

**APPENDIX A**

**WATERWAY DESIGNATION  
AND  
MNR SITE DESCRIPTION PACKAGE**

## WATERWAY DESIGNATION

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February 28, 2011

**Confidential**

Xeneca Power Development Inc.  
5160 Yonge Street  
Suite 520  
Toronto ON M2N 6L9

Attention: Mr. Mark Holmes, Vice President

Dear Mr. Holmes:

**Re: Designation of Managed Waterway for the Purpose of the Ontario  
Waterpower Class Environmental Assessment  
Project: Four Slide Falls and McCarthy Chute  
River: Serpent River**

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In carrying out the environmental review as part of the Ontario Waterpower Association's Waterpower Class Environmental Assessment (the "Class EA") the proponent is to indicate whether the proposed project is located on a managed or unmanaged waterway. The primary difference being the obligation for the proponent to publish a Notice of Inspection and circulate a draft copy of the screening report for review prior to the Notice of Completion.

You have requested that Aird & Berlis LLP review whether such consent is necessary for the MNR to be legally in a position to grant Xeneca the surface rights required to construct the proposed waterpower facilities, including connecting lines to the electricity grid. This letter may be shared with the Ministry of Natural Resources ("MNR") and the Ministry of the Environment ("MOE").

**Background and Facts:**

In preparing this opinion, Aird & Berlis LLP has relied upon the following information, which if untrue, could have a significant impact upon the views expressed herein:

1. Xeneca has provided a copy of the attached map showing the area around the Project and we would note the following:
  - a. The Serpent River is located near Sudbury, Ontario. A map is attached. There are a series of bridges for roads crossing the Serpent River.

- b. Brookfield Power operates a power generating facility on the Serpent River.
  - c. Lizard Creek Power has a power facility planned for a tributary of the Serpent River.
  - d. The Serpent River Generating Station is located on the Serpent River.
  - e. A copy of the Greater Sudbury Source Protection Area Draft Assessment Report indicates 14 dams located on the Vermilion River. (excerpt attached)
2. The Ontario Waterpower Association has informed Xeneca that during the development of the Class EA the policy discussion regarding “unmanaged waterway” was intended to pertain to undisturbed rivers for which there tends to be very little information such as rivers in the Northern Rivers Area.

**Analysis:**

The classification of a project is completed in a manner that is consistent with the policy and definitions provided in the Class EA. The terms “managed waterway” and “unmanaged waterway” are defined in the Class EA. The Class EA also states that the plain meaning of terms is to be presumed unless a statutory definition provides a different meaning. The relevant definitions from the Class EA are:

**Managed Waterway** – A waterway on which other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exist and for which a human-made water management regime (i.e., levels and flows) has been established.

**Unmanaged Waterway** – A waterway on which no other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exist and for which no human-made water management regime (i.e. levels and flows) has been established.

**Waterway** – a river, stream, canal, lake or other water related feature.

(A) It should be noted that the Ontario Waterpower Association, the proponent of the Class, has suggested minor amendment to the MOE regarding the definition of Managed and Unmanaged Waterway. These requested clarification support the contention that the designation of the river looks at the "full reach" and not the zone of influence. Further it suggests that Unmanaged Rivers tend to be in the Northern Rivers area and are without human structures. The proposed definitions are:

- **Managed Waterway** – A waterway, including its full reach on which other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exists.





- **Unmanaged Waterway** – A waterway, including its full reach, generally in Ontario's Far North, on which no other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exist.

The OWA Class EA provides the following:

### **3.1.2 New Projects on Managed Waterways**

These are new projects on waterways that are already subject to water level and/or flow management. These projects may be expected to have potential broader effects and/or public, Aboriginal community and/or agency interest. However, given that projects in this category are restricted to those that take place on river systems already subject to water management, the evaluation and assessment will be primarily focused on the development site, the immediate zone of influence and the potential incorporation of the new operation into the existing water management regime. Some developments may involve changes to the existing regime and, hence, the involvement of a broader scope of interests and potentially a broader study area / zone of influence.

The Class EA provides the following rationale for categorizing projects as “unmanaged”.

### **Section 3.1.3**

These projects occur on unmanaged waterways and can have the most potential to cause broad effects and/or are expected to have considerable public, Aboriginal community and/or agency interest. These projects feature new developments on river systems not previously subject to water level and flow management. They will not only involve consideration of the direct effects of the new infrastructure, but are also most likely to require an assessment of the implications of an introduced water management regime.

The logic of the two classifications being that where a facility is proposed on a river system that does not contain structures or a water management plan that the introduction of such features should be carefully considered because there is the introduction of a “new” influence on the waterway for which the potential impacts should be carefully considered. The unmanaged waterway projects are therefore subjected to an additional public notice, the Notice of Inspection, to ensure the public is informed of the potential impacts and the proposed mitigation strategies are discussed. For a managed waterway, the project must be integrated into the existing water management regime and much of the dialogue will revolve around the current management of the waterway and the potential changes to the manner in which the levels/flows are regulated. With a managed waterway there is an understanding of the behaviour of the waterway through the water management regime and typically the new facility will be integrated into the existing scheme rather than making significant alterations to the water management plan.



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**Conclusion: Is the Serpent River a Managed Waterway?**

In short, there are a number of water level or flow control facilities, at least 14 dams, bridges, etc. located on the Serpent River and therefore it should properly be characterized as a managed waterway.

If there are any questions, please feel free to contact me at your earliest convenience.

Yours truly,

AIRD & BERLIS LLP



Scott Stoll

SS/hm

cc Mr. A. Chan (letter only)

7923518.1

**MNR SITE DESCRIPTION PACKAGE**

## Site Description Package (SDP)

Site Description Package (SDP) for Serpent River at Four Slides Falls; Site ID #2CD14

Application Number WSR-2007-01

**Applicants must incorporate the SDP information below into their response to the "Waterpower Site Strategy Requirements" Document, Section 7.0.**

### 1. Listing of "Identified Aboriginal Communities" and local Aboriginal Communities and Outcome of Preliminary District Discussion

<u>Identified Aboriginal Communities For Business to Business Relationship</u>	<u>Outcome of Preliminary District Discussion</u>
Serpent River First Nation Mississauga First Nation Sagamok First Nation	Preliminary discussions; no issues identified at this time; all three communities have only indicated they wish to meet with the proponent to discuss the project.
<u>Local Aboriginal Communities</u>	<u>Outcome of Preliminary District Discussion</u>
Serpent River First Nation	Preliminary discussions; no issues identified at this time

### 2. Maps

The map product(s) included as an attachment to this Site Description Package will include the tertiary watershed, drainage and other site features.

Applicable Maps	Included as Attachment
Watershed area	Map 2.1
Resource values	Map 2.2
Sensitive values	Map 2.3
Mining Claims	Map 2.4

### 3. Information

Land-Use		
Site Feature	Additional Information	Applicable Map
Aboriginal Values and Traditional Activities	All of the project area lies within what has been identified as traditional hunting, fishing, and trapping areas used by members of Serpent River First Nation, and is also considered to be within the traditional area of the Mississauga First Nation. There are no native values known to be present in the actual project area. First Nations values and interests will require confirmation through the EA process. First Nation values will remain confidential, and will not be disclosed to the public.	
Cultural Heritage Values	No cultural heritage values are known that would be affected by this project. This will need to be	



Land-Use		
Site Feature	Additional Information	Applicable Map
	There is an access point to Pecors Lake at the northeast end of the lake.	
Access Road Location	A map will be required showing how the project site will be accessed, and where new access roads are required.	2.2
Forest Access Roads	Existing forest access roads will be required to access the project area. Consideration must be given to ongoing forestry activities in the vicinity.	2.2
Existing Mining Tenure or Claims	The entire project area is within 4 existing mining claims. The proponent must make arrangements with the claimholder(s) to obtain surface utilization rights or permission. Proof of consent or permission must be provided for land use.	2.4
Canoe Routes / Portages	The Serpent River between Whiskey and Pecors Lakes and downstream is recognized as an official canoe route. Consideration will need to be provided for the canoe route and existing portage trails that may be affected.	2.2
Land Tenure	There are existing mining claims in the project area. The proponent must verify there are no other forms of land tenure applicable to the footprint of the proposed facility.	2.2
Other Industrial/ Commercial Activities	<p>There are no other known industrial or commercial activities in the project area, other than those described in this document.</p> <p>There is renewed interest in mining and mining exploration in the area mainly resulting from high prices for metals, and particularly uranium. There are active mining claims close to the project area, as identified in the enclosed map. There is the potential for increased activity to occur related to mining in the near future.</p>	2.2
Parks and Protected Areas	The project area is not within a park or protected area. There are two adjacent Enhanced Management Areas; described in the Resource Management Plans section below.	2.2
Settled Areas	There are no settled areas in the project area.	2.2
Tourism/Cottaging	Pecors Lake has been identified as a potential site for cottage lot development by the City of Elliot Lake. Although not adjacent to the project area, consideration for this development may be required, including new transmission line location, access, aesthetics, noise, proximity, road location, safety, and any other factors that may be identified.	2.2
Trails (snowmobiling, skiing, hiking)	The main access road to Pecors Lake from the Nordic Mine road is also part of an Ontario Federation of Snowmobile Clubs (OFSC) trail; EL1. Parts of the Pecors Lake road are also used	2.2

