



# Big Horn Lake, WY

## 2013 Fishery Update

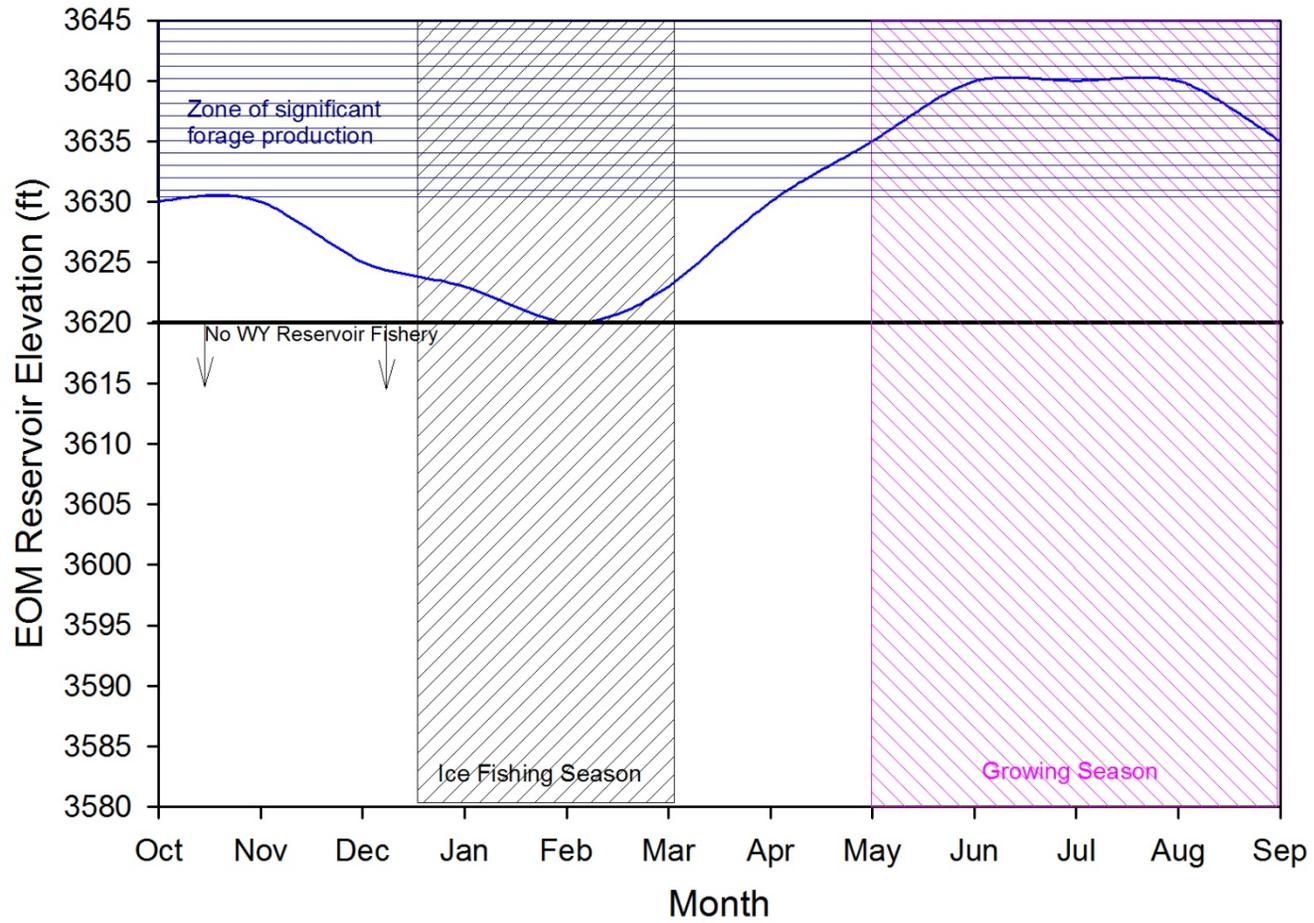
Bighorn Issues Group meeting April 2014

