More History of Sea Lamprey in Lake Erie

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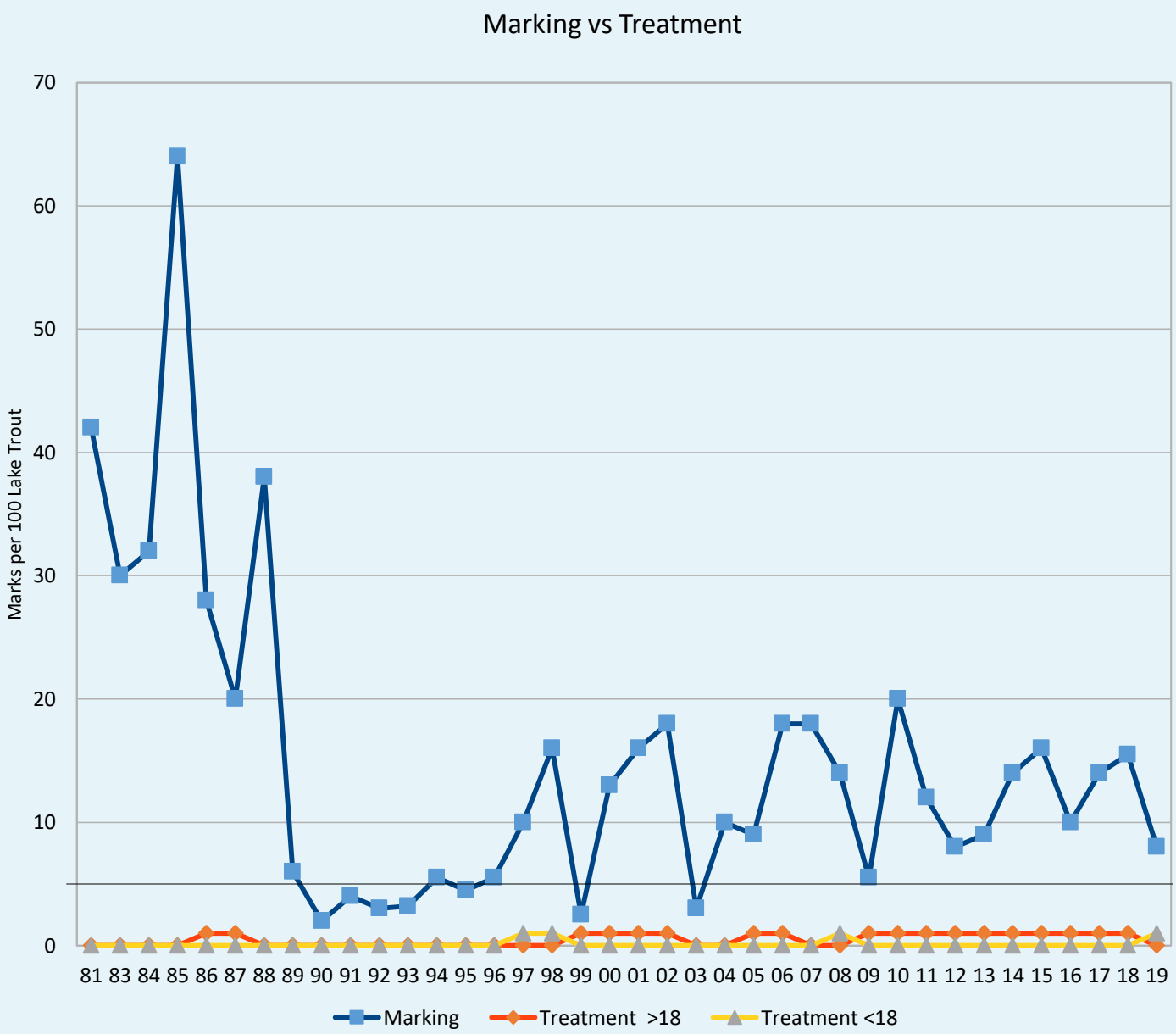
Great Lakes Fishery Commission

- Established: 1955 Canada–U.S. Convention on Great Lakes Fisheries
- Mandate to restore native fisheries. (Sea Lamprey management)
- Maintains state and provincial jurisdiction and authority.
- Evolved to facilitate research and management on a wide range of issues.
- Committee of Advisors falls directly under commissioners and secretariat.

- Sea Lamprey (SL) management based on 60+ years of research.
- Works closely with states, province, tribes, NGOs.
- Treatment schedules based on biological and financial efficiencies.
- Primary method is lampricide. Others are dams, traps, new research.
- Continuing effort to minimize use of lampricide.
- Largely successful. 10% of historic highs.
- No lasting detrimental effect on local environments.

