

An aerial photograph of a large waterway, likely a river or lake outlet, featuring a dam with several spillways and a long bridge crossing the water. The surrounding area includes urban development and green spaces. The text is overlaid on the image in a yellow, italicized font.

Regulation of Lake Superior Outflows

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International Lake Superior Board of Control

October 29, 2007

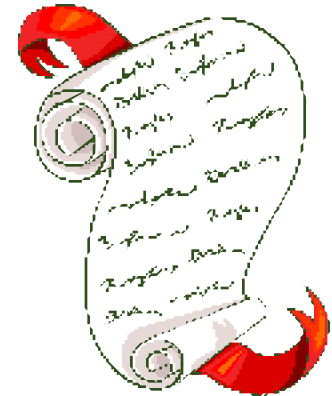
St. Marys River at Sault Ste. Marie

Looking East (Downstream)



IJC Responsibilities

- **Independent organization established by the Boundary Waters Treaty of 1909**
- **Prevents and resolves disputes over shared water**
- **Seeks consensus and greater good of both countries**



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IJC Responsibilities (cont'd)

- **Authorizes and supervises operations of projects affecting flows and levels in boundary waters**
- **Issues Orders of Approval to implement decisions**
- **Conducts studies for Governments**

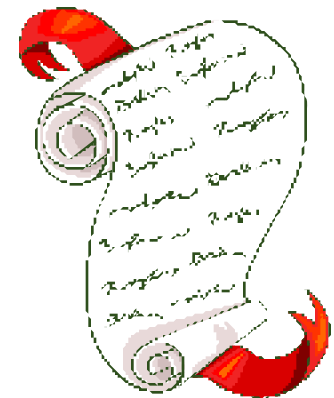


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IJC Orders of Approval

- Issued in 1914 for hydropower development in St. Marys River in U.S. and Canada
- Specify method of determining and allocating Lake Superior outflows
- Protect interests in both countries affected by water level/flow changes
- Established the International Lake Superior Board of Control



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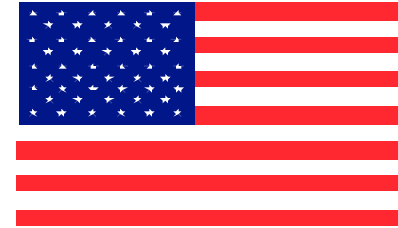
Lake Superior Board Duties

- **Sets Lake Superior outflows and allocates water to hydro, fisheries and navigation**
- **Oversees control works, hydropower plants**
- **Ensures accurate reporting of outflows**
- **Communicate with stakeholders**
- **Authorize ponding by hydropower**
- **Improves regulation plans**
- **Special study tasks**



International Lake Superior Board of Control





Board Members

David Fay

**BG Bruce Berwick
Alt: COL J Drolet**

Board Secretaries

Rob Caldwell

John Kangas

Regulation Representatives

Rob Caldwell

**LTC William Leady
Alt: Scott Thieme**

Board members and staff serve in a personal and professional capacity and are not representatives of their employers.

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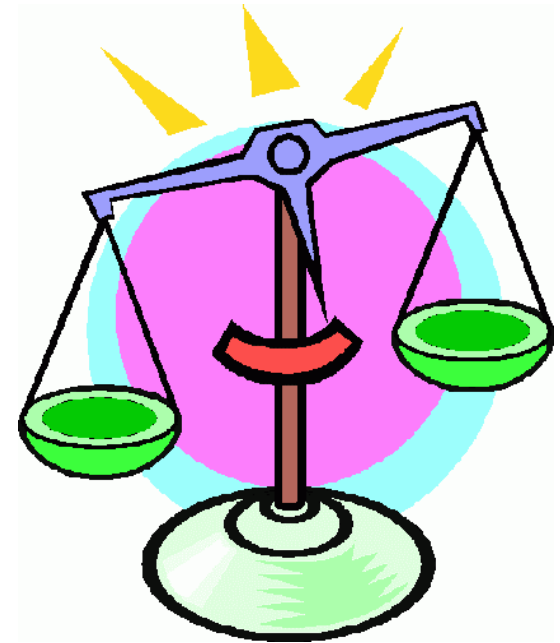


