

Conserving the lands
and waters on which
all life depends


The Nature
Conservancy



Protecting nature. Preserving life.™

Helping to restore native
prey fish populations
in the Great Lakes - focus
on Lake Ontario Cisco



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- A large fish, likely a salmon, is shown swimming in dark water. The fish is the central focus, with its body and fins visible against the dark background. The lighting is somewhat dim, highlighting the texture of the fish's scales and the movement of its fins.
- Open water fish community has undergone massive changes over the last 150 years
 - Originally, Atlantic salmon and lake trout fed on chubs, whitefish, and herring, which fed on mysis, amphipods, and large zooplankton
 - Period of eutrophication and instability brought on habitat alteration, pollution and over-harvest
 - Recovery of certain elements of lake ecosystem but challenges remain from entrenched non-natives (alewife) and new invasives (zebra mussel, round goby).

Open water system now
dominated by Pacific salmon
primarily feeding on alewife



Chinook salmon and happy guy
courtesy of Tony Gugino



Dominant prey fish in Lake Ontario – Alewife

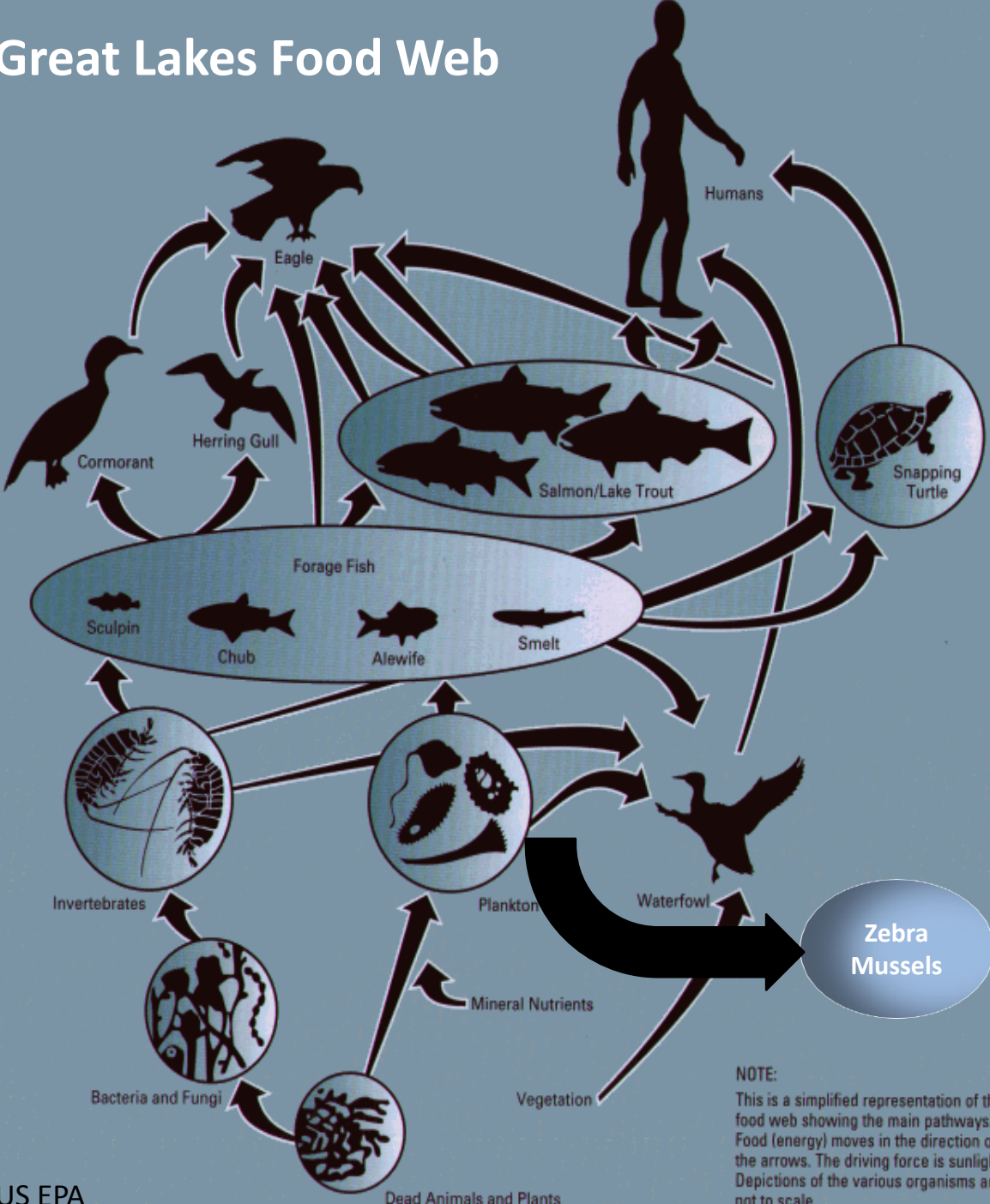


Salmon River, Oregon Co., NW

Reliance of top predators on alewife as chief prey has two major problems:

- 1) Alewife susceptible to drastic population fluctuations, and**
- 2) Alewife contain high levels of vitamin B destroying enzyme**

Great Lakes Food Web



Building a more diverse and resilient system

Previous efforts focused on salmon and trout

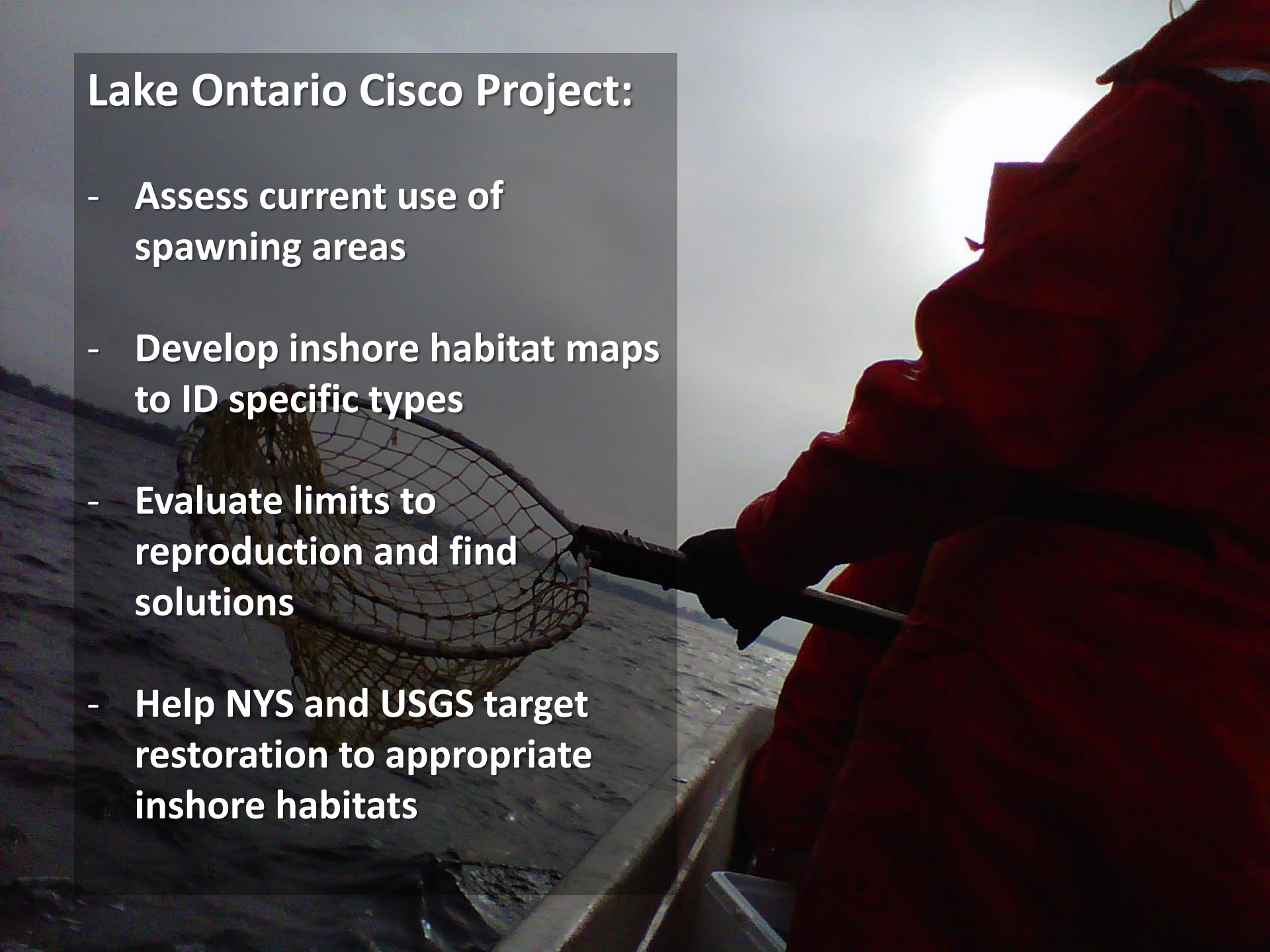
Current work targets forage fishes

Opportunities to work with NYS DEC and USGS

NOTE:
This is a simplified representation of the food web showing the main pathways. Food (energy) moves in the direction of the arrows. The driving force is sunlight. Depictions of the various organisms are not to scale.

