



Status of Asian Carp in the Valley

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Asian Carp in the Valley



Bighead carp



Grass carp



Black carp



Silver carp

Non-native and invasive in North America

There are four Asian carp species in the Tennessee River Watershed:

Silver

Bighead

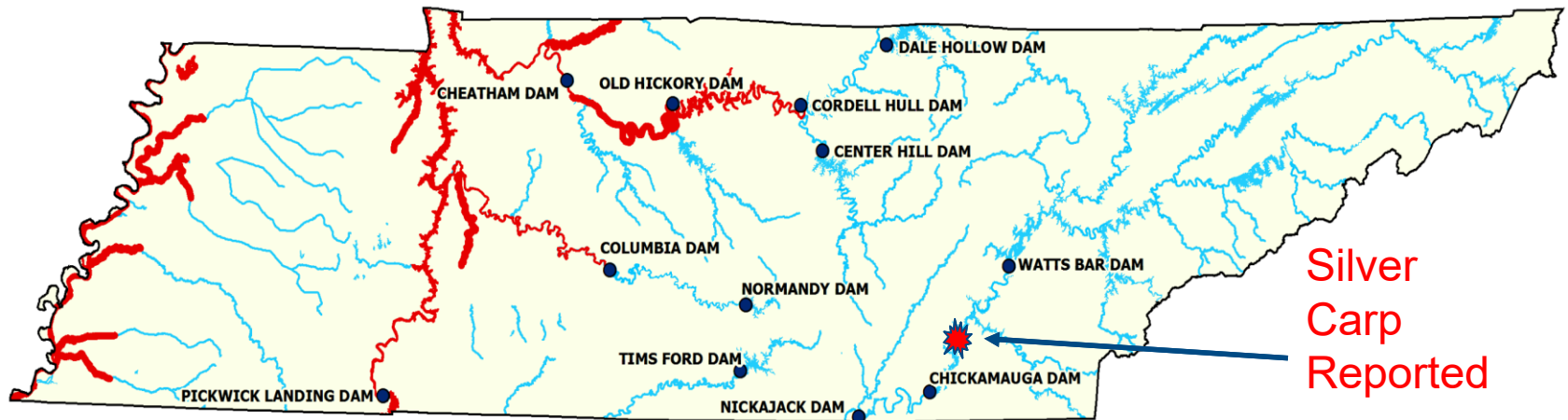
Grass

Black

How Did Asian Carp Get to America?

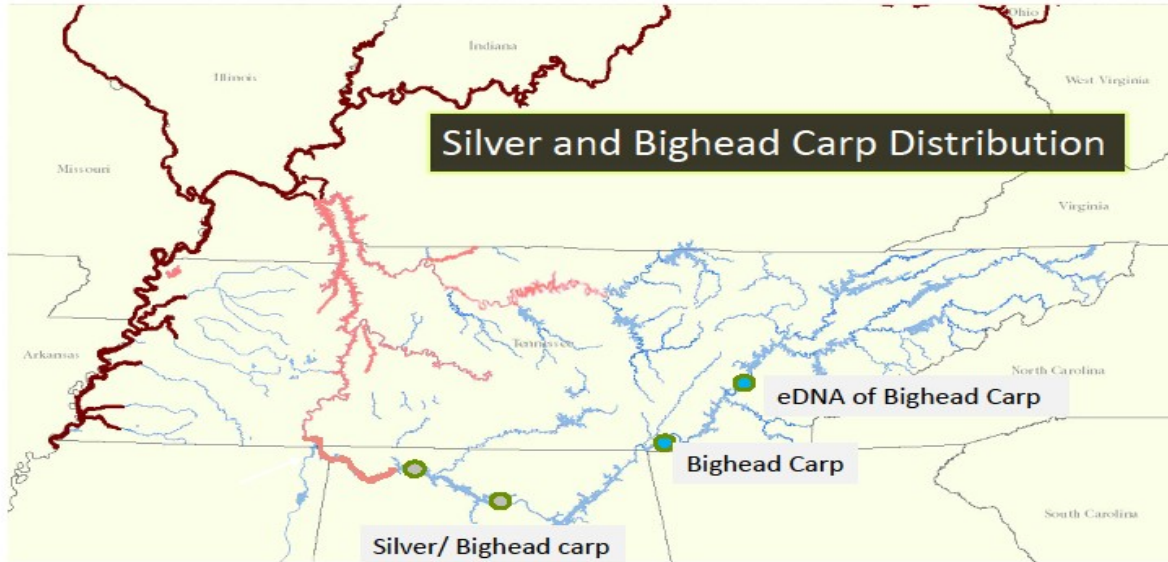
- Aquaculture Farmers Imported Asian Carp to control Algal Blooms and Vegetation in Culture Ponds in the 1970's
- Floods in the 1980 & 1990's Compromised the Ponds and Allowed the Fish to Escape into Streams and Rivers
- Once in the Mississippi River, the Fish Spread Rapidly
- Asian Carp were Found in the Ohio River in the 1990's