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Updated Orders of Approval (1979)

- **Keep Lake Superior levels between 182.76 m to 183.86 m (599.6 and 603.2 ft.)**
- **Attempt to balance levels of Lake Superior and Lakes Michigan-Huron**
- **If Lake Superior's level is below 183.4 m (601.7 ft.) don't release more than “pre-project” flow**



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Regulation of Lake Superior Outflows

The Early Years

- **Outflows determined on monthly basis by IJC-approved Regulation Plan**
- **First Regulation Plan developed and applied in 1916**



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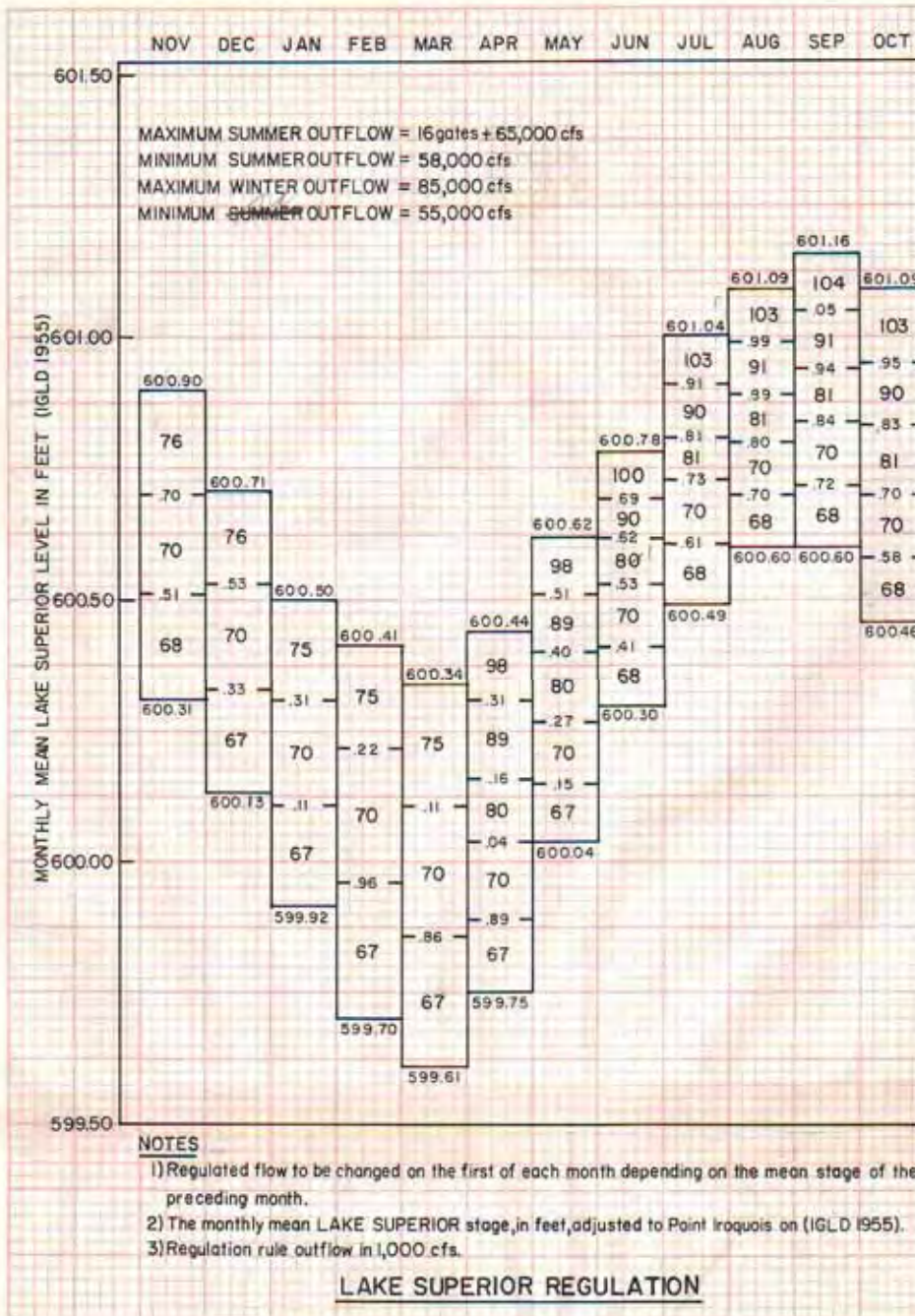
Lake Superior Regulation Plans