# Overview

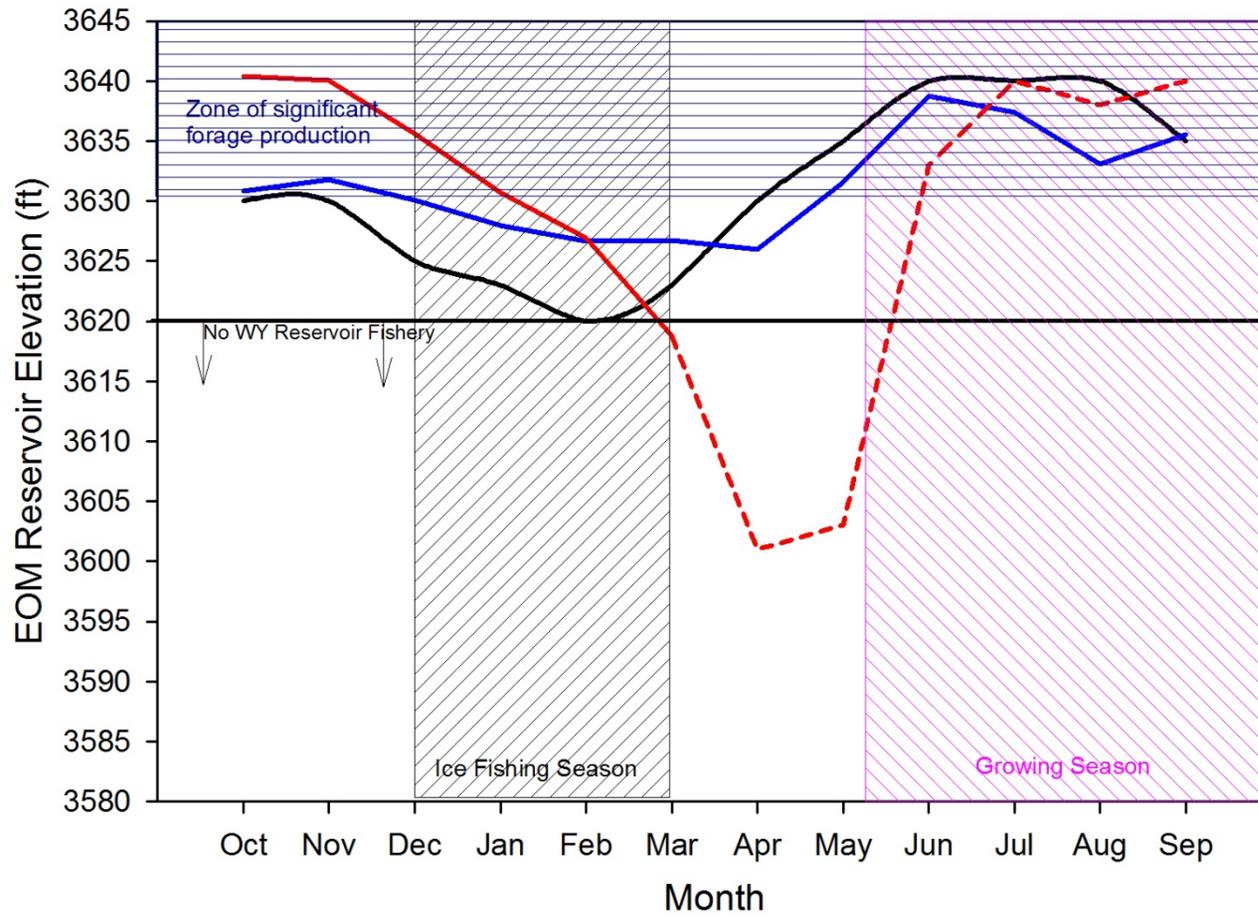
- Overview of sauger and catfish fisheries
- Importance of river – reservoir connectivity.



