

**Lake Diefenbaker Operation Plan Consultation
Environmental Sector
July 12, 2012, Park Town Hotel, Saskatoon**

**Recorders: Robin Tod, Heather Davies
Facilitator: Dazawray Landrie-Parker**

Stakeholders:

Name	Stakeholder Municipality
Barbara Hanbidge	Ducks Unlimited Canada
Brian Cowan	Elbow & District Wildlife Federation
Susan Lamb	Meewasin Valley Authority / Partners FOR the South Saskatchewan River
Donna Bruce	Nature Saskatchewan
Murray Hidlebaugh	Saskatchewan Environmental Society
Adam Matichuk	Saskatchewan Wildlife Federation
Harold Martens	South Saskatchewan River Watershed Stewards
Saeed Ul Amin	South Saskatchewan River Watershed Stewards
Jim Elliott	Wascana Upper Qu'Appelle Watersheds Association Taking Responsibility

Meeting Notes

Dazawray started the meeting at 10:00 a.m. and outlined the response session consultation process. Dazawray indicated that Rescan was contracted by SWA to do the consultation. Participants were asked to introduce themselves and their organization.

Dazawray went over the timeline for the review of the operating plan. Participants were asked to complete the questionnaire document and submit it to Robin Tod.

The first part of the meeting was to discuss some of the challenges the downstream municipal stakeholders had related to the operation of Gardiner Dam.

Challenges

Water Quality

- Stakeholders felt that not enough is known about the lake regarding water quality.

Water flow/level forecasting

- There were concerns that not enough data is collected to adequately forecast and manage the inflows and outflows of Lake Diefenbaker.

Climate Change

- Stakeholders were worried over the impact climate change will have on flows/water levels into the future

Management Priorities

- A comment was made that there are a lot of conflicting uses of the reservoir, e.g., hydroelectric power generation, recreation, and irrigation.
- Stakeholders would like to understand the priorities affecting the water management decisions of the reservoir
- Stakeholders wanted to understand how the biodiversity and ecological needs of the system were determined and used in management decisions.
- Stakeholders would like to see Lake Diefenbaker managed at a watershed perspective from the headwater in Alberta to where it drains into Hudson Bay.

Data Collection

- Concerns were raised that there has been insufficient data collection for managing the system over the next 20-25 years.
- Stakeholders would like to see further research into upstream and downstream areas as far as how vegetation, fish and wildlife have adapted to the operation of Gardiner Dam and to drought/flood cycles. They would like to further understand how water fluctuations around the reservoir affects the downstream species. Stakeholders felt that not enough information is known about the instream flow needs and the effects of reservoir management on the environment.

Flood Control

- Stakeholders recognized that some businesses/individuals downstream of Gardiner Dam are drastically impacted by flows along the South Saskatchewan.
- Stakeholders would like to further understand how the management of the reservoir impacts the businesses/individuals in the flood plain downstream from the dam.
- Stakeholders wanted to know if the industrial/business uses of the floodplain are a right or a privilege.
- Stakeholders had issues with development within the floodplain. They were curious as to how development in the floodplain is allowed.
- A stakeholder questioned that in flood events, like last year, when we send all of our flood waters to Manitoba, if there was any way that the water storage capacity of the system within Saskatchewan could be increased for industry, etc. during flood events.

Future Demand for Water Allocations/Water shortages

- Stakeholders recognized that there will be increased demand for water for additional potash mines and industrial and agricultural growth in Saskatchewan and increased population in upstream communities, such as Calgary.
- Stakeholders would like to understand which sector/user gets priority when there is a water shortage, such as a drought. What happens in a drought when there is not enough water for all uses/users?

- There was concern over the antiquated and inefficient water delivery system for getting water from the system. They felt that there is no strategy to deal with water shortages along the South Saskatchewan River system.
- Water demands and supply – What is future allocation of the water when new developments are occurring in the province? What will be the future of the environmental needs of the river? Direct economic benefits versus the indirect benefits which are provided by the river?
- A comment was made that more work needs to be done to assess what the water needs and uses are within the system and to actually reduce allocations where possible to better reflect use.

Communication Mechanisms

- Stakeholders would like to have all of the Lake Diefenbaker information in one location. They felt that to get information about the system required a lot of digging within the Authority's website. For example, Ducks Unlimited has not been able to access one webpage to get answers regarding the DUC projects in the vicinity of Lanigan.

The second part of the meeting included focusing on the Issues Matrix component of the meeting.