- **Sabin Rule (1916-1941)**
- **Rule P-5 (1941-1951)**
- **Rule of 1949 (1951-1955)**
- **1955 Modified Rule of 1949 (1955-1979)**
- **SO-901 (“guide” 1973-1979)**
- **Plan 1977 (1979-1990)**
- **Plan 1977-A (1990-present)**



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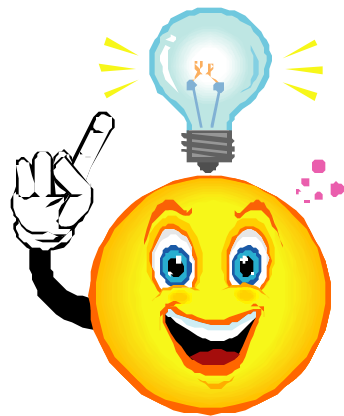
1955 Modified Rule of 1949



Regulation of Lake Superior Outflows

“Systemic” Regulation

- **Plan 1977-A: Current Regulation Plan**
 - Considers levels on Lakes Superior and Michigan/Huron
 - In use since 1990



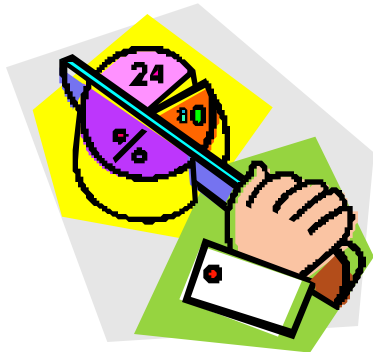
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Water Uses in St. Marys River

Monthly flows distributed in following priority:

- **Domestic, municipal, & industrial uses**
- **Amount required to operate locks**
- **Environmental/fishery req't → rapids**
- **Hydropower (50:50 share Canada/U.S.) to their capacities**
- **Balance released at Compensating Works**