Asian Carp Distribution in Tennessee



Silver
Carp
Reported

Asian Carp Distribution & eDNA



Mistaken Identity



Gizzard Shad, Silver Carp, Blueback Herring and Alewife Comparisons



MICRA (Mississippi Interstate Cooperative Resource Association)

- **MICRA functions as an umbrella organization**
 - **Organizes multi-state partnerships**
 - **Address inter-jurisdictional fishery management issues**
 - **Within six Mississippi River sub-basins**
 - **MICRA is a partnership of**
 - > **28 state agencies with fisheries management jurisdiction**
 - > **4 Federal Partners in the Mississippi River Basin**
 - > **TVA participates in the Tennessee/Cumberland sub-basin**

MICRA Objectives

- Conduct Targeted Sampling Surveillance
- Early Detection
- Population Characteristics
- Evaluate Lock & Dam Passage



National Strategies for Asian Carp

- **Contain and control the expansion of populations of Bighead, Black, grass, and Silver carps in the United States**
- **Extirpate, or reduce to levels of insignificant effect**
- **Conduct research to provide accurate and scientifically valid information necessary for the effective management and control**
- **Effectively plan, implement, and evaluate management and control efforts**

Who is Responsible?

The states (KY, MS, AL, TN) **fisheries management**

The USFWS obtains **funding** then **facilitates** program

The USACE **operates locks**

The TVA manages water/**operates dams** Tennessee River

Can These Fish Be Stopped?



Bighead carp



Grass carp



Black carp



Silver carp

First Actions



Understanding Population Dynamics

- Since both Silver and Bighead carp form tight schools, individuals will be tagged so the schools of Asian carp can be tracked. This is called the **“Judas fish technique.”**
- The fish can be affectively netted to ensure re-capture and removal of other invasive carp found in the school.
- Commercial fishermen will be able to remove fish in the school at the state’s request.

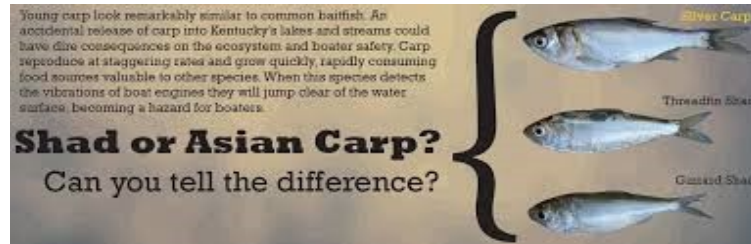
First Actions (cont.)

