

Scenario Workshop Information Assessment

Withdrawal Proposal:

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Feasibility							
Technical Feasibility							
Operational Feasibility							
Legal Feasibility							
Hydrologic/Hydraulic Impacts							
Watershed:							
Groundwater / Aquifer							
Tributary Stream:							
Baseflow							
Maximum Streamflow							
Flow Range							
Open Lake:							
Means							
Maximums							
Minimums							
Level Range							
Connecting Channel Flows							
Means							
Maximums							
Minimums							
Flow Range							
Climate Variability (broad natural range)							

Scenario Workshop Information Assessment

Withdrawal Proposal:

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Ecological Impacts							
Watershed							
Sedimentation							
Water Chemistry							
Pathogens and Toxins							
Wetlands							
Fisheries							
Birds							
Amphibians							
Reptiles							
Mammals							
Endangered Species							
Tributary Stream							
Sedimentation							
Water Chemistry							
Pathogens and Toxins							
Wetlands							
Fisheries							
Birds							
Amphibians							
Reptiles							
Mammals							
Endangered Species							

Scenario Workshop Information Assessment

Withdrawal Proposal:

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Ecological Impacts (Continued)							
Great Lake(s)							
Sedimentation							
Water Chemistry							
Pathogens and Toxins							
Wetlands							
Fisheries							
Birds							
Amphibians							
Reptiles							
Mammals							
Endangered Species							
Exotic Species							
Economic Impact (benefit versus cost)							
User							
Community (City, Township, County)							
Region							
State/Province							
U.S. National							
Canadian National							

Scenario Workshop Information Assessment

Withdrawal Proposal:

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Distribution Among Affected Interests							
Domestic Water Supply / Sanitation							
Hydropower							
Commercial Transportation							
Recreational Boating							
Other Recreation and Tourism							
Wildlife and Environmental Interests							
Local Communities							
Native North Americans							
Distribution of Impacts Among Affected Regions							
Lake Superior							
St. Marys River							
Lake Michigan							
Lake Huron							
St. Clair River							
Lake St. Clair							
Detroit River							
Lake Erie							
Niagara River							
Lake Ontario							
St. Lawrence River above Cornwall							
St. Lawrence River below Cornwall							

Scenario Workshop Information Assessment

Withdrawal Proposal:

Category	Information Availability					Unknown	Comments
	None Available	Little	Partial Available	Most	All Available		
	0	1	2	3	4		
Potential or Future Modifiers							
Clarity of Objectives							
Public Acceptance							
Land Use Changes / Demographics							
Water Conservation Practices							
Climate Change (warmer/dryer climate)							

Category 1: Basic Information on Water Withdrawal

The first category of questions covers basic information on the water withdrawal, such as the characteristics of the source and return water bodies, the proposed use of the water, and information related to the structure and operation. These questions also address alternatives to the proposed withdrawal, and the associated impacts.

1. Where is the proposed water withdrawal?

If water withdrawal is from a Great Lake, St. Lawrence River, or Connecting Channel:

What is the specific location and depth of withdrawal?

What are the relevant hydrology, geometry, hydrodynamics, and water quality in the vicinity of the withdrawal?

If water withdrawal is from a river:

Where is it located on the river?

What are the statistics on flow regime (average flow, 7Q10, 100 year flow)?

What are the key characteristics of the river and watershed? Characterize sub-watersheds by land use types.

If water withdrawal is from an inland lake:

What are the inflows and outflows?

What is the lake geometry?

What is range of water levels?

What is hydraulic retention time?

If water withdrawal is from a groundwater source:

What is the elevation of the water table?

What is the size of the aquifer?

What is the general characterization of the aquifer?

What is the estimated sustained yield of the aquifer?

How does this aquifer relate to the surface waters of the Great Lakes basin?

2. What is the existing quality of the source water and sediments?

Temperature

Dissolved oxygen

BOD

Total dissolved solids

Pathogens

Dissolved organic carbon

Nutrients

Nitrates

Buffering capacity

Salinity

Sulfur

Water conductivity

Persistent Toxic Substances

3. Describe the current assimilative capacity of the source and return water.

Category 1: Basic Information on Water Withdrawal

4. Describe the key habitat characteristics for habitats associated with the source or receiving water (i.e., quality, access, resilience)

Are there endangered or threatened species or fragile habitats associated with the source water?

