was intended to be applied seasonally but the U.S. Environmental Protection Agency (EPA) recommended a 90 day geomean. Heather stated that there would be some difficulty due to the number of samples required, but mentioned they will try to use the methodology laid out by the EPA.

Mark Gabriel, with the IJC, asked if you can make a geomean from May/June/July and June/July/August. Heather responded that it is possible and that it goes back to the sampling methodology created in the state of North Dakota. She stated that what the EPA wants is extra samples, which would require more funding to the USGS to conduct the sampling. Mark Gabriel mentioned that a lot of state agencies look to the IJC on what they are doing in regards to water quality and that because of the extra visibility, any changes get a lot of review by different entities.

Heather also discussed the second IWI proposal to conduct a basin-wide trends analysis, that the AEHC was planning on meeting with Chris Korkowski to discuss materials relating to the ISRB's 2019 annual report, and that reviewing the ISRB's water quality objectives was still something the group looked to accomplish.

Dorothy mentioned that in regards to the new E. coli sampling, ECCC is taking a sample every month, so from their point of view the new objective with application to a 90 day geomean shouldn't be an issue.

Nicole Armstrong asked the group if the funding status is known for the basin-wide trends analysis proposal. Mark Gabriel stated that he had to get back to Rochelle with the USGS on that. He mentioned that there are other projects that have priority over the trends analysis, but the project funding will come down the line soon.

a. Update on IWI project.

Joel Galloway with the USGS gave a presentation on the Souris River Continuous Dissolved Oxygen Monitoring IWI project. Highlights from the presentation include:

- Dissolved Oxygen (DO) monitors were installed May 15, 2019 at Sherwood, Minot, and Westhope.
- Large diurnal fluctuations were observed at Sherwood and Minot for most of the summer.
- Daily minimum DO was at or below the water quality objective of 5mg/l for 81 days at Sherwood, 17 days at Minot, and 72 days at Westhope from May 15, 2019 to February 13, 2020.
- Different factors affected DO at various times of the year.
- Data from the monitors can be viewed at: <https://waterdata.usgs.gov/ND/NWIS/RT>

Joel's presentation also included that the future monitoring plans include removing the monitors during periods of ice formation and resetting them after the ice had formed to prevent damage to the monitors.

During Joel's presentation, a video was played of water gushing out of an augured hole in the ice within J. Clark Salyer National Wildlife Refuge. Joel reported that his staff smelled gas exiting the hole, but couldn't confirm the type of gas.

Gregg Wiche then asked Scott Gangl with the North Dakota Game and Fish if there was a time period that DO/diurnal water is bad for fisheries. Scott responded that fish typically start to die when DO is lower than 2mg/l. Mark Gabriel asked if the die-off is immediate, to which Scott responded that it isn't necessarily immediate, but once it gets extremely low fish kills become more prevalent. Garland mentioned that his observation that there were many fish kills on ND lakes in 2019, noting the late spring. Scott responded that long ice cover can prevent photosynthesis, which is a cause for concern as well.

Garland also asked if the water quality at the refuge causes any issues in downstream Manitoba, specifically asking about drinking water intakes. Mark Lee noted that all communities in the region are on groundwater systems and that it shouldn't be an issue for drinking water.

12. Compliance with Water Quality Objectives for 2019

Heather H. presented a summary of the water quality monitoring program for the Sherwood site; and Dorothy L. presented data for the Westhope site:

The USGS collected eight regular water quality samples from the Souris River near Sherwood in 2019.

