
The State of the
Lake Superior Fish
Community in 2000
Ken Cullis
Ontario Ministry of Natural Resources

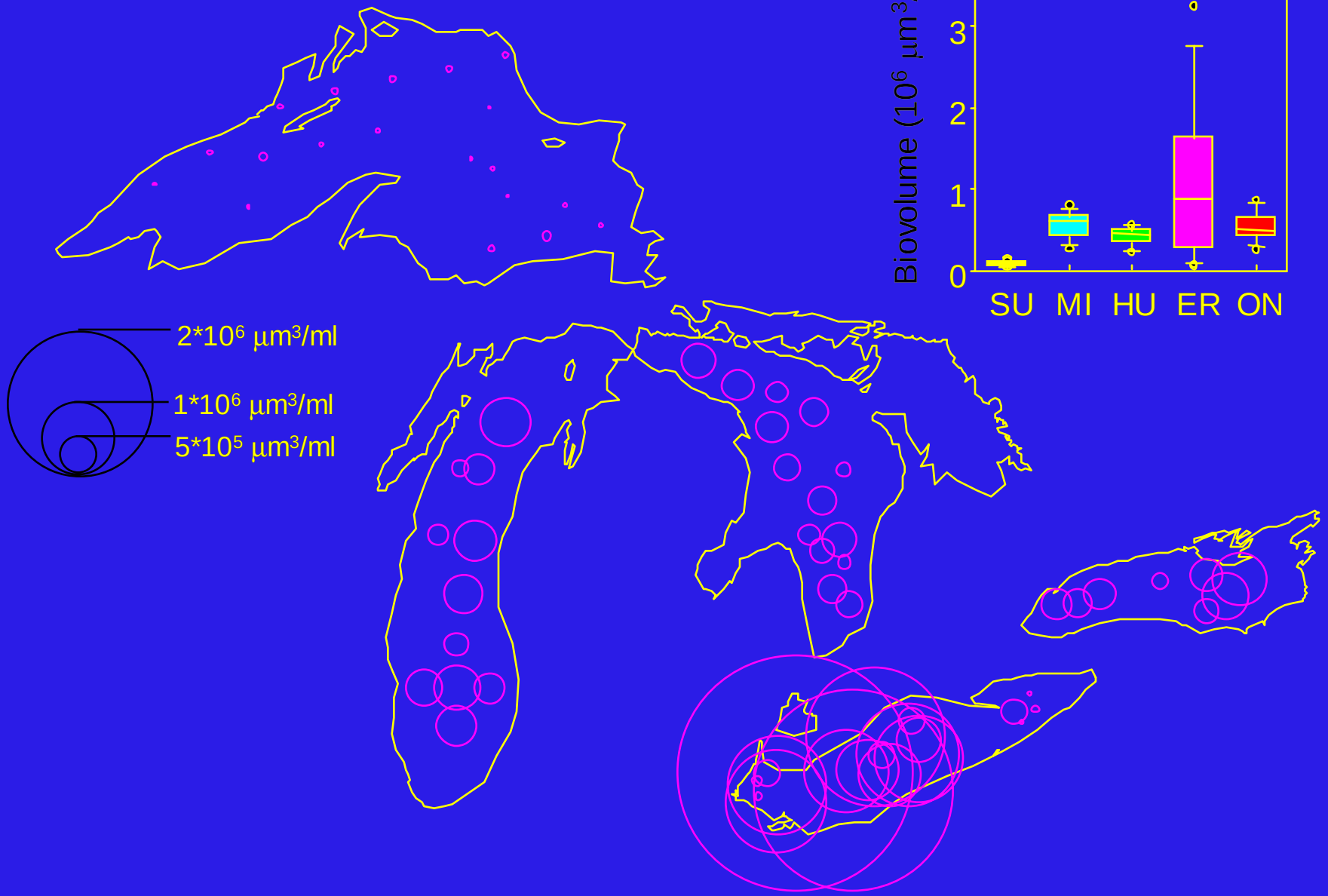
The State of Lake Superior in 2000

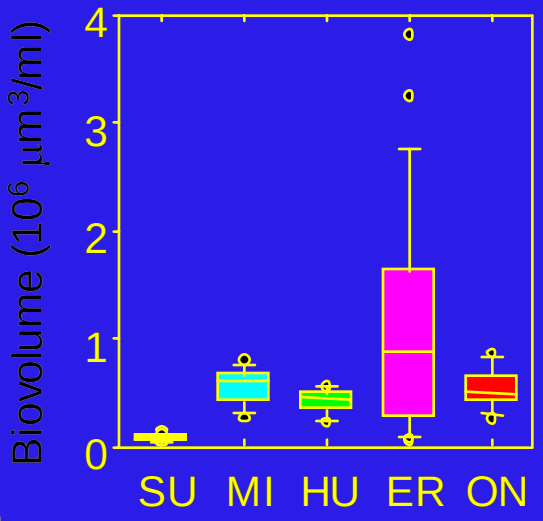

In-lake Habitat in
Good Condition

Lake Superior Binational Program

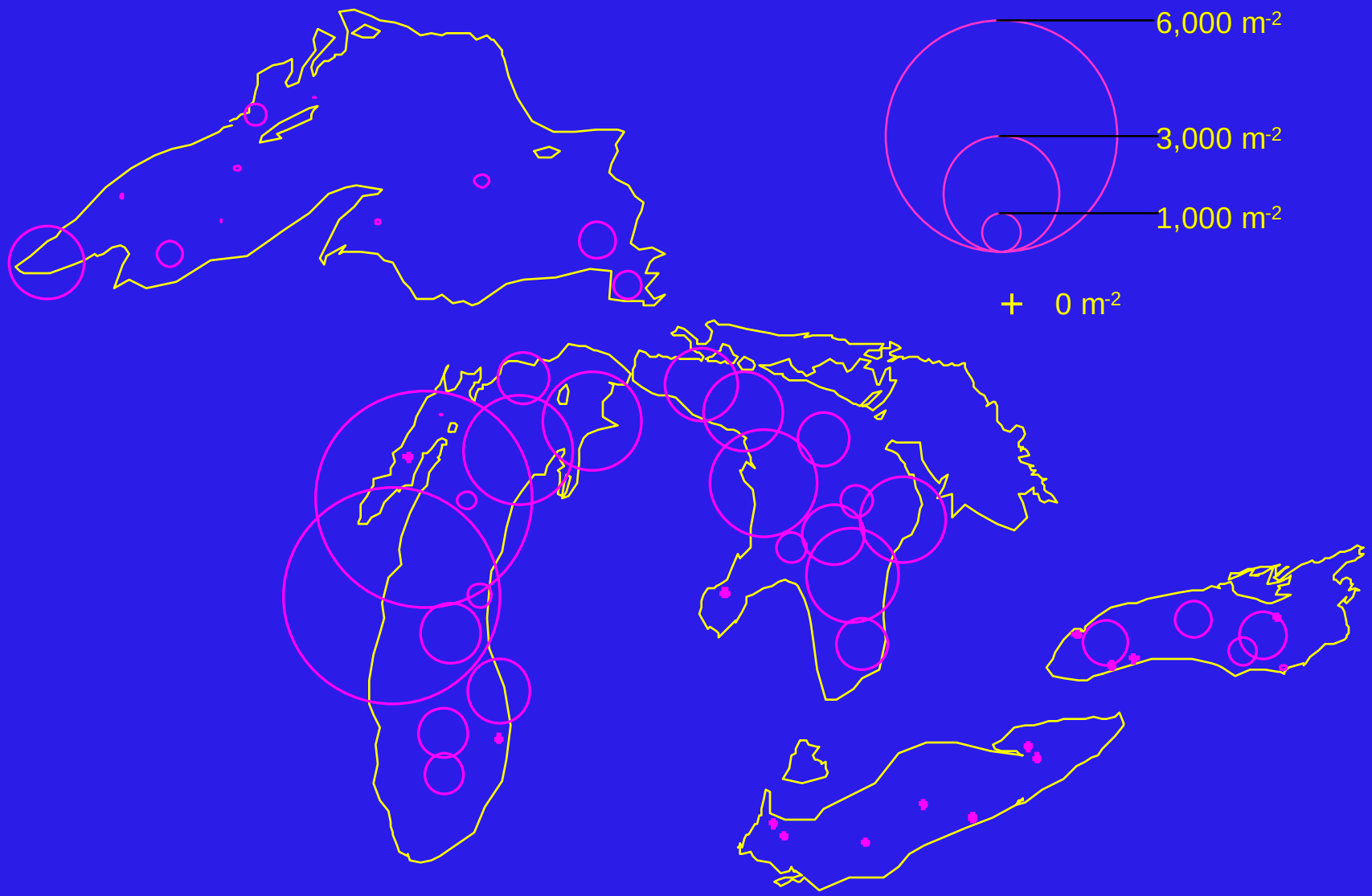
The State of Lake Superior in 2000

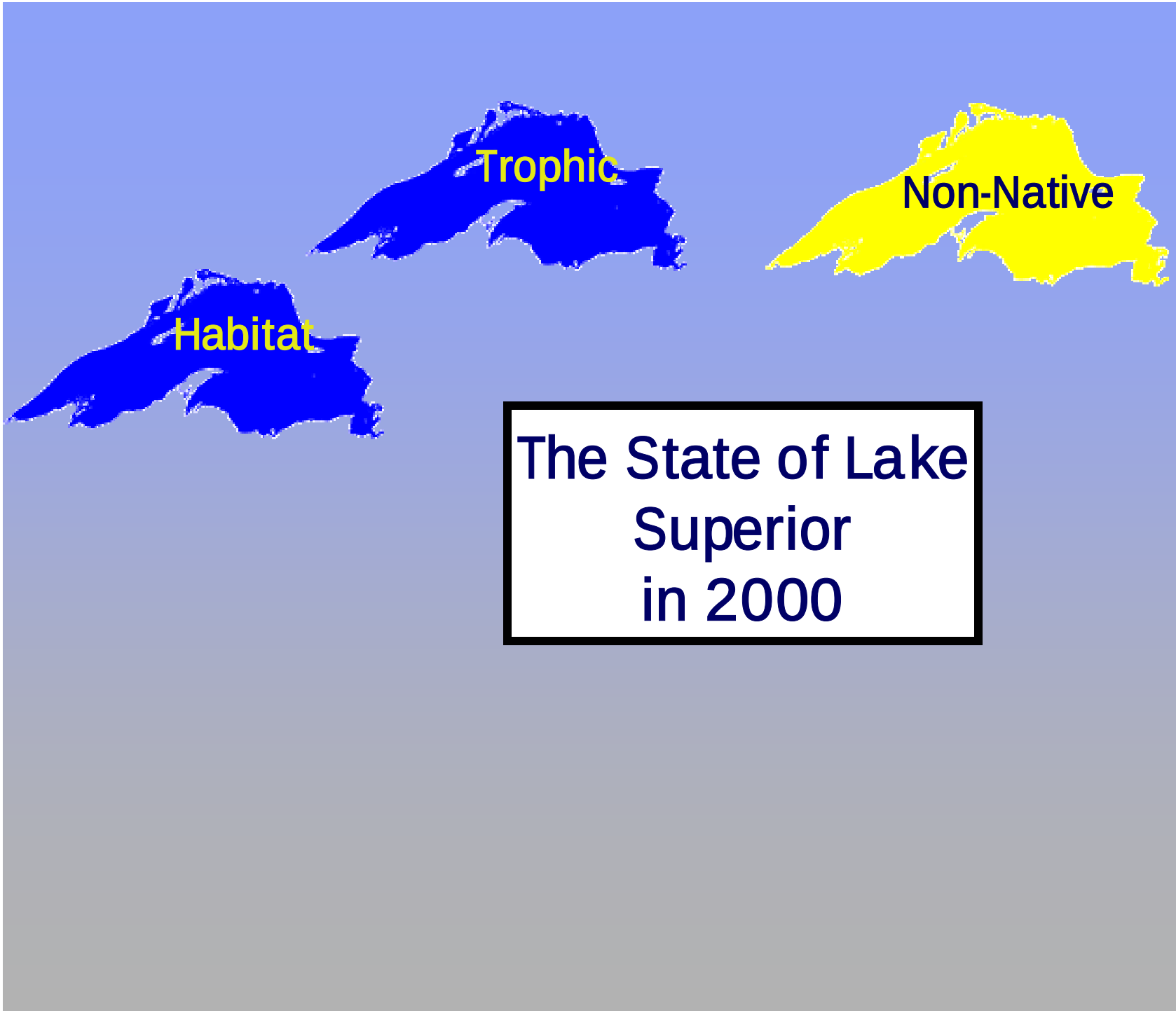
Phytoplankton Biovolume, Spring 1999





Abundance of *Diporeia* throughout Great Lakes, 1999