If so, list and describe.

Does the area of influence contain a significant amount of seasonal/semipermanent wetlands, bogs or fens that are directly linked to the water table?

If so, describe.

5. What components of the system are most sensitive to withdrawals? Which of these will most likely improve?

6. What are the existing uses (e.g., drinking water), of the source water body?

7. Is there a watershed management plan or objective for the area where the withdrawal is proposed to be made? For the source water? If so, provide details.

What are the existing water quality standards for the source water?

For the return water?

8. What is the proposed use of the withdrawn water?

What are the water use processes?

Will its water quality be altered by this use? If so, explain.

Will the use be consumptive? If yes, what fraction of withdrawn water is consumed?

What is the potential for future changes in the proposed use?

9. What is the proposed rate of withdrawal?

Will there be seasonal or diurnal variations in withdrawal rate? If so, describe.

What is the anticipated duration of this withdrawal?

Will the diversion be essentially irreversible?

Is an increase in water withdrawal anticipated in the future?

10. Where is the unconsumed water proposed to be returned?

Will the water be impounded before being returned? If so, describe.

Will it be treated before it is returned? If so, describe treatment.

If in same water body, where is return located with respect to withdrawal?

If different water body, what is the location of the water return?

What is the quality of the receiving water for the return?

Are there endangered or threatened species or fragile habitats associated with the receiving water? If so, describe.

What are the existing uses of the receiving water for the return?

Category 1: Basic Information on Water Withdrawal

11. What will be the structure and operation of the proposed water withdrawal and return? Describe in detail.

Will there be any physical, chemical, or biological impacts due to the withdrawal operation? Describe in detail and include entrainment or impingement effects.

12. Are other options to this proposed withdrawal available? Can the location of the proposed withdrawal be changed to minimize the impact?

If so, describe the impacts that are associated with these alternatives.

Category 2: Water Quantity

Questions in this category relate to flows, water levels, groundwater yields, and other information about water quantity in the source and the receiving water.

- 1. For the source water, receiving water for returns, and any other impacted waterbodies (including bypassed reaches, downstream waterbodies and impacted wetlands), does the withdrawal affect:**
 - Baseflow?
 - Range and timing of water levels or water table elevation fluctuations (including seasonal ranges or fluctuations)?
 - Flows and flow variability?
 - High water mark?
 - Stream status (permanent or intermittent)?
 - Index?
 - Recession (rate of recharge)?

If yes to any of the questions above, describe the impacts.
- 2. How large is the proposed water withdrawal in the context of total system flows in the source water and the receiving water?**
- 3. If there are impoundments, will there be a reduction in peak flows?**
 - Will there be a loss in variation of water levels?
 - If yes, describe the impacts.
- 4. For groundwater withdrawals:**

How important is groundwater seepage in the overall water budget and water characteristics of hydrologically-connected surface waterbodies (e.g., baseflows, water temperature)?

Will there be a reduction in the amount of groundwater seepage in the river? Or timing of? Explain.

Will there be an effect on any drinking water wells? If yes, explain.

Category 3: Sediment Dynamics and Characteristics

Questions in Category 3 relate to potential changes in sediment suspension and distribution, or sediment characteristics as a result of the water withdrawal.

- 1. Will there be a change in sediment transport and distribution (i.e., erosion, accretion/deposition, turbidity) in the source water or the return water?**
 - What is the anticipated magnitude and extent of this impact?
 - Will this alter the shoreline geomorphic features or the location and area of shallow water zones? In what way?
 - Will this change result in the need for increased dredging? Explain.
 - If there are impoundments, will there be a reduction in total sediment delivery? Explain.
 - Will there be significant effects on dynamic beach/coastal processes? Explain.

- 2. Will the water withdrawal affect wave energy dynamics and their impact? If yes, describe the effects.**

- 3. Will there be a change in sediment characteristics in the source water or the return water?**
 - Will there be an increased sediment contamination by persistent toxic substances?
 - Will there be a change in the properties of suspended or bedded sediments?
 - Will there be an alteration of the organic carbon content of sediments?
 - Will there be an increased sediment oxygen demand?

Category 4: Water Quality

The following questions relate to the quality of the source and receiving water, including any potential impacts related to invasive species.