Land-Use		
Site Feature	Additional Information	Applicable Map
	as an OFSC trail, and are maintained and groomed for OFSC members during the winter months. The snowmobile trail also may use or cross the road leading south from the Pecors Lake road, immediately east of the bridge, which is closer to the project area. The Pecors road and some adjacent trails are also used for recreational All Terrain Vehicle (ATV) use. The City of Elliot Lake has an organized ATV club that has an interest in ATV use of area roads and trails. Access and shared use of affected parts of the Pecors Lake road would have to be agreed upon to the satisfaction of all parties.	
Transmission Line Route Location	A map will be required of the proposed transmission line location. Consideration of potential cottage lot development and related access will be required in determination of the transmission line route.	2.2
Trapping, Baitfish Harvesting and Bear Management Agreement Activities	The project area falls within two Bear Management Areas: BL-37-028 and EP-37-044. The project area falls within one registered trapline area; BL-084. The project area falls within a registered commercial baitfish harvesting area for Joubin and Gaiashk Townships. All of the holders of the permits for these areas should be included in all phases of consultation.	
Resource Management Plans	The project area is within Enhanced Management Areas: E222r Serpent River Enhanced Management Area (south of Pecors Lake) and adjacent to Enhanced Management Area E232a, Whiskey – Quirke Lakes Enhanced Management Areas (north of Pecors Lake). Land Use Policy for these Enhanced Management Areas is included in this document. A map showing the location of these areas is also included.	
Existing Water Management Plan(s)	At this time there is no approved or existing WMP for the Serpent River. There is a draft WMP for the Serpent River for the Camp Lake Serpent River GS and the Serpent River First Nation GS, which has not yet been approved. If and when this facility is commissioned, an amendment to the Serpent River WMP would be required.	
Wild Rice Harvesting	There is no known wild rice harvesting in the project area.	
Generic Waterpower Lease Agreement (WPLA)	If and when this project is completed, a WPLA would be required. A generic version of the WPLA is included in the SDP.	



Natural Environment		
Site Feature	Additional Information	Applicable Map
Invertebrate and Invertebrate Habitat	Studies have been conducted on invertebrates in the Serpent River system related to environmental monitoring of the decommissioned uranium mines upstream. There is a significant amount of information available resulting from these studies. There is however, no information specific to the project area. It is expected that a study of invertebrates and invertebrate habitat would be completed as part of the environmental assessment.	
Fish species present and Fish Habitat	Fish species reported to be, or known to have been present in Pecors Lake include lake trout, walleye, brook trout, smallmouth bass, rock bass, yellow perch, common white sucker, burbot, lake whitefish, cisco, pumpkinseed, creek chub, brown bullhead, and common shiner. Fish species in the Serpent River in the project area have not been identified. Fish habitat in areas potentially affected by this project has not been studied in detail. Additional information on fish species present and habitat would be required during the environmental assessment.	
Forestry	The main commercial activity in the general area of the project is forestry. Forestry activities are scheduled to be conducted in the immediate vicinity of the project area within the present annual work schedule for period 2007-2008. Additional forestry operations are also in the Forest Management Plan between 2008 – 2025. Other forestry related activities in nearby areas may result in forestry related traffic on roads used to access the project area.	
Vulnerable/Threatened/ Endangered Species (Aquatic/Terrestrial)	Vulnerable, threatened or endangered (VTE) species known to be within 10 km of the project area include peregrine falcon, bald eagle, Blanding's turtle, milk snake and monarch. Although not confirmed, there is the potential for eastern cougar to be present in the vicinity of the project area.  MNR must be notified within 3 days should any VTE species be noted in the project area that could be adversely affected by construction or any activities related to this project. VTE species have protective provisions under the Endangered Species Act and/or the Fish and Wildlife Conservation Act.	
Wildlife Habitat	Wildlife habitat, with the exception of moose aquatic feeding areas, has not been evaluated in	2.3

Natural Environment		
Site Feature	Additional Information	Applicable Map
	the project area. There are no identified moose aquatic feeding areas in the immediate project area. It is expected that the impacts of the proposal on wildlife habitat will be evaluated as part of the environmental assessment.	
Wildlife Species present	The Ontario Breeding Bird Atlas documented breeding evidence for over 96 bird species in the vicinity of the project during the period 2001-2005. Additional bird species that don't breed in the area may also be found during the spring and fall migration periods. Common breeding species include common loon, Canada goose, wood duck, American black duck, mallard, lesser scaup, bufflehead, common goldeneye, common merganser, ruffed grouse, killdeer, spotted sandpiper, American woodcock, common tern, ring-billed gull, herring gull, mourning dove, ruby-throated hummingbird, hairy woodpecker, downy woodpecker, yellow-bellied sapsucker, northern flicker, least flycatcher, eastern phoebe, great crested flycatcher, red-eyed vireo, American crow, common raven, black-capped chickadee, red-breasted nuthatch, winter wren, veery, American robin, cedar waxwing, Nashville warbler, northern parula, yellow warbler, chestnut sided warbler, black-throated green warbler, American redstart, ovenbird, common yellowthroat, chipping sparrow, song sparrow, swamp sparrow, white-throated sparrow, common grackle, brown-headed cowbird, common redpoll, blue jay, gray jay, and belted kingfisher. Bird species that are less common and/or sensitive and may be present in the vicinity of the project include but are not limited to sandhill crane, spruce grouse, pileated woodpecker, Brewer's blackbird, rusty blackbird, bald eagle, peregrine falcon, northern goshawk, gyrfalcon, northern harrier, broad-winged hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, rough-legged hawk, sharp-shinned hawk, American kestrel, merlin, osprey, barred owl, boreal owl, great gray owl, great horned owl, long-eared owl, northern saw-whet owl, short-eared owl, and turkey vulture. Other breeding species of birds identified in the vicinity of the project area (17LM83 and 17LM93) include double crested cormorant, American bittern, great blue heron, ring-necked duck, Caspian tern, hooded merganser, black-billed cuckoo, olive-sided woodpecker, whip-poor-will, alder	



Natural Environment		
Site Feature	Additional Information	Applicable Map
	<p>flycatcher, eastern kingbird, blue-headed vireo, gray catbird, brown thrasher, European starling, cedar waxwing, American crow, tree swallow, barn swallow, eastern wood-pewee, alder flycatcher, white-breasted nuthatch, brown creeper, Swainson's thrush, hermit thrush, wood thrush, golden-winged warbler, magnolia warbler, black-throated blue warbler, blackburnian warbler, bay-breasted warbler, yellow-rumped warbler, pine warbler, northern waterthrush, black-and-white warbler, mourning warbler, Canada warbler, vesper sparrow, savannah sparrow, scarlet tanager, rose-breasted grosbeak, indigo bunting, red-winged blackbird, purple finch, pied-billed grebe, chimney swift, golden-crowned kinglet and American goldfinch.</p> <p>Mammal species that may be present in the vicinity of the project include but are not limited to raccoon, red fox, striped skunk, weasel, grey wolf, coyote, moose, white-tailed deer, black bear, elk, beaver, marten, lynx, bobcat, fisher, mink, muskrat, river otter, red squirrel, gray squirrel, fox squirrel, northern flying squirrel, porcupine, varying hare, various species of bats, eastern chipmunk, least chipmunk, various species of mice, shrews and voles.</p> <p>Reptile species that may be present in the vicinity of the project include but are not limited to snapping turtle, painted turtle, Blanding's turtle, milksnake, ring-necked snake, smooth greensnake, red-bellied snake, northern watersnake, and common gartersnake.</p>	
Other Habitat Considerations	If, during any phase of this project, any significant wildlife habitat is noted, particularly for any VTE species, MNR must be advised immediately.	
Provincial Significant Wetlands	No provincially significant wetlands have been identified in the vicinity of the project area.	
Water Quality	Water quality in the Serpent River watershed is known to be affected by effluents from decommissioned uranium mines upstream. The water quality throughout the watershed has been studied in great detail, and a large amount of information is available. Sources for this information can be provided to the proponent.	