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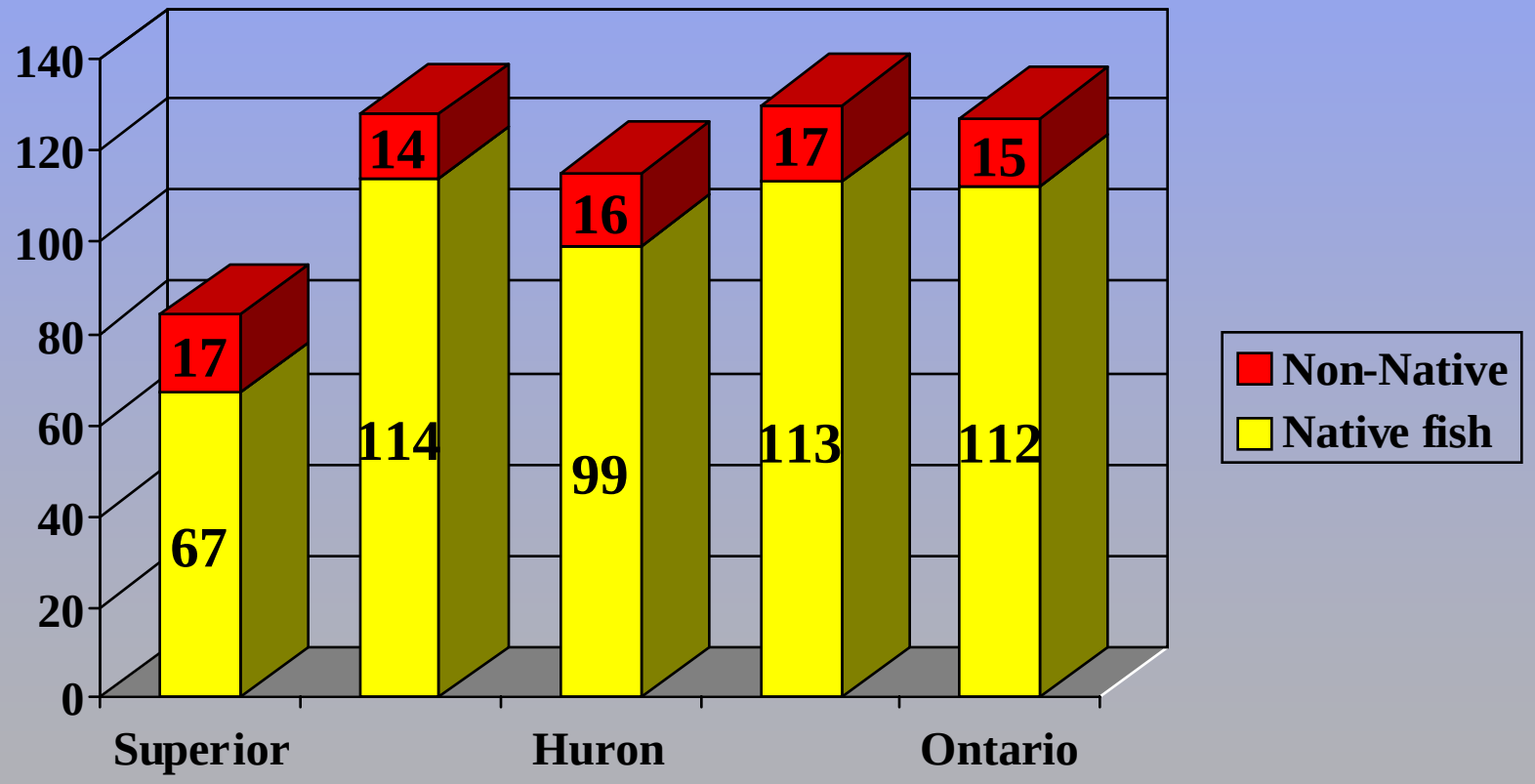
Proportion of native and non-native fish species in the Great Lakes



Based on Mills et al. 1993, D.A. Jensen (manuscript in prep 2000)

Unintentionally Introduced Fish (9) in Lake Superior

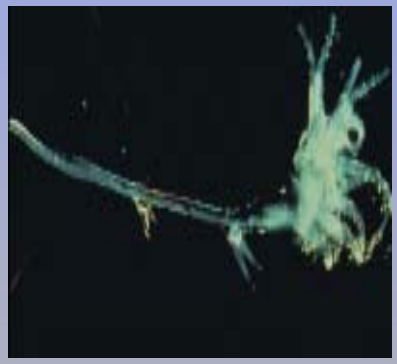
Ruffe	ship ballast
Fourspine stickleback	ship ballast
Threespine stickleback	ship ballast
Round goby	ship ballast
Tubenose goby	ship ballast
White perch	ship ballast
American eel	canals
Sea lamprey	canals
Alewife	canals/ballast