1. How will the withdrawal alter the water quality of the source water and the return water? Address changes in:

- Temperature
- Dissolved oxygen
- BOD
- Total dissolved solids
- Pathogens
- Dissolved organic carbon
- Nutrients
- Nitrates
- Buffering capacity
- Salinity
- Sulfur
- Water conductivity
- Persistent Toxic Substances

2. Are there invasive species in the source water or return water? Please list.

How are invasive species in the source water affected (negative and positive impacts)?

What pathways, if any, will be created by the withdrawal/diversion that would allow invasive species to spread?

3. Will the water use (e.g., irrigation) lead to degradation of unrelated water supplies (e.g., groundwater)? Explain.

4. Will there be alteration of the thermal profile in the source or receiving water? Explain.

If there are impoundments, will there be an increase in water temperature? Explain.

Category 5: Ecological Impacts

Questions in Category 5 relate to potential impacts on habitats, structure and function of the ecosystem, and any ecological benefits that may occur as a result of the proposed activity.

1. For the source and return systems, will the changes in water quantity, sediment dynamics, and/or water quality:

affect aquatic or terrestrial habitats ?

-Will there be habitat loss or gain?

-Which species habitats are impacted (fish, benthos, birds, amphibians, reptiles, mammals, invertebrates)? Will any sensitive species such as piping plover be impacted?

-What are the habitat attributes that are impacted? For example, for migratory species, will access or connectivity be affected? Will resiliency of the habitat be affected?

affect production or diversity of flora (including phytoplankton, periphyton, and macrophytes)?

cause acute or chronic toxicity to any species?

affect population levels or growth rates of any species in impacted system?

affect hypoxic zone and subsequently affect surface aquatic systems?

have an ecological impact on assemblages of endangered/threatened species?

Describe any changes in detail. Include consideration of any seasonal pattern of withdrawals, and the related effects on impacted species (e.g., access to fish spawning areas in the spring).

2. For the source and return systems, will the changes in water quantity, sediment dynamics, and/or water quality:

affect predator-prey relationships or food web structure and/or function in the impacted system?

-If yes, which species are impacted?

-If yes, how will the whole community structure and function be impacted?

cause a change in the energy flow or nutrient cycling through the ecosystem?

cause an increased bioaccumulation of contaminants in the food web? Lead to human health impacts through increased contaminant levels in fish or other pathways?

Describe any changes in detail.

3. What ecological benefits, if any, will accrue from the proposed water withdrawal or diversion?

4. Will the withdrawal change the amount or the functioning of riparian land? Describe any changes.

Category 6: Cumulative Impacts

The questions in Category 6 address the potential for cumulative impacts as a result of the proposed use and other existing and future uses of the water. Questions also address whether there are any features (such as land use) that may alter the impact of the proposed activity.

- 1. From a lake-wide, river, connecting channel, and/or system-wide basis, how will this withdrawal (and return flow if applicable) affect:**
 - water levels and flows?
 - water quality and ecological health of the source water?
 - water quality and ecological health of the receiving water for the return?
- 2. Will this withdrawal (and return flow if applicable), when combined with ongoing and anticipated future withdrawals, cause a deviation from the hydrology/hydraulics of the system that is required to maintain the health and integrity of the ecosystem? In what way?**
- 3. Will changes in the hydrology/hydraulics of the Great Lakes-St. Lawrence system that may result from global climate changes alter the impact of the water withdrawal? In what way?**
- 4. Can further impacts be anticipated in the long-term on such things as land-use or population, as a result of the project?**
- 5. Are there any existing or potential features that would alter the impact of the water withdrawal (channel/lake structures, channel lake substrate, existing land use, water control structures, conservation)? If so, describe.**

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #1, Lake Superior Diversion Proposal for Groundwater Recharge in the Great Plains