Issues Matrix

Issue	Reservoir Value/Service	Frequency	Seasonality	Severity	Trend	Competing Values	Comments
Delta developing where South Saskatchewan River Flow slows when it enters Lake Diefenbaker – increased sedimentation	Instream flow	Ongoing	All year long		Increasing	Fish habitat/wildlife habitat, or could also be a benefit for fish and wildlife, irrigators placement of pumps	
Potential contamination - spill	Downstream emergency plan	Ongoing	All year long		Increasing with increasing industrial development	SaskPower	Some stakeholders suggested that one component of a downstream emergency plan for spills would be for the Authority to have the ability to stop the flow at Gardiner Dam to prevent the spill from continuing downstream along the South Saskatchewan River. To be able to stop the flow from lake the stakeholders felt that the lake should never be filled to capacity. Other stakeholders suggested that stopping the flow from Gardiner Dam to prevent downstream contamination could have additional downstream environmental impacts, especially during certain times of the year.
Delivery of water – Upper Qu'Appelle channel cannot increase flow	Water Diversion	Ongoing	All year long		Water demand could increase with increased industrial development	Impacts of channelization on environment	Stakeholders were concerned about increased water demands and the need for increased diversion to the Qu'Appelle River. They recognized that to increase diversion there would need to be work done to the Qu'Appelle Channel, such as dredging. The stakeholders were concerned about the impacts of channelization on the ecosystem and species along the channel. The Stakeholders were interested in learning more about other options to increase flow along channel (pipeline, etc.)
Is water allocation license a privilege or a right	Flow management/ drought planning	Monitoring should be regular	Ongoing		Increasing pressure on allocation		Stakeholders felt that there needs to be communication/discussion with users on what a water allocation license means
Allocation versus consumption	Drinking water/ irrigation/industrial use	Annually					Stakeholders felt that there was potentially inaccurate information if using allocation versus water use (what is actually taken out of the system) for decision making purposes.
Climate change	Drought/flood protection	Need to improve forecasting capabilities to determine predictability of drought/flood events			Increasing/unknown	Part of flow plan should include realities of how climate change will impact system. Need to be proactive in managing system. How will variability impact system.	Need to improve forecasting capabilities to determine predictability of drought/flood events. Stakeholders think it is important that priorities of water use and land flooding are determined
Shoreline erosion	High lake level/high flow	During high flow events	Annually/ Winter-Spring		Ongoing	Municipal intake flow requirements and power generation	High flow along lake/river causes increased slope slumping and ice scouring of shorelines.

Issue	Reservoir Value/Service	Frequency	Seasonality	Severity	Trend	Competing Values	Comments
Water contamination	Water Quality	Ongoing	Spring, summer, and fall			Urban, agriculture	Water consumption has to include how pervasive the pollution is. For example, pollution with E. coli is more of a concern than pollution with salt. However increases in salinity can have detrimental effects on wildlife species. Also concerned about the impact of pharmaceuticals, storm sewer water, and metals on the water quality and its impact on aquatic/terrestrial species.
Increased water demands	Drinking water/ irrigation/industrial use	Ongoing	All year long		Industrial use is increasing	Irrigation versus drinking water versus industrial	New potash developments will increase demands on water supply from South Saskatchewan River.
More Data collection – quantification of future sector specific demand	Future use planning						
Information sharing/ lack of information integration							Stakeholders felt that data related to the South Saskatchewan System should be easier for the public to find.
Wetland flooding for Ducks Unlimited projects	Fisheries, wildlife	Annually	April – September	This could be severe if water doesn't flow into wetlands, wetlands will dry up. This works in tandem with irrigation use along canals.	Wetland flooding has not recently been an issue. However, canals are still used for irrigation.	Instream flow versus terrestrial impacts	
Recreational angling	Recreation and fishing/ Tourism/economic	Annually	Year round				Recreational angling is important from a tourism point of view and it generates economic activity for the province and local area.
Hydropower generation						Recreational use of the lake. SaskPower wishes to fill the lake and recreational users want stable water levels.	Hydropower is a more environmentally friendly method of producing electricity compared to using natural gas or coal.
Alteration of flows	Water quality	Ongoing – should be monitored monthly	Monthly	Currently unknown – potential to be severe.	Getting worse	Hydropower generation (economics)	Stakeholders wanted to know if the reservoir management plan will take into consideration the natural fluctuations of a riverine system and the ecological benefits of this flow fluctuation.
Natural fluctuations in water levels/flood events no longer are occurring due to increased mgmt of system (Traditional use)	Subsistence					Alteration of flows / community interest/ Industry (hydroelectric interests)	Delta habitat in Cumberland House Delta has been impacted due to the reduction in flows in the Saskatchewan River system. The natural environment needs higher spring flows to maintain this delta.