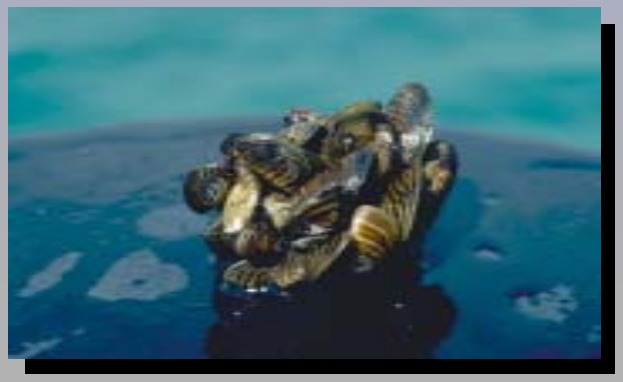
Non-Native Species

> Recent Invaders

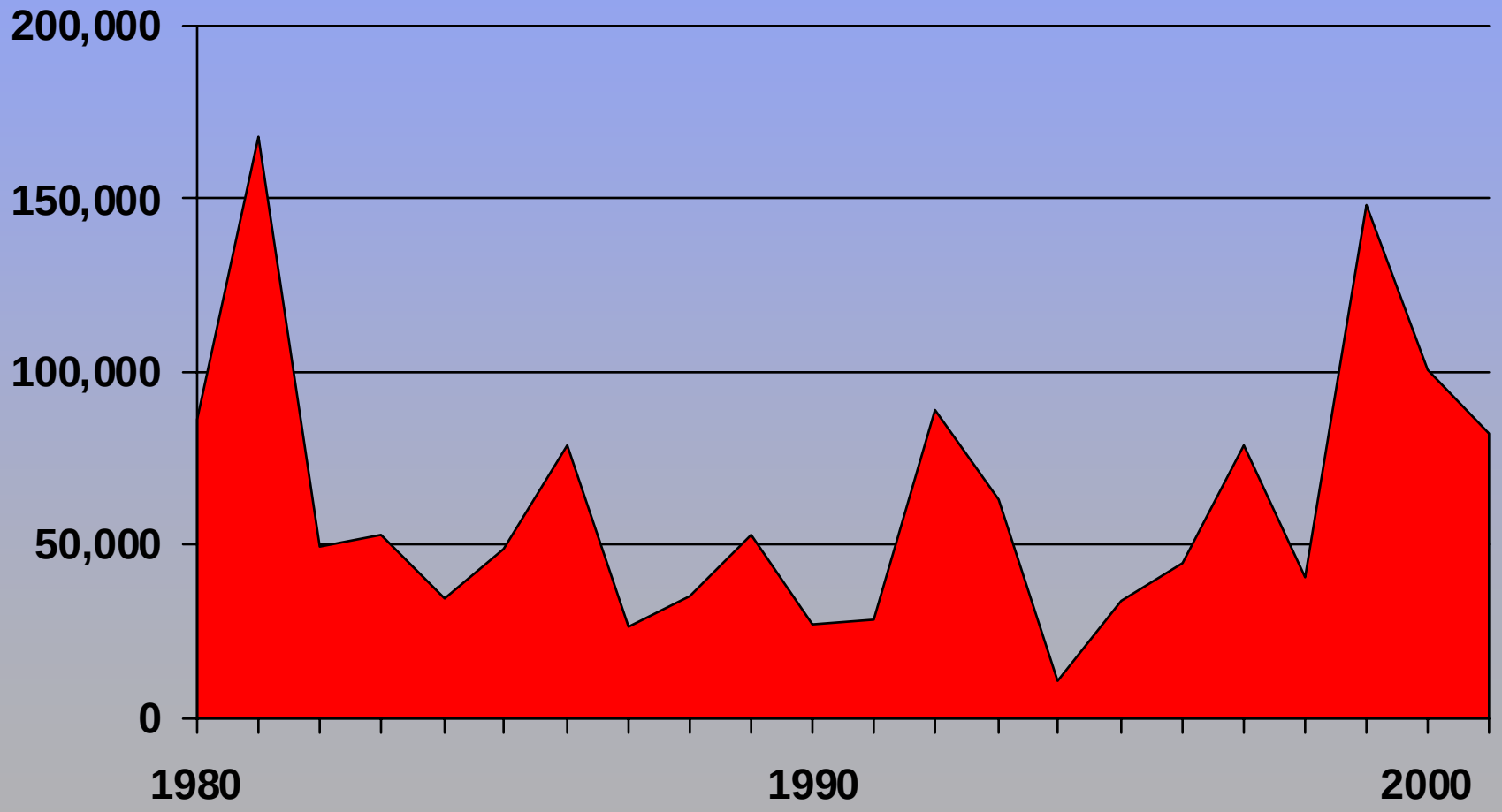
> Sufficient Buffering Capacity

Present Fish Community

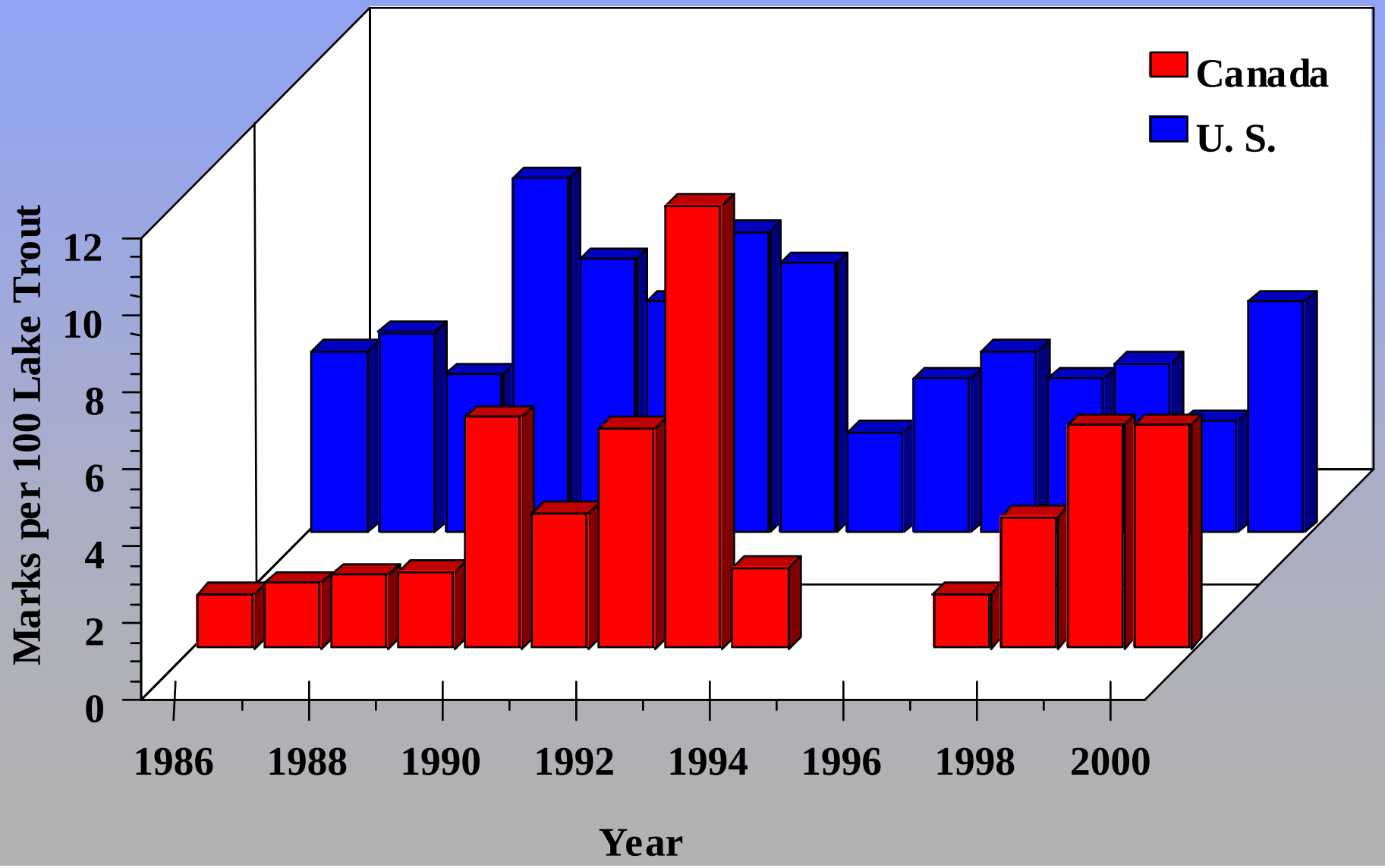


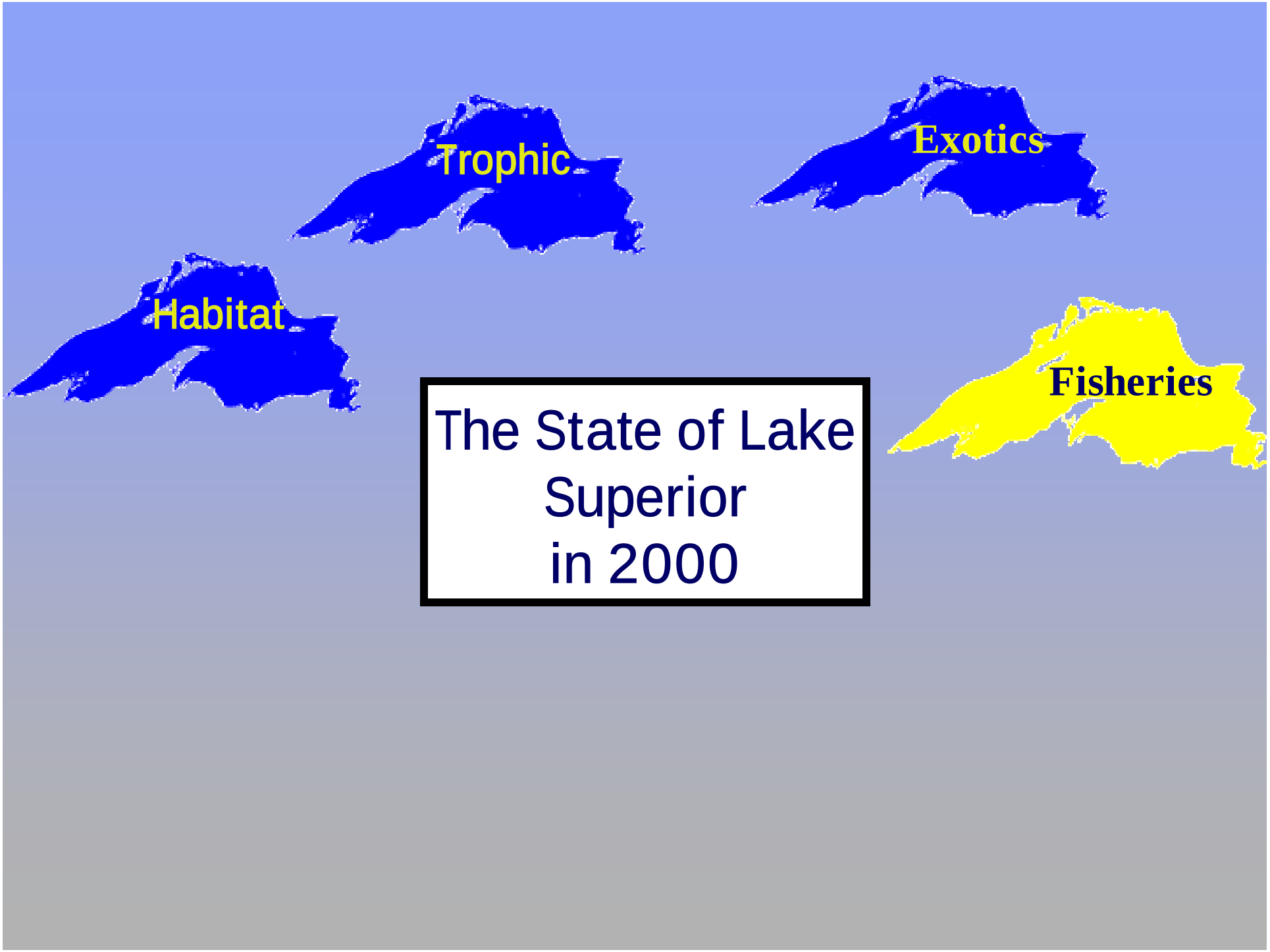