The following provides a summary of water quality at the Sherwood site:

Sherwood-USGS/ND Department of Health (NDDOH)

- **Total Phosphorus** exceeded the Water Quality Objective of 0.10 mg/L for all samples in 2019, though half of the samples were very close to it, putting the median at 0.157 mg/L. The total phosphorus values at Sherwood ranged from 0.123 mg/L on April 16 to 0.497 mg/L on May 30.
- **Sodium** exceeded the Water Quality Objective of 100 mg/L in 38% of samples for 2019, with values similar to previous years with the higher values coming in late summer and fall.
- **Chloride, Sulfate, and Total Dissolved Solids** had exceedances throughout the monitoring history, in 2019 there were no values over the water quality objectives set.
- **Total Iron** exceeded the Water Quality Objective of 300 µg/L in 50% of samples in 2019. Concentrations ranged from a maximum of 609 µg/L on February 2 to a minimum of 243 mg/L on May 15. These values are lower and with a smaller range than the values of 2011-2016 which were 1000-4000 µg/L.
- **pH** exceeded the upper Water Quality Objective of 8.5 pH units once with a maximum value of 8.6 recorded on July 16. There were no exceedances of the lower objective (pH 6.5).
- **Dissolved Oxygen** concentrations only went below the minimum 5 mg/L Water Quality Objective once, with a value of 3.7 mg/L February 2.
- **E-coli** analysis was changed to the Quanti-Tray method by North Dakota Laboratory Services in 2017, and with it the units changed from Colony Forming Units (CFU)/100 mL to Most Probable Number/100 mL. Information on how the units compare will be provided in the annual report. E. coli values for 2019 ranged from 20 MPN on July 16 to 190 MPN on September 4. There were no sample values above 400 MPN. After discussion with the IJC

and USEPA, analysis will consist of rolling 90-day geomeans, May-September, and the seasonal geomean will not be included in the final version of the Objectives. For consistency with US EPA national objectives, 90-day rolling geomeans are as follows:

- May-Jul 57.18 n=3
- Jun-Aug 41.23 n=2
- Jul-Sep 61.64 n=2

- All geomean calculations are well below the geomean objective of 126 colonies per 100 mL.

- **Organics**

- Pesticide data were not yet available at the time of the meeting.

Westhope –ECCC

ECCC collected ten (10) regular water quality samples from the Souris River near Westhope in 2019. A joint sampling event with the USGS occurred at the Westhope site in September.

- **Total Phosphorus** exceeded the Water Quality Objective of 0.10 mg/L for all samples in 2019. The total phosphorus values at Westhope ranged from 0.608 mg/L on March 27 to 0.137 mg/L on May 30.
- **Sodium** exceeded the Water Quality Objective of 100 mg/L in 90% of samples for 2019. The minimum value was 66.7 mg/L on April 25 and the maximum concentration was 409 mg/L on March 27.
- **Sulfate** exceeded the Water Quality Objective of 450 mg/L on 2 occasions in 2019. The maximum value was 1060 mg/L on March 27, and the minimum was 171 mg/L on April 25.
- **Total Dissolved Solids** exceeded the Water Quality Objective of 1000 mg/L three times in 2019, once each in January, March and December. The highest value, 2577 mg/L occurred on March 27, and the lowest value was 462 mg/L on April 25.
- **Total Iron** exceeded the Water Quality Objective of 300 µg/L in 50% of samples in 2019. Concentrations ranged from a maximum of 1260 µg/L on March 27 to a minimum of 175 mg/L on July 24.
- **pH** exceeded the upper Water Quality Objective of 8.5 pH units in 40% of the 2019 samples. The maximum value of 9.10 occurred on September 4. The minimum value of 7.38 occurred on December 3. There were no exceedances of the lower objective (pH 6.5).
- **Dissolved Oxygen** concentrations were below the minimum 5 mg/L Water Quality Objective on three sampling occasions: January 30, March 27 and December 3, 2019.
- **Fecal coliform** values for 2019 ranged from less than 2 on January 30, April 25 and May 30 to 70 on October 3. The objective of 200 colonies/100 mL in one sample was not exceeded.
- **E-coli** values for 2019 ranged from less than 2 on January 30 to 38 colonies per 100 mL on September 4. There were no exceedances of the single-sample objective of 400 colonies/100 ml. For consistency with US EPA national objectives, 90-day rolling geomeans are as follows:

- Apr-Jun 2.2 (n = 3)
- May-Jul 3.7 (n = 3)
- Jun-Aug 8.7 (n = 3)
- Jul-Sep 13.5 (n = 3)
- Aug-Oct 18.6 (n = 3)

- The seasonal geomean for April to September (5 months) was 5.4.