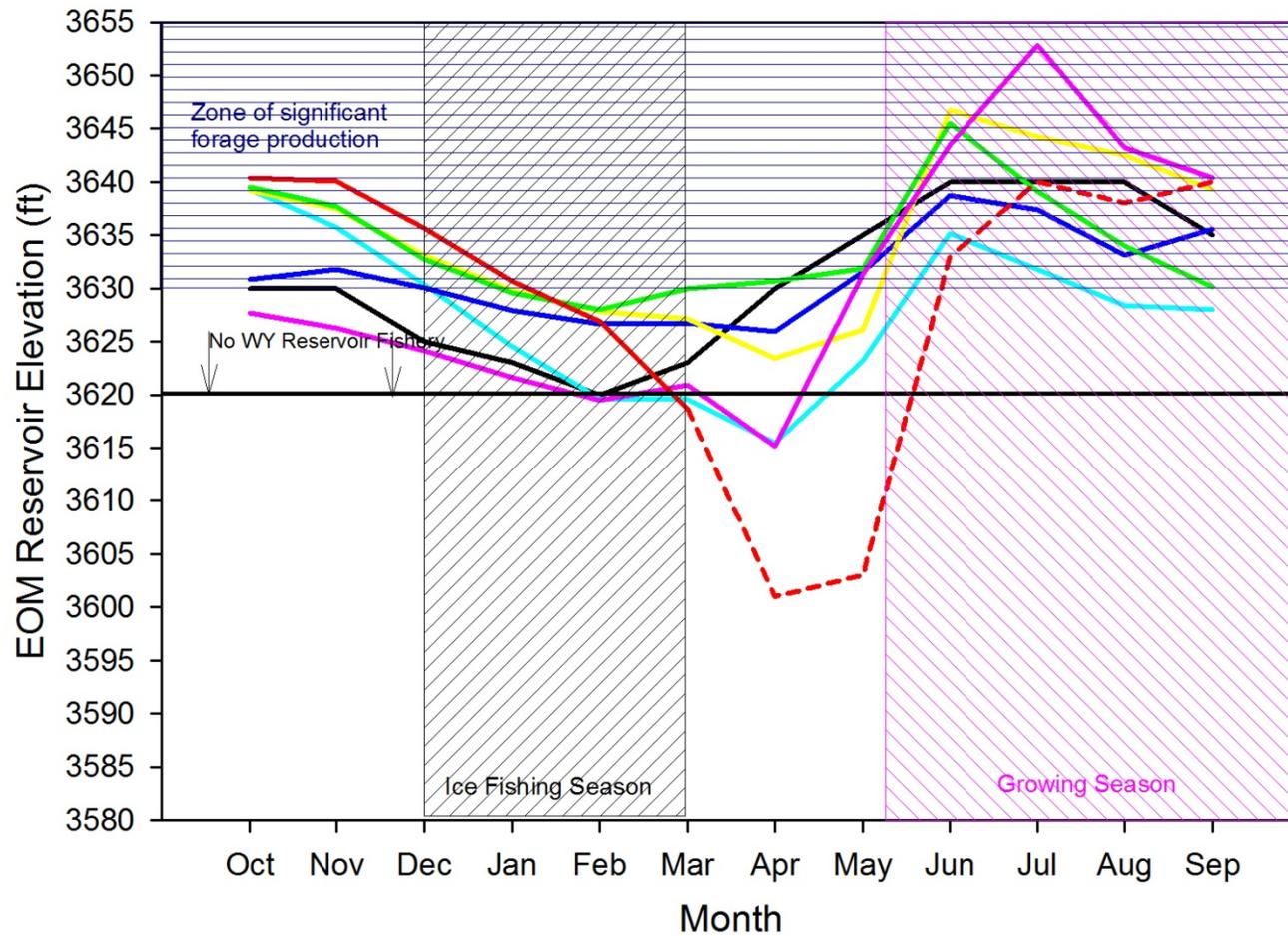
# Model



# 2013 and 2014



# 5 years



# Monitoring

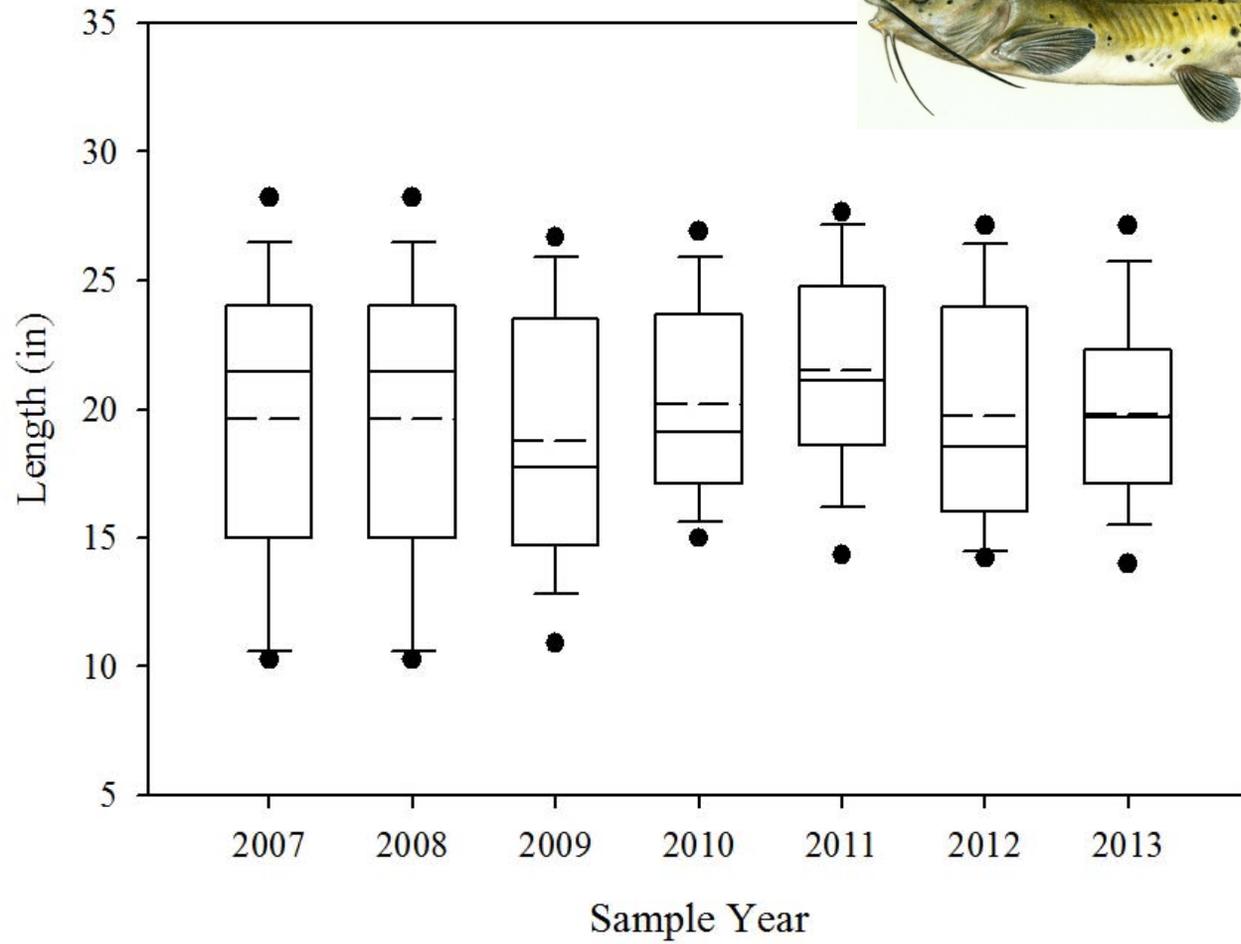


# Channel Catfish

- Trot-lines
  - June
- Tagging
  - Trot lines in lake
  - Electrofishing in river