Estimated Lamprey Spawners - Lake Superior 1980 - 2001



Lamprey Marking of Lake Trout
Lake Superior, 1986-2000





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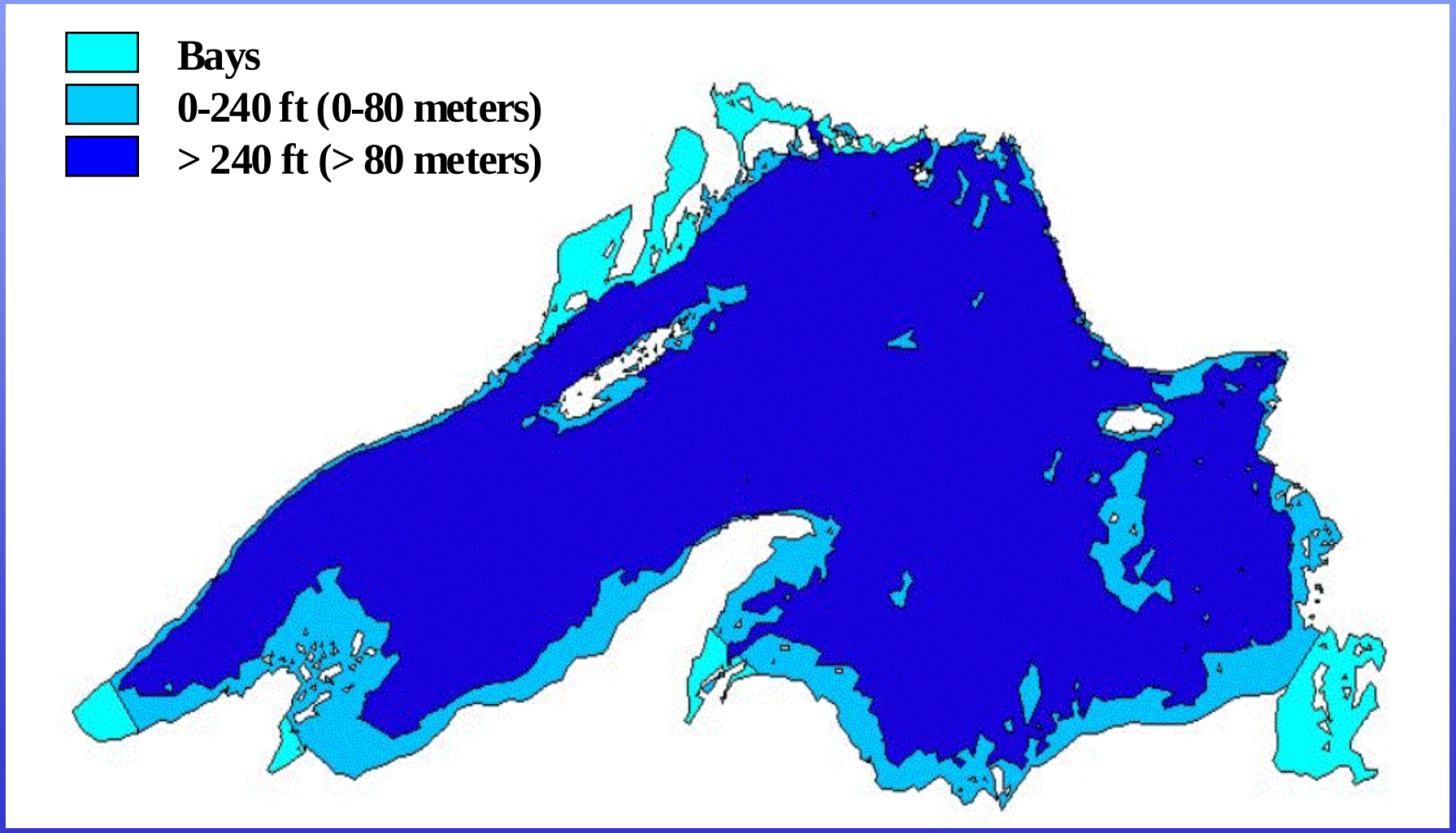
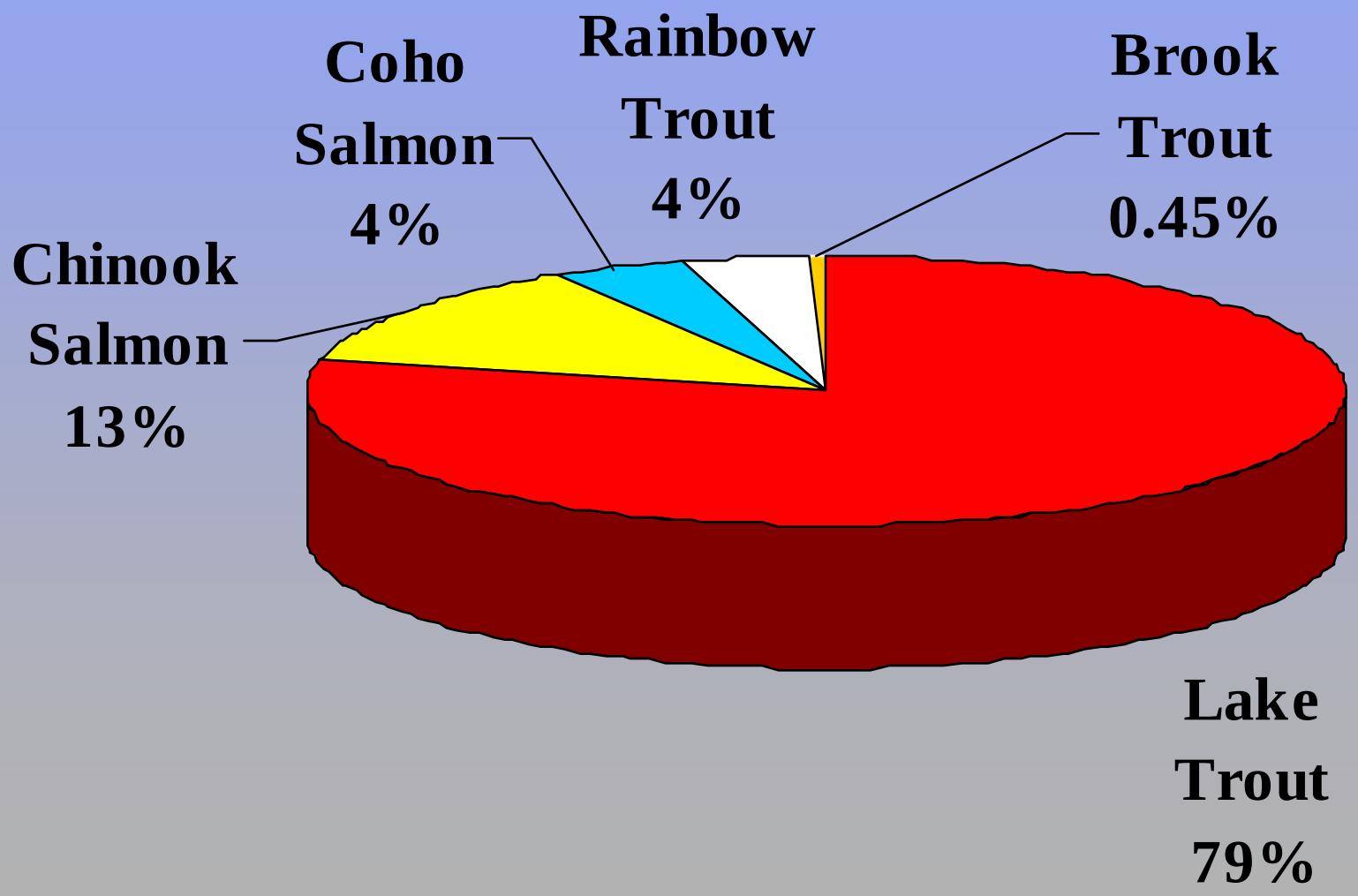
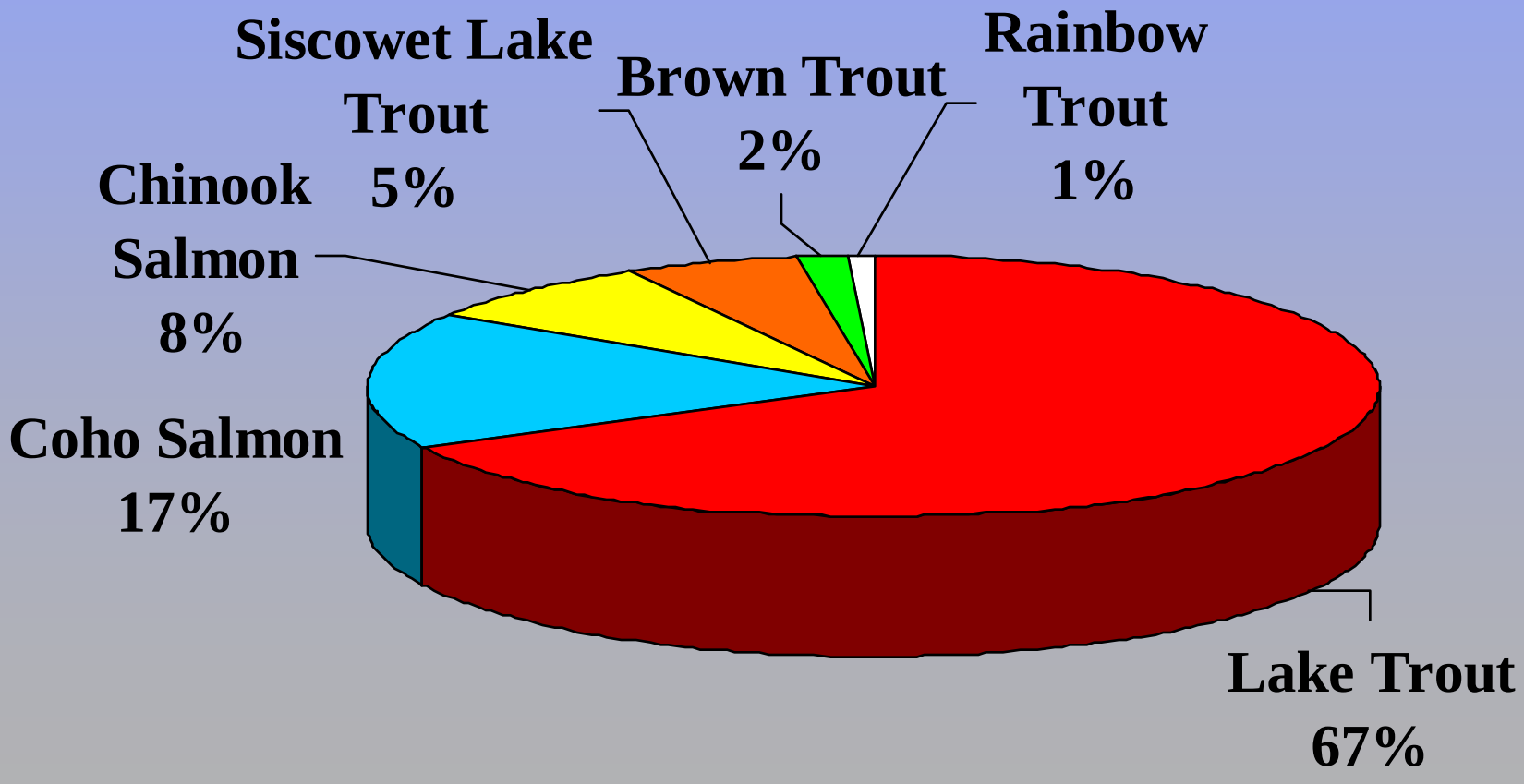
Waters of Lake Superior