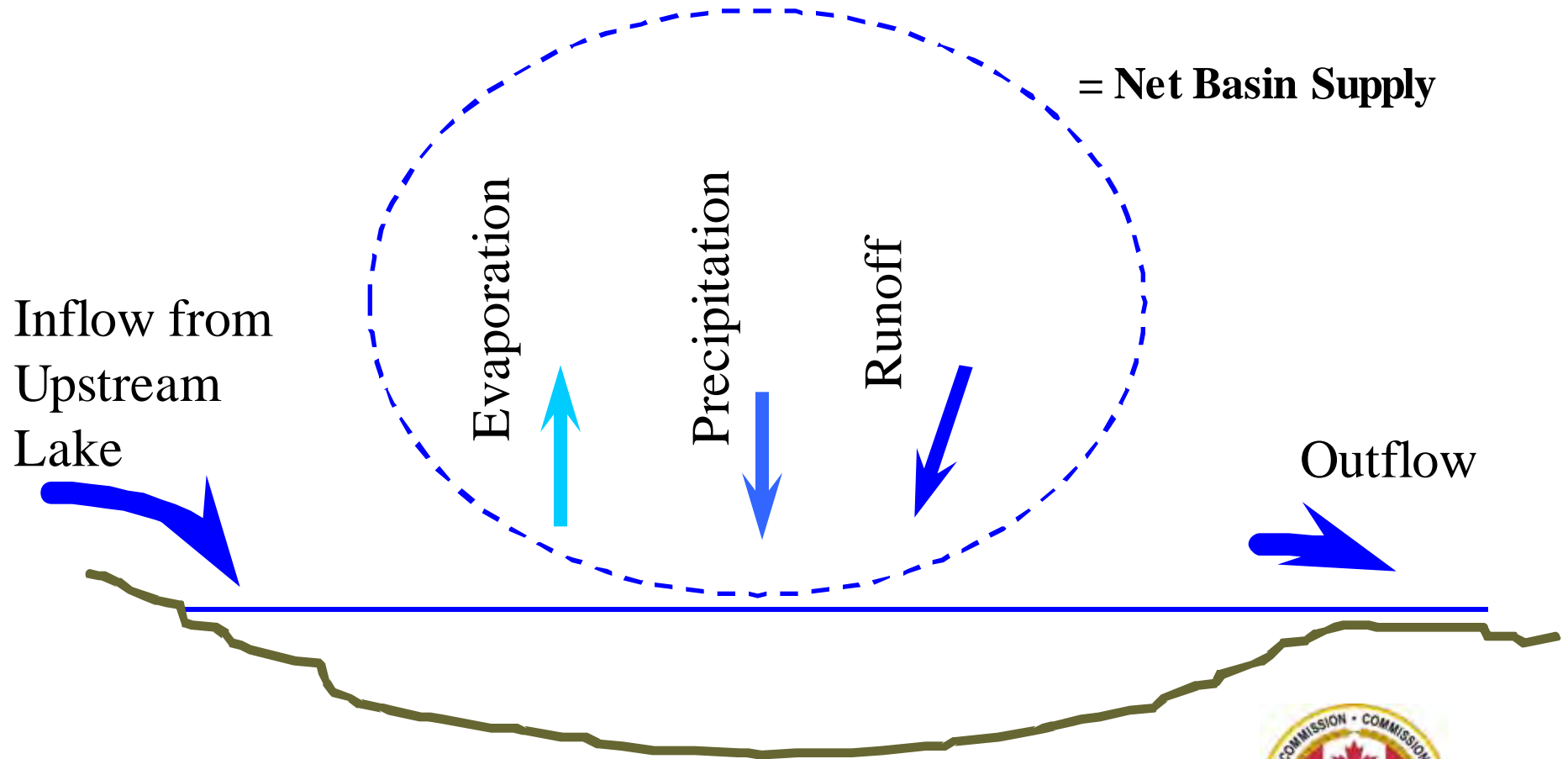


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