

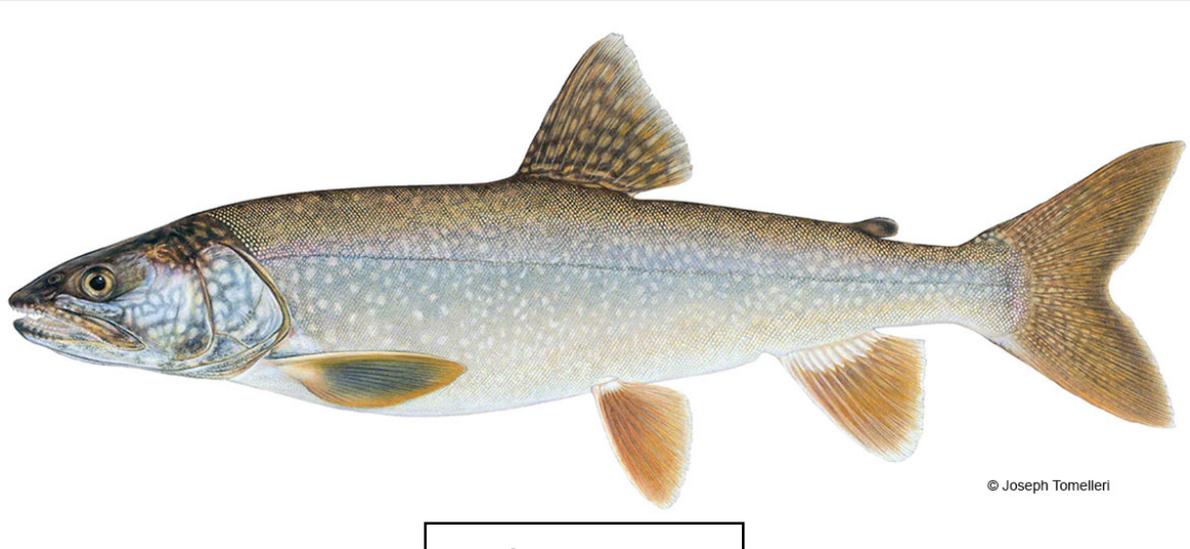
The Past, Present, and Future of Lake Trout in Lake Michigan

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Quantitative Fisheries Center