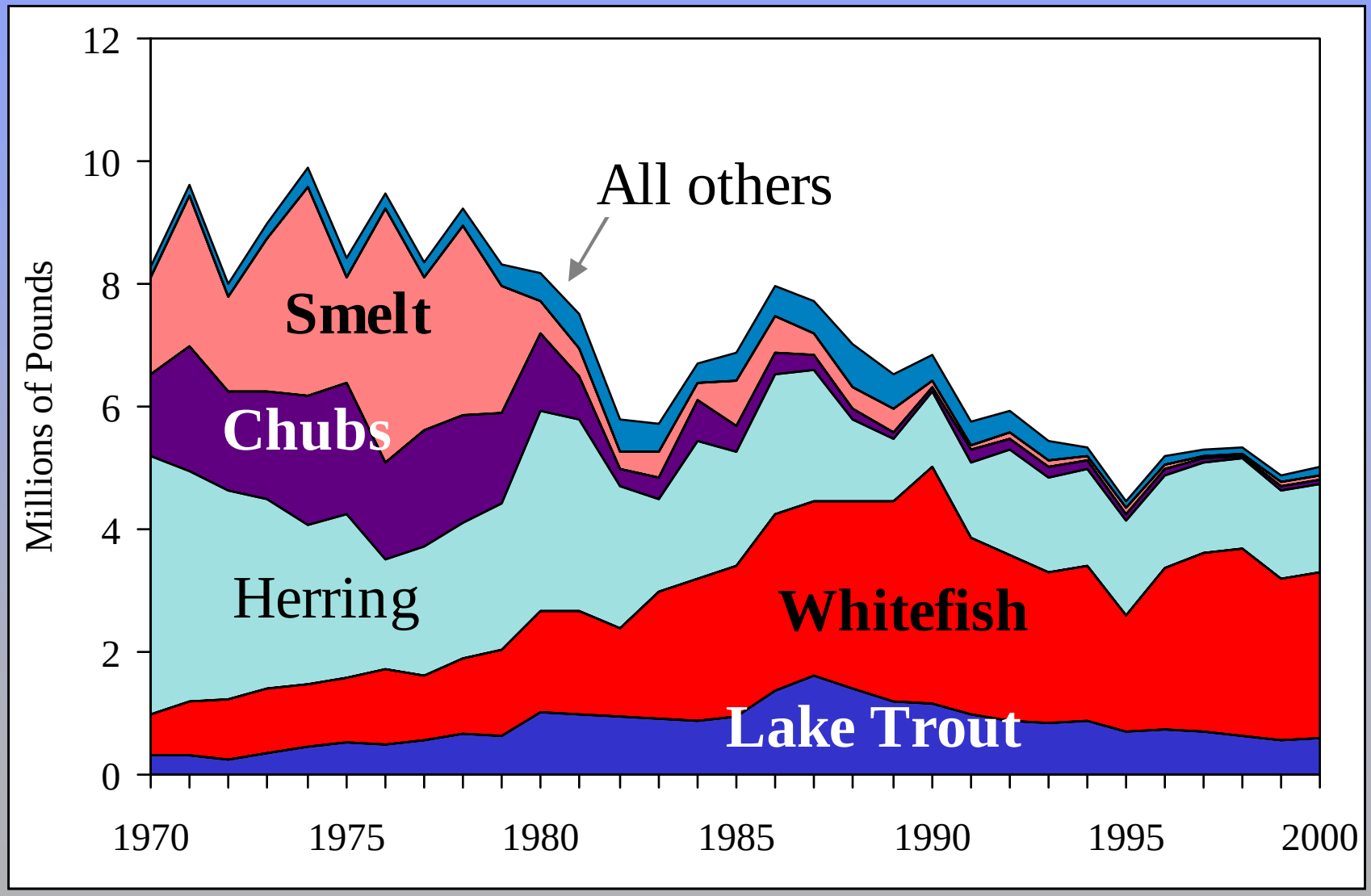
Sports Fishery - Salmonids in Catch from Ontario Waters of Lake Superior 1987-1999



Sports Fishery - Salmonids in Catch from U.S. Waters of Lake Superior 1990-2000

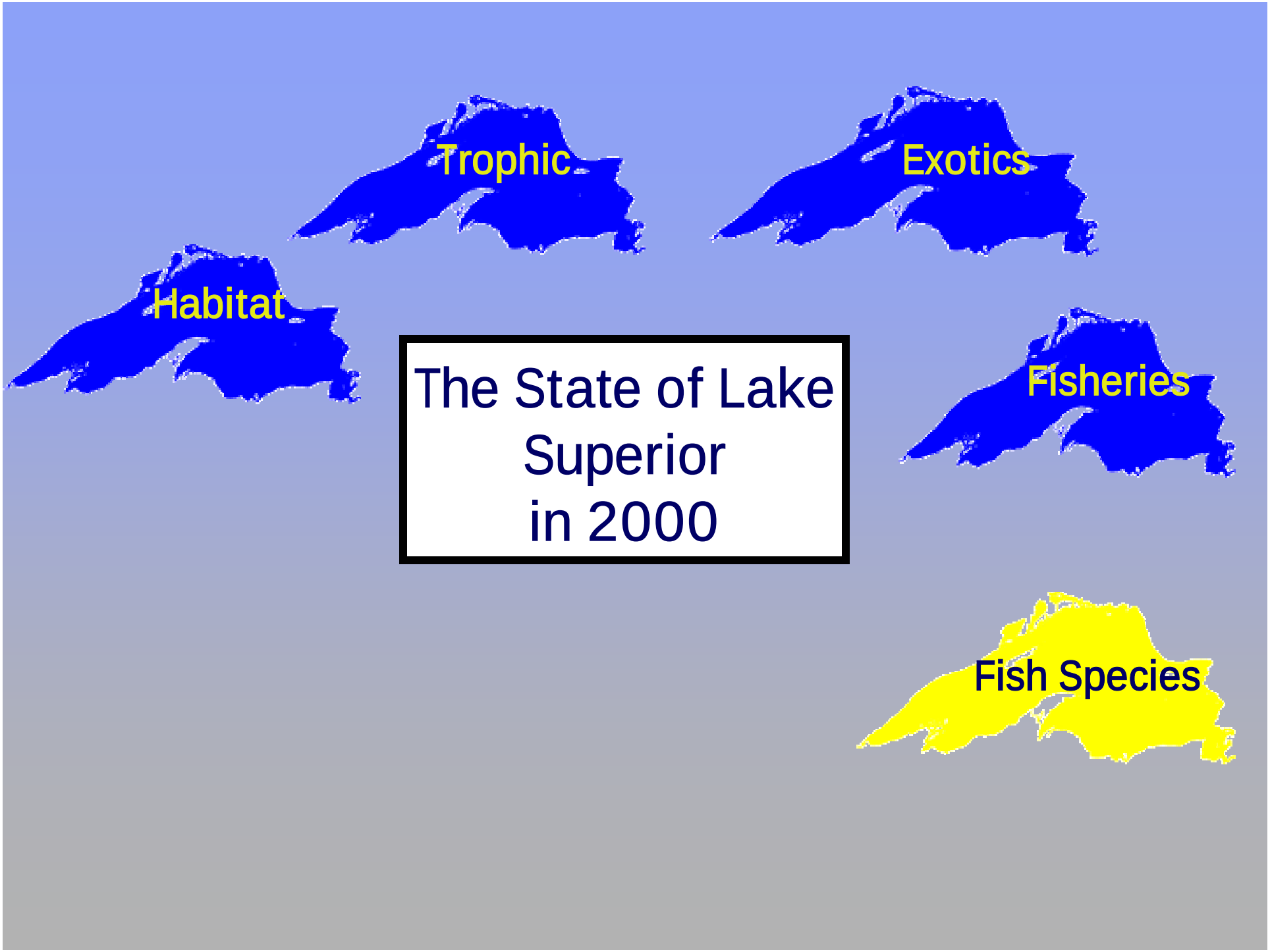


Commercial Fishery Harvest 1970-2000



Summary Commercial Catch

1. Size of fishery declining
2. Primarily Native American fishery
3. Prices declining or stable
4. Gill net effort declining
5. Trap net effort increasing
6. Whitefish primary fishery, herring secondary
7. Lake trout harvest declining