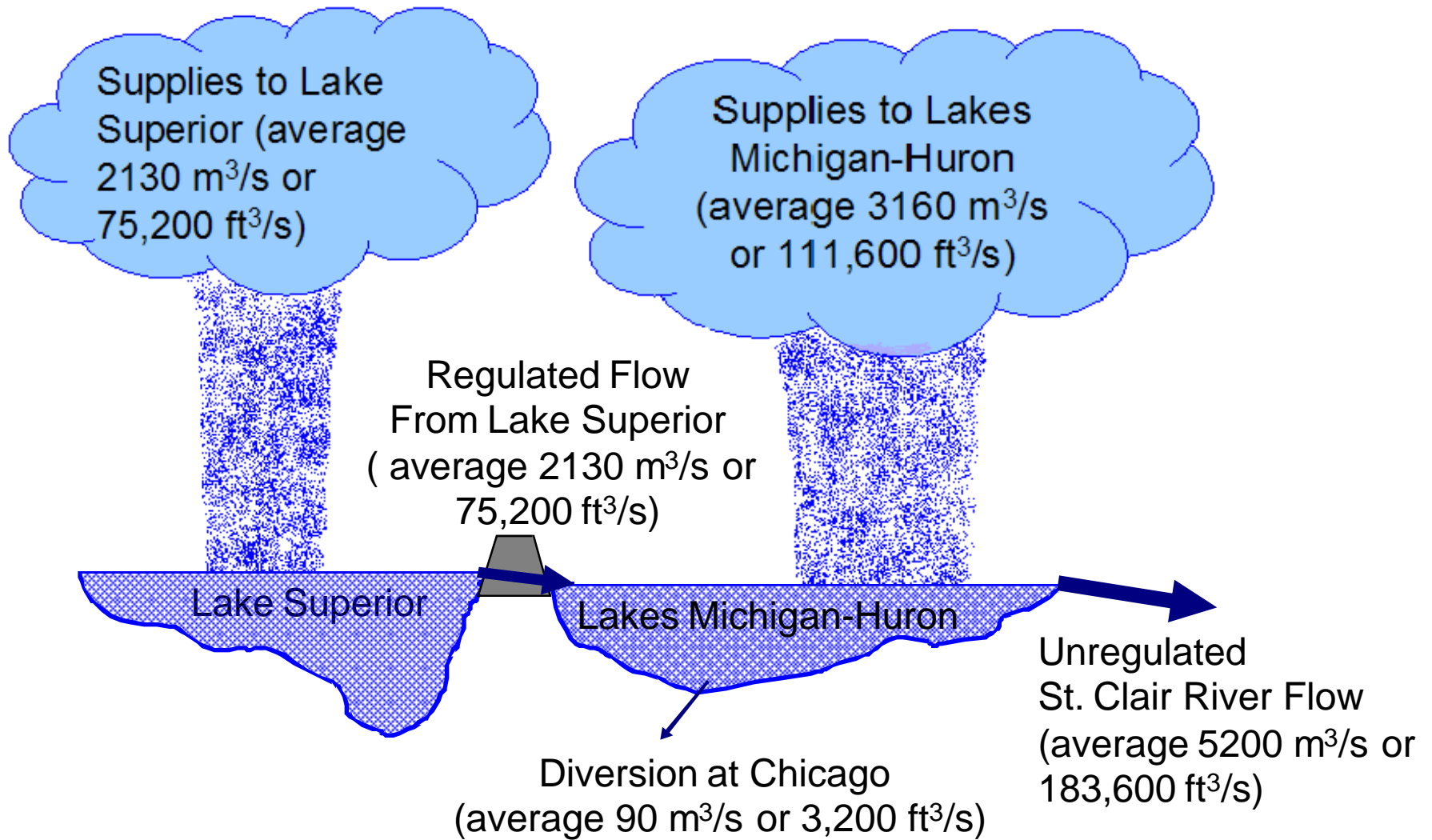
Great Lakes Water Supplies

(Factors Affecting Water Levels)