Category	Information Availability					Unknown	Comments
	None Available	Little	Partial Available	Most	All Available		
	0	1	2	3	4		
Feasibility							
Technical Feasibility				X			Includes costs. Technology to prevent alien invasive species is not available.
Operational Feasibility				X			Includes costs. Not enough information about irrigation recharge (out of basin).
Legal Feasibility		X					A proposal of this kind must go through three legal hoops: congress, international treaties and governors; assessment.
Hydrologic/Hydraulic Impacts							
Watershed:							
Groundwater / Aquifer	X						Information unavailable for ground waters connected to the lake.
Tributary Stream:							
Baseflow						X	Not to sure what tributaries (in or/and out of basin). Roads and infrastructure needs for pipeline and canal structure may impact tributaries. There is the ability to estimate the extent of impact on the St. Louis River and any Great Lakes tributary stream. This category may be inapplicable because the project is engineered (via pipeline) to take water out of basin.
Maximum Streamflow						X	
Flow Range						X	
Open Lake:							
Means				X			Information is based on a series of level gages on the lakes. A question was raised on the connection between groundwater and the open lake.
Maximums				X			
Minimums				X			
Level Range				X			
Connecting Channel Flows							
Means			X				The level of precision is lower compared to open lake data. Need more modeling on the connecting channel flows.
Maximums			X				
Minimums			X				
Flow Range			X				
Climate Variability (broad natural range)		X					

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #1, Lake Superior Diversion Proposal for Groundwater Recharge in the Great Plains

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Ecological Impacts							
Watershed (St. Louis)							
Sedimentation			X			X	Information is available for sedimentation before project. Information is known for assessing post-project impacts.
Water Chemistry			X				
Pathogens and Toxins			X				
Wetlands		X					If piped across the watershed, there would be no impacts with the exception of the infrastructure needed for the pipeline. Information may be available through GLCWSA and RAP programs
Fisheries		X					
Birds		X					
Amphibians		X					
Reptiles		X					
Mammals		X					
Endangered Species		X					
Tributary Stream							
Sedimentation			X			X	Information is available for sedimentation before project. Information is known for assessing post-project impacts.
Water Chemistry			X				
Pathogens and Toxins			X				
Wetlands		X					If piped across the watershed, there would not be any impacts with the exception of the infrastructure needed for the pipeline. Information may be available through GLCWSA and RAP programs
Fisheries		X					
Birds		X					
Amphibians		X					
Reptiles		X					
Mammals		X					
Endangered Species		X					

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #1, Lake Superior Diversion Proposal for Groundwater Recharge in the Great Plains

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Ecological Impacts (Continued)							
Great Lake(s)							
Sedimentation		X					Need for new modeling of sedimentaiton transport in Lake Superior. Little knowledge of the littoral transport in respects to this project. Information for prediction of future impacts are unknown or little. Data is available on water chemistry over the past forty years. Information and data collected in pursuant to the GLWQA programs may be a good source.
Water Chemistry			X				
Pathogens and Toxins			X				
Wetlands			X				
Fisheries			X				
Birds			X				
Amphibians			X				
Reptiles			X				
Mammals			X				
Endangered Species			X				
Exotic Species			X				
Economic Impact (benefit versus cost)							
User				X			Unsure which user to address (the end user I.e. the Great Plains irrigator or the Great Lakes user I.e. recreational boating, fishing, etc.).
Community (City, Township, County)				X			Unsure if exercise only address in-basin impacts or if out-basin impact should be in the assessment as well. Unclear of whether impacts should address both U.S. and Canada. Assumed that both countries have good economic data.
Region				X			
State/Province				X			
U.S. National				X			
Canadian National				X			

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #1, Lake Superior Diversion Proposal for Groundwater Recharge in the Great Plains

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Distribution Among Affected Interests							
Domestic Water Supply / Sanitation			X				
Hydropower				X			
Commercial Transportation				X			
Recreational Boating			X				
Other Recreation and Tourism		X					
Wildlife and Environmental Interests		X					
Local Communities		X					This category is unknown because the Native Americans need to relay the information.
Native North Americans						X	
Distribution of Impacts Among Affected Regions							
Lake Superior							Information decreases as you go down stream. Understanding of cummulative impacts may decrease. Not sure if this information is relevent to Scenario #1
St. Marys River							
Lake Michigan							
Lake Huron							
St. Clair River							
Lake St. Clair							
Detroit River							
Lake Erie							
Niagara River							
Lake Ontario							
St. Lawrence River above Cornwall							
St. Lawrence River below Cornwall							

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #1, Lake Superior Diversion Proposal for Groundwater Recharge in the Great Plains

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Potential or Future Modifiers							
Clarity of Objectives		X					The question, "Is the scenario too vague to identify science/data gaps?" was raised.
Public Acceptance			X				Public opinion would definitely be against this sort of proposal.
Land Use Changes / Demographics		X					Demographic and land use change information is available for the Great Lakes Basin. Not sure about the Great Plains Region, which may not be the focus of this exercise.
Water Conservation Practices			X				Water conservation practices may be available for the Great Lakes Basin
Climate Change (warmer/dryer climate)		X					There is good modeling, but little information on specific impacts.