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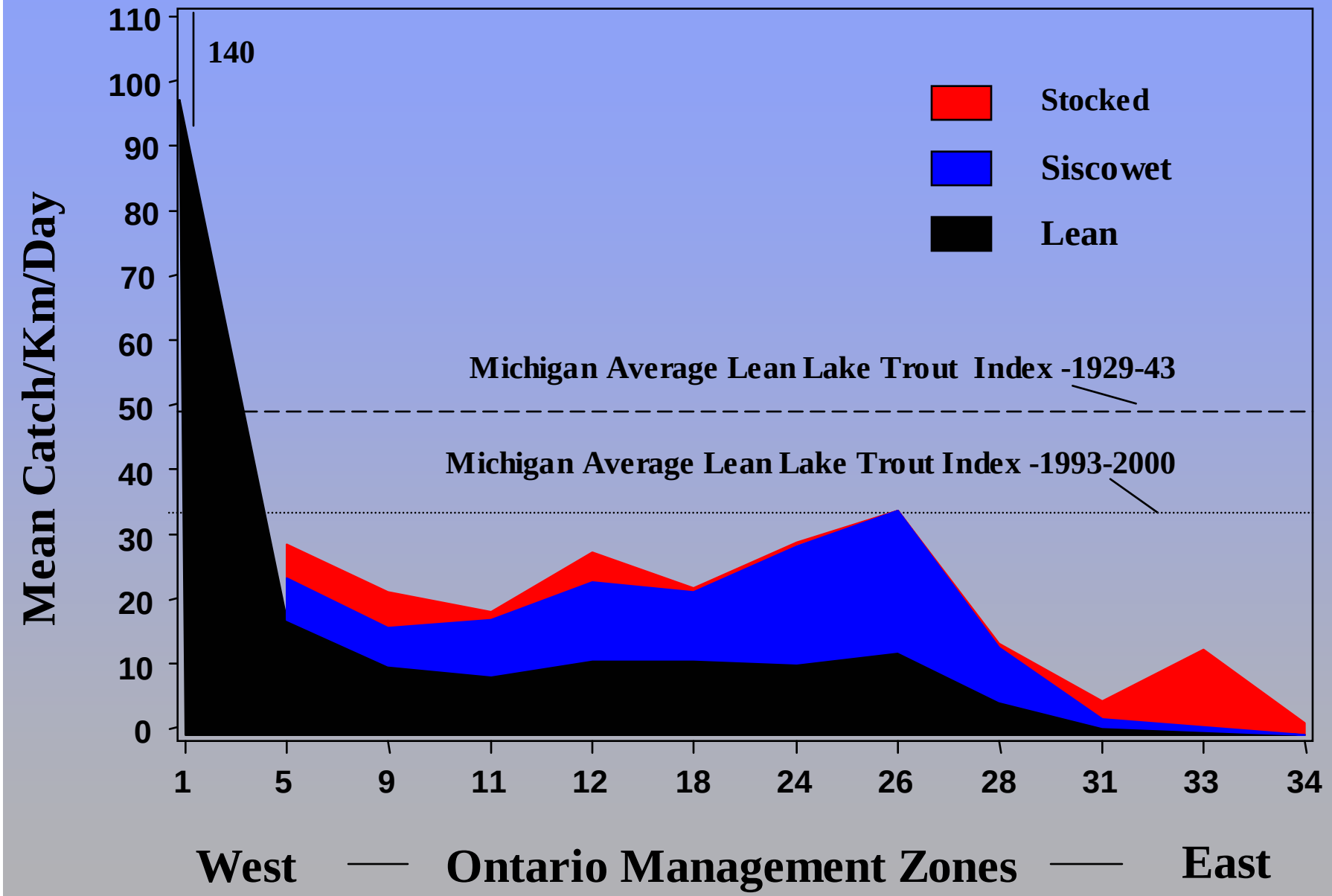
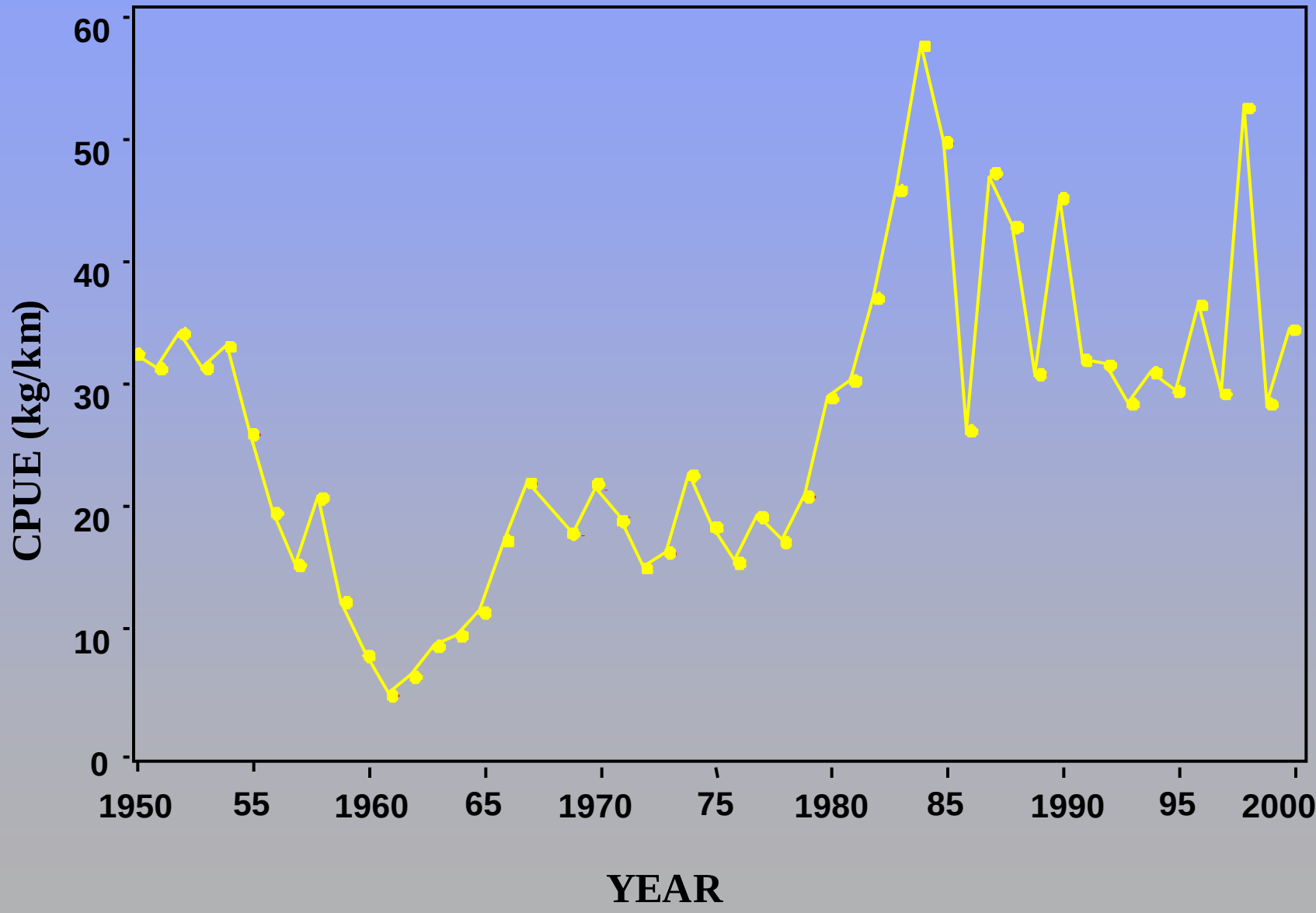
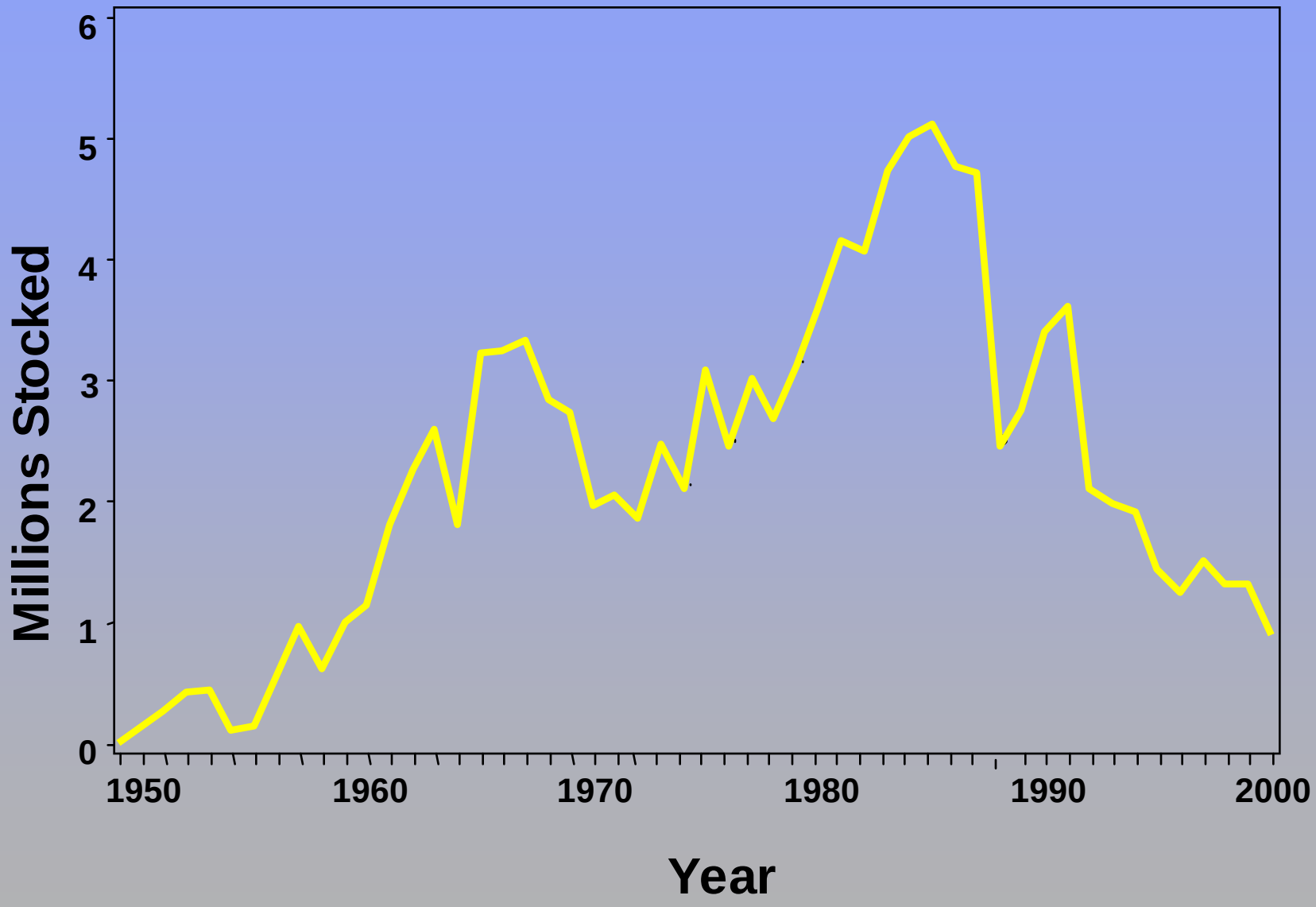
Ontario Lake Trout Indices 1997-2001