# Channel Catfish

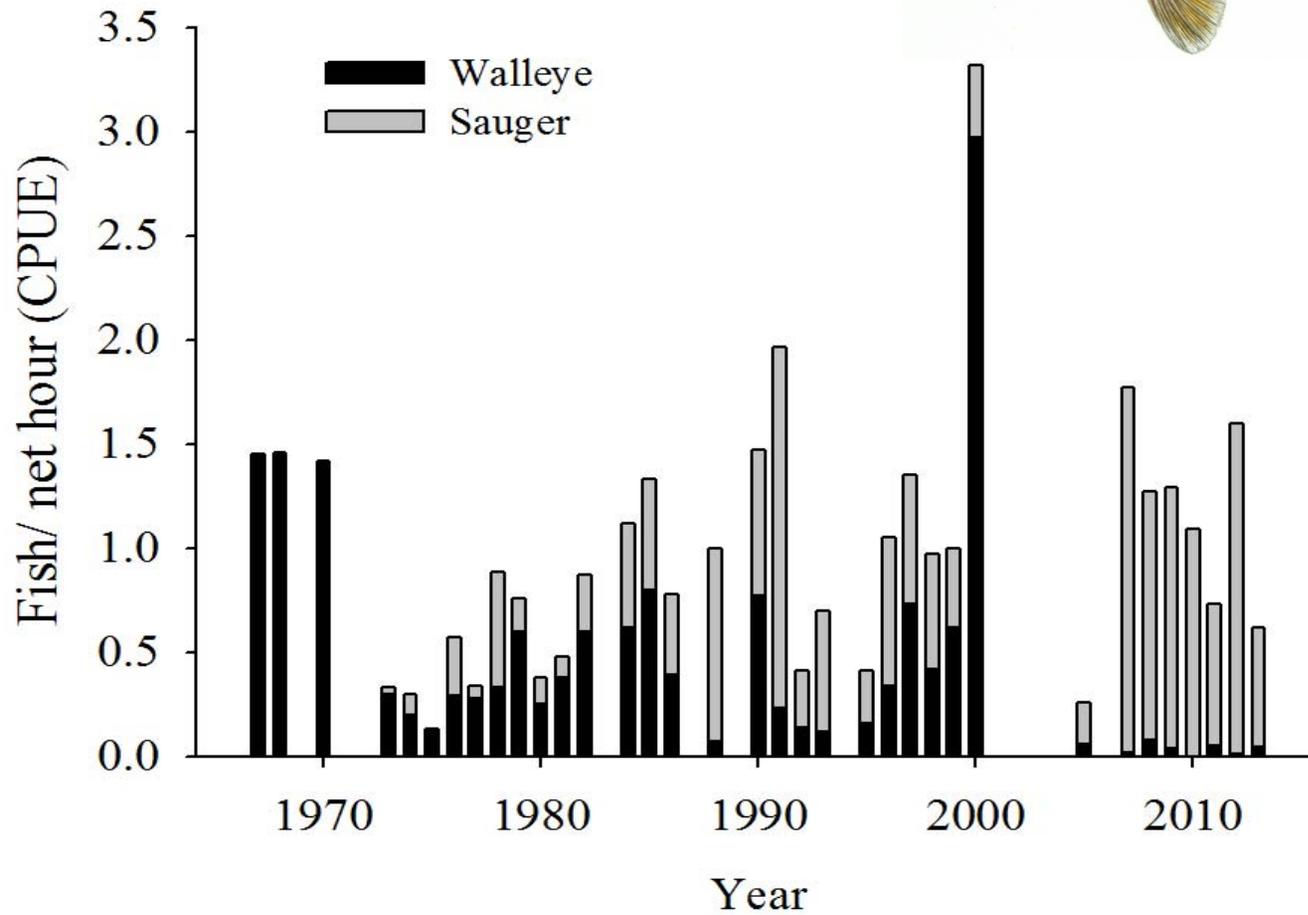


# Sauger & Walleye

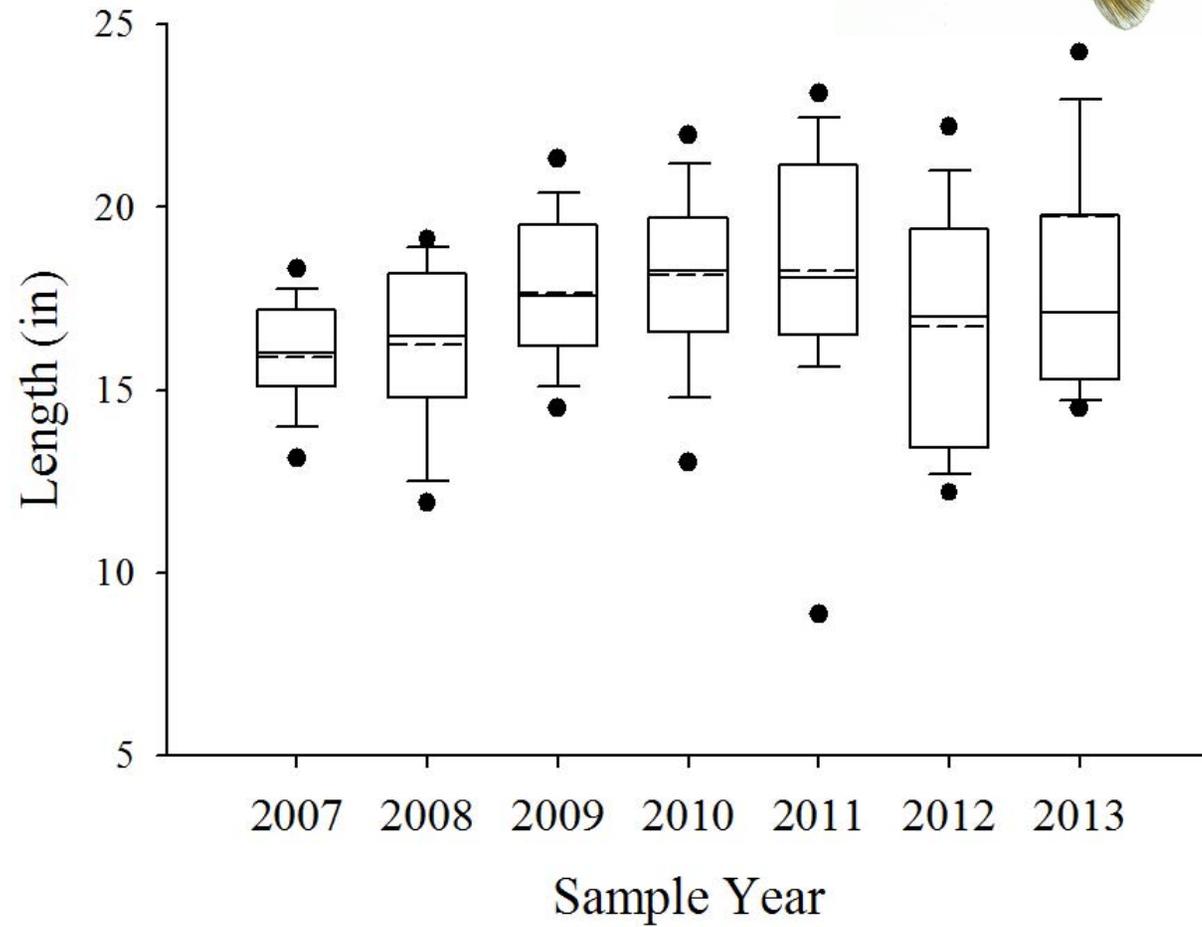
- Gill Nets
  - Fall
- Tagging
- Shoreline electrofishing
- Spawning grounds in river