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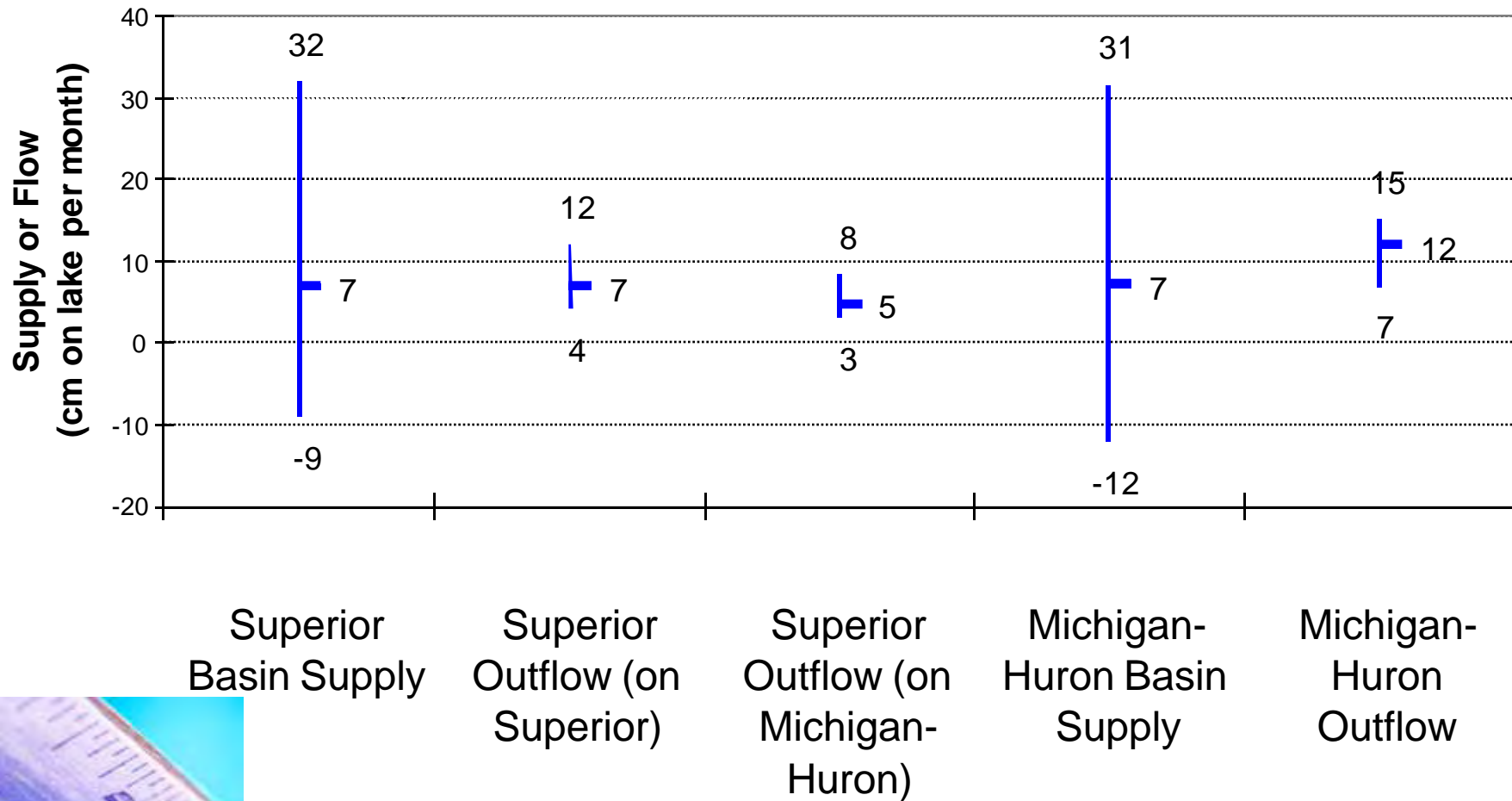




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Variability of Water Supplies and Outflows



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Effect of Regulation?

	LAKE SUPERIOR LEVEL (m)		LAKES MICHIGAN-HURON LEVEL (m)	
	1977-A	1887 EQN	1977-A	1887 EQN
MAX	183.82	183.86	177.44	177.42
MIN	182.82	182.72	175.48	175.43
AVG	183.38	183.34	176.42	176.42
STD	0.18	0.21	0.36	0.37