Michigan State University

2022 Great Lakes Conference

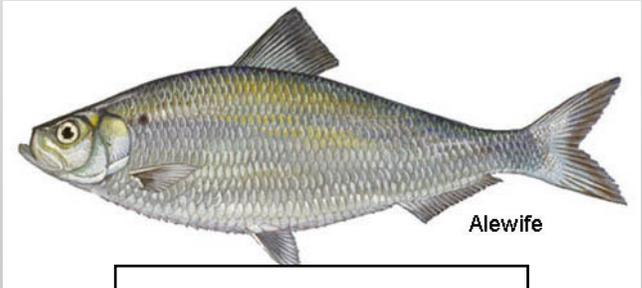


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Lake Trout

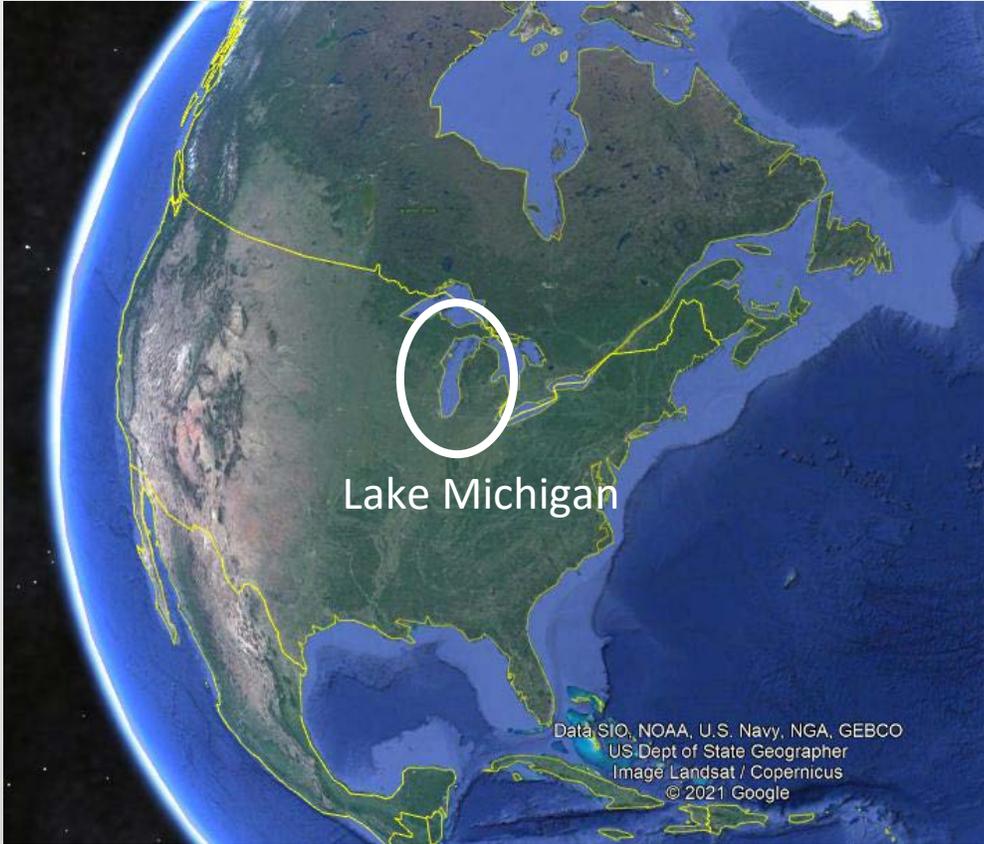


Sea Lamprey



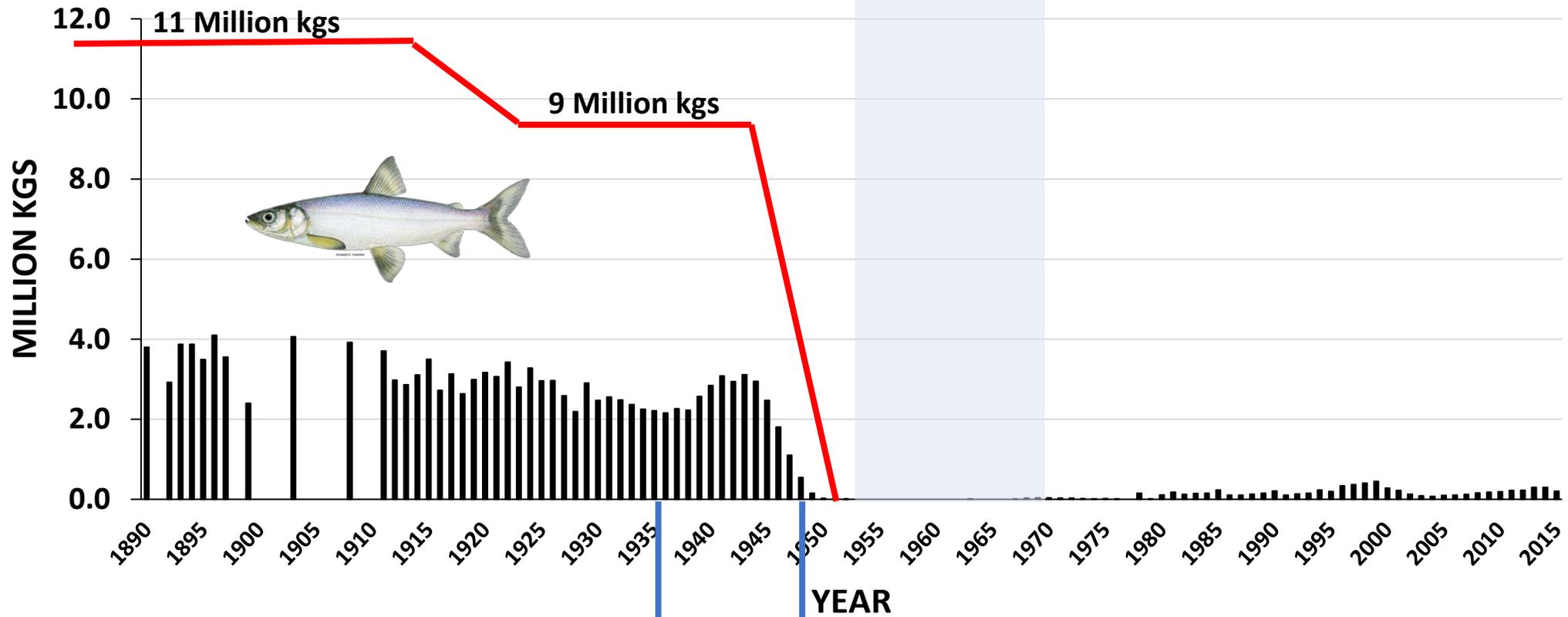