Natural Environment		
Site Feature	Additional Information	Applicable Map
Flow Regime Characteristics	Natural Flow Metrics for the site are included in this package. The waterpower proposal for this site is for a run-of-the-river/intermediate facility. Natural Flow Regime characteristics will have to be fully investigated and incorporated into the design and operating strategy for this facility. General ecological considerations as well as site specific requirements will need to be investigated and addressed.	
Areas of Known Erosion	There have been no studies conducted in the area, and are no known areas of erosion in the project area or vicinity.	

#### 4. Information Gaps

Land-Use		
Site Feature	Information Gap	Applicable Map
Cultural Heritage	Verification that cultural heritage values will not be affected by this project is required.	

Natural Environment		
Site Feature	Information Gap	Applicable Map
Fish Habitat	Detailed information on fish habitat in the project area is not available. All fish habitat within the areas potentially affected by this project will require identification and mapping. Potential spawning habitat and actual utilization by fish species will require investigation, and will have to be considered in the design and operating plan for the facility. Consideration will also have to be provided for any other significant or critical habitat	
Fish species present	Information on fish species present is based on information available for Pecors Lake. Confirmation of fish species present in areas directly affected by the project is required. Consideration for the requirements of all fish species present will be given as part of the EA and approvals process.	
Wildlife Habitat	The project area includes riverine, as well as riparian and possibly upland habitat. There is the potential for any species present within the project area to be adversely affected. Each habitat type will have to be thoroughly	



<b>Natural Environment</b>		
<b>Site Feature</b>	<b>Information Gap</b>	<b>Applicable Map</b>
	<p>investigated to determine potential impacts resulting from this development.</p> <p>A detailed inventory of wildlife species and related habitat in the project area has not been undertaken, but will be required as part of the Environmental Assessment. Consequently it is not known if any significant wildlife habitat will be affected. During the course of the Environmental Assessment wildlife habitat will need to be evaluated to determine if any significant wildlife habitat is present that could be adversely affected. If any significant wildlife habitat is identified MNR and possibly the Canadian Wildlife Service will need to be notified and consulted to determine how this should be addressed.</p>	

### **5. Potential Stakeholders**

<b>Land-Use</b>		
<b>Site Feature</b>	<b>Potential Stakeholders</b>	<b>Applicable Map</b>
Aboriginal Values and Traditional Activities, Trapping,	Serpent River First Nation Box 14 48 Village Road Cutler, ON P0P 1B0	
Fishing	Registered Baitfish Trapper Joubin Twp.	
Fishing	Registered Baitfish Trapper Gaiashk Twp.	
Hunting and Fishing;	Registered BMA Holder - BL-37-028	
Hunting and Fishing;	Registered BMA Holder - EP-37-044	
Hunting and Fishing;	Registered trapper for BL-084	
Cottages, Access Roads	Elliot Lake Residential Development Commission Lester B. Pearson Civic Centre 100 Highway 108 North Elliot Lake, ON P5A 2T1 800-475-7897 705-461-9348 Fax 705-461-8827	
Tourism, Land ownership,	City of Elliot Lake	

Land-Use		
Site Feature	Potential Stakeholders	Applicable Map
Tourism, Land ownership, Access Roads, Cottages, Other Commercial Activities, Transmission Line Route Location, Settled Areas, Land Tenure	City of Elliot Lake 45 Hillside Dr. N. Elliot Lake, ON P5A 1X5 848-2287	
Fish Habitat, Flow Regime Characteristics, VTE species, Wildlife habitat and species	Northwatch Box 282 North Bay, ON P1B 8H2	
Fish Habitat, Flow Regime Characteristics, VTE species, Wildlife habitat and species, access roads	Serpent River Environmental Monitoring Committee c/o G. MacDonald Algoma Mills, ON P0R 1A0	
Tourism, Trails	R & S Snowmobile Tours 14 Oakland Blvd. Elliot Lake, ON 848-3558	
Tourism, Trails	Elliot Lake Outfitters 62 McQuarrie Place Elliot Lake, ON P5A 3C1	
Tourism	Northshore Anglers and Hunters Box 128 Spanish, ON P0P 2A0	
Trails	Elliot Lake ATV Club	
Tourism, Trails	Ontario Trail Riders Association RR3 Cherry Street Stouffville, ON	
Tourism, Trails	Northshore Guiding Service Box 333 Spanish, ON P0P 2A0	
Trapping	Northshore Trapper's Council	
Trapping	Registered Trapper - BL-084	
Trapping	Registered Trapper - EP-07	
Tourism, Trails	Ontario Snowmobile Federation / Elliot Lake Snowbirds Box 125 Elliot Lake, ON P5A 2J6	

## **6. Flow Metrics Data**

Information regarding Flow Metrics Data is attached.



## 7. Listing of Permits and Approvals Required

Permits and Approvals
Environmental Assessment Requirements for Electricity Projects (O.Reg 116/1) – Ministry of Environment (MOE)
Environmental Assessment Requirements – Canadian Environmental Assessment Agency
Permit to Take Water – (MOE) (OWRA)
Ministry of Environment C of A (Sewage Works)
Work Permit under the <i>Public Lands Act</i> – Ministry of Natural Resources (MNR)
Land Use Permit under the <i>Public Lands Act</i> – (MNR)
Lakes and Rivers Improvement Act Approval – (MNR) – Location Approval and Plans & Specification Approval
Lakes and Rivers Improvement Act – (MNR) – Dam Operations Plan, Water Management Plan Approval
Crown Easement under the <i>Public Lands Act</i> – (MNR)
Water Management Planning Requirements – (MNR)
Burn Permit under the <i>Forest Fire Protection Act</i> – (MNR)
Authorizations under the Fish and Wildlife Conservation Act to destroy beaver dams, dens of furbearing mammals or bears and the nests of eggs of birds. - MNR
Licence of Occupation of Crown Land under the <i>Public Lands Act</i> - MNR
MNR Waterpower Lease Agreement
Archaeological Approvals – Ministry of Culture and Recreation
Planning Act considerations – if project involves private land – Ministry of Municipal Affairs and Housing
Fisheries Act Approval – Fisheries and Oceans Canada (DFO)
Blasting Approval in aquatic environment – (DFO)
Fish Habitat Authorizations under the <i>Fisheries Act</i> – (DFO)
Navigable Waters Protection Act Approval – Approval for Works (Coast Guard)
Approvals for water crossings – Fisheries and Oceans Canada
Temporary Magazine Licence, required for purchase and storage of explosives for blasting – Natural Resources Canada
Approval for Construction within Navigable Waters – Canadian Coast Guard
Navigable Waters Protection Act Approval – Transport Canada
Ministry of Labour Notice of Project
Ontario Energy Board Generator's Licence
Hydro-One Customer Impact Assessment
IESO System Impact Assessment
Approvals to connect to IESO transmission grid
Interconnection Agreement with Hydro One
Landowner agreements for access
Leases or Agreements for lands for the transmission lines or for flooded areas
Building Permits issued by the local Municipality
Other Federal, Provincial and/or Municipal permits or approvals as required

**Note:** Through the environmental assessment and approval processes additional information requirements may be identified.

Number of natural areas selected: 1

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**Serpent River****AREA\_ID: 18230**

<b>Significance</b>	<b>Area Type</b>	<b>Size</b>	<b>Centroid UTM</b>	<b>Map #</b>
	Enhanced Management Area- Recreation	4859.0 ha	17,388716,5129155	41J/8

**Description**

OLL:E222r Enhanced Management Area-Recreation

**Vegetation****Representation****Landform****References**

- Ontario Ministry of Natural Resources. 1999. Ontario's Living Legacy: Land Use Strategy. OMNR. iii + 136 pp. + map.