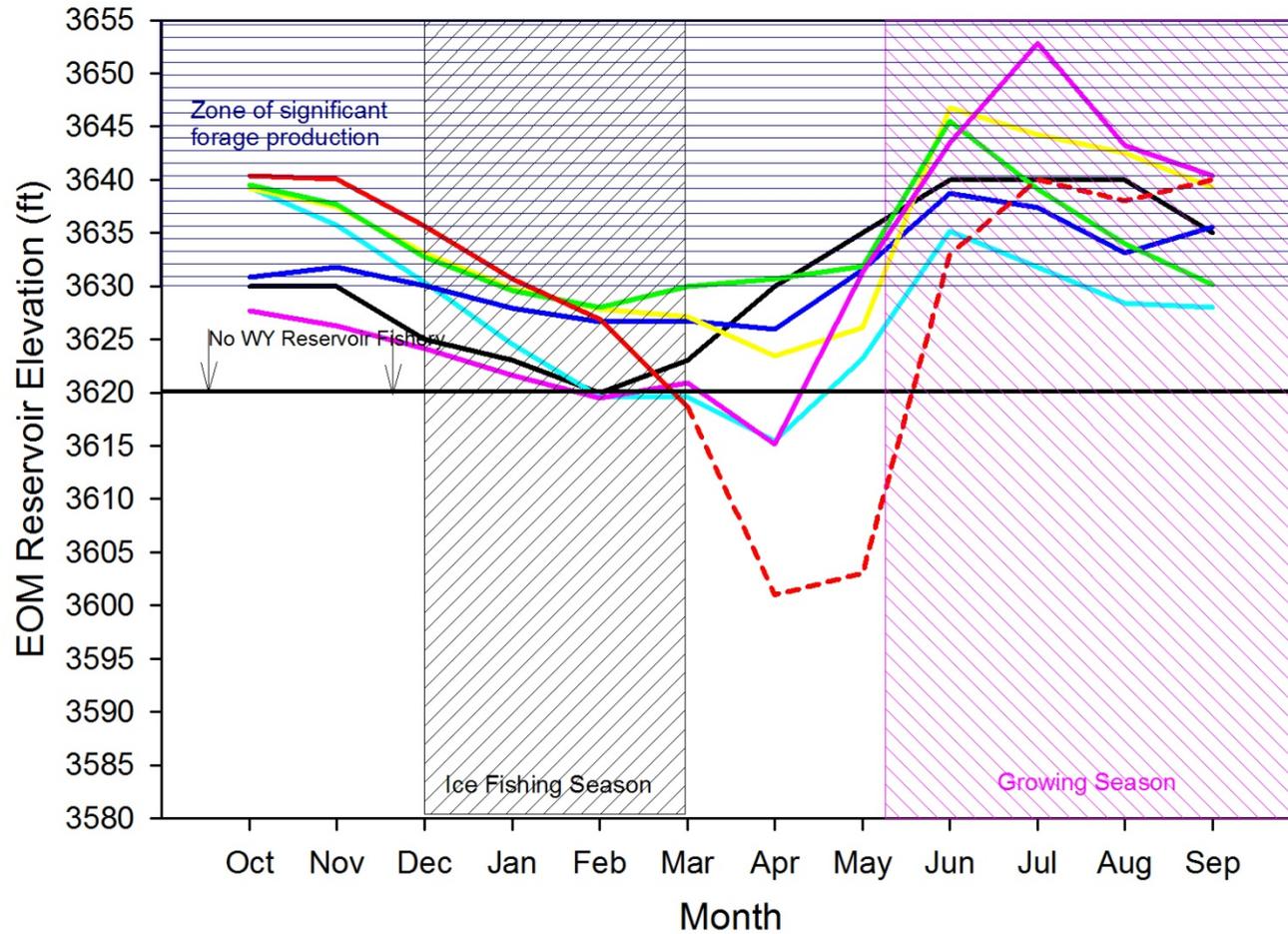
# Sauger & Walleye



# Sauger



# Model



# Importance of River – Reservoir Connectivity



# Sediment Control Options and Fish

- Managing sediment inputs into Big Horn Lake is critical to ensure the longevity of the reservoir and productivity of the fishery
- At present, connectivity between the river and reservoir drives game fish abundance in both river and reservoir
- Sediment control efforts need to keep fish passage in mind.

