Why did the Rogers City fishery change?

A description of the new excellent fishery

The potential future for the Swan River egg take station

- **Chair of the MDNR Lake Huron Citizens Fishery Advisory Committee**

- **Chair of the MDNR Northern Inland Lakes Citizens Fishery Advisory Committee (Burt, Mullett, Black, Crooked and Pickerel Lakes)**

- **Board of Directors of the Hammond Bay Area Anglers Association**

- **Participated in negotiations of the 2000 Great Lakes Tribal/State Fishing Agreement and the 2007 Tribal/State Inland Hunting, Fishing and Gathering Agreement**

Frank Krist

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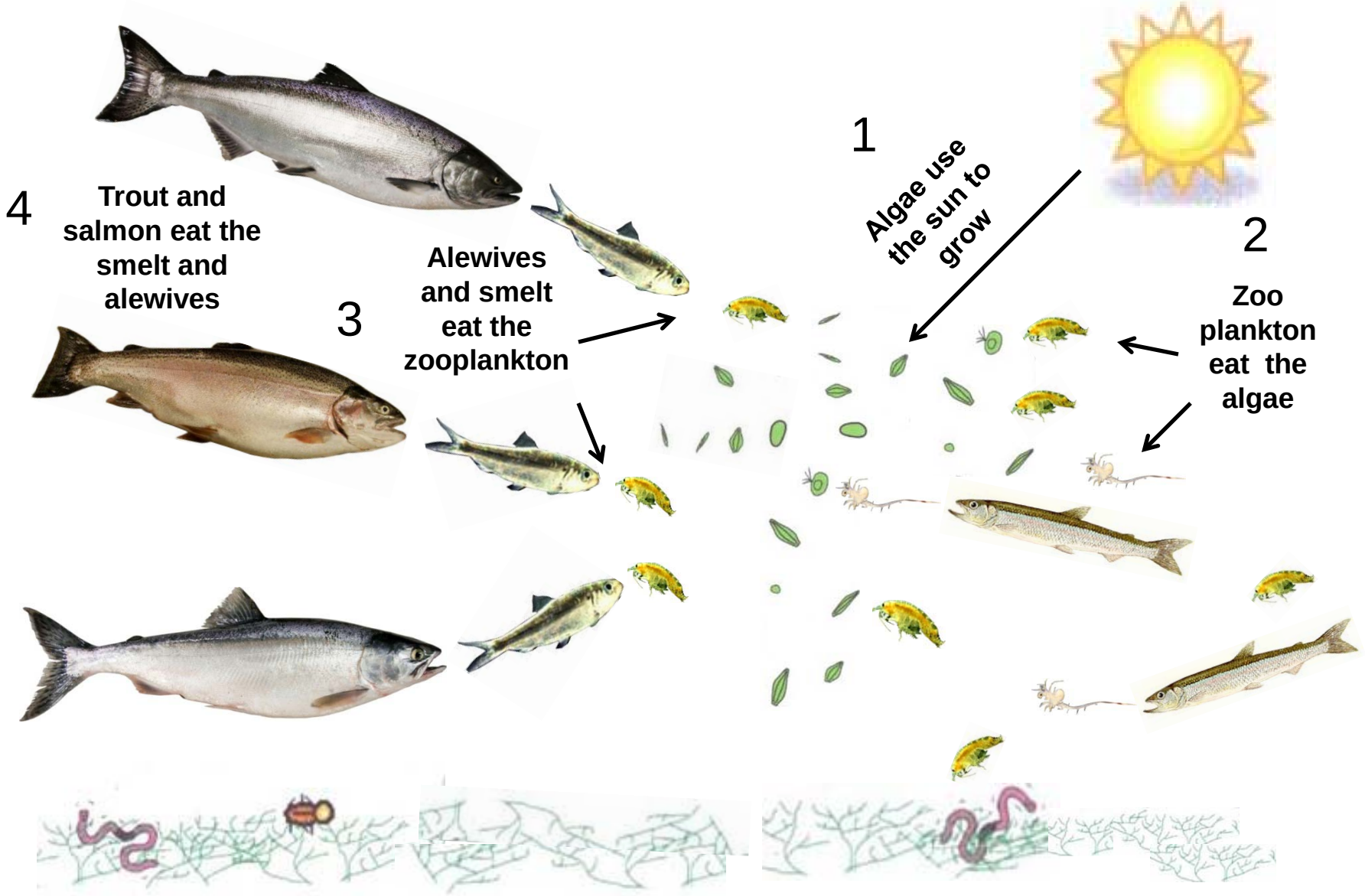
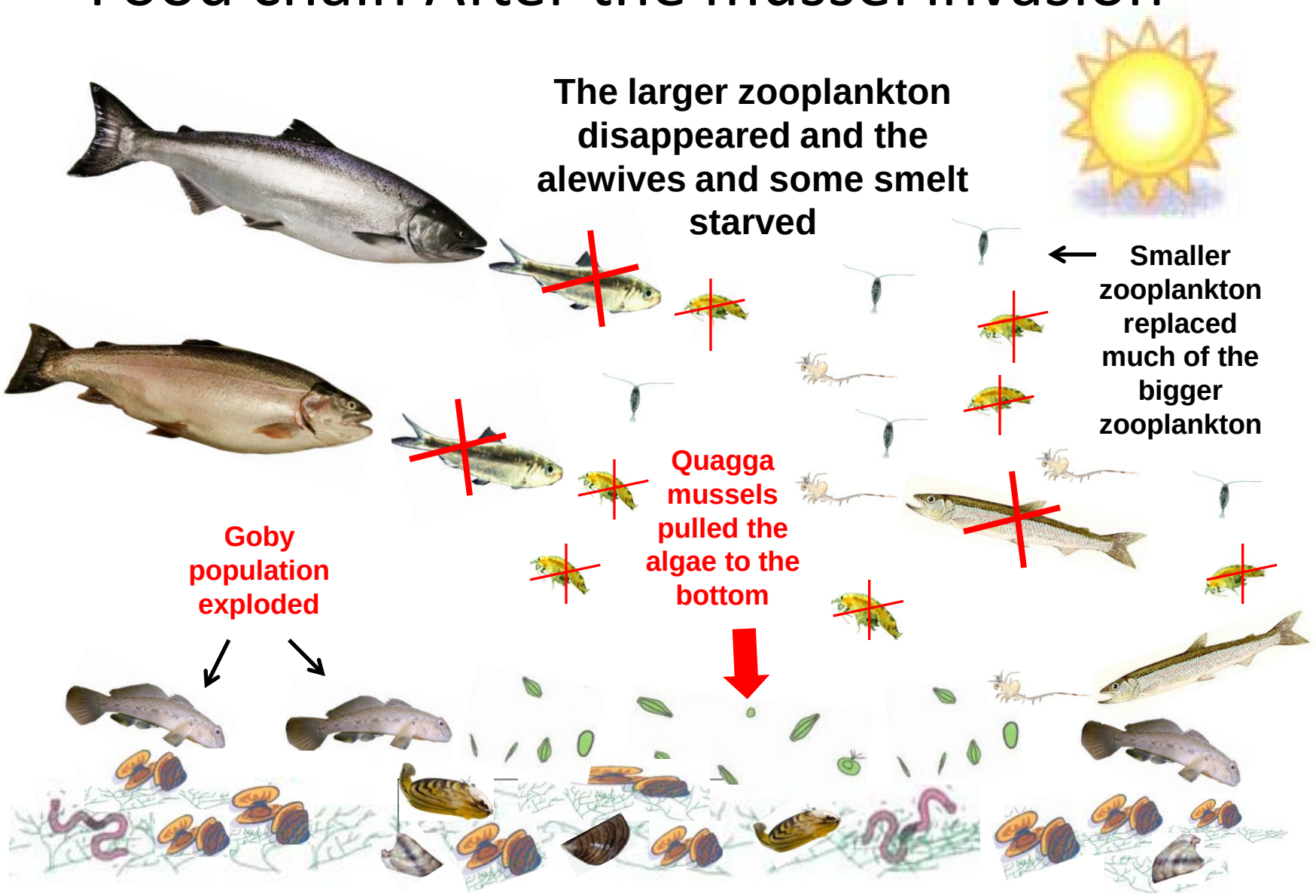
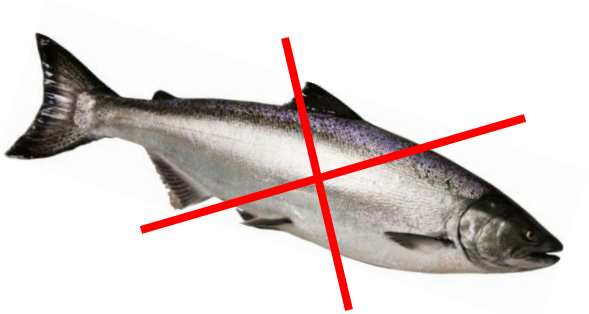
Old food chain before the mussel invasion