- Collaboration of Sub-basin agencies and universities
 - Surveying relative densities
 - Implanting acoustic transmitters and receivers
 - Monitor movements through locks and dams
 - Provide information for lock management and deterrent barriers
 - Determine if natural recruitment is occurring in the reservoirs



Fill Knowledge Gaps

- Understand distributions and habitat use in the Ohio River sub-basin
- Determine the extent of:
 - **Spawning** occurring within the systems,
 - **Movement** within the systems, and will provide
 - **Life history** and **population dynamics** data for informing Tennessee River specific-models
 - Estimating **control needs** and **invasion impacts**



Will Asian Carp Affect the Fisheries?

- Unknown at this Time
- Long Term Monitoring Programs & Historical Fisheries Data will help Determine Changes in Fish Populations



Silver Carp Monitoring



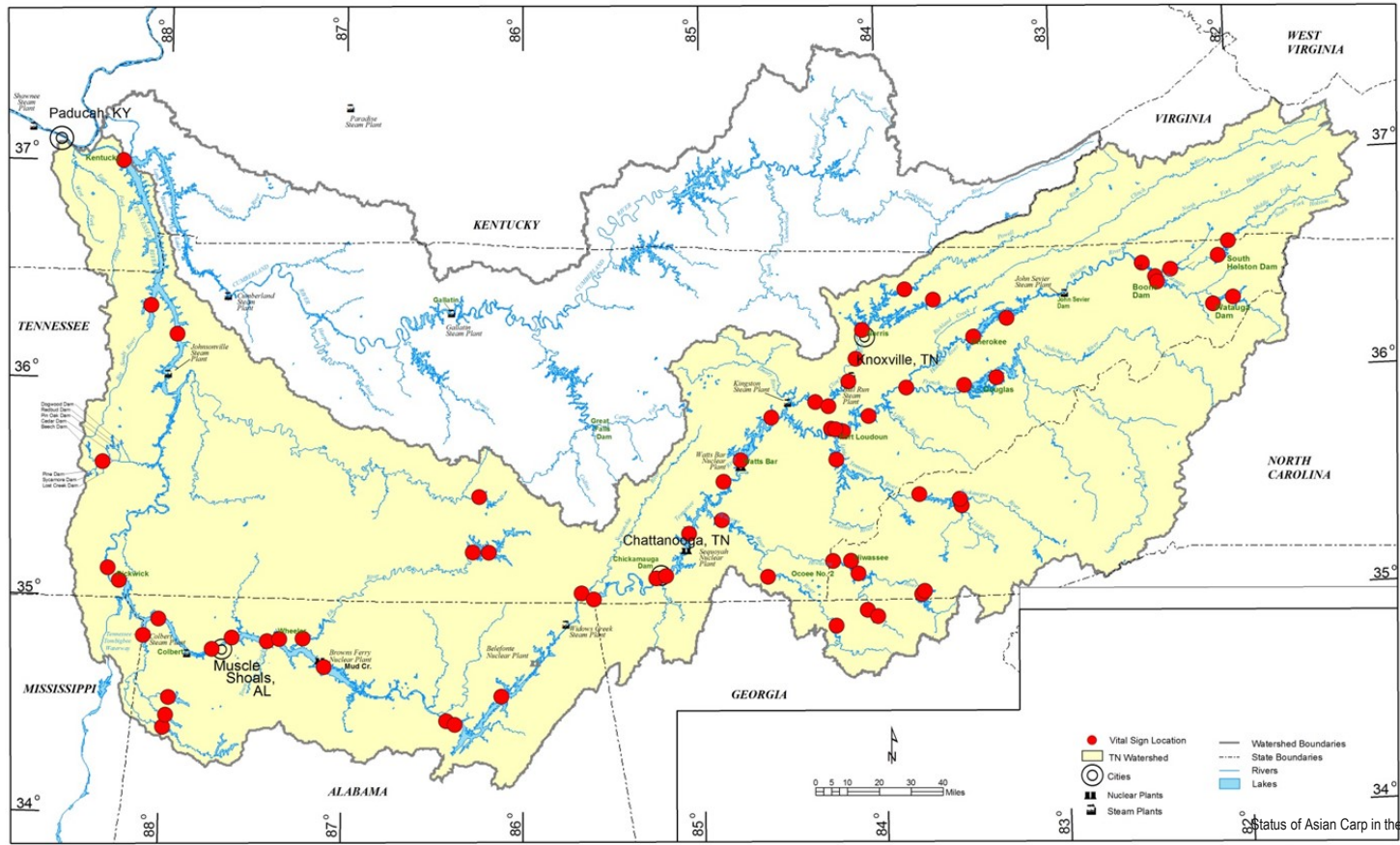
Silver Carp Adult



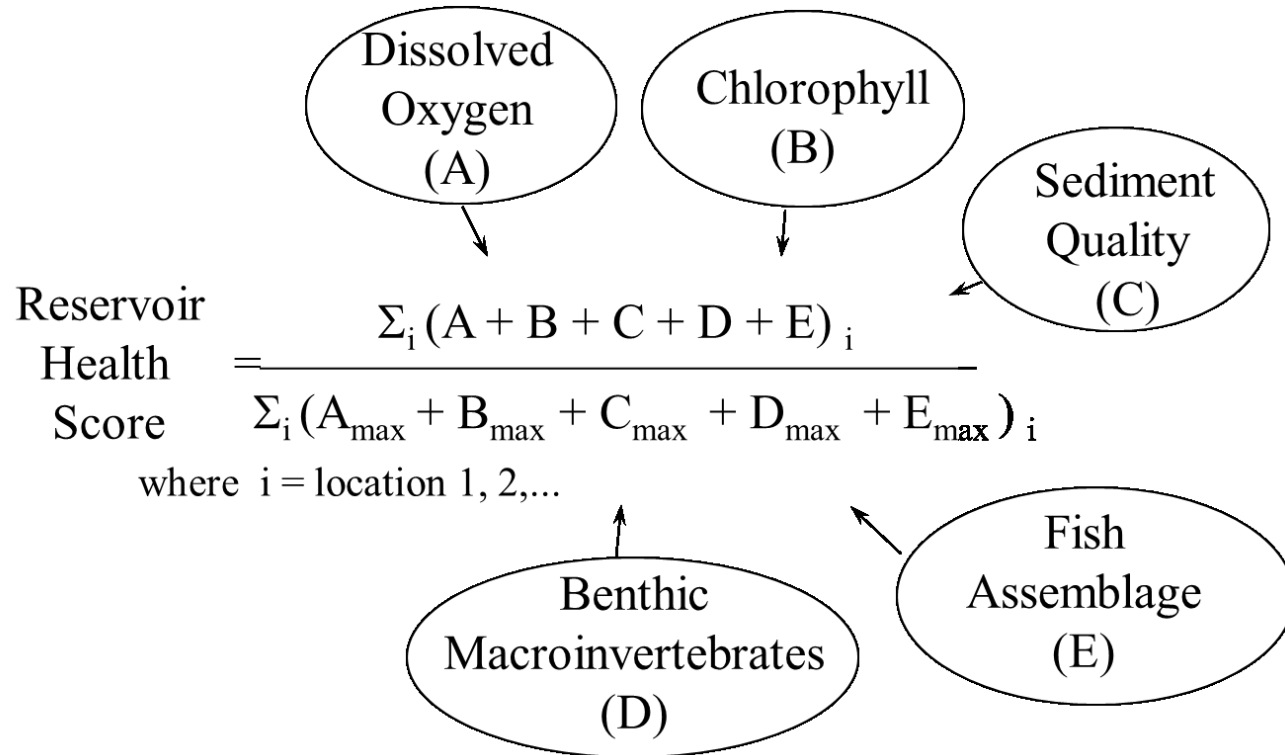
Silver Carp Larvae



Reservoir Ecological Health Locations



Ecological Health Score Calculation Utilizing Five Key Indicators



Strategies to Stop Upstream Migration

- **Communication**
- **Barriers**
- **Commercial Fishing**
- **Contract Fishing**
- **Bow Fishing Tournaments**
- **Large Scale Netting at Pinch Points**