- All geomean calculations are well below the geomean objective of 126 colonies per 100 mL.

- **Chloride** exceeded the Water Quality Objective of 100 mg/L twice in 2019. The maximum value of 114 mg/L occurred on March 27, and the minimum of 20.9 on April 25.
- **Organics**
 - Pesticide samples were collected on the Souris River at Westhope in the April through September sampling events for 2019. 2,4-D, Atrazine, MCPA and Picloram were detected in all samples. Bromoxynil and Dicamba, were detected in some samples.
 - Picloram exceeded its water quality objective of 0.050 µg/L in three samples: April 25, May 30 and September 4, with values of 0.1020, 0.0988 and 0.1739 µg/L respectively. There were no other exceedances.
- **Neonicotinoids**
 - Neonicotinoid pesticides were sampled at Westhope in the April through September sampling. The samples collected in April and May were accidentally destroyed in the laboratory. Chlorantraniliprole, Clothianidin and Imidacloprid were detected in all samples analyzed. Dinotefuran and Flonicamid were detected in the June 27 sample and Spirotetramat in the July 24 sample.
 - For comparison, the neonicotinoid maxima, minima and medians for April through September sampling in the Red River at Emerson are provided in a table.

Mark Gabriel asked if *E. coli* above 126 colonies per sample is an indication of excessive biological activity. Heather Husband stated that the 126 colonies per sample is looking at chronic and acute instances. Heather mentioned that quick flashes of *E. coli* might be a small point source cause, but if it persists it could mean some sort of discharge into a stream. Heather also stated that *E. coli* is only part of the fecal bacteria that seem to be a threat to human health.

Nicole Armstrong provided two comments in regard to the water quality at Sherwood and Westhope. The first was that Manitoba does experience fish kills downstream on the Souris and that she will work with Manitoba's fisheries staff to see if they can find documentation around instances that occurred downstream. Nicole's second comment was that the picloram has had some exceedances in the past, but the objective limit of 0.05 µg/l is lower than the detection limit at the laboratory Manitoba uses, which is 29 µg/l. Nicole stated that she isn't necessarily concerned about the exceedances, as they relate to aquatic health, if they aren't higher than the 29 µg/l objective in Manitoba.

Heather Husband mentioned that because pesticide use changes frequently, the AEHC discussed wanting to use reporting limits rather than objectives. Heather stated that this would allow the AEHC to change those limits overtime and that currently there are 129 objectives that North Dakota uses and some of them aren't current anymore. Heather then asked Mark Gabriel if this was something that other boards have used. Mark Gabriel responded that if there are objectives that they need to be reported to governments. Mark stated that it would take an IWI proposal to look at the pesticides and make sure they are reflective of current times. Heather then asked if the IJC would be comfortable with alert levels rather than objective levels. Mark stated that alerts would need to be vetted and that alerts would fall under the IJC, not governments. The group then proceeded to have a discussion on pesticides - on adding and removing pesticides from the objective list. No actions were made during this discussion.

Garland Erbele mentioned that the University of Manitoba did a presentation at the ARBI conference earlier in the week and asked if presenting this information to the ISRB would be useful. Heather Husband responded that it could be useful to present in the future and Garland suggested to add it to a future agenda.

Action: Secretaries will reach out to the University of Manitoba about providing a presentation to the ISRB (presentation from the ARBI conference).

13. Water Quality Monitoring Plan

Heather Husband noted that there are no major anticipated changes to the Water Quality Monitoring Plan for 2020 with the exception of the IWI continuous DO monitoring. Dorothy Lindeman added that 2019 was an anomaly at Westhope (sampled by ECCC) since 10 samples were collected; she expected that in 2020 frequency would go back to 8 samples in total.

Garland asked Dorothy L. the plan to include Picloram (an organic pesticide) in the sampling program for the coming years. Dorothy stated Picloram is being detected regularly (albeit at very low levels) and she plans to add Picloram and some new and emerging organic pesticides in the mix at the Sherwood and Westhope sites to see if there is a pattern. It depends on availability of extra funding to conduct the additional sampling.