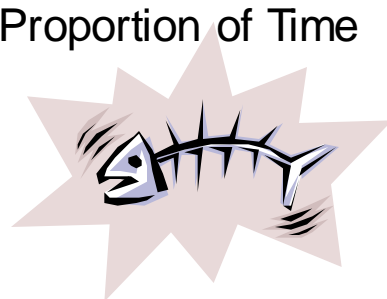
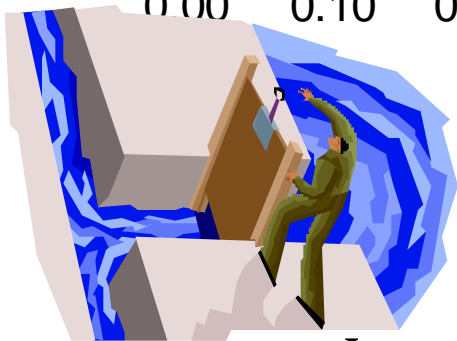
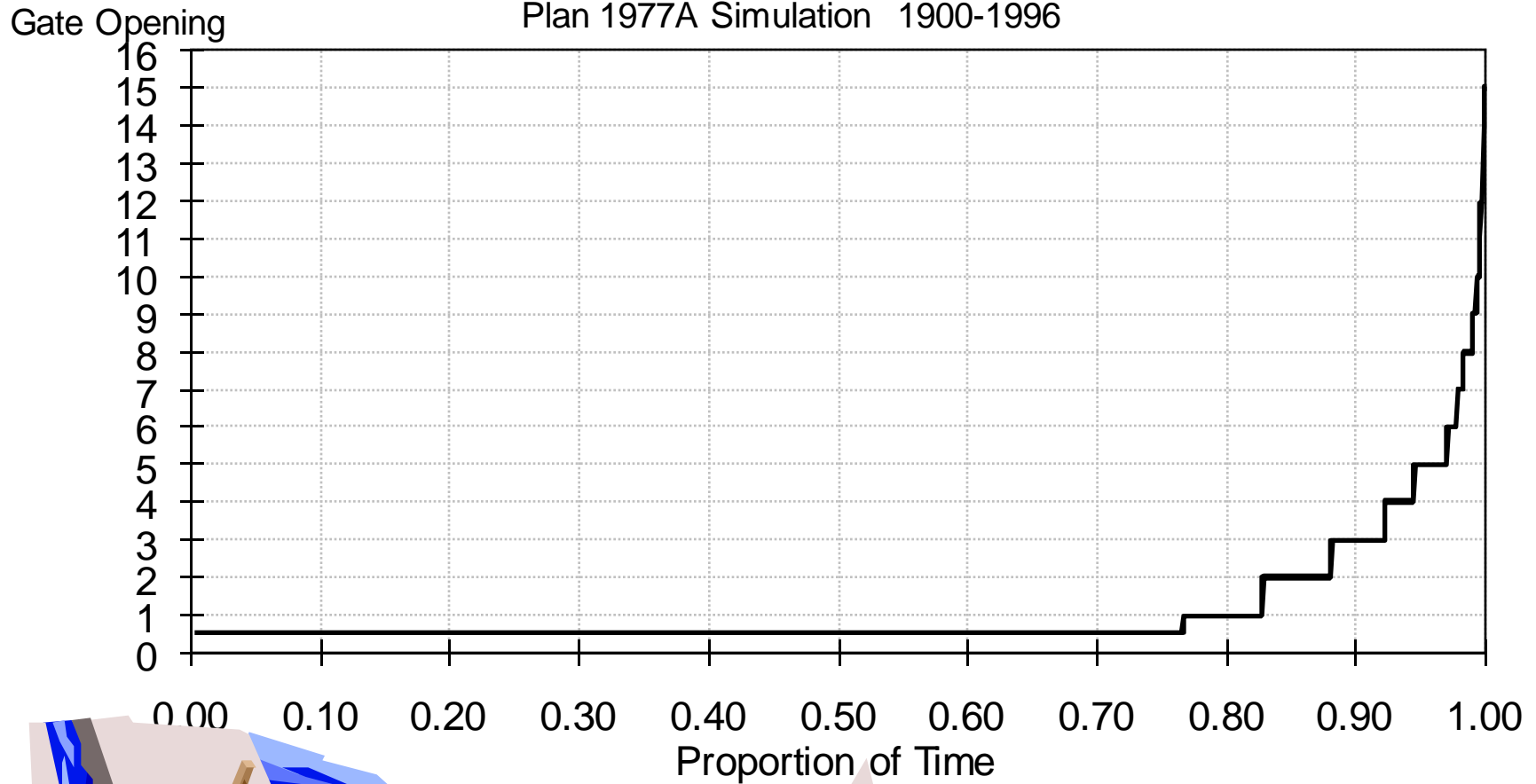
Simulation with 1900-2005 supplies. Existing channel ratings

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Distribution of Gates Open Compensating Works

Plan 1977A Simulation 1900-1996



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Great Lakes Diversions



Questions?

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