Silver

Communication



Websites

TV Interviews

Tennessee Uncharted

Public Meetings

Sportsman Events

Barriers

- **Electric and Acoustic**
 - **Positioned at the downstream lock entrances**
 - **Current research will determine if barriers are successful**

Acoustic Barrier System at Barkley Lock

- Sound Barrier-Installed by the USGS
- Installed this year
- Test to **Verify** if barrier works by tagging and tracking movement
- Successful spawning has only occurred once in 2015 and not has been seen in KY or Barkley Reservoirs since
- 100% effectiveness is not necessarily needed to reduce population
- Recruitment reduction to upstream waters will keep populations from exploding



Commercial Fishing



Bow Fishing for Asian Carp



Asian Carp Roundup

- Removal at Pinch Points
- Multi-Agency Event



Cooperative Tagging and Removal

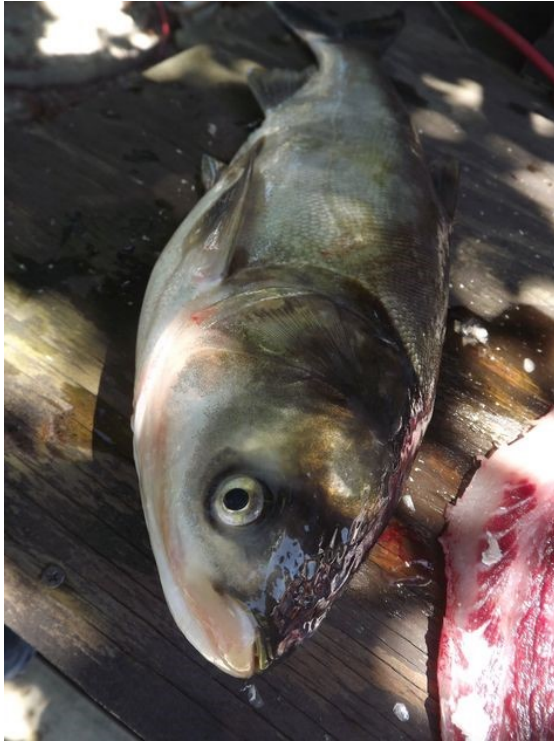


Uses for Asian Carp

- Table Fare
- Bait
- Animal Feed
- Compost
- Recreation?



Asian Carp are Great Table fare!



Asian Carp are in Demand at Restaurants



Kentucky Fish Center, LLC

- Opened the Kentucky Fish House
 - Public-Private Partnership to harvest and sell Asian Carp
- Harvest goal by 2024 is 20-million-pound production goal
- Teaches Commercial Fishers – Use nets and how to fish for Asian Carp
- Ice Machine



Turning an invasive problem into a bait solution

- Lowering numbers of silver carp moving upstream by using them for bait
 - Harvest, freeze it, cut it into pieces
 - Sell it as a cheap bait to East Coast lobster fishermen
 - Lobster Fisherman want live bait and are willing to pay 50 cents per pound
 - > 50,000 lbs. needed



Lacey Act

- It's legal to transport invasive species across state lines
 - if the fish are **dead and eviscerated**
- Significant regulations must be amended to make this work



Silver Carp on Ohio River



Health and Safety Issues



Flying Carp are a Hazard to Boaters



Benjamin Lowy via Getty Images

State of the Valley

- All State and Federal Agencies are working together through MICRA



State of the Valley

- We Established the Leading Edge of Invasion
 - Deployed Receivers & Tagged Fish
 - Identified Pinch Points



State of the Valley

- We are Testing an Acoustic Barrier at Barkley Lock & Dam



State of the Valley

- KY Developed Fish House & Purchased Ice Machine



State of the Valley

- Contract Commercial Fishing Programs are sponsored by the States





Questions



