

A Perspective on American Eel Management and Conservation from the Great Lakes



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Outline for Today's Thoughts

- **Importance of American Eels in the Great Lakes**
- **Great Lakes fishery management**
- **Existing efforts re eel management**
- **The need for coordinated management**

Historical Abundance

- ***“...an almost unlimited supply ...eels”***
Du Creux 1664
- ***“...the eel constitutes a manna exceeding all belief...”***
Le Jeune 1652-1653
- ***“...one or two men could catch five or six thousand in a single night...”***
Le Jeune 1652-1653



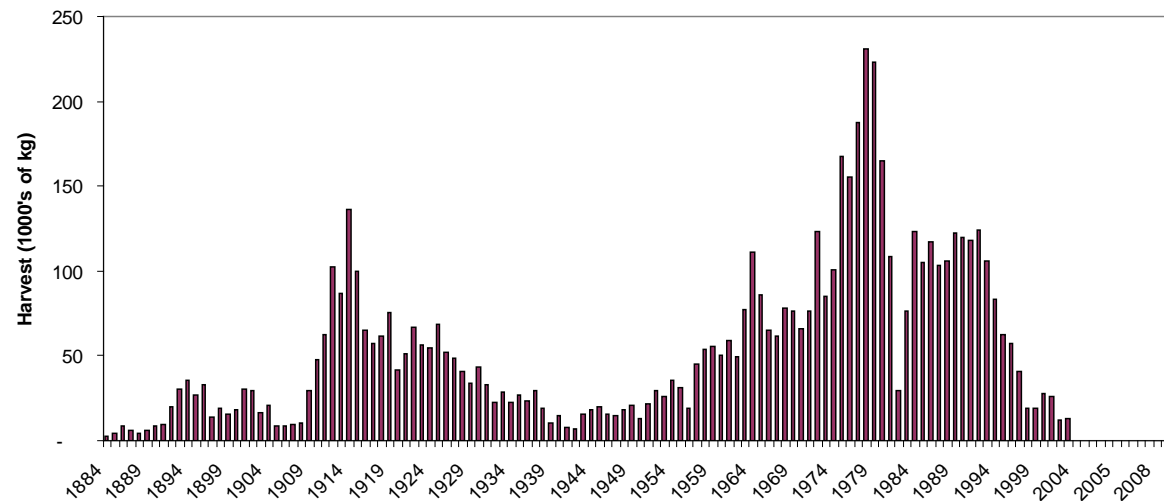
American Eel Fisheries

- Important source of food and medicine to First Nations peoples and an important component of the commercial fishery.
- New York commercial fisheries for eels in Lake Ontario closed in 1982.
- Ontario commercial fisheries for eels throughout the province closed in 2004.