14. Update on the Communications and Outreach Committee

This agenda item was skipped due to the presenter not being available for the meeting. The agenda item will be added to the ISRB's June meeting.

15. Work Plan

Nicole Armstrong asked the board if anyone had any comments relating to the latest version of the workplan. Nicole stated that it would be beneficial to have the workplan reviewed prior to the IJC's Spring Semi-Annual Meeting and requested that committee cochairs provide comments on the workplan by March 6th, 2020.

Action: Committee cochairs to provide comments on the work plan by March 6th, 2020.

The meeting adjourned on February 20th at 4:44 pm and reconvened at 8:31 am on February 21st.

16. International Souris River Study Board Update (ISRSB)

a. Update from Study Managers, Co-Chairs and Board Members

Jeff Woodward presented an update on the activities of the International Souris River Study Board. The directive of the study is to examine and report to the International Joint Commission on matters raised by the Governments of Canada and the United States in the July 5, 2017 reference, evaluate and make recommendations regarding the Operating Plan contained in Annex A of the 1989 agreement, and to carry out the instructions provided by the International Joint Commission to guide the Study Board. The International Souris River Study was started as result of the flooding that occurred in 2011.

Jeff Woodward went over the Study Board's structure, work plan, and engagement strategy. As part of the study, a Public Advisory Group, Resource and Agency Advisory Group, Climate Advisory Group, and Indigenous Nations Advisory Group were formed.

Currently, the study is in its fifth and final stage of alternative modeling. The Study Board is looking to complete its modeling efforts in the summer of 2020 and deliver its final report to the International Joint Commission in January 2021.

The Study is preparing a transition team to work out a process of moving tools and working knowledge from the Study Board to the ISRB. The Study Board has outlined products that will need to be transitioned and plans to continue coordination with the ISRB.

Allen Schlag asked members of the Study Team if they were aware of the probable maximum precipitation study that was being conducted within North Dakota, mentioning that it could provide value to the study. Chris Korkowski answered that the Study Team is aware of the effort, but it will likely not be completed in time for the study.

Another board member asked if any of the reports completed by the study have been made public. Jeff responded that no reports are currently available to the public as they must go through an approval process and the study's Independent Review Group.

Frank Durbin mentioned that he assumed the end goal is to recommend a change to the operating plan. Frank proceeded to ask if there is a change to the operating plan, is it subject to a National Environmental Policy Act (NEPA) review. Michael Bart with the U.S. Army Corps of Engineers responded that he assumed that would be the case. The Board continued to discuss the legal implications after a new operating plan was recommended to governments, such as the need for environmental review under NEPA and whether it could qualify for an Environmental Assessment or an Environmental Impact Statement.

Garland Erbele mentioned that after the study has been completed, the North Dakota State Water Commission would be willing to house models and documents produced as part of the study.

17. Update on Indigenous Engagement

Catherine Lee-Johnston with the IJC discussed the Indigenous Advisory Group (IAG) created as part of the International Souris River Study and mentioned that a recommendation for the Study Board and the IJC will be transitioning the IAG to the ISRB. The Study Team and IJC

described that the reason this group was initially formed was to get feedback to create performance indicators, which are curves used to determine the impact/benefit to a resource due to new operating plans, but determined after initial conversations with members of the IAG that their involvement would be better served from long-term participation with the ISRB. The IJC mentioned that inclusion of the IAG is a priority for them and that they wanted to get the opinion of the ISRB on how to transition the IAG to the ISRB.

Several board members discussed adding new membership to the ISRB to expand on the perspectives to the board, but also wanted feedback from the IJC and Study Board on how to proceed.

Catherine Lee-Johnston informed the ISRB that another IAG workshop is being planned for May 2020 and that they will learn more on how to transition the IAG to the ISRB during the workshop.