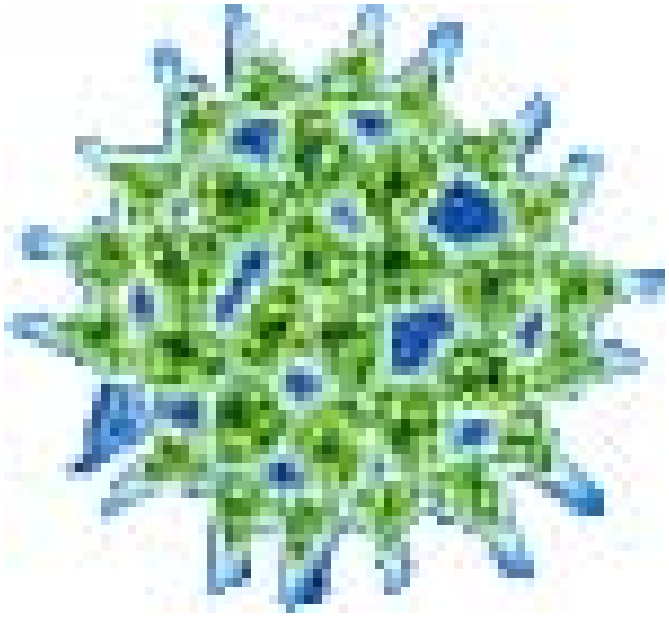
Food chain After the mussel invasion

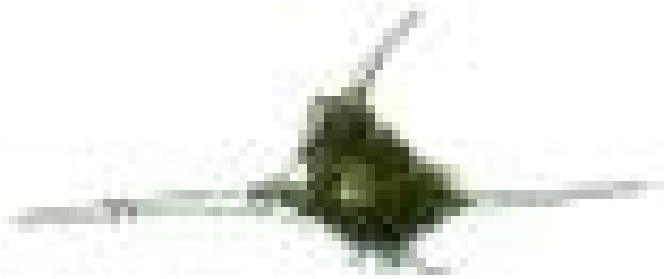


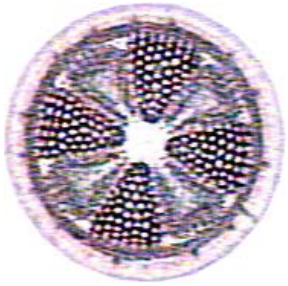
With few alewives many Chinook starved



Tiny one cell Algae







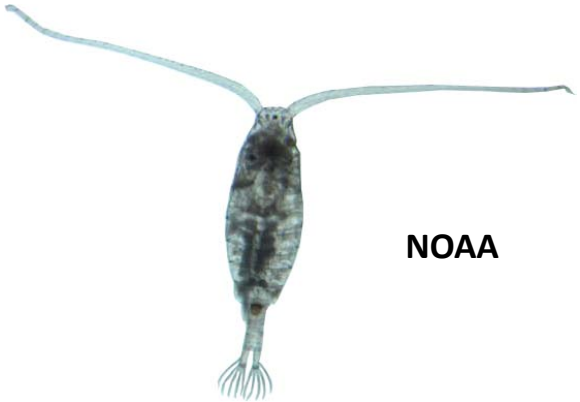
NOAA, Great Lakes Environmental Research Laboratory