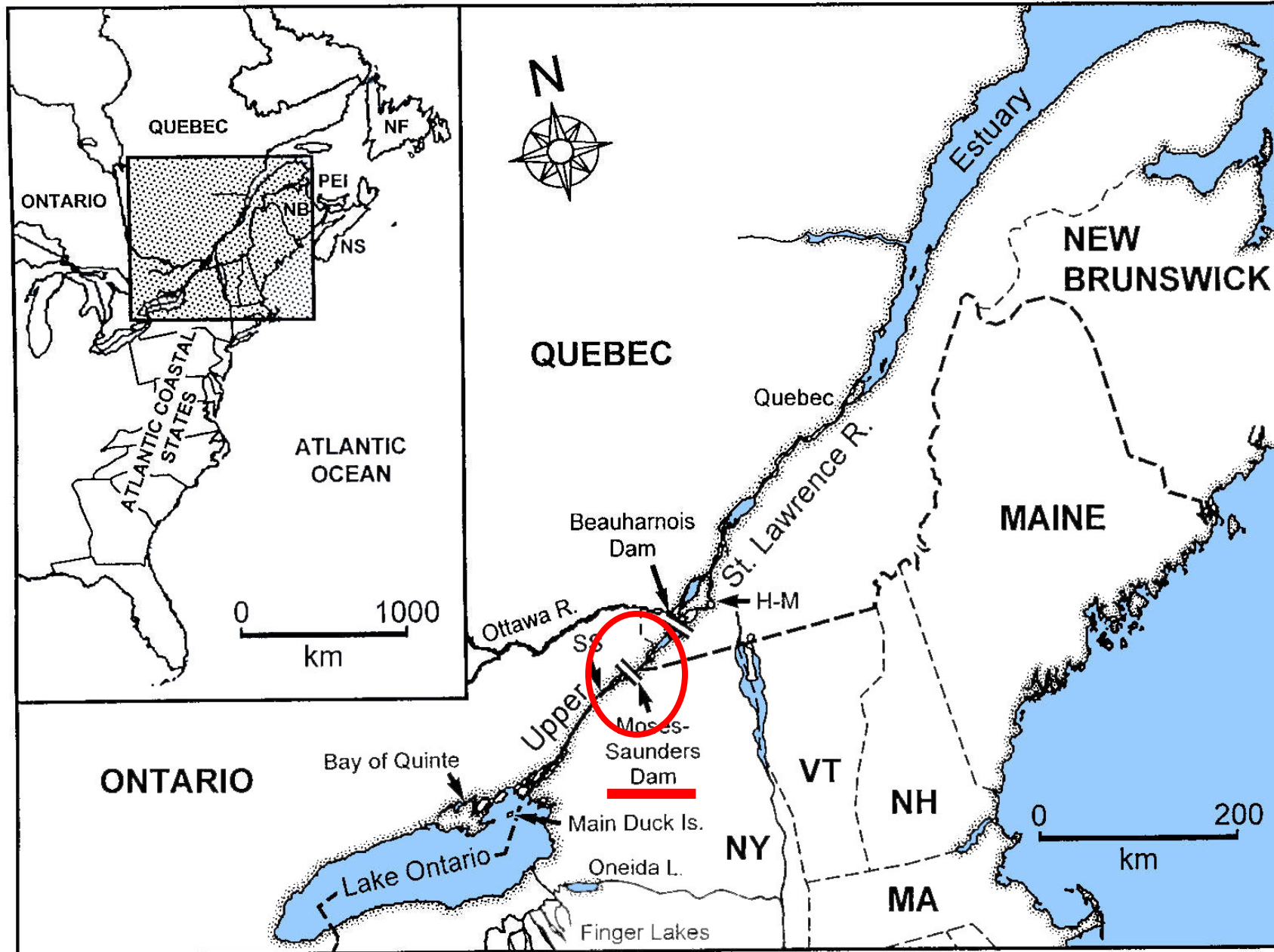
EEL SPEARING, LAKE ST. FRANCIS.

(After King 1866)