Issue	Reservoir Value/Service	Frequency	Seasonality	Severity	Trend	Competing Values	Comments
Natural fluctuations in water levels/flood events no longer are occurring due to increased mgmt of system (environmental)	Environmental			Mimicking natural river systems should be high priority – as riverine ecosystem relies on altering flow	Variability in climate and flows are changing and currently paying more attention to the impacts of this on the system	Mimic river, ecological benefit, sedimentation, urban water uptake (want stable water level)	
Flood protection	Flood protection	Annually	Spring and summer	Negatively affects Piping Plovers, but great for the fish – some species benefit while others don't	25 yrs ago management was all about drought. However, in recent years management is all about flooding. Stakeholders feel that extremes are becoming more frequent and there is increased variability in weather and this needs to be accounted for in the management of the system.	drought protection	Stakeholders recognized that there are competing uses.
Drought protection	drought protection	Annually	Spring , summer, and fall	In Canada, six of the top 10 costliest natural disasters have been droughts.		Flood protection	

The third part of the meeting focused on identifying the impact that flow; water levels; timing and other criteria had in relation to the identified issues and values associated with the Issues Matrix.

Criteria Matrix

Issue	Reservoir Value/Service	Flow Needs	Water Level Needs	Timing of Flows	Other Criteria	Comments
Delta developing where South Saskatchewan River flow slows where it enters Lake Diefenbaker, resulting in increased sedimentation.	Instream flow	1	1	1	The development of the delta is something that has developed as a result of developing the reservoir	
Potential contamination - spill	Downstream emergency plan	3	3 - difficult to manage spill if water level is too high	3		Suggestion is that a spill could be managed by shutting down the outflow from the Gardiner dam. However, shutting down the outflow at Gardiner dam may impact wildlife - more detrimental in spring / early summer compared to winter or time when fish and wildlife are not spawning/breeding. It may be better to have an emergency response that responds quickly and prevents the need to shut down the outflow from the dam.
Delivery of water – Upper Qu’Appelle channel cannot increase flow		3 - This is important for the Qu'Appelle, but not important (1) for management of Lake Diefenbaker or Gardiner Dam	1	2	Possible changes to the Qu'Appelle channel	
Is water allocation license a privilege or a right?	Flow management/ drought planning	N/A	N/A	N/A	regulatory issue	This is more a principle than directly related - it is a regulatory issue.
Allocation versus consumption	Drinking water/ irrigation/industrial use/urban/	N/A	N/A	N/A		Requires more data and information for decision making purposes. Maybe should look to adopt a system for drought situations that looks at a percentage of water flows versus absolute values for prioritizing water use.
Climate change	Drought/flood protection	N/A	N/A	N/A		This issue is not about flow/water level or timing needs, it is more about unknowns. It should be built into the long-term management plan of the system. It should be assessed on an annual basis – it should be an ongoing discussion. One stakeholder was concerned that in a crisis, society/government does not make good decisions, therefore it is important to have a plan to deal with the possible contingencies of climate change - drought and flood cycles.
Shoreline erosion		3	3	3	High flows in winter and low flows in spring affect shoreline erosion along the river - versus the lake where high water any time increases shoreline erosion along lake shoreline.	
Water contamination	Water Quality	3	3	3	This needs to be done as part of a watershed management plan not just at the lake level.	