Zooplankton 1/32 to ½ inch long

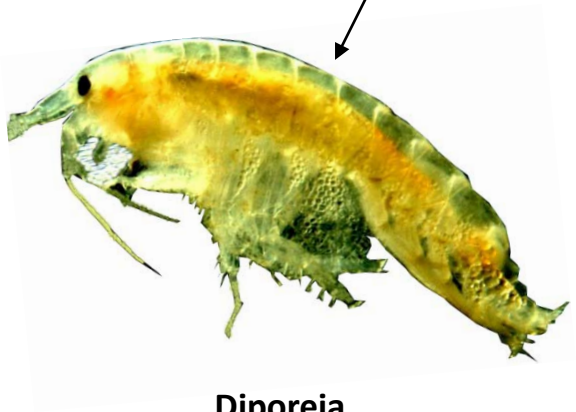
Cling to downrigger cables and fishing lines

Spiny Water Flea

About ½ inch long



NOAA



Diporeia
now rare

Copepod

About 1/8 inch long

Replaced Diporeia

Invasive Zebra mussels are rare and Quagga Mussels are common

Zebra Mussels Disappearing

Found on hard surfaces

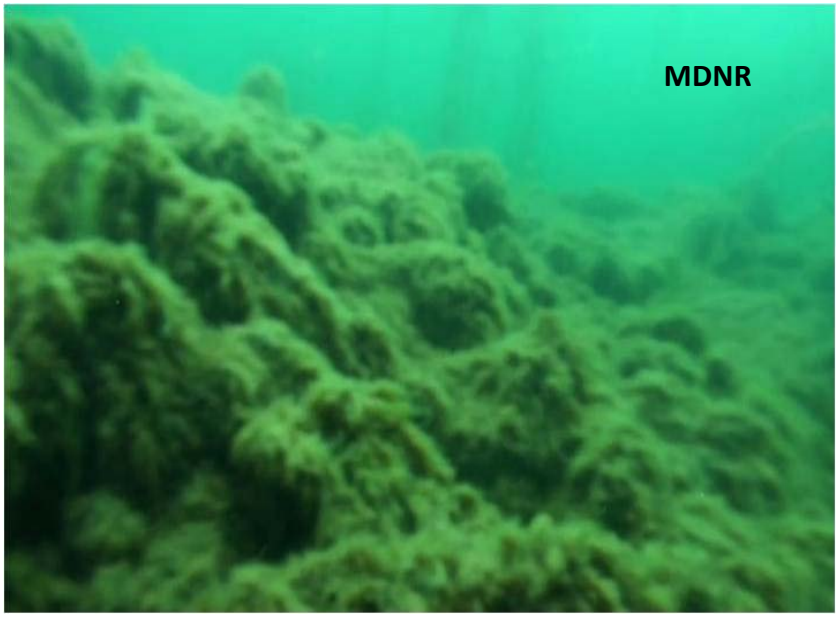
Quagga Mussels very Common

Found on both hard soft surfaces

One haul of mussels from a bottom trawl net

Heavy Growth on the Bottom

Clean Rock Before the mussels



After the quagga and zebra mussels

Bottom plants often begin to grow heavily

After the food web changed where is the food?

Surface = Lots of Terrestrial Insects


Ants


Wasps


Flies


Beatles

Midwater = **Sparse** but smelt increasing


Adult Smelt


Baby Smelt


Alewife Crashed

Bottom = Very Abundant Mussels, Insects and Gobies


Goby

Gobies eat lots of Mussels


Quagga Mussel

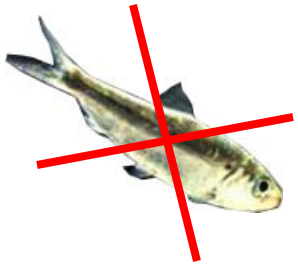
Mayflies and other Bugs

Why did Chinook salmon numbers drop?