Ontario commercial fishery for eels in Lake Ontario - closed in 2004

Fishery Independent Data

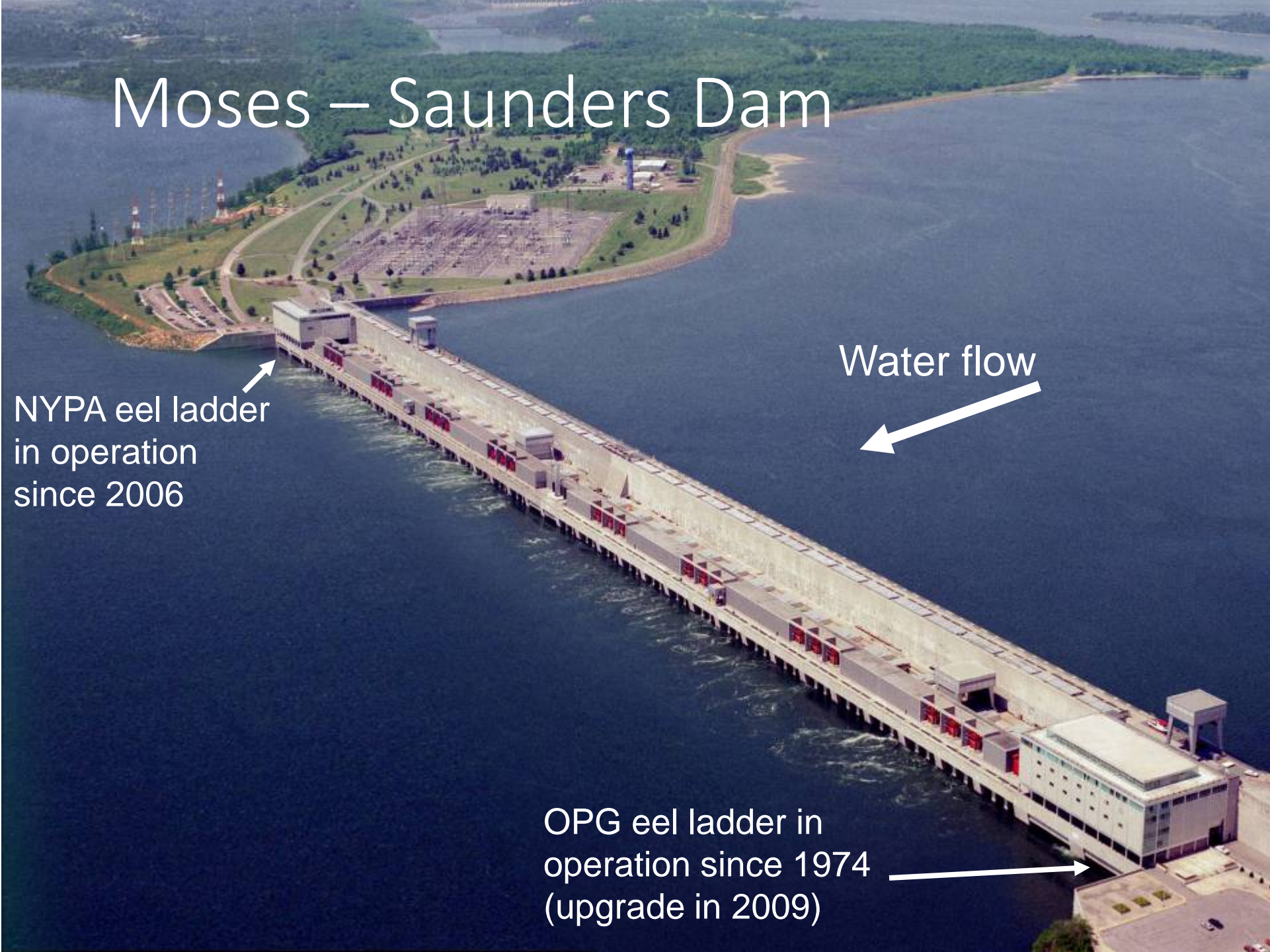


Moses – Saunders Dam