Issue	Reservoir Value/Service	Flow Needs	Water Level Needs	Timing of Flows	Other Criteria	Comments
Increased water demands	Drinking water/ irrigation/industrial use	3	3	3	Stakeholders felt that demand side management needs and a way of prioritizing demand in drought situations needs to be part of the management plan. They felt that it is also important to look at predicting changes in demand overtime.	Need to ensure domestic demand is managed - not just free reign of water use. Increased encouragement for reducing water consumption - promoting water efficiencies
Stakeholders would like additional information on the system to be collected.	Future use planning	N/A	N/A	N/A		Stakeholders would like to see more timely data collected through increased monitoring efforts. They think data is very important for decision making and planning.
Information sharing/ lack of information integration		N/A	N/A	N/A	It was recommended that there is a need for the integration of data into management decisions.	Stakeholders felt that data related to the South Saskatchewan System should be easier for the public to find.
Wetland flooding for wetland projects	Fisheries, wildlife	1	3	3 - Important for wildlife and fisheries	There is a need for sufficient water in wetlands in the winter to prevent winter kill	
Recreational angling	Recreation and fishing/ Tourism	1	2	3	It was recognized that there are specific water levels that need to be met for the various sectors.	Fish populations benefit from mimicking natural flows/levels
Hydropower generation		3	3	3	Stakeholders felt that when managing power generation there is a need for balance/optimization of the system.	Stakeholders wondered if electrical power generation is more important than other water uses. It was commented that SaskPower can always use other electric generators, e.g., coal.
Alteration of flows	Water quality	3	3	3	Goes back to historic river flows and ongoing and timely collection of data	Stakeholders wondered how water requests for altering flow are managed/prioritized. They also wanted to know what the environmental costs and benefits of managing flow for events was compared to not managing for events.
Natural fluctuations in water levels/flood events no longer are occurring due to increased management of system (Traditional First Nation Uses)	Subsistence needs	3	3	3		
Natural fluctuations in water levels/flood events no longer are occurring due to increased management of system (environmental)	environmental needs	3	3	3		Stakeholders felt that the dam and hydro generation station were built on a riverine system and created a reservoir, and that the operator of the power generating facility should have some onus to maintain the habitat and ecological integrity of that system to the best of their ability. A question was raised as to how the minimum flow of 62.3 m ³ /s was derived.

Issue	Reservoir Value/Service	Flow Needs	Water Level Needs	Timing of Flows	Other Criteria	Comments
Flood protection	Flood protection	3-volume	3	3		
drought protection	drought protection	3	3	3		

A request was made to have the matrix available between all of the sectors well before the November meeting.

Committee broke at 12:35 p.m. for lunch and the meeting reconvened at 1:05 p.m.

Dazaway introduced the Traffic Card Voting component of the response meeting as a way of prioritizing and understanding which issues were the most important to the participating stakeholders.

Traffic Card Voting

Issue	Reservoir Value/Service	# green votes	# yellow votes	# red votes	Comments associated with yellow and red votes
Delta developing where South Saskatchewan River Flow slows where it enters Lake Diefenbaker – increased sedimentation	Instream flow	6	1	1	Red - Because Lake Diefenbaker is a reservoir and no management or manipulation of flows would prevent this
Potential contamination - spill	Downstream emergency plan	6	2		Lack of information on possible effects and consideration of other downstream effects- depends on response - if response is to shut off flow from Gardiner result may be just as harmful as spill / contamination
Delivery of water – Upper Qu'Appelle channel cannot increase flow		5	2	1	Not sure what it has to do with management of Gardiner Dam. Water will continue to flow through the Qu'Appelle River and not relevant to the management of the reservoir.
Is water allocation license a privilege or a right?	Flow management/ drought planning	8			
Allocation versus consumption	Drinking water/ irrigation/industrial use/urban/	8			
Climate change	Drought/flood protection	8			
Shoreline erosion		8			
Water contamination	Water Quality	8			

Issue	Reservoir Value/Service	# green votes	# yellow votes	# red votes	Comments associated with yellow and red votes
Increased water demands	Drinking water/ irrigation/industrial use	8			
Stakeholders would like additional information on the system to be collected.	Future use planning	8			The information collected could be used in management decisions associated with quantification of future sector related water demand.
Information sharing/ lack of information integration		8			
Wetland flooding for wetland projects	Fisheries, wildlife	8			
Recreational angling	Recreation and fishing/ Tourism	8			
Hydropower generation		8			
Alteration of flows	Water quality	8			
Natural fluctuations in water levels/flood events no longer are occurring due to increased management of system (Traditional First Nation Uses)	Subsistence needs	6	2		Not sure what this has to do with the management of Gardiner Dam. Question whether tradition use has a place in the operating plan.
Natural fluctuations in water levels/flood events no longer are occurring due to increased management of system (environmental)	environmental needs	8			
Flood protection	Flood protection	8			
drought protection	drought protection	8			

A comment was made that in the future, the economy will dictate what happens on Lake Diefenbaker.

The environmental sector perceives that if you do not take care of the environment/ecosystem, it will not take care of itself and the system will come back to hurt people and society.

Stakeholders felt that the management of Lake Diefenbaker should be considered in a broader watershed perspective.

Dazawray indicated that the consultation meeting was complete. Participants were asked to complete the survey and submit to Robin Tod.

The group was informed that the Stakeholder Feedback Meeting would be held in November 2012. Meeting adjourned at 1:30 p.m.