18. Update on the ISRB/ISRSB November 13 & 14, 2019 Workshop

Both ISRB co-chairs expressed their gratitude to the Study Team for bringing them up to speed during the workshop, specifically mentioning the Indigenous Advisory Group engagement and the updates on current dam safety concerns.

19. Update on Water Management Projects

a. Update on the Northwest Area Water Supply (NAWS)

Chris Korkowski with the North Dakota State Water Commission provided a brief update on the Northwest Area Water Supply Project (NAWS). On May 3, 2019, the United States Court of Appeals for the District of Columbia Circuit affirmed the District Court for the District of Columbia's August 2017 summary judgement. The deadline for Missouri to appeal the SCOTUS was August 1st. Missouri did not appeal, so the NAWS litigation officially ended after nearly 17 years.

Upon the end of the litigation, design and construction of several elements of the project had begun, most notably the design of the Biota Water Treatment Plant.

Nicole Armstrong added to the NAWS discussion by providing that Manitoba had reviewed the 60% designs for the Biota Water Treatment Plant Design. Nicole noted that she appreciated the openness of the process.

b. Canadian Dam Safety

John Fahlman reported on the Canadian Dam Safety Operations. Reporting that the dams were designed for the hydrology at the time they were built and new updated hydrology has shown that the dams may be under designed. The 2011 event caused WSA to evaluate their reservoirs, which lead to the finding that they are under designed for the new updated hydrology. John stated that there are two options to deal with the dam safety issues at Rafferty and Grant Devine, operate differently or upgrade the reservoirs spillways. John stated that until the reservoirs infrastructure is upgraded, which would be in about 10 years, WSA is working with regulators in the U.S. on an interim solution.

Garland Erbele asked what the decision making process for something like this was for Saskatchewan. John explain that it would be taken to Saskatchewan's cabinet and the decision would be up to them, explaining that the decision to accept more risk than current standards is a public decision, which is why it falls under the cabinet.

Nicole Armstrong asked about what the IJC's perspective is on an interim operating rules that could decrease the dam safety risk. The group proceeded to discuss a path forward on developing an interim operating plan and ultimately decided that it would be beneficial to have the regulators proceed with their talks on evaluating interim operating plans to reduce dam safety risk and report back to the ISRB at their June 2020 meeting.

Motion: Shelly Wepler motioned to have the reservoir regulators continue their investigation into an interim operating plan to reduce dam safety risk and report back to the ISRB in June of 2020. David Pattyson seconded the motion. Carried.

c. Other planned developments

Nicole Armstrong mentioned that Manitoba just started an Integrated Watershed Management Project for the whole Souris River and will share more at the June ISRB meeting if members are interested.

Special Note: *Nicole Armstrong, Co-Chair, took a moment to congratulate Garland Erbele on his future retirement and service to the ISRB. Those in attendance also thanked Garland showed their appreciation with a round of applause.*

20. IJC Presentation on the 2020-2025 IWI Plan

Catherine Lee-Johnston presented on the IJC's 2020-2025 IWI Plan. The object of the 2020-2025 IWI Plan is to better incorporate the boards thoughts, improve and assist on the delivery of boards workplans, and explain how challenges facing boards could be addressed through IWI. The current focus of IWI is still on individual board projects. The 2020-2025 IWI Plan addresses the following:

- Need to identify the next Strategic Initiatives
- Need to plan pathway for current Strategic Initiatives
- Need to improve program efficiency and effectiveness
- Need to focus on reporting back project outcomes.

Currently, the Strategic Initiatives include the following:

- data harmonization
- SPARROW (which is a model for excessive loading of nutrients)
- adaptively managing transboundary basins for watershed management resiliency
- exploring and establishing new pilot watershed or watershed boards
- IWI projects to address issues identified in Board's work plans
- program assessment and maintenance
- development of an IWI steering committee
- using communication strategies and tools to improve management outcomes
- strategic initiative planning
- information management

- binational water management training

Catherine outlined the next steps in moving forward which include incorporating comments from boards in the winter/spring of 2020, sending the plan to the commissioners for comment, sending the plan to the governments for comment, and approval by IJC commissioners in the summer of 2020. Catherine requested that any comments or concerns on the IWI plan be provided to her by March 10th, 2020.