Because

Chinook are stubborn mid water feeders

And their main food source crashed



Alewives Crashed

Chinook Salmon

Which species are surviving well?

Generalist Feeders are surviving very well!

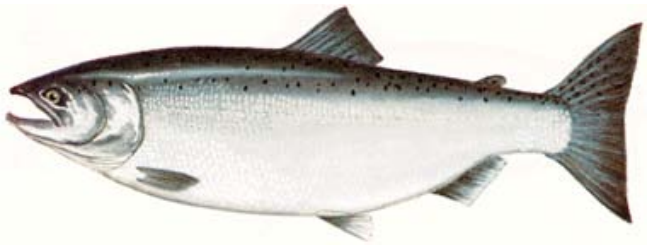
Atlantic salmon

Feed Top to Bottom

Steelhead

Other species that are surviving well

Lake Trout



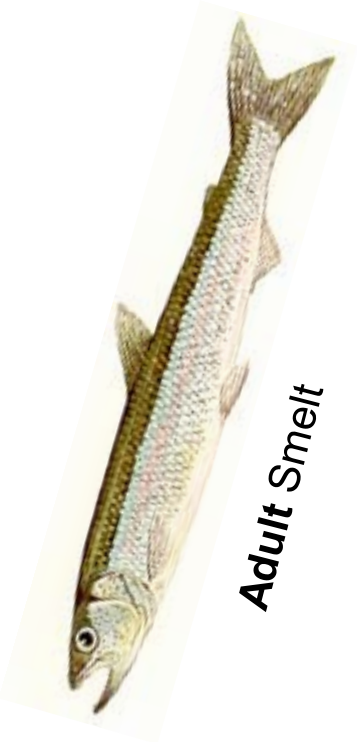
Coho Salmon

Pink Salmon

These are also Generalist Feeders with steady escalating wild reproduction

Food for generalist feeders

Spring hatches of smelt produce much food for Atlantic salmon, steelhead and other species



***Adult** Smelt*

Moths from a 6 pound steelhead

About 200 Rose Chafer Beetles in a fish stomach

Big fish often eat small things!

Spiny Water Flea

About ½ inch long

Why is fishing getting much better?

1) Generalists feeders are adapting

2) Wild reproduction has increased dramatically!

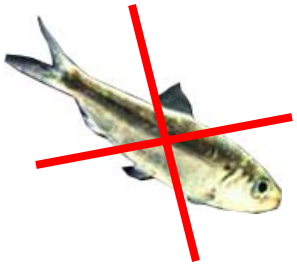
So why is wild reproduction increasing?

The lack of the poison
Thiaminase in the food chain

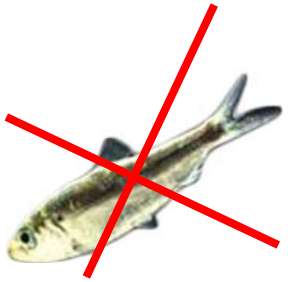
So what is Thiaminase ?

It destroys the vitamin thiamine and
inhibits survival of baby trout and salmon

So where did the thiaminase come from?



Alewives are loaded with thiaminase poison

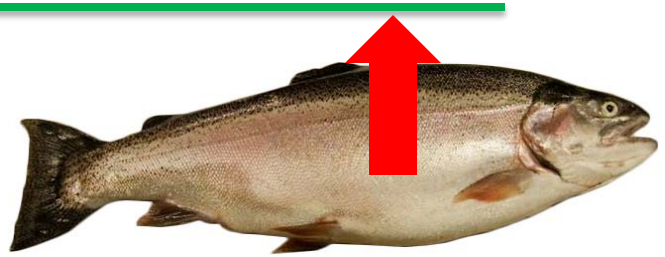


Therefore thiaminase decreased drastically when the alewife crashed in 2003

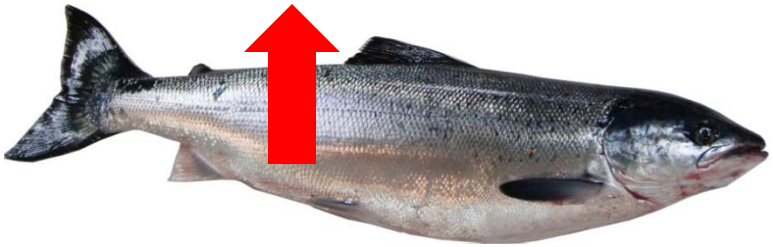
This resulted in a dramatic increase on wild reproduction of most species of trout and salmon