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**autodesk**

**Legend:**

- Natural Areas
  - Earth Science ANS
  - Life Science ANS
  - Conservation Area
  - Life Science Site
  - National Park
  - Provincial Park
  - Prov. Park Zone
  - Wetland
  - All Others
- Main Roads
  - 4-Lane Hwy
  - Prov. Hwy
  - County Road
  - Other Roads
- Railways
- Ont. Living Legacy
- Main Lakes
- Lakes and Rivers
- Islands
- Drainage
- NTS Maps
- Provincial Parks
- Cities, Towns and Townships
- Counties

Scale: 1 : 109,782    15.5 x 8.77 (mi)



**CROWN LAND USE POLICY ATLAS**  
**POLICY REPORT**  
**E222r: Serpent River**

**Designation:** Enhanced Management Area

**District (s)** Sudbury, Sault Ste. Marie

**Category:** Recreation

**Area (hectares)** 5,764

**Date Policy Last Updated:** 31/01/2006

**DESCRIPTION:**

This waterway flows south from the Elliot Lake area to Highway 17. The waterway is about 70 kilometres long, with the upper forks reaching 10 kilometres west and 30 kilometres east of Elliot Lake. The river system includes large lakes, small streams, islands, meandering channels, marshes and swamps, and wooded shorelines.

While water quality has been affected by upstream effluents from past mining operations, the river is very accessible and has high quality recreational value.

**LAND USE INTENT:**

Manage this riverine area to protect recreational and natural values along the river (including the use of 30 to 90 metre forest harvesting reserves), while permitting compatible resource uses. Due to the complexity of the land use pattern throughout the area, new proposals for development will require a detailed evaluation on a case by case basis to ensure compatibility with surrounding uses.

Management of this area is also governed by the general policies contained in the Land Use Strategy (1999), the Blind River District Land Use Guidelines (1983) and Espanola District Land Use Guidelines (1983).

**MANAGEMENT DIRECTION:**

Recreation enhanced management areas have been applied to areas with high recreational use of significant recreation values for activities such as angling, hunting, motorized and pedestrian trail use, and canoeing. The enhanced management area can be used for a wide range of recreation values and management intents, ranging from areas where relatively substantial recreation development is permitted, to areas providing low-density, high quality recreation in a natural setting.

Where the Recreation enhanced management area have been identified to protect remote recreation values, all activities need to be carried out in such a way as to maintain or enhance the remote recreation qualities.

**Activity**
**Permitted**
**Guidelines**

<b>Commercial Activities</b>		
<b>Aggregate Extraction</b>	Yes	Where the Recreation Enhanced Management Area has been identified to protect remote recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance the remote recreation qualities.
<b>Bait Fishing</b>	Yes	
<b>Commercial Fishing</b>	Yes	Only where benefits to existing fisheries are anticipated.
<b>Commercial Fur Harvesting</b>	Yes	

Activity	Permitted	Guidelines
<b>Commercial Activities</b>		
Commercial Power Generation Development	Yes	Where the Recreation EMA has been identified to protect remote recreation values, industrial activities and the related construction and use of new roads, need to be carried out in such a way as to maintain or enhance the remote recreation qualities.
Commercial Timber Harvest	Yes	Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, remote recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance river recreation qualities.
Commercial Tourism (services and/or facilities), Existing	Yes	
Commercial Tourism (services and/or facilities), New	Yes	
Mineral Exploration and Development	Yes	Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance river recreation qualities.  Exploration and development are permitted. Mining developments will be evaluated on a case by case basis to ensure environmental impacts are minimized. Surface developments will be discouraged within 120 metres of the Serpent River and associated lakes.
Peat Extraction	Yes	Where the Recreation EMA has been identified to protect remote recreation values, industrial activities and the related construction and use of new roads, need to be carried out in such a way as to maintain or enhance the remote recreation qualities.
Wild Rice Harvesting	Yes	Will be considered on a case by case basis.

Activity	Permitted	Guidelines
<b>Land and Resource Management Activities</b>		
Crown Land Disposition, Agriculture	No	Normally, Crown land will not be sold for agricultural purposes, however, exceptions may be permitted in Shedden Township upon requests from the Ministry of Agriculture and Food for assistance to existing operations.
Crown Land Disposition, Cottaging	No	
Crown Land Disposition, Rural Residential	No	

E222r: Serpent River

Activity	Permitted	Guidelines
<b>Land and Resource Management Activities</b>		
Crown Land Disposition, Urban Development	No	
Road Development and Maintenance, Existing	Yes	
Road Development and Maintenance, New	Yes	<p>Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance river recreation qualities.</p> <p>Road proposals will be evaluated on a case-by-case basis. Specific guidelines regarding construction, maintenance and abandonment may be instituted, depending on the extent of impact on Ministry programs.</p>

Activity	Permitted	Guidelines
<b>Recreation Activities and Facilities</b>		
Crown Land Recreation	Yes	Existing access points will be recognized. New or expansion of access facilities may be permitted where such will enhance the recreational use of the waterway.
Hunting	Yes	
Road Use (public), Existing	Yes	<p>Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, policies for the use of new roads, should maintain or enhance river recreation qualities.</p> <p>Road proposals will be evaluated on a case-by-case basis. Specific guidelines regarding construction, maintenance and abandonment may be instituted, depending on the extent of impact on Ministry programs.</p>
Road Use (public), New	Yes	<p>Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, policies for the use of new roads, should maintain or enhance river recreation qualities.</p> <p>Road proposals will be evaluated on a case-by-case basis. Specific guidelines regarding construction, maintenance and abandonment may be instituted, depending on the extent of impact on Ministry programs.</p>
Sport Fishing	Yes	

**ADDITIONAL INFORMATION:**

**Note:** MNR will consider the Land Use Intent and Management Direction outlined in this policy report when reviewing applications for permitted activities that require licences, leases, permits, or other forms of approval. The review of individual applications involves the consideration of a variety of factors and requirements on a site-specific basis in addition to land use policy.



## E222r: Serpent River

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Quimby Lake is designated as an A1 lake trout lake. McCarthy Lake is designated as a B1 lake trout lake. In addition to provincial and regional policies, the following local policies will apply to the management of these lakes:

- No additional access or development will be permitted.

Esten Lake is designated as a B2 lake trout lake. In addition to provincial and regional policies, the following local policies will apply to the management of this lake:

- This lake will be managed for lake trout but consideration will be given to other objectives on a case-by-case basis. Development should be designated to have a minimal impact on the aquatic habitat, i.e. shoreline set-back, etc. A modified management area will be established on this lake.

### **SOURCE OF DIRECTION:**

Blind River District Land Use Guidelines (1983)

Ontario's Living Legacy Land Use Strategy (1999)