Action: Board members provide comments on the 2020-2025 IWI Plan to Catherine Lee-Johnston of the IJC by March 10th, 2020.

Gregg Wiche asked if it was possible for the ISRB to use the IJC's SharePoint, much like the Study Board. Catherine mentioned that she thinks it is possible, as other non-study boards are using SharePoint. Nicole Armstrong agreed that SharePoint would provide benefit to the board.

Nicole Armstrong also brought up the need to establish a process for adapting changes with revisiting water quality objectives.

The group also discussed the ISRB becoming a watershed board, as its current standing is a pilot watershed board. The IJC said that the ISRB is currently checking all the boxes to become an official watershed board. The group discussed mentioning the desire to become a watershed board at the Spring Semi-Annual IJC Appearances.

21. International Watershed Initiative Projects

Mark Gabriel mentioned that currently the ISRB has the Dissolved Oxygen and basin-wide trends analysis IWI projects, but since they were discussed heavily in earlier portions of the agenda felt they didn't need to be updated on during this section. Mark did provide the group with the ISRB and the ISRSB's appearance schedule for the IJC's semiannual meeting which are at 3:15-4:15 (ISRB) and 4:15-5:00 (ISRSB) on April 21st, 2020.

22. Other Business

Nicole Armstrong proposed nominating Chris Korkowski to be a member of the hydrology committee and nominated Ken Bottle to be the hydrology committee's U.S. cochair.

Motion: John Fahlman motioned add Chris Korkowski as a member of the hydrology committee and to make Ken Bottle the U.S. cochair of the hydrology committee. Frank Durbian seconded the motion. **Carried.**

23. Next Meeting

The next public session and face-to-face meeting is scheduled to be held on June 10, 2020, (Public); and June 11, 2020 (Board) in a location yet to be determined in Manitoba.

Action: ECCC will coordinate the hosting of the next face-to-face meeting.

24. Adjournment

The meeting was adjourned at 12:00 p.m. on February 21, 2020 (Minot, ND).

International Souris River Board
ACTION ITEMS – progress updated February 21, 2020

PERSONS OR COMMITTEE RESPONSIBLE	TOPIC	MINUTE	ACTION	STATUS AS OF 02/26/2020
Joel Galloway	Discrepancies of results of water quality sampling	24-Feb-16	Joel Galloway will investigate the reason for the discrepancies of the results of the joint water quality sampling between Canada and the USGS	Ongoing
Pascal Badiou	DU Nutrient Project	24-Feb-16	Pascal Badiou to present the results of the DU Nutrient Project to the Board	Ongoing
COH and COC	Coordinate and determine infographics for the Souris	26-Jun-19	COH and COC coordinate and determine the necessity of generating a Souris Basin Hydrology Infographics and generate an IWI Proposal if deemed necessary.	Ongoing
COH	Natural Flow Reporting	26-Jun-19	The Hydrology Committee to investigate the Natural Flow reporting dates and make recommendations for adapting them to provide more guidance based on existing basin conditions for quicker responses to apportionment needs.	Ongoing
ISRB	Provide Comments on 2020-2025 IWI Plan	21-Feb-20	The ISRB is to provide comments to Catherine Lee-Johnston on the IJC's 2020-2025 IWI Work Plan by March 10th, 2020	Ongoing
ISRB Secretaries	Reach out to the Dr. Don Flatten for presentation at the next upcoming meeting	21-Feb-20	Reach out to Dr. Don Flatten with the University of Manitoba in regards to presenting his water quality presentation to the ISRB.	Ongoing
ISRB Committee Co-chairs	Provide comments on ISRB work plan	21-Feb-20	Committee Co-chairs are to provide comments to Nicole Armstrong on the ISRB's workplan by March 6th, 2020	Ongoing
ISRB Canadian Co-Secretary	Hosting of next meeting	21-Feb-20	Girma is to coordinate the upcoming ISRB meeting in Manitoba	Ongoing