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #2, Lake Michigan Diversion Proposal for Public Water Supply Expansion in Indiana

Category	Information Availability						Comments	
	None Available	Little	Partial Available	Most	All Available	Unknown		
	0	1	2	3	4			
Feasibility								
Technical Feasibility							The group remarked on the broadness of technical and operational feasibility categories. Information is available to assess feasibility.	
Operational Feasibility							Economic feasibility is questionable. Need analysis of alternatives.	
Legal Feasibility							The question of whether legal feasibility is needed for this scenario was raised.	
Hydrologic/Hydraulic Impacts								
Watershed:								
Groundwater / Aquifer			X — X					
Tributary Stream:								
Baseflow			X — X				Tributary information is important for this scenario. It would be necessary to develop a flow duration curve to evaluate this scenario. Data and information availability will differ, depending on location of data collection.	
Maximum Streamflow				X				
Flow Range				X				
Open Lake:								
Means					X		Impact is less than the margin of error for lake level and stream flow measurements.	
Maximums					X			
Minimums					X			
Level Range					X			
Connecting Channel Flows								
Means					X			
Maximums					X			
Minimums					X			
Flow Range					X			
Climate Variability (broad natural range)			X				Historical information is good. However, the climate cycle is longer than there is data to analyze. Stream gage records go back about 50yrs.	

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #2, Lake Michigan Diversion Proposal for Public Water Supply Expansion in Indiana

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Ecological Impacts							
Watershed							
Sedimentation			X				General Information is available. Site-specific information may or may not be available. There should be fairly good information on endangered species, but site specific may be difficult.
Water Chemistry			X				
Pathogens and Toxins			X				
Wetlands			X				
Fisheries			X				
Birds			X				
Amphibians			X				
Reptiles			X				
Mammals			X				
Endangered Species			X				
Tributary Stream							
Sedimentation			X				
Water Chemistry			X				
Pathogens and Toxins			X				
Wetlands			X				
Fisheries			X				
Birds			X				
Amphibians			X				
Reptiles			X				
Mammals			X				
Endangered Species			X				

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #2, Lake Michigan Diversion Proposal for Public Water Supply Expansion in Indiana

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Ecological Impacts (Continued)							
Great Lake(s)							
Sedimentation			X				There may be adequate information to conclude no significant impact.
Water Chemistry			X				
Pathogens and Toxins			X				
Wetlands			X				
Fisheries			X				
Birds			X				
Amphibians			X				
Reptiles			X				
Mammals			X				
Endangered Species			X				
Exotic Species			X				
Economic Impact (benefit versus cost)							
User			X				
Community (City, Township, County)			X				
Region			X				
State/Province			X				
U.S. National			X				
Canadian National			X				

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #2, Lake Michigan Diversion Proposal for Public Water Supply Expansion in Indiana

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Distribution Among Affected Interests							
Domestic Water Supply / Sanitation					X		There may be enough information to conclude no significant impact to affected interests. Missing categories of discharge permit holders, other takers, nonpoint sources (i.e. redoing TMDLs), agricultural and industry.
Hydropower					X		
Commercial Transportation					X		
Recreational Boating					X		
Other Recreation and Tourism					X		
Wildlife and Environmental Interests					X		
Local Communities					X		
Native North Americans					X		
Distribution of Impacts Among Affected Regions							
Lake Superior					X		There may be enough information to conclude no significant impact to affected interests.
St. Marys River					X		
Lake Michigan					X		
Lake Huron					X		
St. Clair River					X		
Lake St. Clair					X		
Detroit River					X		
Lake Erie					X		
Niagara River					X		
Lake Ontario					X		
St. Lawrence River above Cornwall					X		
St. Lawrence River below Cornwall					X		

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #2, Lake Michigan Diversion Proposal for Public Water Supply Expansion in Indiana