Alewife

Alewife

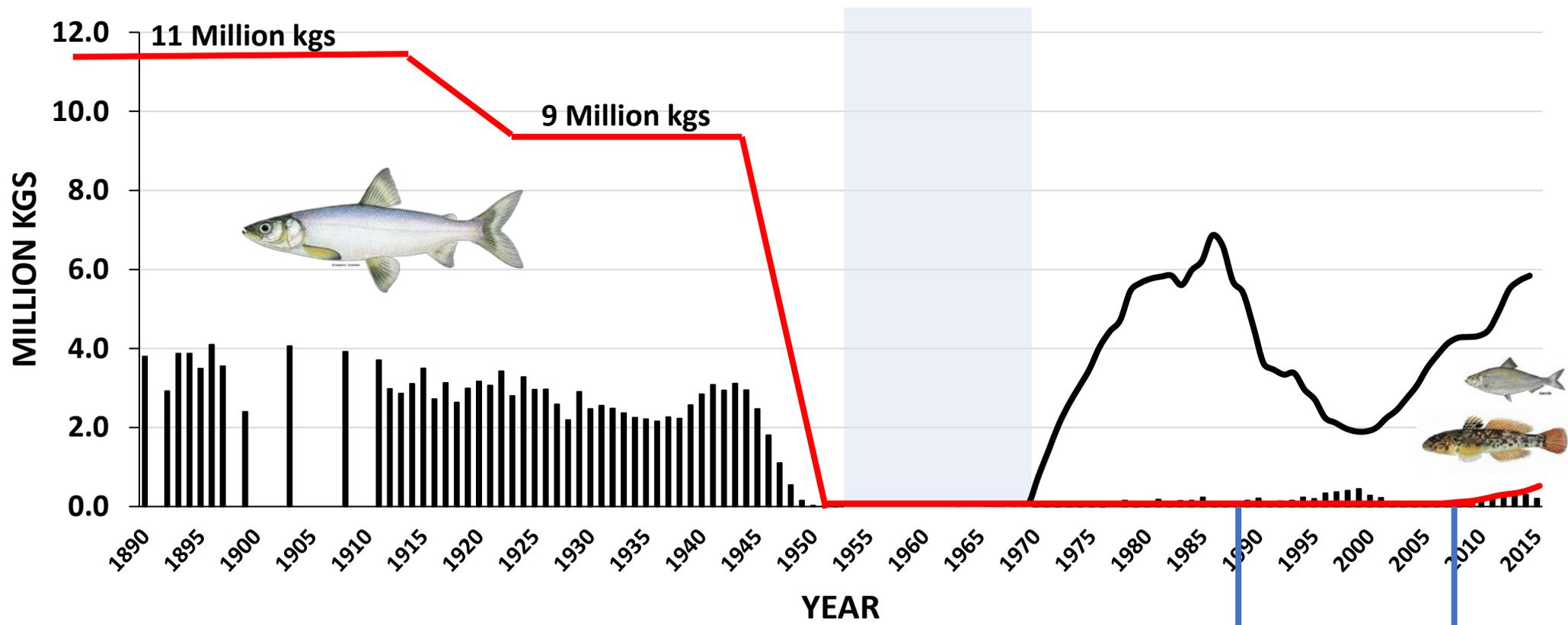


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
US Dept of State Geographer
Image Landsat / Copernicus
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Lake Michigan Lake Trout - Past