# Life Histories of Targeted Fishes

## Sauger

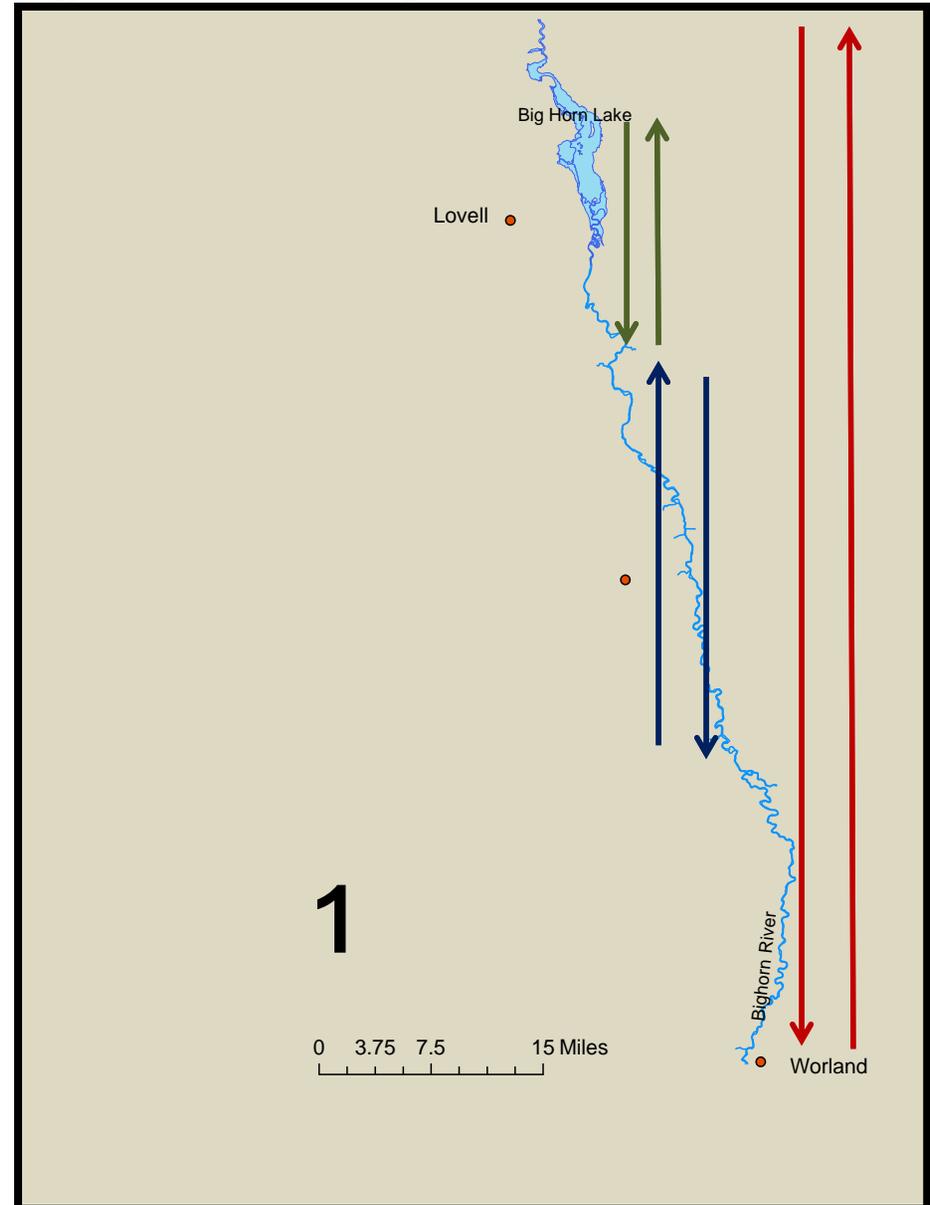
- Adults overwinter in reservoir and deep pools and runs in river
- Adults migrate upstream to spawn and rear in the river
- After hatch, larvae drift downstream and settle in river
- Juveniles and adults migrate to reservoir in fall



# Life History of Targeted Species

## Sauger

- Three general life history forms of adults (Welker et al. 2002)
- Recruitment driven by river discharge and temperature patterns during spawn.
- Connectivity between river and reservoir critical from March – Nov.



# Life History of Targeted Species

## Shovelnose Sturgeon - General

-Adults embark on long distance spawning migrations – spring high flow events are essential to trigger migration.

-Embryos and larvae drift downstream ~60 – 180 miles before settling out in river habitat.

-Adults migrate downstream to overwinter habitat.



# Life History of Targeted Species

## Shovelnose Sturgeon – Bighorn System

- Reintroduction efforts 1996 - present
- Relatively common in river and reservoir.
- Highly likely the reservoir serves as overwinter habitat and the river as spawning and rearing habitat.
- Natural recruitment unknown at present



# Life History of Targeted Species

## Channel Catfish

- A portion of the population has a small home range – don't migrate far
- A segment of the population is highly migratory
- A portion of the Big Horn lake population migrates upstream to spawn in June and July then returns to reservoir in late-summer early fall



# Summary

- Sauger and sturgeon rely entirely on the river for spawning
- Reservoir critical juvenile and adult overwinter habitat
- Loss of connectivity between river and reservoir would severely disrupt reproduction and overwinter survival of major sport fishes.
- Fish passage will be a very important component of the sediment control study



Questions?