So the alewife crash was good for all species except Chinook salmon initially

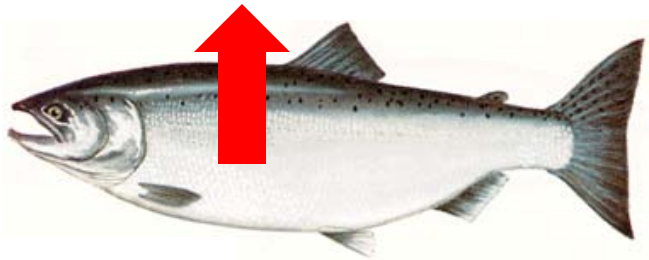
Chinook Salmon



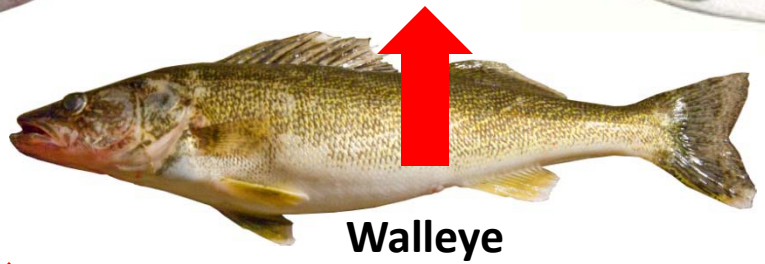
Steelhead



Atlantic salmon



Coho



Walleye

Lake Trout

Pink Salmon

Chinook salmon appear to be recovering slowly

The wild fish are slowly adapting and during the last 4 years the harvest at Rogers City has increased

Survival of the hatchery Chinook has been dismal

It may be time to at least consider a replacement fish for the Swan Weir egg take station

If the current trend continues there may NOT be a need to stock Chinook salmon in Lakes Huron or Michigan

Why?

Chinook stocking numbers are being cut drastically because:

1) **Wild Chinook reproduction is exploding**

   85 to 90% are wild in Lake Huron

   60% are wild in Lake Michigan

2) **Survival of stocked Chinook is very poor**

3) **Alewives in Lake Huron are rare and on the verge of collapse in Lake Michigan**

The numbers of Chinook stocked in Lakes Huron and Michigan have been slashed!

	2011	2012	2013
Lake Huron	1,494,000	**693,000**	693,000
Swan R Weir **(Back-up Chinook egg take station)**	472,000	**375,000**	375,000
Lake Michigan	1,688,500	1,688,500	**559,000**
Lt Manistee R Weir **(Primary Chinook egg take station)**	375,000	375,000	**150,000**

What could be a possible replacement for Chinook egg harvest?

Atlantic salmon

Atlantic Salmon

A World Class Species

Native to Lake Ontario

Stocked Atlantic salmon survival is about 10 times better than all other stocked salmon or trout and 50 times better than Chinook

Hatchery Production is increasing

Currently 100,000 yearlings are surviving to be stocked in 2013 and the goal is to raise about 240,000 by 2016

Atlantic Salmon Fishery

- **Shore fishing** begins early in April along shore near harbors, river mouths and warm water discharges
- Fishing continues **off shore** through the summer and fall
- **Shore fishing** begins again in mid summer through the fall in the locations where they are stocked

The need of Atlantic salmon eggs for the hatcheries is increasing

On the other hand

The number of Chinook eggs needed for the hatcheries is decreasing

The Swan Weir is an excellent facility

We need to be involved to ensure its operation continues

Questions or Comments?