Lake Trout - Ontario Commercial Harvest



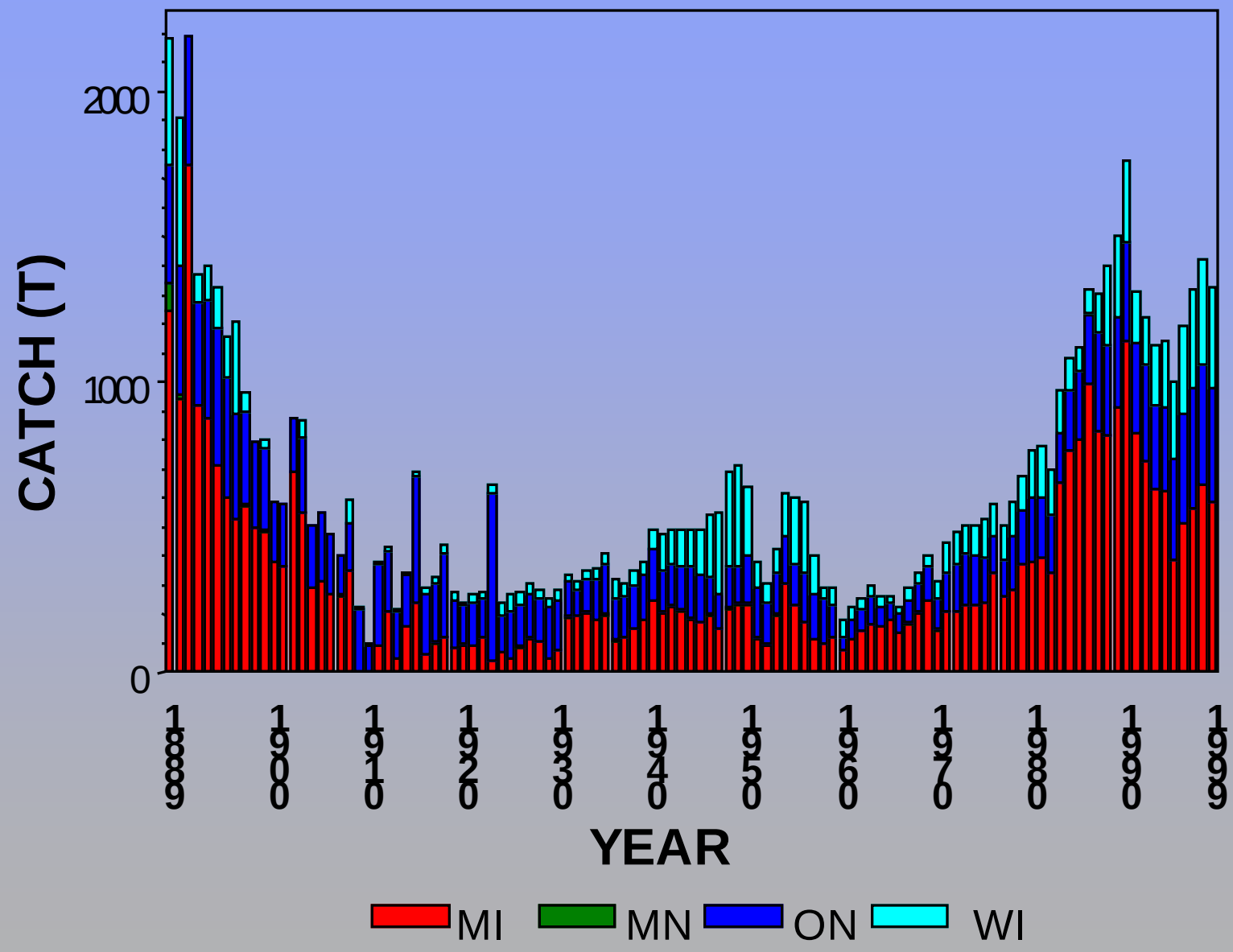
Lake Trout Stocking in Lake Superior



Status of Lake Trout in Lake Superior 2000

- Wild lake trout abundance increasing MN & WI and ONT waters of Lake Superior
- Current abundance MI and Western ONT waters of Lake Superior is higher or comparable to historic values
- Growth rates continue to decline and began in 1970s
- Siscowet abundance high & may be increasing
- Sea lampreys kill more lake trout than the combined sport and commercial fisheries

Lake Whitefish - Total Lake Superior Harvest



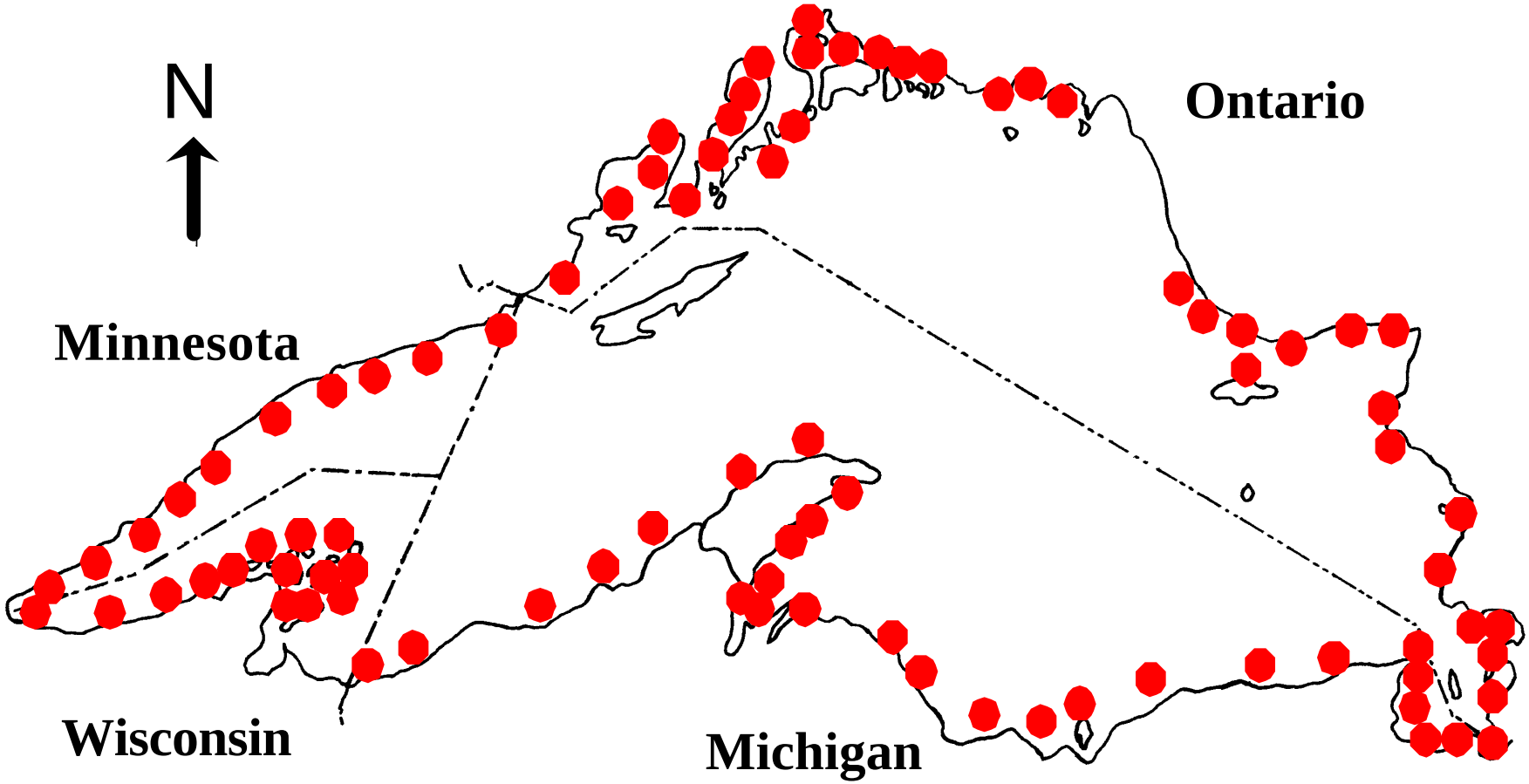
Status of Lake Whitefish in L. Superior 2000