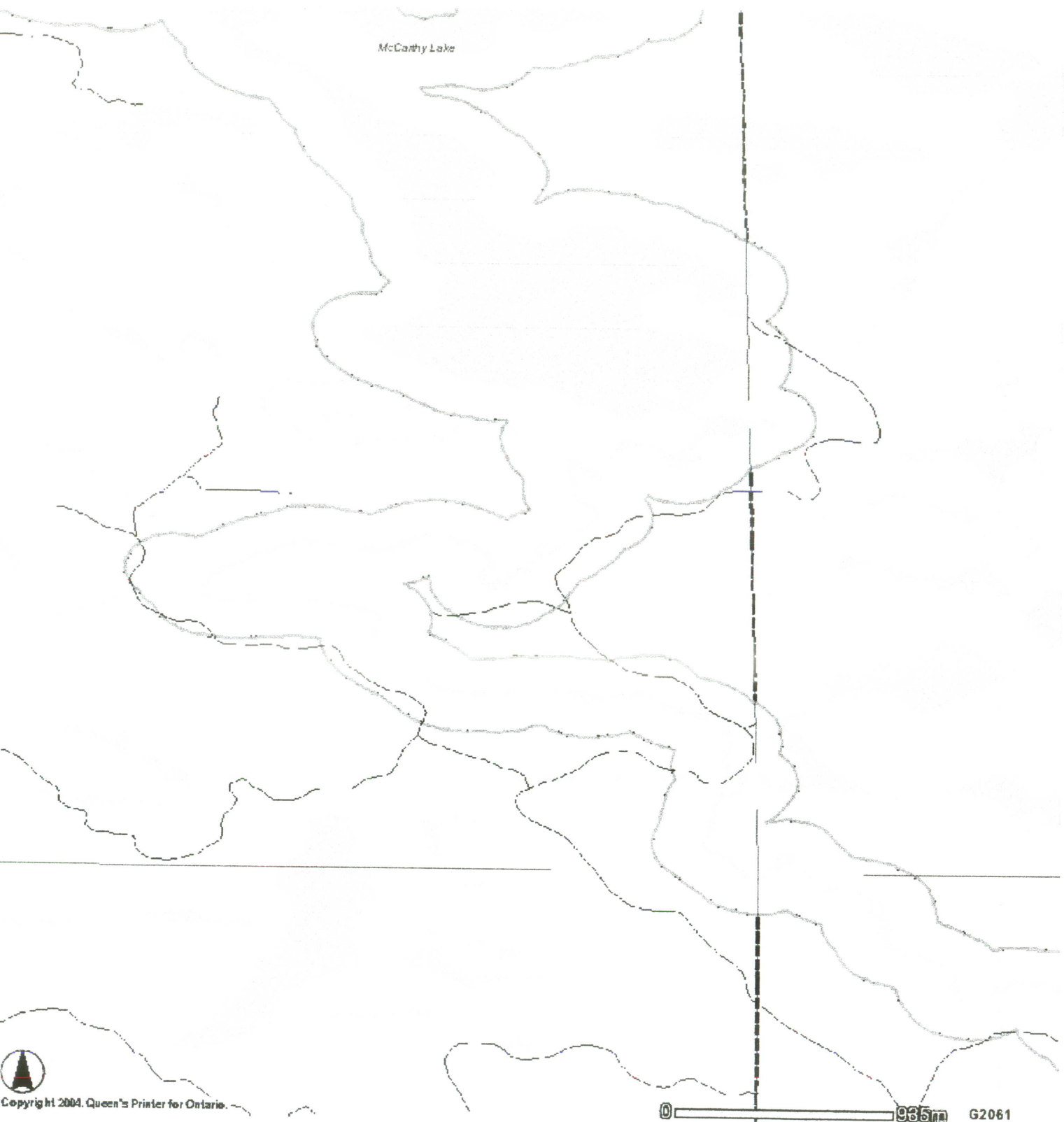
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Rapport de la politique en français: <http://crownlanduseatlas.mnr.gov.on.ca/french/htmls/E222r.html>

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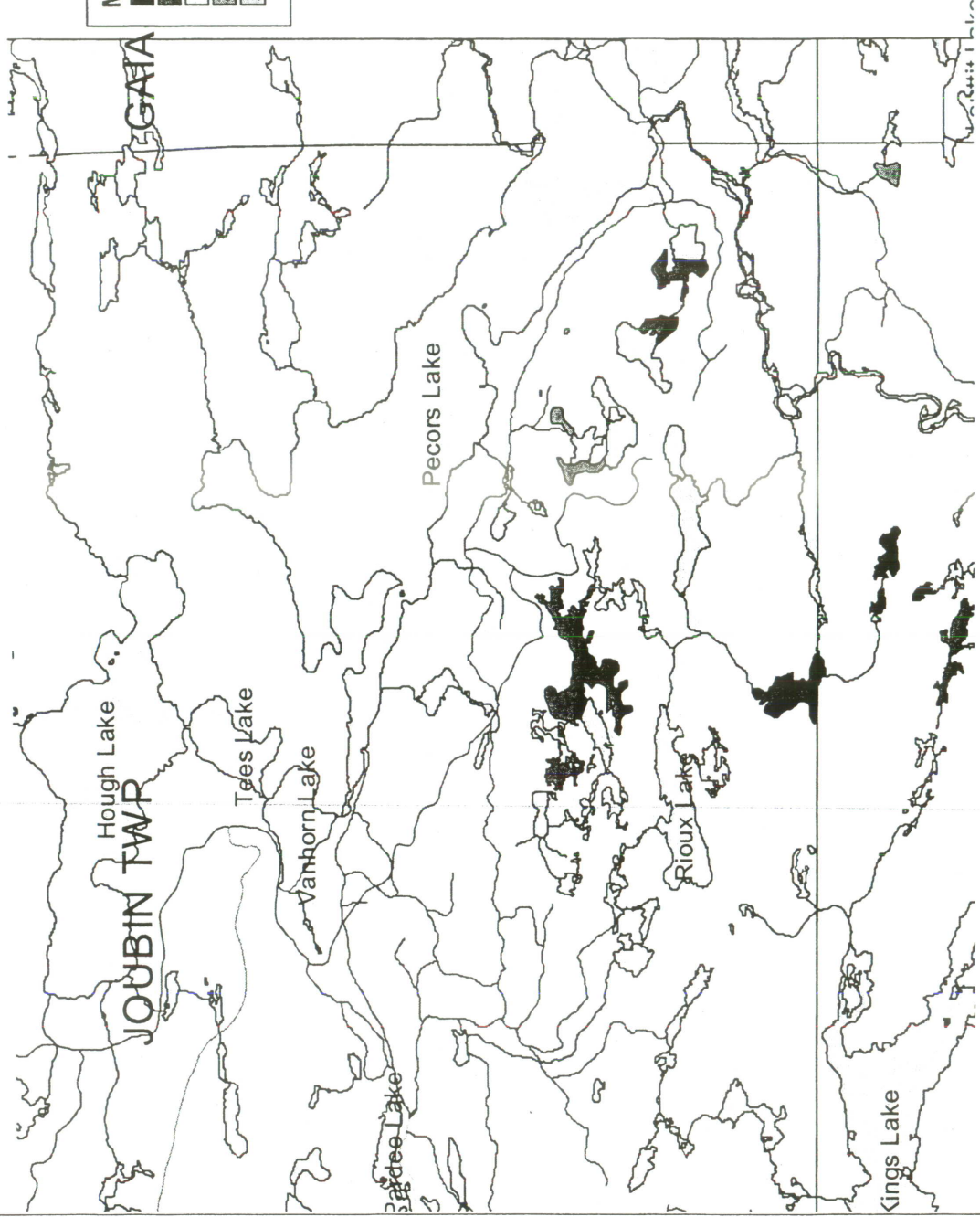
McCarthy Lake



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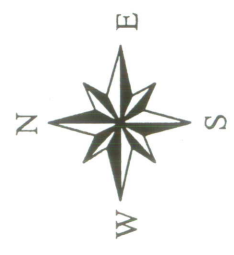
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# Moose Aquatic Feeding Areas



**Moose Aquatic Feeding Area Rank**

- 4 - Very High
- 3 - High
- 2 - Moderate
- 1 - Low
- Not Specified



**autodesk**

1 : 74,995 10.6 x 5.99 (mi)

1 'Natural Areas' selected

- Personal Species ( )
  - Rare Species Loc:
  - Endangered
  - Threatened
  - Vulnerable
  - Others
  - Vegetation Commu
- Natural Areas
  - Earth Science AN
  - Life Science ANS
  - Conservation Are:
  - Life Science Site
  - National Park
  - Provincial Park
  - Prov. Park Zone
  - Wetland
  - All Others
- Main Roads
  - 4-Lane Hwy.
  - Prov. Hwy.
  - County Rd.
  - Other Roads
- Railways
- Ont. Living Legacy
- Main Lakes



**CROWN LAND USE POLICY ATLAS**  
**POLICY REPORT**  
**E222r: Serpent River**

**Designation:** Enhanced Management Area

**District (s)** Sudbury, Sault Ste. Marie

**Category:** Recreation

**Area (hectares)** 5,764

**Date Policy Last Updated:** 31/01/2006

**DESCRIPTION:**

This waterway flows south from the Elliot Lake area to Highway 17. The waterway is about 70 kilometres long, with the upper forks reaching 10 kilometres west and 30 kilometres east of Elliot Lake. The river system includes large lakes, small streams, islands, meandering channels, marshes and swamps, and wooded shorelines.

While water quality has been affected by upstream effluents from past mining operations, the river is very accessible and has high quality recreational value.

**LAND USE INTENT:**

Manage this riverine area to protect recreational and natural values along the river (including the use of 30 to 90 metre forest harvesting reserves), while permitting compatible resource uses. Due to the complexity of the land use pattern throughout the area, new proposals for development will require a detailed evaluation on a case by case basis to ensure compatibility with surrounding uses.