Lake Michigan Lake Trout – Past and Present



Lake Michigan

North Stock

< 4% wild

52% adult mortality

380 km

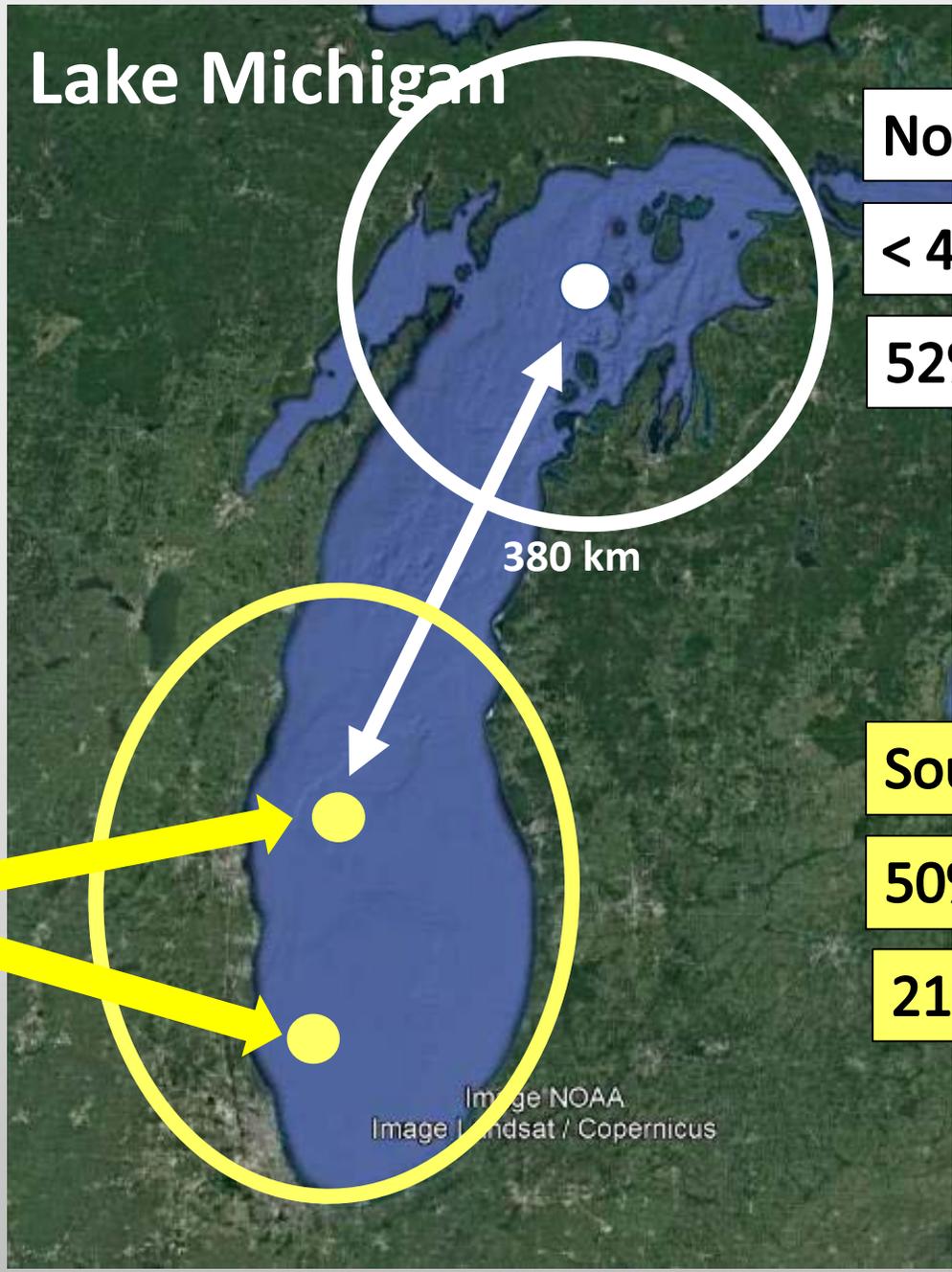
South Stock

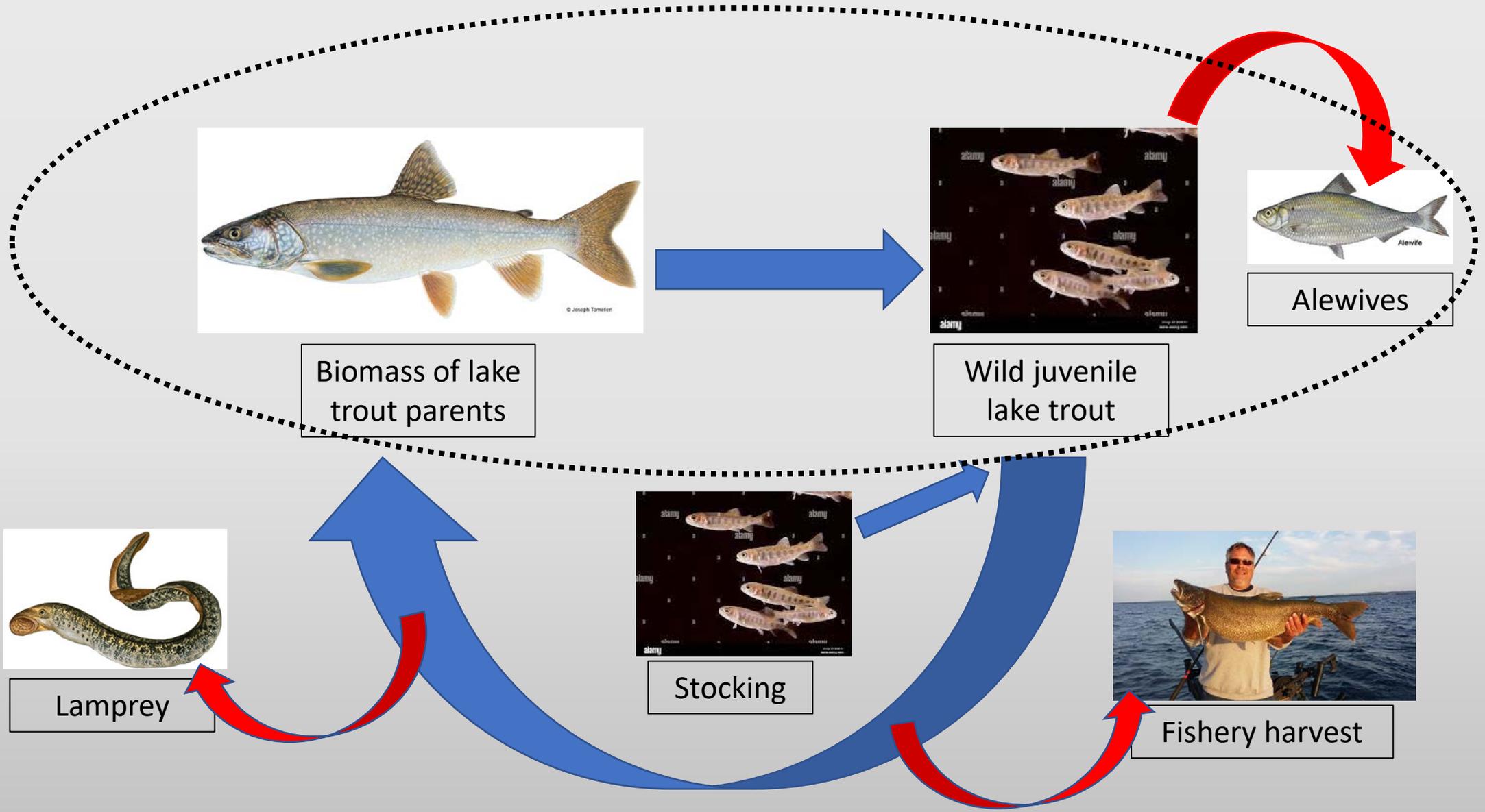
50% wild

21% adult mortality

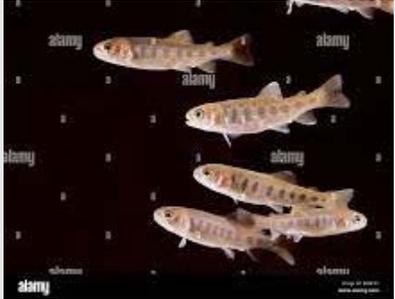
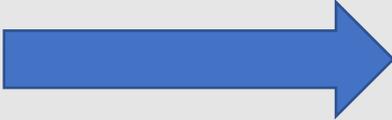
Natural reproduction