Lake Ontario Cisco Project:

- Assess current use of spawning areas
- Develop inshore habitat maps to ID specific types
- Evaluate limits to reproduction and find solutions
- Help NYS and USGS target restoration to appropriate inshore habitats



Ontario



Rochester

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Image NOAA

Oswego

New York









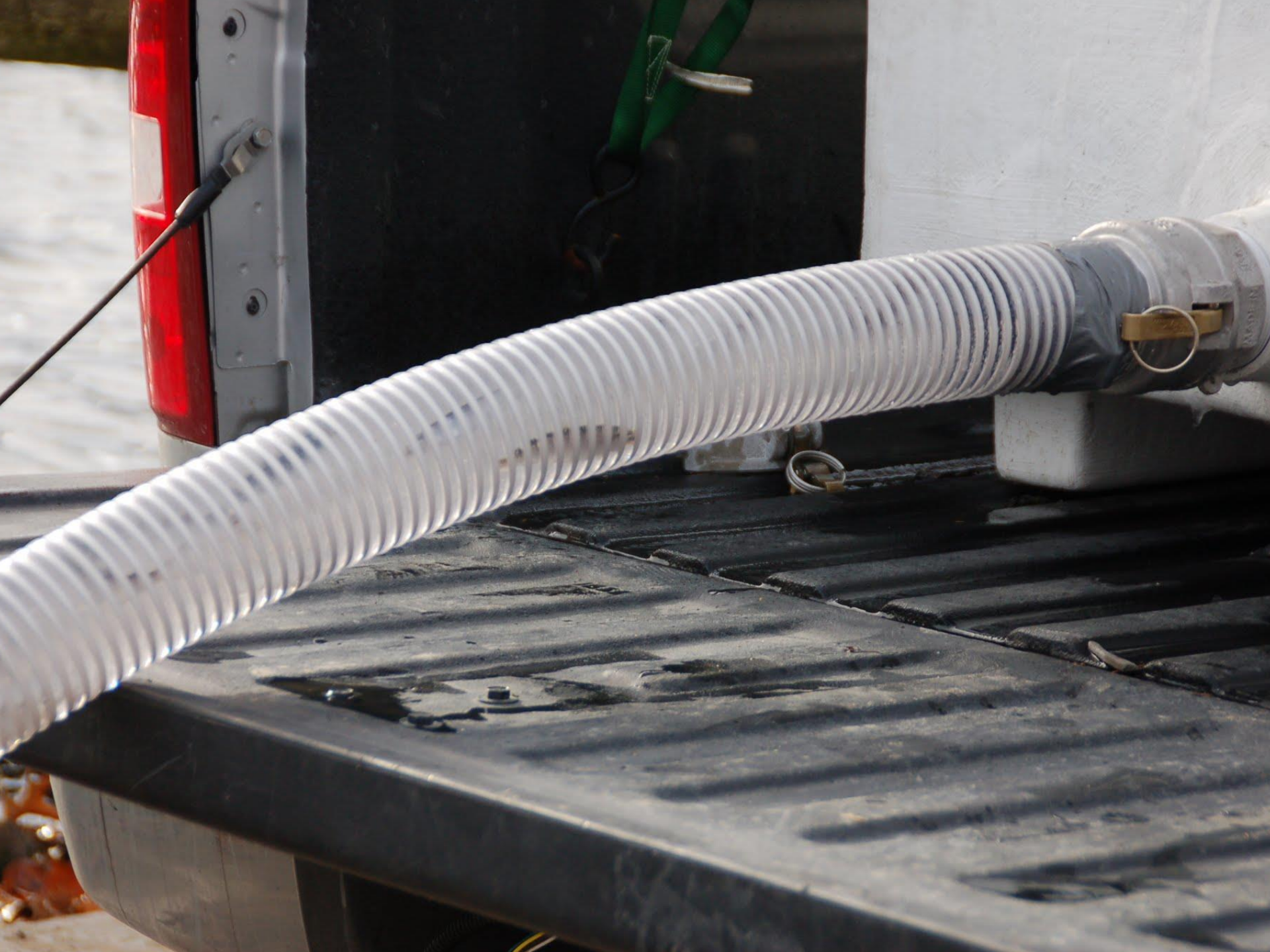
Species

No. per 8 trap nights

| | |
|------------------------|-----------|
| gizzard shad | 37 |
| brown bullhead | 33 |
| bluegill | 32 |
| yellow perch | 28 |
| northern pike | 4 |
| white sucker | 3 |
| golden shiner | 2 |
| rainbow trout | 2 |
| sea lamprey | 2 |
| chain pickerel | 1 |
| chinook salmon | 1 |
| lake trout | 1 |
| largemouth bass | 1 |
| white perch | 1 |







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