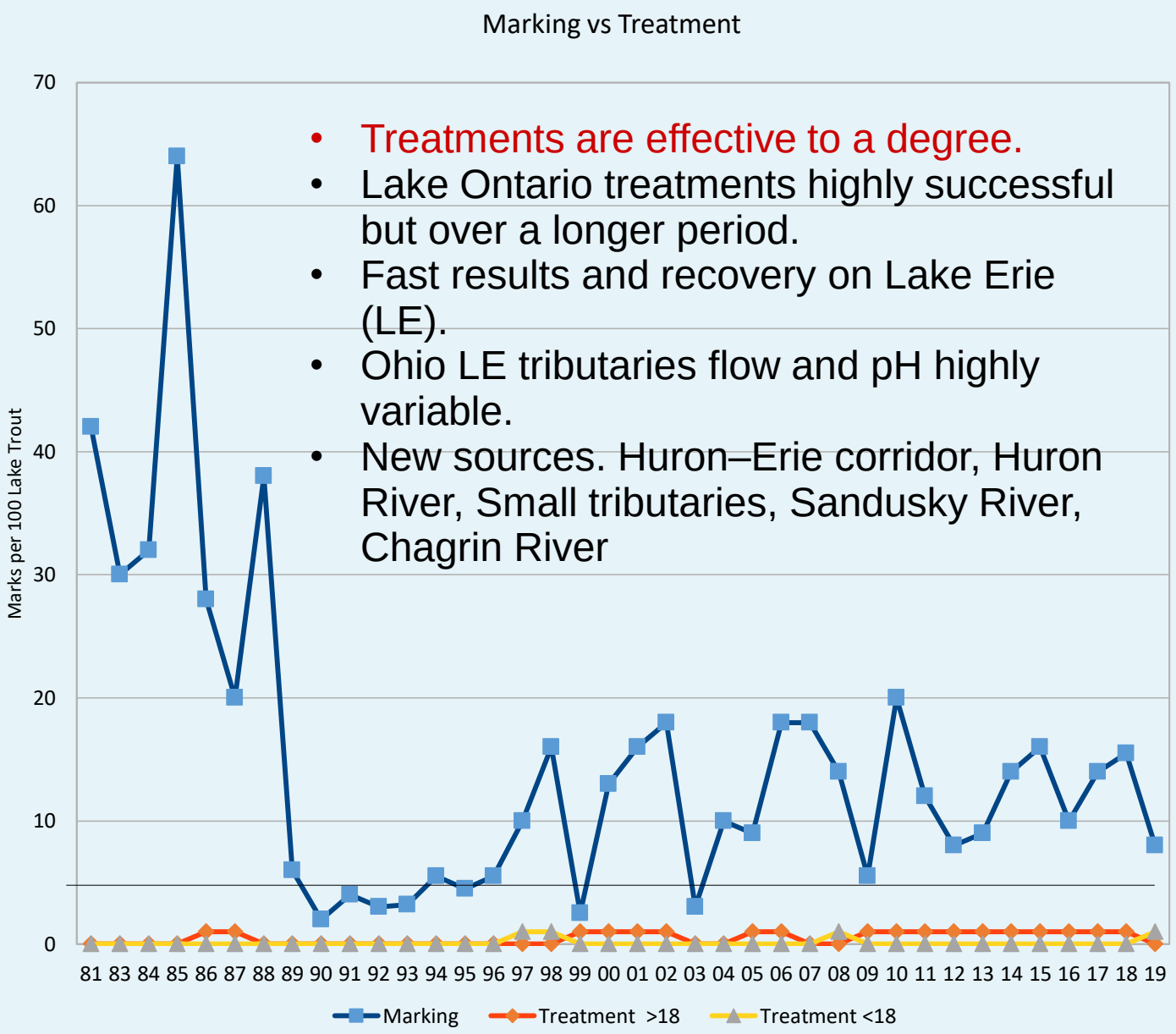
Lake Erie and Sea Lamprey

- SL populations established 1921.
- Probably induced by widening and flow regime change of Welland Canal and increased ship traffic.
- Abundance of quality fish (Lake Trout, whitefish, lake herring) 1920s to '40s
- Shift in commercial catch to percids when salmonids collapsed.
- Mid '50s saw complete collapse of quality fisheries except Yellow Perch.
- Surge of Rainbow Smelt. (lack of top predator)
- Over fishing, water quality, habitat loss bore most of blame.
- Unlike other lakes SL where not considered the major cause.
- Walleye showed recovery in late '60s, early '70s with water quality improvement.
- Lake Trout (LT) stocking showing minimal success.
- Mostly mature specimens. (Mortality much higher in immature LT.)
- Mid '80s saw all time highs in Walleye population. Also, highs of SL.
- First treatments 1986 based on these trends. Possibly too reactionary.