Image NOAA
Image Landsat / Copernicus

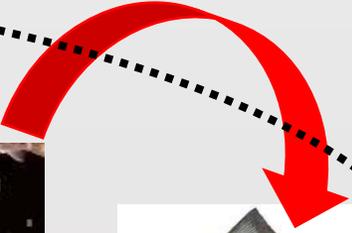




Biomass of lake trout parents



Wild juvenile lake trout



Alewives



Lamprey

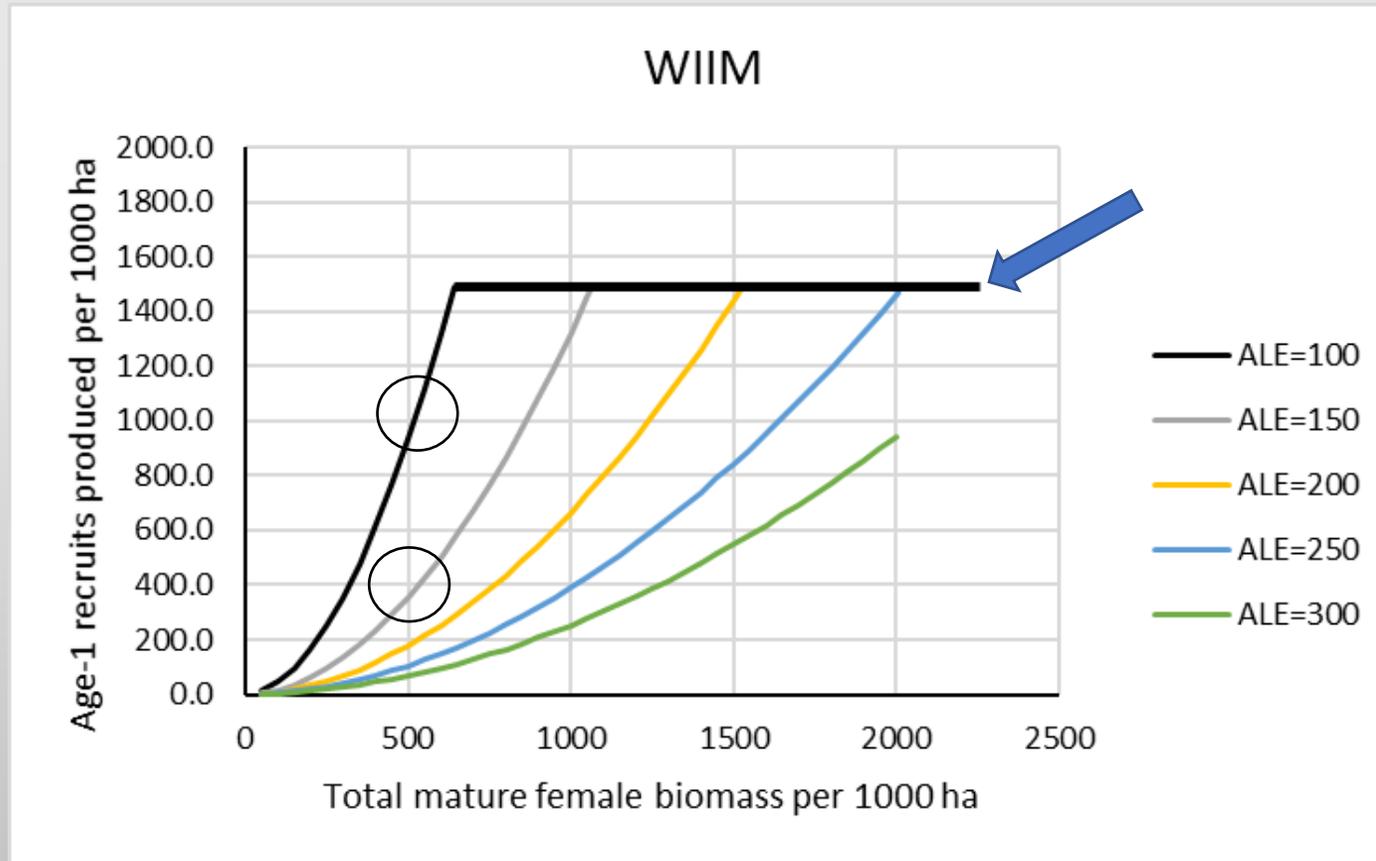