Management of this area is also governed by the general policies contained in the Land Use Strategy (1999), the Blind River District Land Use Guidelines (1983) and Espanola District Land Use Guidelines (1983).

**MANAGEMENT DIRECTION:**

Recreation enhanced management areas have been applied to areas with high recreational use of significant recreation values for activities such as angling, hunting, motorized and pedestrian trail use, and canoeing. The enhanced management area can be used for a wide range of recreation values and management intents, ranging from areas where relatively substantial recreation development is permitted, to areas providing low-density, high quality recreation in a natural setting.

Where the Recreation enhanced management area have been identified to protect remote recreation values, all activities need to be carried out in such a way as to maintain or enhance the remote recreation qualities.

**Activity**
**Permitted**
**Guidelines**

<b>Commercial Activities</b>		
<b>Aggregate Extraction</b>	Yes	Where the Recreation Enhanced Management Area has been identified to protect remote recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance the remote recreation qualities.
<b>Bait Fishing</b>	Yes	
<b>Commercial Fishing</b>	Yes	Only where benefits to existing fisheries are anticipated.
<b>Commercial Fur Harvesting</b>	Yes	



Activity	Permitted	Guidelines
<b>Commercial Activities</b>		
Commercial Power Generation Development	Yes	Where the Recreation EMA has been identified to protect remote recreation values, industrial activities and the related construction and use of new roads, need to be carried out in such a way as to maintain or enhance the remote recreation qualities.
Commercial Timber Harvest	Yes	Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, remote recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance river recreation qualities.
Commercial Tourism (services and/or facilities), Existing	Yes	
Commercial Tourism (services and/or facilities), New	Yes	
Mineral Exploration and Development	Yes	Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance river recreation qualities.  Exploration and development are permitted. Mining developments will be evaluated on a case by case basis to ensure environmental impacts are minimized. Surface developments will be discouraged within 120 metres of the Serpent River and associated lakes.
Peat Extraction	Yes	Where the Recreation EMA has been identified to protect remote recreation values, industrial activities and the related construction and use of new roads, need to be carried out in such a way as to maintain or enhance the remote recreation qualities.
Wild Rice Harvesting	Yes	Will be considered on a case by case basis.

Activity	Permitted	Guidelines
<b>Land and Resource Management Activities</b>		
Crown Land Disposition, Agriculture	No	Normally, Crown land will not be sold for agricultural purposes, however, exceptions may be permitted in Shedden Township upon requests from the Ministry of Agriculture and Food for assistance to existing operations.
Crown Land Disposition, Cottaging	No	
Crown Land Disposition, Rural Residential	No	

Activity	Permitted	Guidelines
<b>Land and Resource Management Activities</b>		
Crown Land Disposition, Urban Development	No	
Road Development and Maintenance, Existing	Yes	
Road Development and Maintenance, New	Yes	<p>Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, industrial activities and the related construction and use of new roads need to be carried out in such a way as to maintain or enhance river recreation qualities.</p> <p>Road proposals will be evaluated on a case-by-case basis. Specific guidelines regarding construction, maintenance and abandonment may be instituted, depending on the extent of impact on Ministry programs.</p>

Activity	Permitted	Guidelines
<b>Recreation Activities and Facilities</b>		
Crown Land Recreation	Yes	Existing access points will be recognized. New or expansion of access facilities may be permitted where such will enhance the recreational use of the waterway.
Hunting	Yes	
Road Use (public), Existing	Yes	<p>Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, policies for the use of new roads, should maintain or enhance river recreation qualities.</p> <p>Road proposals will be evaluated on a case-by-case basis. Specific guidelines regarding construction, maintenance and abandonment may be instituted, depending on the extent of impact on Ministry programs.</p>
Road Use (public), New	Yes	<p>Where the Recreation Enhanced Management Area has been identified to protect riverine and recreation values, policies for the use of new roads, should maintain or enhance river recreation qualities.</p> <p>Road proposals will be evaluated on a case-by-case basis. Specific guidelines regarding construction, maintenance and abandonment may be instituted, depending on the extent of impact on Ministry programs.</p>
Sport Fishing	Yes	

**ADDITIONAL INFORMATION:**

**Note:** MNR will consider the Land Use Intent and Management Direction outlined in this policy report when reviewing applications for permitted activities that require licences, leases, permits, or other forms of approval. The review of individual applications involves the consideration of a variety of factors and requirements on a site-specific basis in addition to land use policy.

## E222r: Serpent River

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Quimby Lake is designated as an A1 lake trout lake. McCarthy Lake is designated as a B1 lake trout lake. In addition to provincial and regional policies, the following local policies will apply to the management of these lakes:

- No additional access or development will be permitted.

Esten Lake is designated as a B2 lake trout lake. In addition to provincial and regional policies, the following local policies will apply to the management of this lake:

- This lake will be managed for lake trout but consideration will be given to other objectives on a case-by-case basis. Development should be designated to have a minimal impact on the aquatic habitat, i.e. shoreline set-back, etc. A modified management area will be established on this lake.

### **SOURCE OF DIRECTION:**

Blind River District Land Use Guidelines (1983)

Ontario's Living Legacy Land Use Strategy (1999)

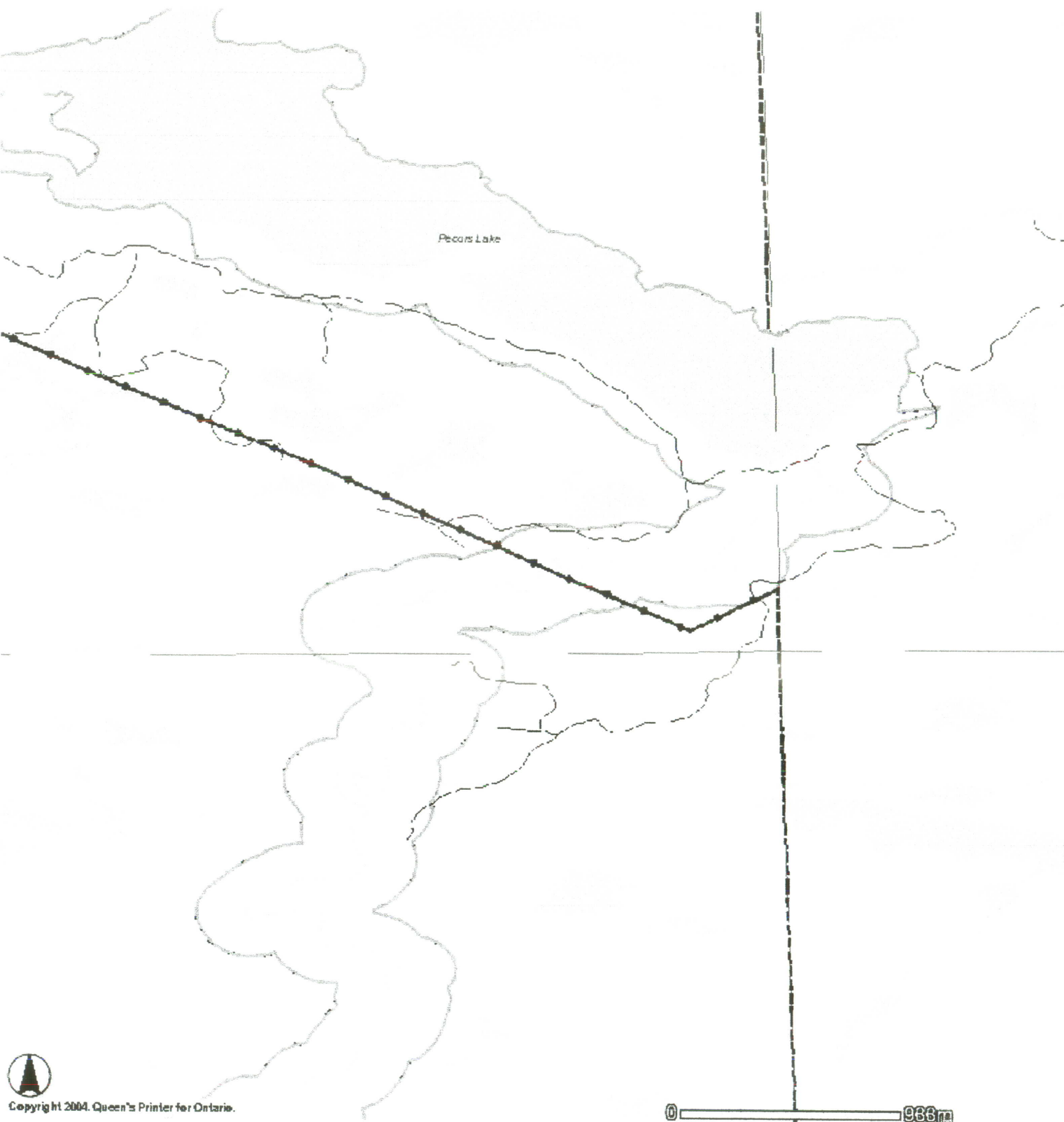
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Rapport de la politique en français: <http://crownlanduseatlas.mnr.gov.on.ca/french/htmls/E222r.html>