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Potential or Future Modifiers							
Clarity of Objectives	X						The Great Lakes Basin Plan is needed to address these issues.
Public Acceptance	X						
Land Use Changes / Demographics	X						
Water Conservation Practices	X						
Climate Change (warmer/dryer climate)	X						

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #3, Intrabasin Diversion for Long-Term Water Supply Needs in Waterloo Region, Ontario

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Feasibility							
Technical Feasibility					X		
Operational Feasibility					X		
Legal Feasibility				X			Precedent setting. Information would be available through Treaty, Charter, legal Acts
Hydrologic/Hydraulic Impacts							
Watershed:							
Groundwater / Aquifer					X		For the region, all information is available. Information may be attainable for other watersheds.
Tributary Stream:							
Baseflow			X		X		For the Grand River, all information is available. Partial information is available for headwaters.
Maximum Streamflow			X		X		
Flow Range			X		X		
Open Lake:							
Means					X		Efforts are expected to be within error of measurement.
Maximums					X		
Minimums					X		
Level Range					X		
Connecting Channel Flows							
Means					X		
Maximums					X		
Minimums					X		
Flow Range					X		
Climate Variability (broad natural range)				X			Good historical information on climate variability. There are always unknowns.

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #3, Intrabasin Diversion for Long-Term Water Supply Needs in Waterloo Region, Ontario

Category	Information Availability					Unknown	Comments
	None Available	Little	Partial Available	Most	All Available		
	0	1	2	3	4		
Ecological Impacts							
Watershed (Grand River)							
Sedimentation					X		Regulated system
Water Chemistry						X	
Pathogens and Toxins						X	
Wetlands				X			
Fisheries				X			
Birds		X					
Amphibians		X					
Reptiles		X					
Mammals		X					
Endangered Species				X			Depends on species
Tributary Stream (Headwater)							
Sedimentation			X				Non issue. In the case that there is potential input water into other watersheds along pipeline, there is less data for those watersheds.
Water Chemistry							
Pathogens and Toxins							
Wetlands				X			
Fisheries		X					
Birds		X					
Amphibians		X					
Reptiles		X					
Mammals		X					
Endangered Species				X			Depends on species

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #3, Intrabasin Diversion for Long-Term Water Supply Needs in Waterloo Region, Ontario

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Ecological Impacts (Continued)							
Great Lake(s) (Huron and Erie)							
Sedimentation				X			Likely non issue
Water Chemistry				X			
Pathogens and Toxins				X			
Wetlands				X			
Fisheries				X			
Birds				X			
Amphibians				X			
Reptiles				X			
Mammals				X			
Endangered Species				X			
Exotic Species				X			
Economic Impact (benefit versus cost)							
User					X		Non issue; a precedent, policy issue
Community (City, Township, County)					X		
Region					X		
State/Province			X				
U.S. National							
Canadian National							

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #3, Intrabasin Diversion for Long-Term Water Supply Needs in Waterloo Region, Ontario

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Distribution Among Affected Interests							
Domestic Water Supply / Sanitation					X		
Hydropower					X		
Commercial Transportation					X		
Recreational Boating			X				
Other Recreation and Tourism		X					
Wildlife and Environmental Interests			X				
Local Communities			X				
Native North Americans		X					
Distribution of Impacts Among Affected Regions							
Lake Superior					X		
St. Marys River					X		
Lake Michigan					X		
Lake Huron					X		
St. Clair River					X		
Lake St. Clair					X		
Detroit River					X		
Lake Erie					X		
Niagara River					X		
Lake Ontario					X		
St. Lawrence River above Cornwall					X		
St. Lawrence River below Cornwall					X		

Scenario Workshop Information Assessment

Withdrawal Proposal: Scenario #3, Intrabasin Diversion for Long-Term Water Supply Needs in Waterloo Region, Ontario

Category	Information Availability						Comments
	None Available	Little	Partial Available	Most	All Available	Unknown	
	0	1	2	3	4		
Potential or Future Modifiers							
Clarity of Objectives	X				X		The group disagreed with each other on this category. Some though all information is available because the objective of the proposal was to ensure future municipal water supply to 2041.
Public Acceptance		X		X			Outside of the basin, little is known about public acceptance. Inside the basin, most is known about public acceptance.
Land Use Changes / Demographics		X					
Water Conservation Practices		X					
Climate Change (warmer/dryer climate)				X			