Stocking

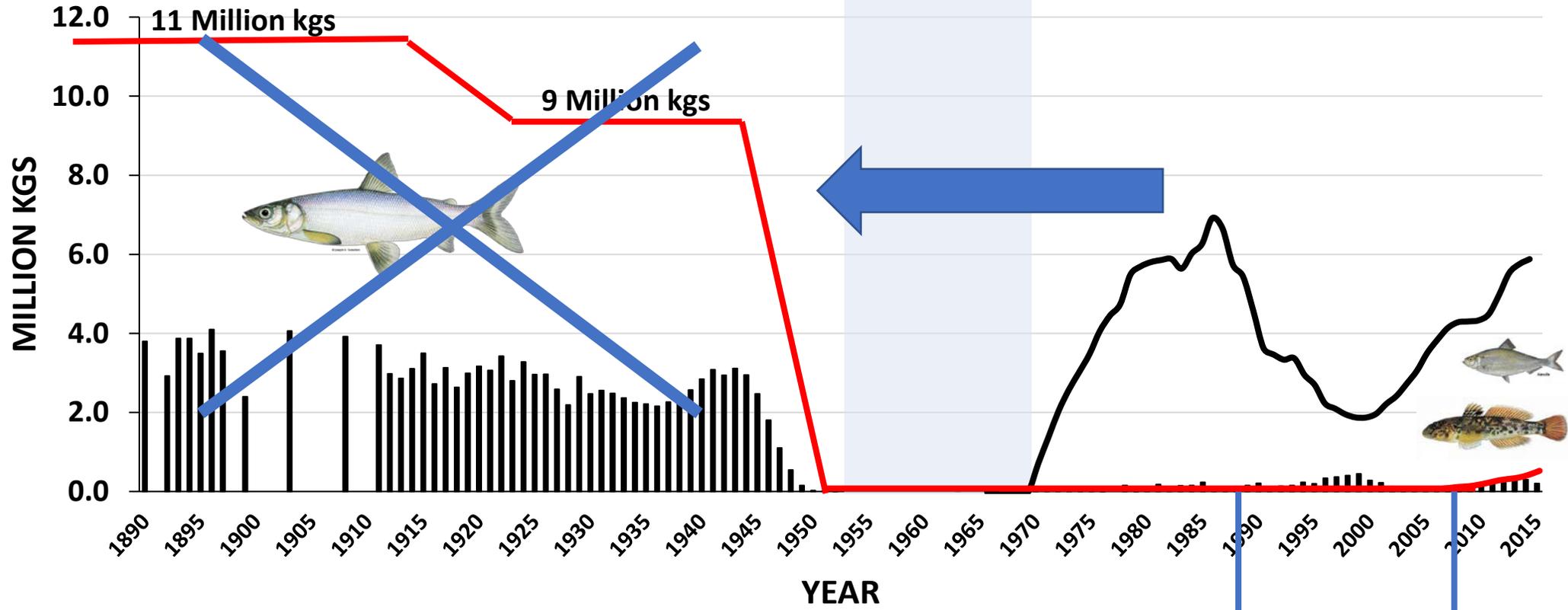


Fishery harvest

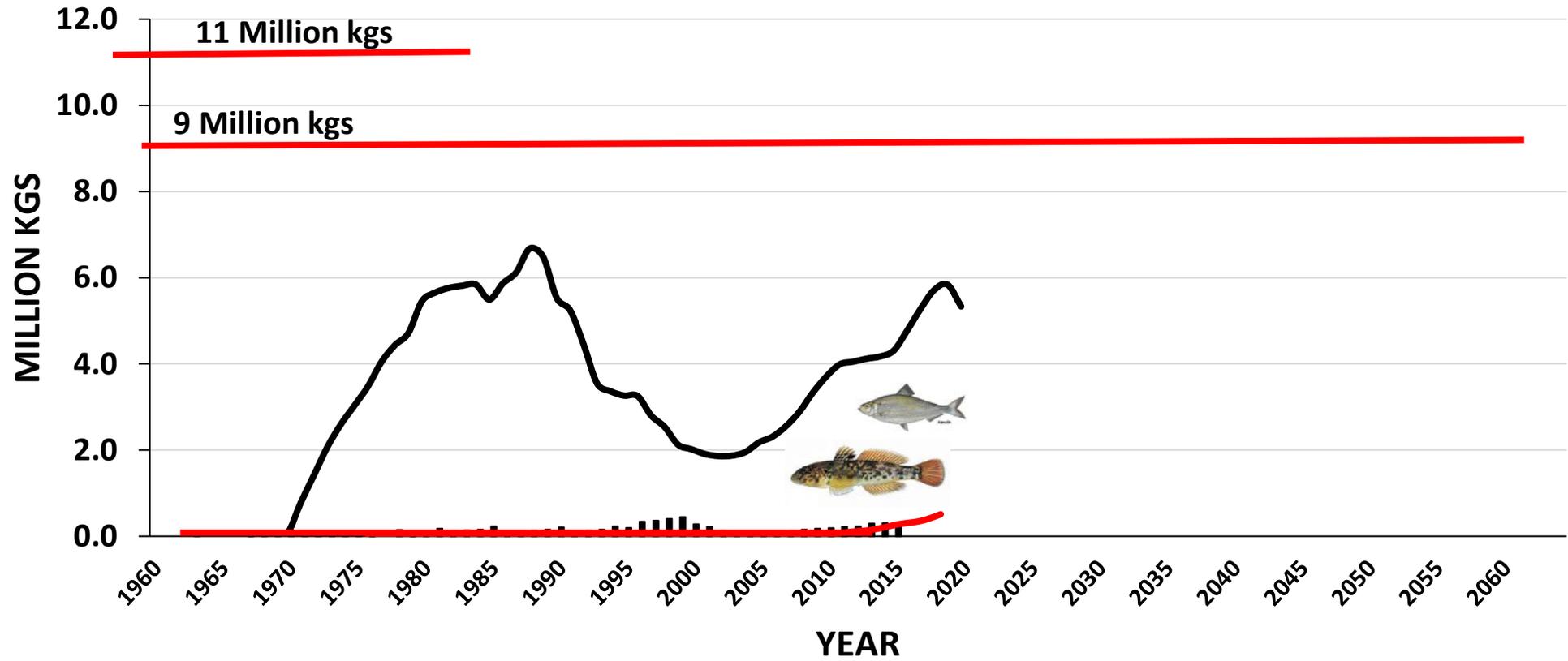
The spawner-alewife recruitment curve for lake trout



