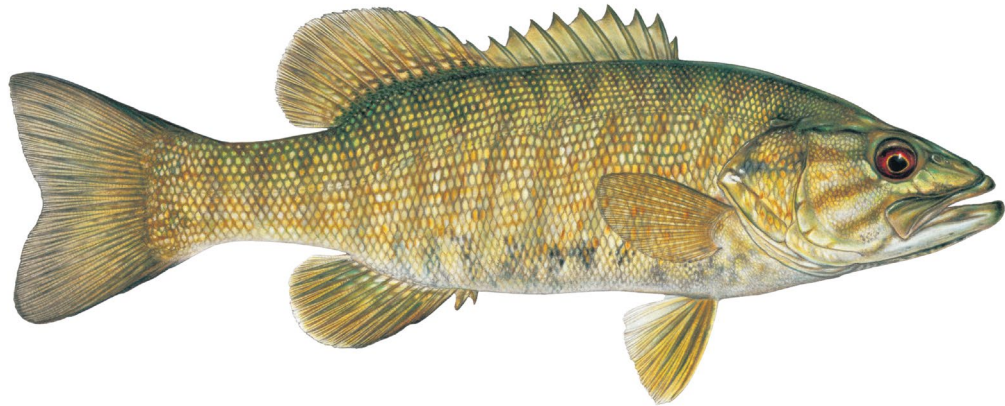


Smallmouth Bass Updates



Drew Eppehimer

USGS Grand Canyon Monitoring and Research Center

Melissa Trammell

National Park Service

Matt O'Neill

US Bureau of Reclamation

TWG

Oct 29, 2024



— BUREAU OF —
RECLAMATION

Preliminary data, subject to change, do not cite

Acknowledgements

With lots of help

Including:

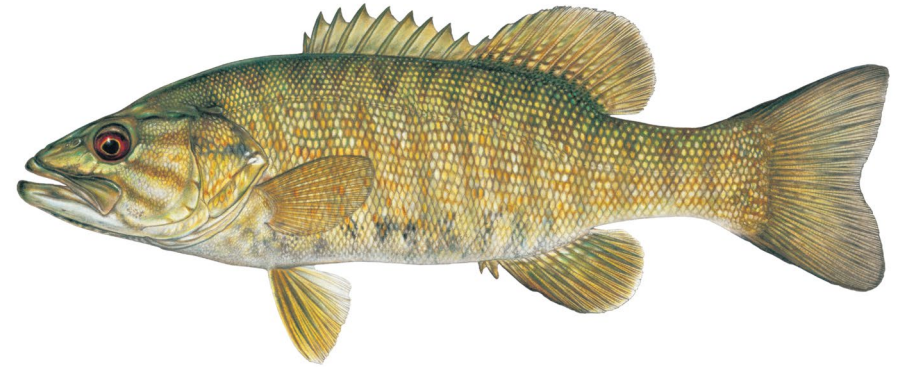
Charles Yackulic, Kim Dibble, Maria Dzul, Brian Healy, Tom Gushue, Eric Frye
Emily Omana Smith, Jeff Arnold, Conor Clancy, Kurt Shollenberger, Laura Tennant
Brian Hines, Bryce Mihalevich, David Ward, Pilar Rinker
David Rogowski, Dale Fonken, John Fennell