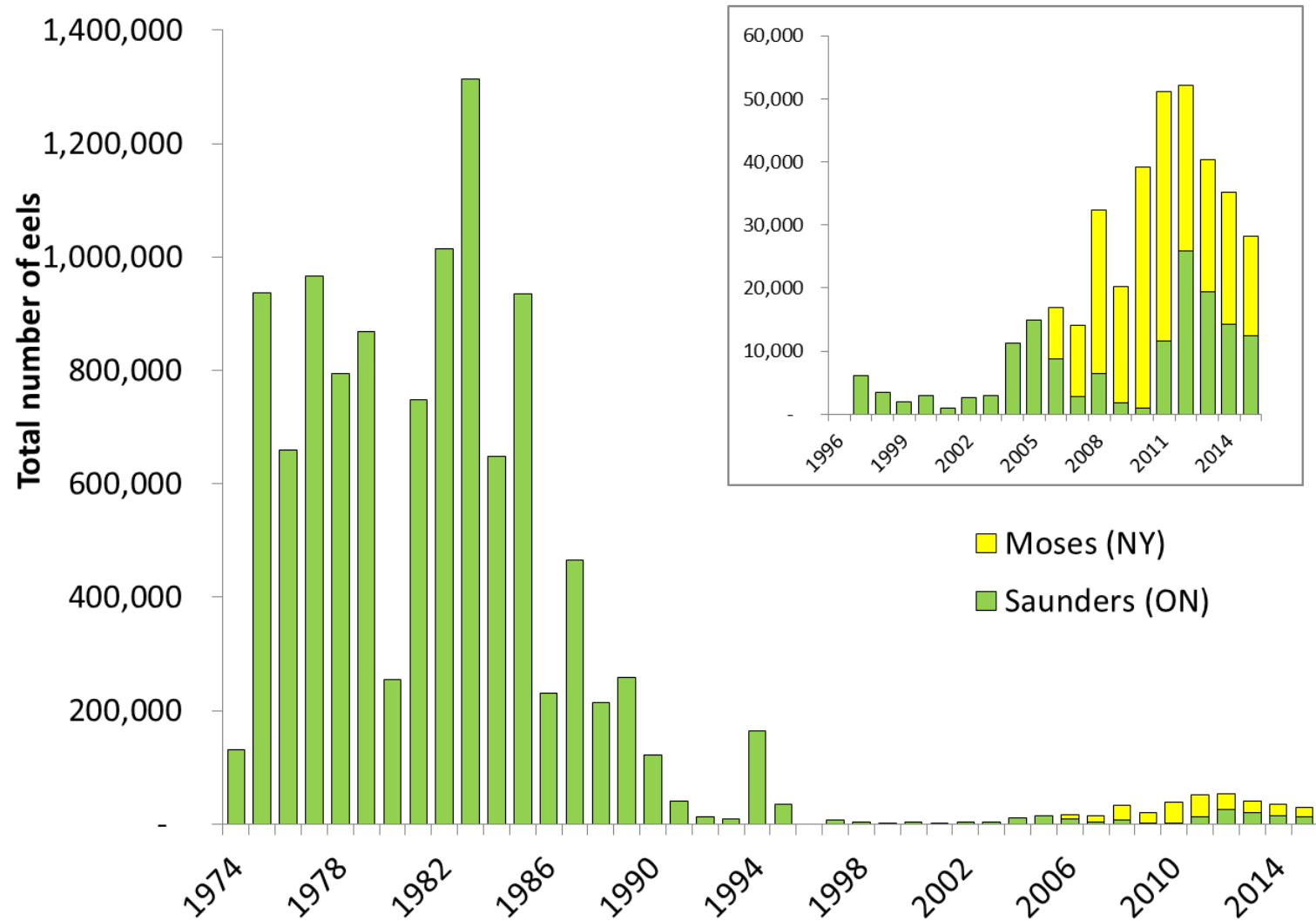
NYPA eel ladder
in operation
since 2006

Water flow

OPG eel ladder in
operation since 1974
(upgrade in 2009)