Lake Michigan Lake Trout – Past and Present

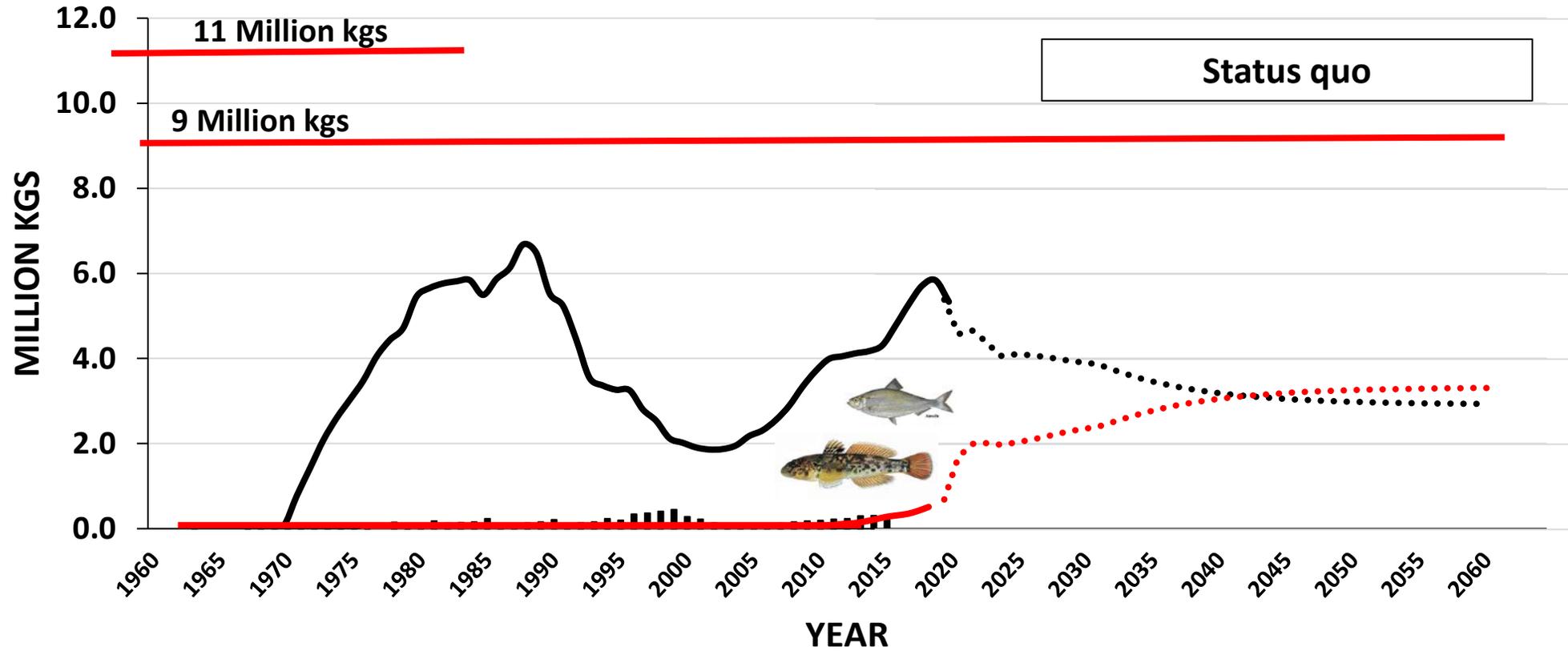


Lake Michigan Lake Trout – Present and Futures



Status quo scenario

Lake Michigan Lake Trout – Present and Futures



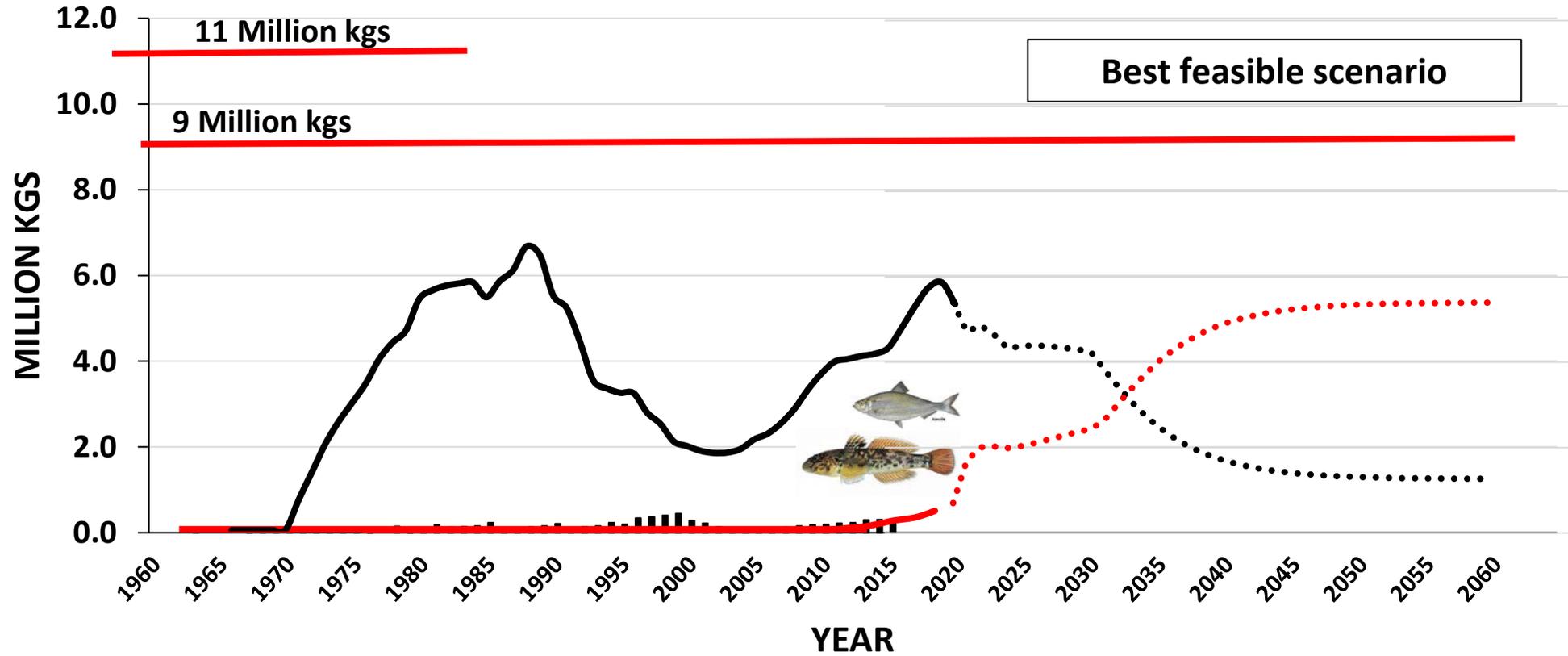
Current stocking rates
 North = 1.5 million/year
 South = 1.2 million/year

**Lake wide alewife
 abundance = 110 kt**

Current mortality rates
 North = 52%
 South = 21%

What is the best feasible scenario?