Marking vs Treatment
Marks per 100 Lake Trout
70
60
50
40
30
20
10
0
81 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19
Marking
Treatment >18
Treatment <18

What the chart tells us

- Treatments are effective to a degree.
- Abundance of quality fish and sea lamprey correlate.
- Which is first? (chicken or the egg).
- Raises many questions.
- Is natural balance possible? Probably not.
- Are trade offs justifiable? Historically yes.
- Are existing models for Lake Erie working? Maybe not.
- Can lampricides be abandoned for alternatives. Hopefully partially.



- Treatments are effective to a degree.
- Lake Ontario treatments highly successful but over a longer period.
- Fast results and recovery on Lake Erie (LE).
- Ohio LE tributaries flow and pH highly variable.
- New sources. Huron–Erie corridor, Huron River, Small tributaries, Sandusky River, Chagrin River

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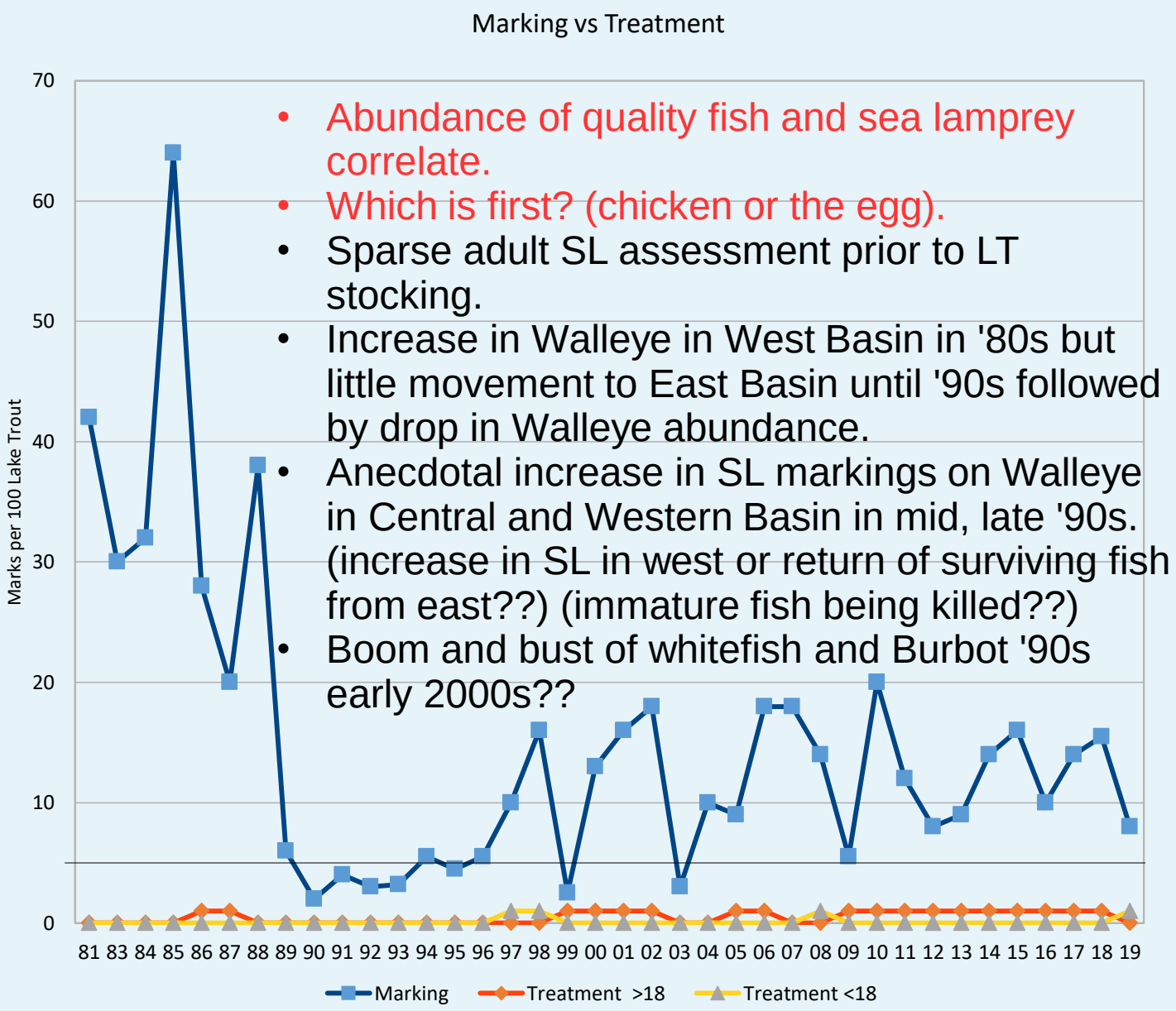

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- Which is first? (chicken or the egg).
- Sparse adult SL assessment prior to LT stocking.
- Increase in Walleye in West Basin in '80s but little movement to East Basin until '90s followed by drop in Walleye abundance.
- Anecdotal increase in SL markings on Walleye in Central and Western Basin in mid, late '90s. (increase in SL in west or return of surviving fish from east??) (immature fish being killed??)
- Boom and bust of whitefish and Burbot '90s early 2000s??