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Pecora Lake



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# DRAFT

## SERPENT RIVER 5.8KM ABOVE MCCARTHY LAKE NATURAL FLOW METRICS DATA SHEET

### Station Information

Site ID	2CD14
River Name	Serpent River
Site Name	McCarthy Lake
Region	Northeast
District	Sault Ste. Marie
Drainage Area	592.90 km <sup>2</sup>
Owner	-
Plant Capacity	-
Spill Capacity	-

Flow metrics are provided for the waterpower facility based on simulated natural flows as described in the draft *Waterpower Science Transfer Report 1.0* (MNR 2003). The target metrics provided are described in the *Aquatic Ecosystem Guidelines* (MNR 2002) and the *Waterpower Science Strategy* (MNR 2002). Metrics are based on simulated natural daily flow from 1978-1993 (16 yrs). The gauge used for the natural flow simulation was: 02CD004, Serpent River below Pecors Lake (weight=1).

## Annual:

### I. Streamflow Time Series

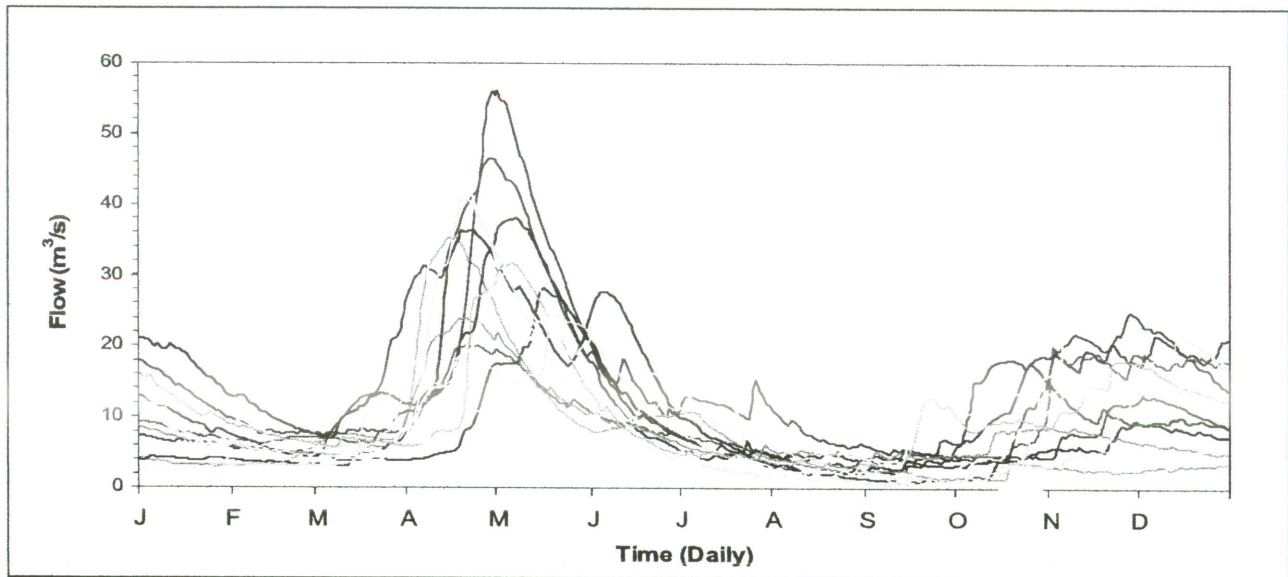


Figure 1: Annual daily flow hydrographs from 1978-1993.

Descriptive Metric	Value
Mean Annual Flow	9.77 m <sup>3</sup> /s
20% Time Exceeded Flow	15.06 m <sup>3</sup> /s
Median Flow	6.90 m <sup>3</sup> /s
80% Time Exceeded Flow	3.61 m <sup>3</sup> /s
Month of Max. Median Flow	May
Month of Min. Median Flow	September
Mean Rising Rate of Change of Flow	0.72 m <sup>3</sup> /s/day
Mean Falling Rate of Change of Flow	-0.38 m <sup>3</sup> /s/day
<b>Extreme Low Flow Conditions:</b>	
7-day-average low flow in 2-year return period, 7Q <sub>2</sub>	1.95 m <sup>3</sup> /s
7-day-average low flow in 10-year return period, 7Q <sub>10</sub>	0.56 m <sup>3</sup> /s
7-day-average low flow in 20-year return period, 7Q <sub>20</sub>	0.31 m <sup>3</sup> /s
<b>Target Metrics</b>	
Riparian Flows (Q <sub>2</sub> - Q <sub>20</sub> )	32.5 - 51.6 m <sup>3</sup> /s
Bankfull Flows (Q <sub>1.5</sub> - Q <sub>1.7</sub> )	28.0 - 29.8 m <sup>3</sup> /s

Table 1: Annual flow metrics based on 16 years of data.



II. Flow Duration

Time Exceeded %	Flow $m^3/s$
0.10	54.58
1.00	39.94
5.00	27.71
10.00	20.70
20.00	15.06
30.00	11.50
40.00	8.76
50.00	6.90
60.00	5.54
70.00	4.56
80.00	3.61
90.00	2.35
95.00	1.35
99.00	0.43
99.90	0.09

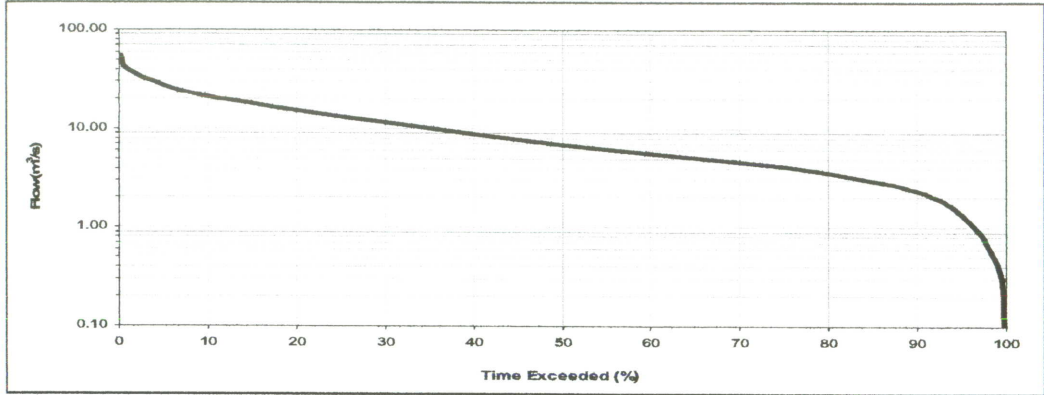


Table 2 & Figure 2: Flow duration table and curve displaying flow vs. percent time exceeded over 16 years.

III. Flood Frequency Analysis

Return Period yrs	Flow $m^3/s$
1.05	-
1.25	25.80
1.50	28.03
1.70	29.82
2	32.50
5	41.20
10	46.60
20	51.60
50	57.90
100	62.60

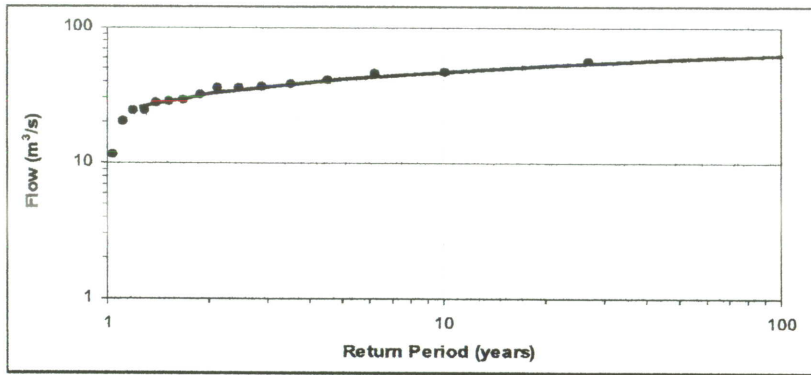


Table 3 and Figure 3 : Flood frequency analysis and curve fitted by the Log Pearson Type III probability distribution.