Moses-Saunders Eel ladder results as of Oct 1, 2015







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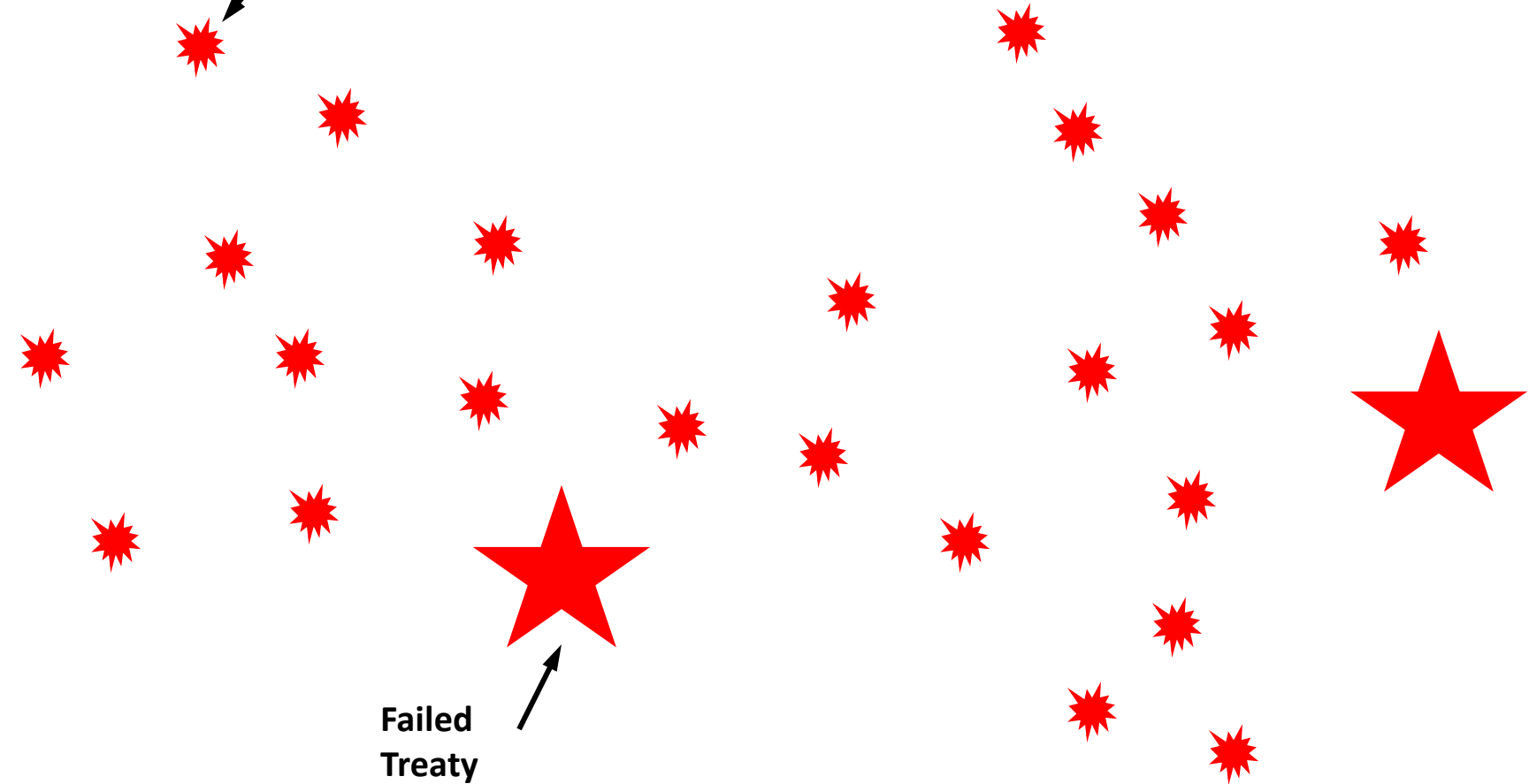
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1883-1942: Improvised conferences, false starts, and attempts at agreement

Un-successful attempts at cooperation



Failed Treaty



1880s 1890s 1900s 1910s 1920s 1930s 1940s 1950s

Great Lakes Fishery Commission



- **Established 1955 by Convention on Great Lakes Fisheries**
- **U.S. & Canada Parties**
- **3 General Duties**
 - **Coordinate Fisheries Research**
 - **Coordinate Fisheries Management**
 - **Conduct Sea Lamprey Control**



A Joint Strategic Plan for Management of Great Lakes Fisheries

- Many jurisdictions on the lakes
 - Provincial, state, tribal, federal, binational
 - Need to work together
- Plan signed in 1981; revised in 1997
- Complex issues
 - Need to understand the resource
 - Need to translate science into management
 - Need to balance competing interests
- Participants work together
 - Under the Joint Strategic Plan
 - Through “lake committee” meetings
- Great Lakes Fishery Commission facilitates
- Highly successful agreement!