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Raises many questions.

Is natural balance possible? Probably not.

- 100+ years of history says no.
- SL has no natural predator in Great Lakes.
- No balance in north Lake Huron, Michigan until SL management successful on St. Mary's River. (late 2000s)
- Natural balance in LE, except for SL, would be return of native stocks, Burbot, whitefish, Lake Trout.
- Human interaction required!

Are trade offs justifiable? Historically yes.

- Lake Superior..no LT stocking..treatments continue.
- No long term damage. ('50s, '60s haphazard) (first Conneaut disaster)
- Mudpuppies impacted but no long term damage on other lakes. Other factors in play on Lake Erie. (water quality improvement?) ODW doing more research.

Are existing models for Lake Erie working? Maybe not.

- Lake Erie very dynamic.
- More research and time to get good model.
- Possible slightly higher target levels. (dampen peaks and troughs)

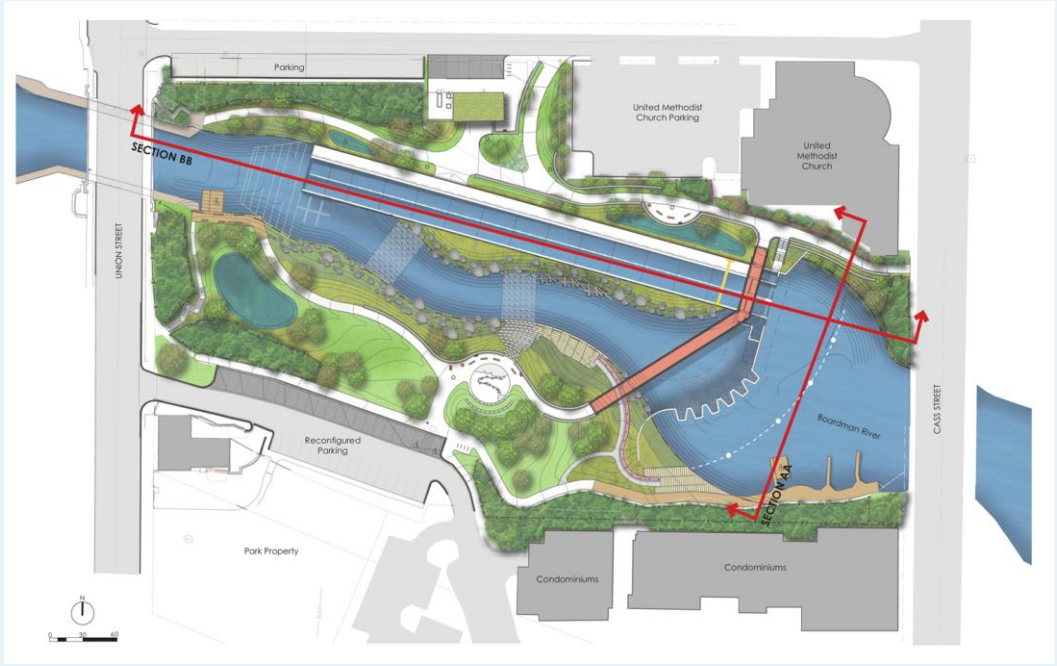
Can lampricides be abandoned for alternatives. Hopefully partially.

- Dams, existing and new high tech. (Canadian side has inflatables)
- Down stream of dams and non dam-able will need treatment.
- Attractants, Repellents, Traps. (pheromones, SL chum)

Dams are bad...dams are bad

Great Lakes Fishery Commission (GLFC) is highly involved with new and old dam assessment on the Great Lakes.

- Harpersfield Dam renovation came out of concerns about late '90s treatments.
- Ballville Dam removal OKed after lamprey production assessment.
- Daniels Park Dam loss still being watched closely.
- Grand River, Grand Rapids, Michigan dam removal engineered to maintain lamprey barriers.
- Traverse City, Michigan Fish Passage Project.



Sea Lamprey management is necessary but not stagnant. The recovery of Great Lakes fisheries from the '50s to the current extraordinary state is attributable to many individuals, groups and strategies. But, without Sea Lamprey management everything else would probably be fruitless. Without Sea Lamprey management there would be no need for the GLFC, less inter jurisdictional cooperation, and no quality fisheries. All the good things spawned by Sea Lamprey management far outweigh any negative aspects.

Questions??