IV. Low Flow Frequency Analysis (Performed using 7-day-average low flow)

Return Period yrs	Flow $m^3/s$
1.005	6.24
1.01	5.77
1.11	3.92
1.25	3.19
2	1.95
5	0.96
10	0.56
20	0.31
50	0.09
100	-

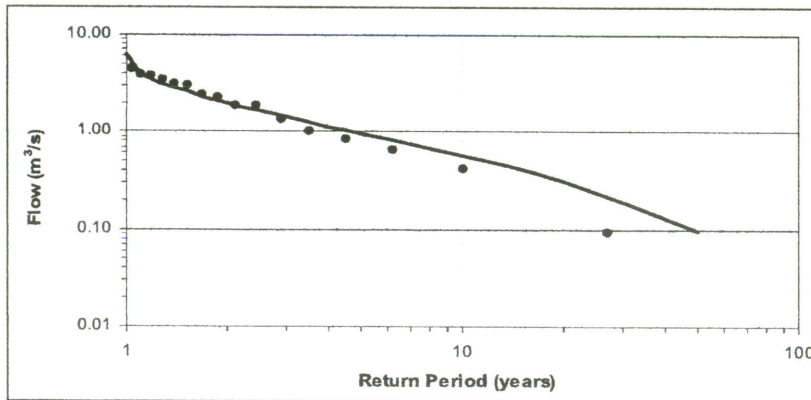


Table 4 and Figure 4: 7-day-average low flow frequency analysis and curve fitted by the Gumble III probability distribution.



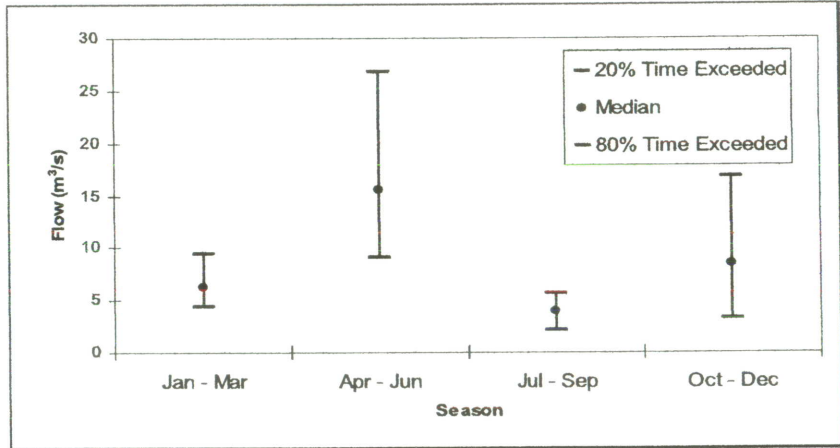


**Seasonal:**

**I. Flow Duration**

**Table 5 and Figure 5:** Seasonal median flow duration for determining minimum flow targets.

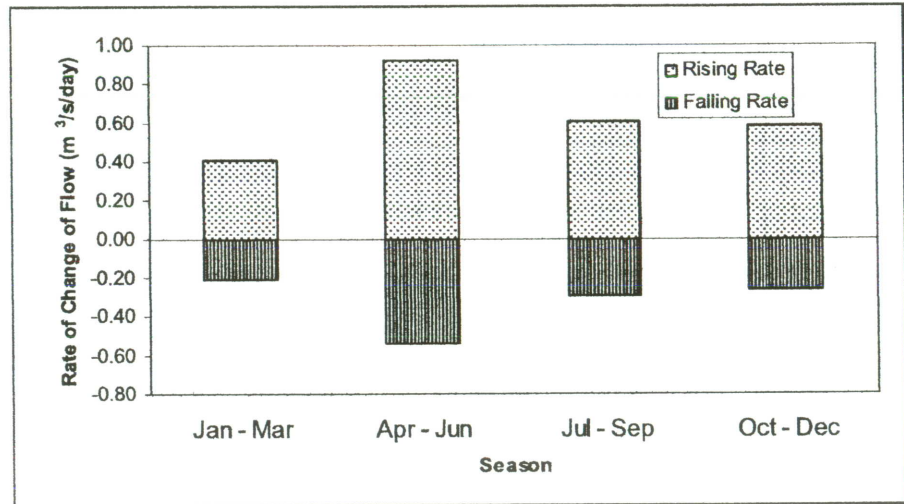
Season	20% Time Exceeded <i>m<sup>3</sup>/s</i>	Median <i>m<sup>3</sup>/s</i>	80% Time Exceeded <i>m<sup>3</sup>/s</i>
Jan - Mar	9.41	6.27	4.37
Apr - Jun	26.87	15.58	9.02
Jul - Sep	5.63	3.95	2.09
Oct - Dec	16.73	8.46	3.18



**II. Rate of Change of Flow**

**Figure 6 and Table 6:** Seasonal rising and falling rates of change of flow for determining ramping rate targets.

Season	Rising Rate <i>m<sup>3</sup>/s/day</i>	Falling Rate <i>m<sup>3</sup>/s/day</i>
Jan - Mar	0.41	-0.20
Apr - Jun	0.92	-0.54
Jul - Sep	0.60	-0.29
Oct - Dec	0.58	-0.27

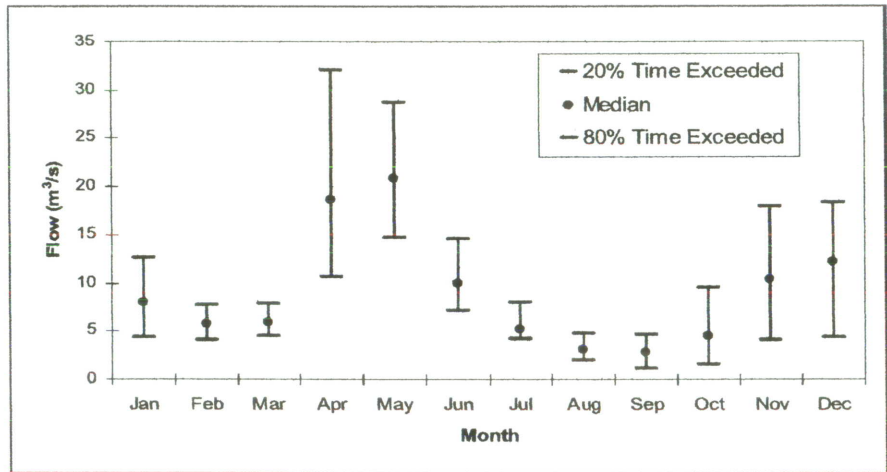


**Monthly:**

**I. Flow Duration**

**Table 7 and Figure 7: Monthly median flow duration for determining minimum flow targets.**

Month	20% Time Exceeded <i>m<sup>3</sup>/s</i>	Median <i>m<sup>3</sup>/s</i>	80% Time Exceeded <i>m<sup>3</sup>/s</i>
Jan	12.55	7.94	4.40
Feb	7.73	5.73	4.09
Mar	7.84	5.86	4.55
Apr	32.10	18.61	10.67
May	28.76	20.81	14.74
Jun	14.54	9.89	7.17
Jul	8.01	5.16	4.17
Aug	4.70	3.15	1.95
Sep	4.58	2.76	1.15
Oct	9.54	4.43	1.60
Nov	17.99	10.33	4.05
Dec	18.30	12.23	4.36



**II. Rate of Change of Flow**

**Figure 8 and Table 8: Monthly rising and falling rates of change of flow for determining ramping rate targets.**

Month	Rising Rate <i>m<sup>3</sup>/s/day</i>	Falling Rate <i>m<sup>3</sup>/s/day</i>
Jan	0.32	-0.24
Feb	0.11	-0.17
Mar	0.48	-0.11
Apr	1.10	-0.49
May	0.71	-0.64
Jun	0.30	-0.42
Jul	0.61	-0.28
Aug	0.33	-0.35
Sep	0.68	-0.31
Oct	0.55	-0.20
Nov	0.69	-0.25
Dec	0.34	-0.28