- Abundance is high in most zones, likely a consequence of stocks rebuilding after removal of effort when lake trout fishery collapsed in 1950s
- Mortality below 60-65% guideline in most zones
- Harvest composed mainly of mature fish
- Average harvest weight has been increasing or is static in many zones
- Prognosis is good for lake whitefish in most areas

Sturgeon, Walleye, & Brook Trout Present

>Increasing in Abundance

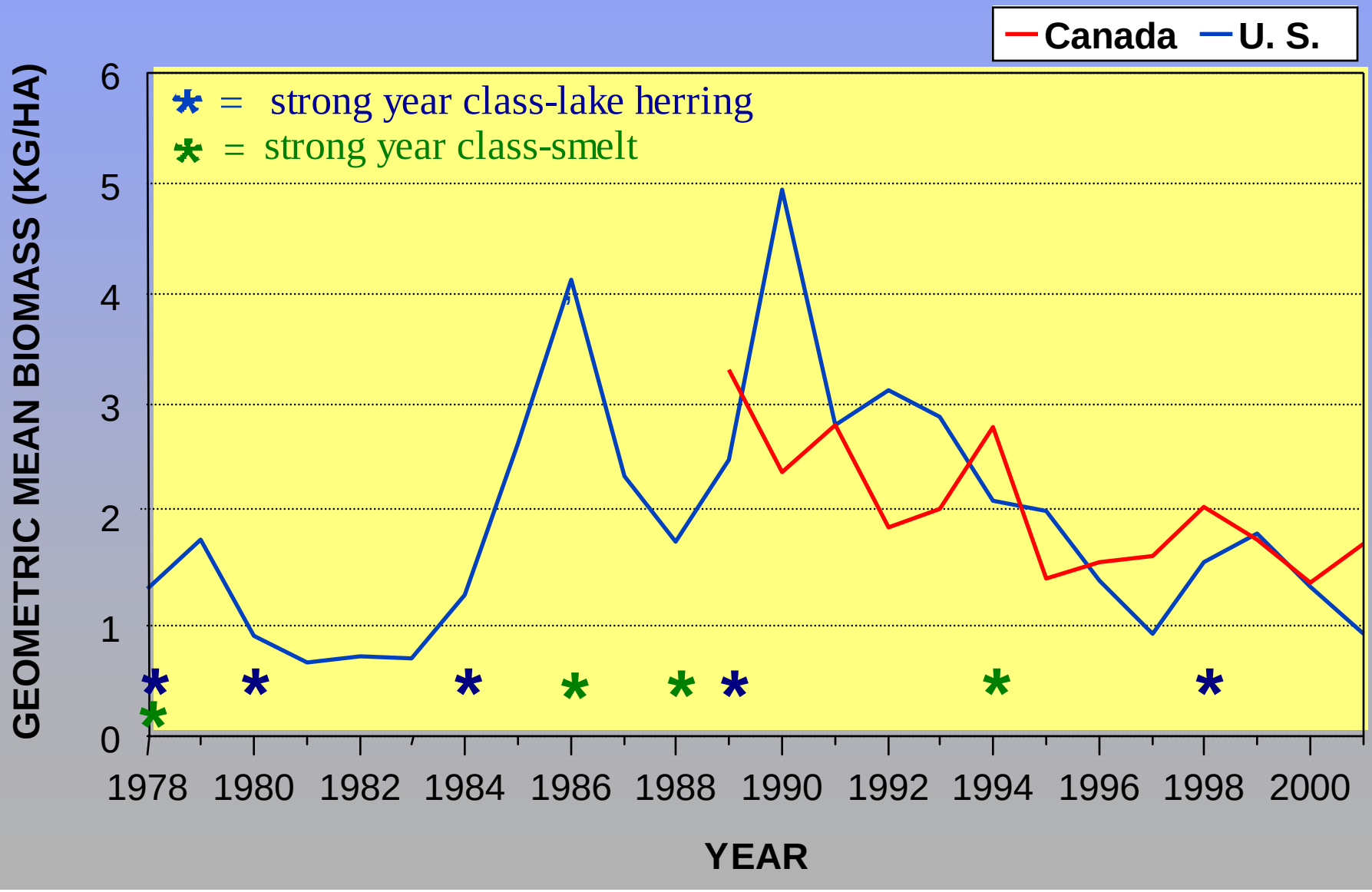
>Sturgeon & Walleye widespread



Trawl stations for assessment of Lake Superior prey fishes,1978-2001

USGS
science for a changing world

Biomass of bloater, smelt, and herring in Lake Superior, 1978-2001



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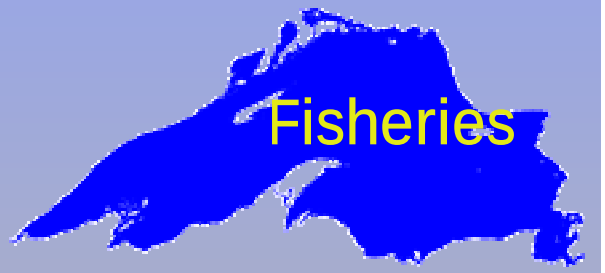
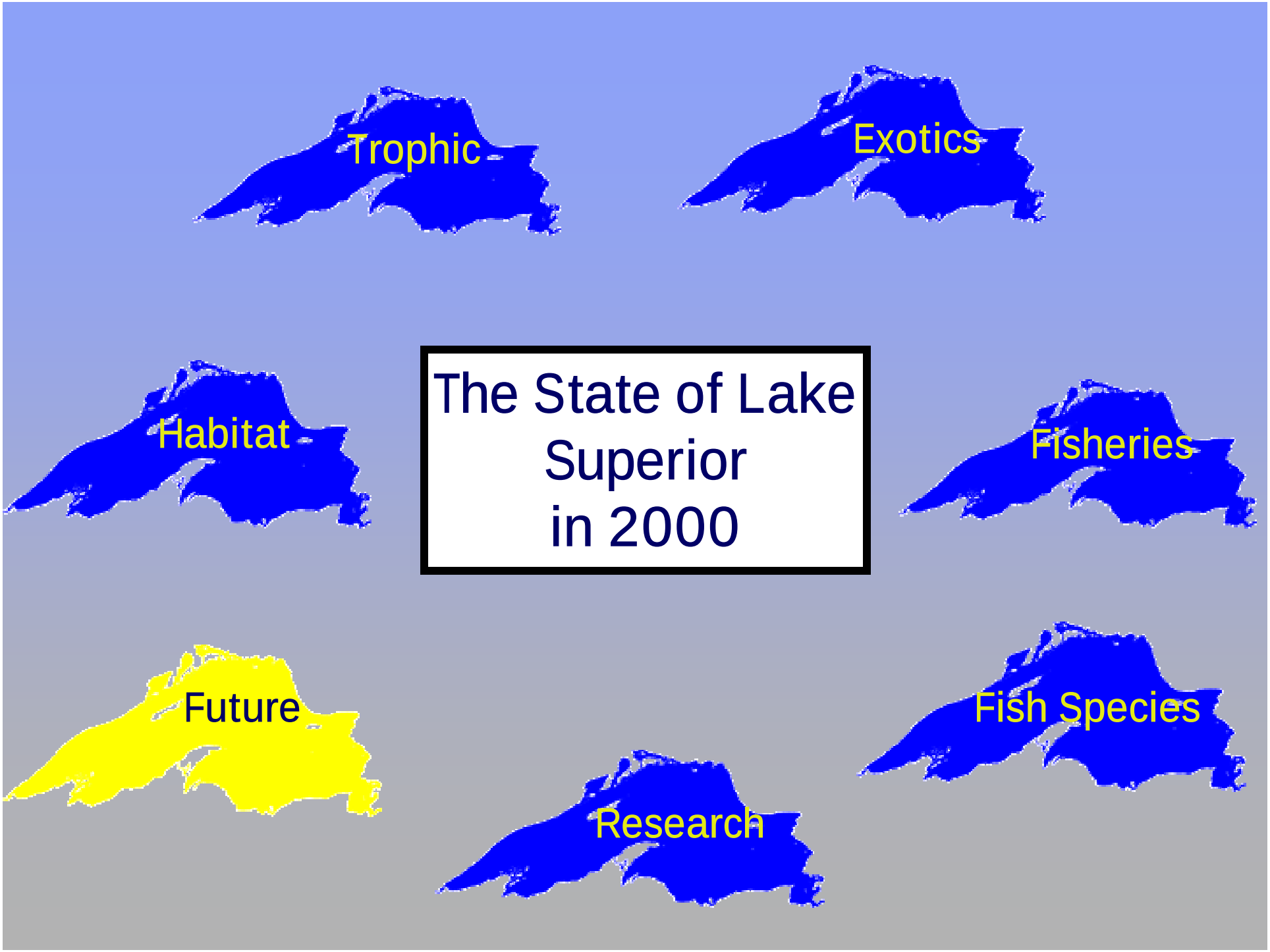


Future Research Needs/ Issues

Fish Community Objectives 14 Recommendations

1. **Sustainability of Lake Trout Populations**
2. **Food Web Dynamics**
3. **Rehabilitation of Depleted Native Species**
4. **Lower Trophic Level Monitoring**
5. **Effects of Introduced Species**


Trophic
Exotics
Habitat
The State of Lake Superior in 2000
Fisheries
Future
Fish Species
Research

Future Fish Community

1. Brook trout, lake sturgeon and walleye populations resurge
2. Lake trout rehabilitation will continue
3. Whitefish stocks stabilized
4. Lake herring partially recovered
5. Habitat degradation will continue
6. Several new non-native species

Nipigon Brook Trout