Lake Michigan Lake Trout – Present and Futures

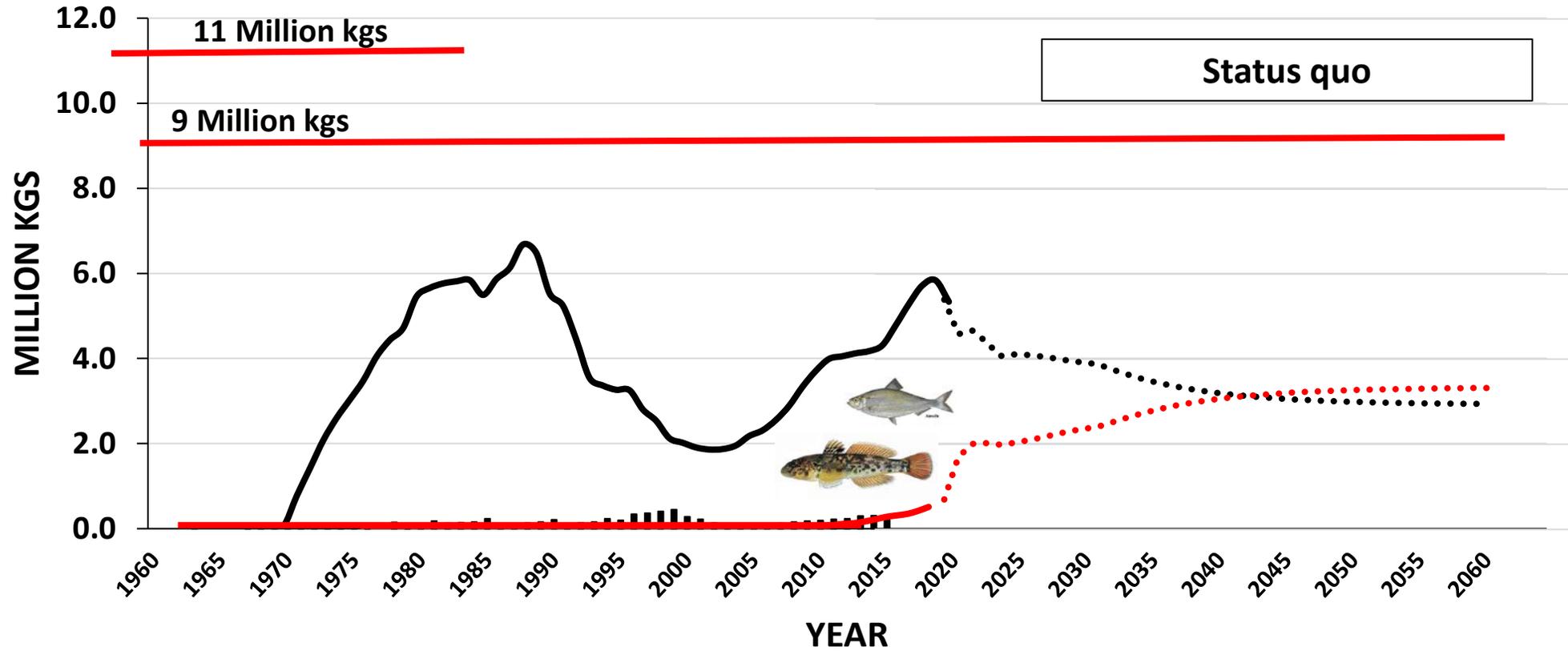


Current stocking rates
 North = 1.5 million/year
 South = 0.0 million/year

Lake wide alewife
 abundance = 110 kt

Current mortality rates
 North = 45%
 South = 21%

Lake Michigan Lake Trout – Present and Futures

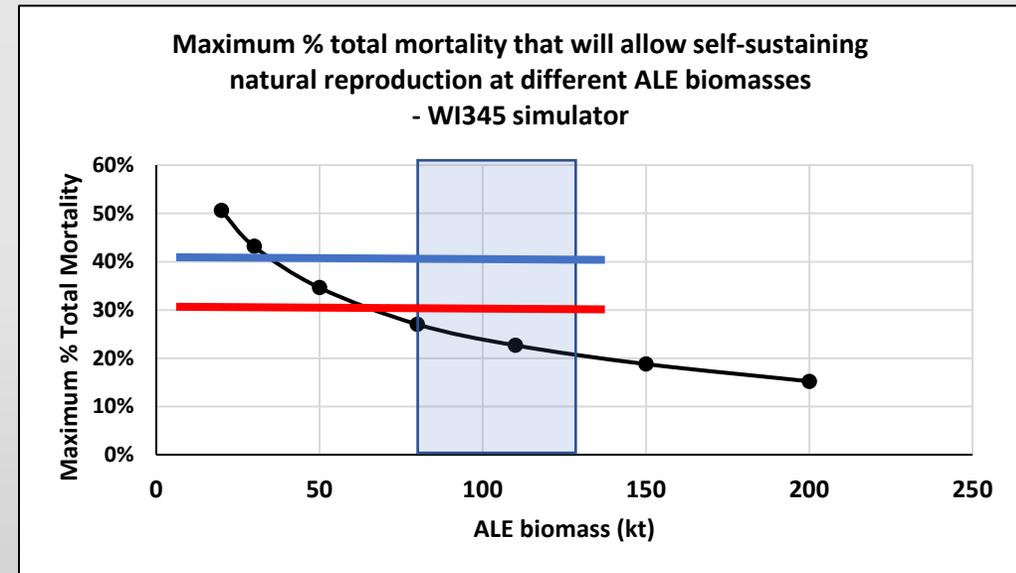
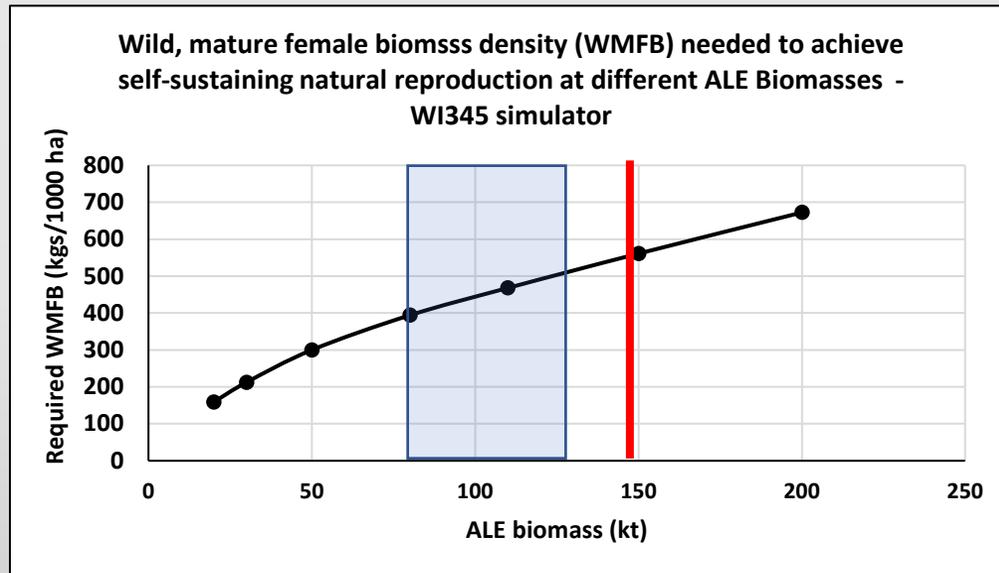


Current stocking rates
 North = 1.5 million/year
 South = 1.2 million/year

**Lake wide alewife
 abundance = 110 kt**

Current mortality rates
 North = 52%
 South = 21%

What have we learned from these simulator games?



The End