Strategies for Great Lakes Fishery Management

- **Consensus**
- **Accountability**
- **Information Sharing**
- **Ecosystem-based Management**



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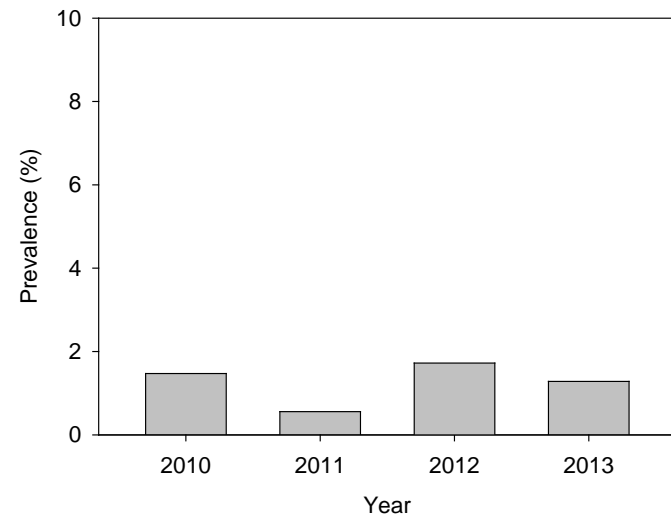
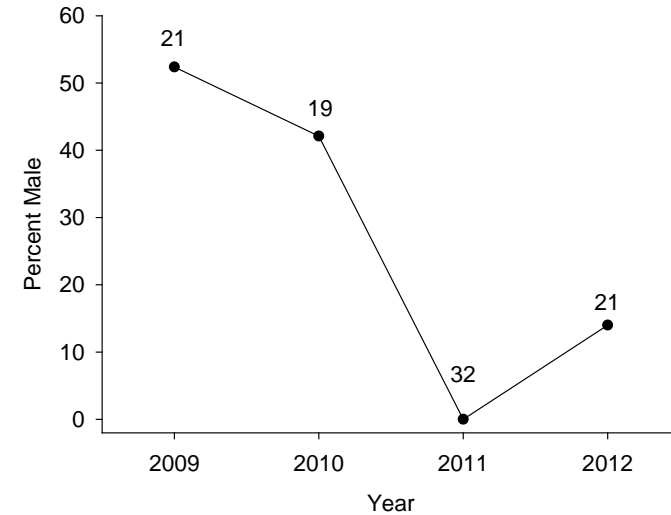
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Conservation Stocking – Background and Objectives

- **Over 4 million eels stocked into Lake Ontario/ Upper St. Lawrence River between 2006-10**
- **Objectives:**
 1. **Assess relative abundance, biomass, growth, sex ratio and determine current distribution**
 2. **Determine the possibility of small stocked silver eels successfully migrating to spawn**

Conservation Stocking - Results

- Stocked eels survived, dispersed, & grew rapidly
- Some issues:
 1. Stocking resulted in ♂
 2. *Anguillicoloides crassus* appeared in the lake
 3. Stocking 'phenotype'



Eel Passage Research Center

Funding:

- OPG, HQ, and NYPA are Tier 1 funders
 - \$230,000 per year for five years.
 - EDF (France) considering joining
- Duke Power is Tier 2 funder
 - \$75,000 per year for five years.

Current projects:

1. Measurement of water currents and flows above Iroquois Dam and Beauharnois Dam
2. Testing guidance techniques
 - Using St. Lawrence River eels in flume at Alden Labs
 - Guidance techniques include sound, electricity, and EMF
3. White paper on use of light as a guidance technique





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Coordination in the Great Lakes Region

- **Upper St. Lawrence River/Great Lakes region cannot directly control immigration into the system**
 - Conservation stocking is not a viable solution
- **USLR/GL region is working to reduce escapement mortality in its area of influence**
- **Efforts to coordinate are good within the region**
 - Common sense of the problem (e.g., jurisdictions, industry, stakeholders)
 - Commitment to improve population status
- **Regional efforts may have minimal impact on the population**

Coordination Across North America

- **Requires Canadian and U.S. federal governments seeing need to coordinate**
 - Likely to not occur until some crisis arises...or
 - Substantial agreement among regional groups that a problem exists
 - Uncertainty about listing status does not create urgency
- **At what point is action needed?**
 - Limited recruitment to extremities of the range
 - Climate uncertainties
 - Extensive harvest of early life stages
 - Importance of the precautionary approach
- **Great Lakes Fishery Commission could assist if called on**
 - Commissioners will discuss at their December meeting
 - Would want to work in partnership with Atlantic States Marine Fisheries Commission

