The ‘Other Fish’ Category

TWG Annual
Reporting Meeting
1-22-2012
Outline

Long-term monitoring methods

Fish status and longitudinal distribution patterns between lakes from long-term monitoring

Database review of species presence

Explain a couple of factors contributing to fish patterns
Where do they come from?
Why do they persist?
Temporal Trends

Rainbow trout

Brown trout

Common carp

Flannelmouth sucker

Bluehead sucker

Speckled dace

CPUE (fish/hr)

Year
Species Presence

- Brook trout
- Channel catfish
- Striped bass
- Red shiner
- Plains killifish
- Fathead minnow
- Black bullhead
- Gizzard shad
- Golden shiner
- Mosquitofish
- Black crappie
- Bluegill sunfish
- Largemouth bass
- Smallmouth bass
- Walleye
- Threadfin shad

River mile

GCMRC Fish Database, 1978-Present
Species Presence

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GCMRC Fish Database, 1978-Present
Records of Razorback Suckers in Grand Canyon

33 larvae by Albrecht (April 29, 2000, 2001)

1 adult by AGFD (1963)

3 adults by Carothers & Minckley (June 1978)

1 adult by Minckley (May 1989)

3 adults by Persons (April 1990)

1 adult by Maddux (April 1984)

1 adult by angler (1944)

Douglas and Douglas (2000): hybrid larvae at mouth of Havasu and LCR
Data courtesy of Ron Kegerries, Bio-West
- Caught at RM 246 near Spencer Canyon debris fan on 10-7-2012
- Ripe male expressing gametes; tuberculate on anal and caudal fins
- Measured 543 mm total length
- No PIT tags or scarring detected with old and new scanners
Records of Razorback Suckers in Grand Canyon

- 33 larvae by Albrecht (April 29, 2000, 2001)
- 1 adult by AGFD (October 2012)
- 1 adult by Maddux (April 1984)
- 1 adult by Minckley (May 1989)
- 3 adults by Persons (April 1990)
- 3 adults by Carothers & Minckley (June 1978)
- 1 adult by AGFD (1963)

Douglas and Douglas (2000): hybrid larvae at mouth of Havasu and LCR
What factors contribute to status and distribution?

- Water temperature
- Dissolved oxygen
- Food availability
- Turbidity
- Proximity to source population
- Migratory behavior
- Physical habitat requirements
- Many others
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How would you characterize these patterns in water temperature?
Spatial and Temporal Native Fish Trends

Flannelmouth sucker

Bluehead sucker

Speckled dace

CPUE (fish/hr)

Year

River Mile
Temperature

Mean temperature °C

Large juvenile FMS cohort shows up following year

Data courtesy of Nick Voichick, GCMRC
Spatial and Temporal Native Fish Trends

Flannelmouth sucker

Bluehead sucker

Speckled dace

CPUE (fish/hr) vs. Year

Flannelmouth sucker vs. River Mile

Bluehead sucker vs. River Mile

Speckled dace vs. River Mile
Spatial and Temporal Native Fish Trends

Flannelmouth sucker

Bluehead sucker

Speckled dace

CPUE (fish/hr)
A different look at water temperature

Data courtesy of Nick Voichick, GCMRC
Flannelmouth sucker optima

Optimal range for larval and juvenile flannelmouth suckers

Data courtesy of Nick Voichick, GCMRC; Temperature optima data compiled by Lamarra (2007)
Flannelmouth sucker optima

Mean temperature °C

Month

Optimal range for larval and juvenile flannelmouth suckers

Optimal for adult flannelmouth sucker growth

Adult flannelmouth suckers known to inhabit 10-30°C

Data courtesy of USGS Grand Canyon Monitoring and Research Center; Temperature optima data compiled by Lamarra (2007)
Proximity to population sources

Rainbow trout

Brown trout

Common carp

Flannelmouth sucker

Bluehead sucker

Speckled dace

CPUE (fish/hr)

River Mile
Proximity to population sources

Rainbow trout

Brown trout

Common carp

Flannelmouth sucker

Bluehead sucker

Speckled dace

CPUE (fish/hr)

River Mile
Proximity to population sources

- Salmonids
  - Tailwater
  - Coldwater tributaries (i.e., Bright Angel and Tapeats Creek)

- Native fishes
  - Little Colorado River
  - Other tributaries

- Other nonnatives
  - Lake associated species – just below Lake Powell or above Lake Mead
  - Little Colorado River
  - Other tributaries
  - Large backwaters (e.g., Lees Ferry slough)
What factors contribute to status and distribution?

- Water temperature
- Dissolved oxygen
- Food availability
- Turbidity
- Proximity to source population
- Migratory behavior
- Physical habitat requirements
- Many others
Where do they come from?
Why do they persist?
Questions?