— BUREAU OF —
RECLAMATION

2024 Smallmouth Bass Captures

Total = 224



14% from routine, interagency monitoring

86% from targeted removal effort

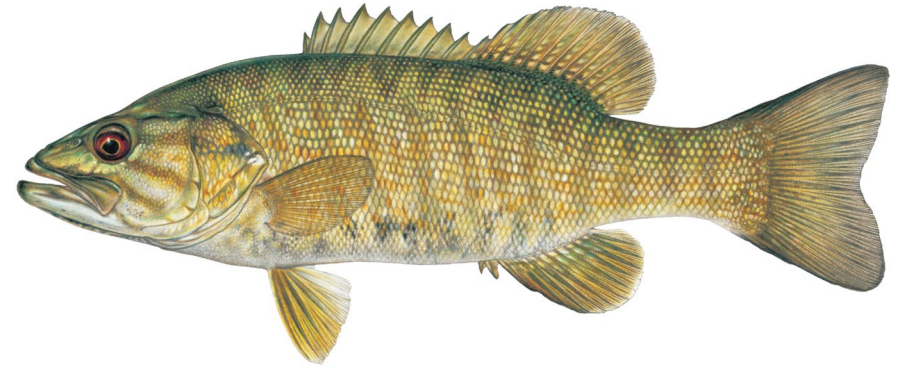
2024 Smallmouth Bass Captures

Total = 224

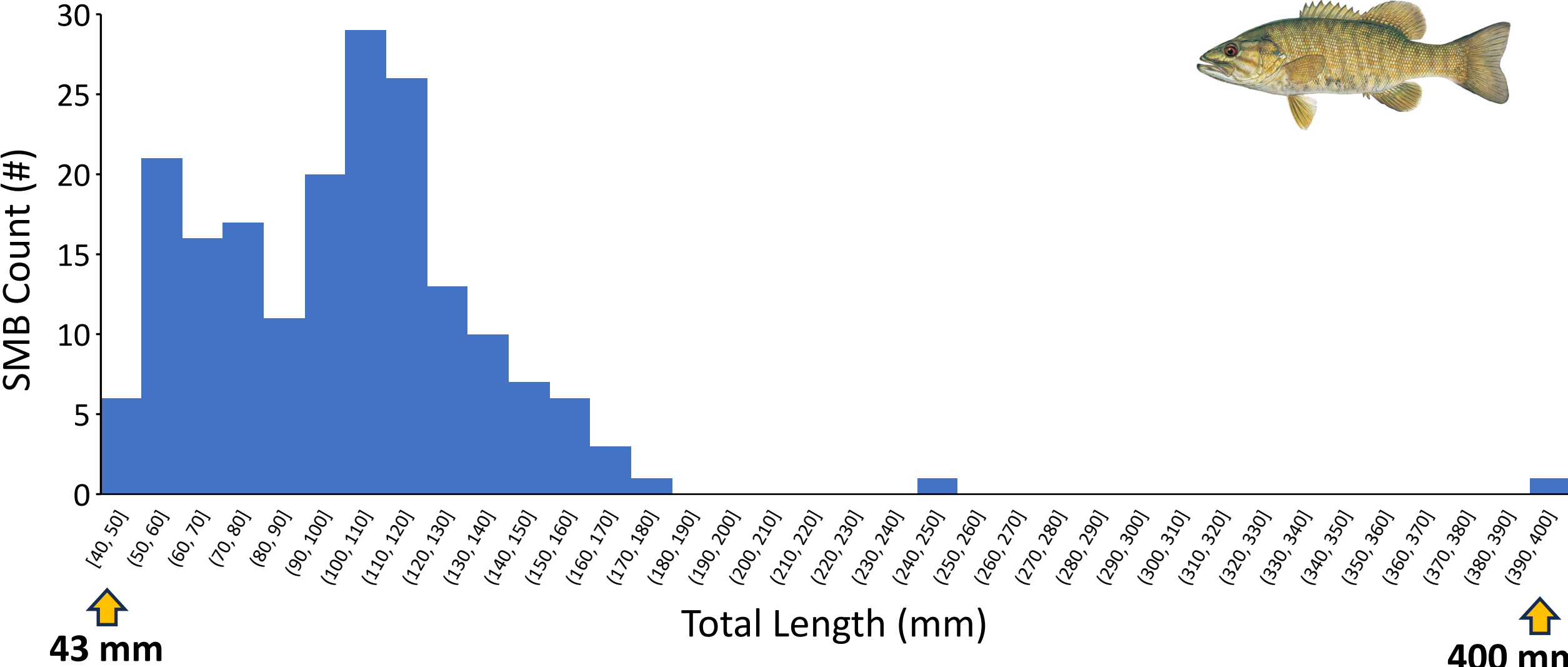
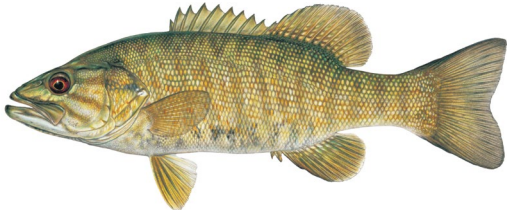
Lowest capture = RM 15
(Previously RM 6.9)

No age-0 fish captured
(smallest 43mm TL in Sept)

RM -15.1, dam slough



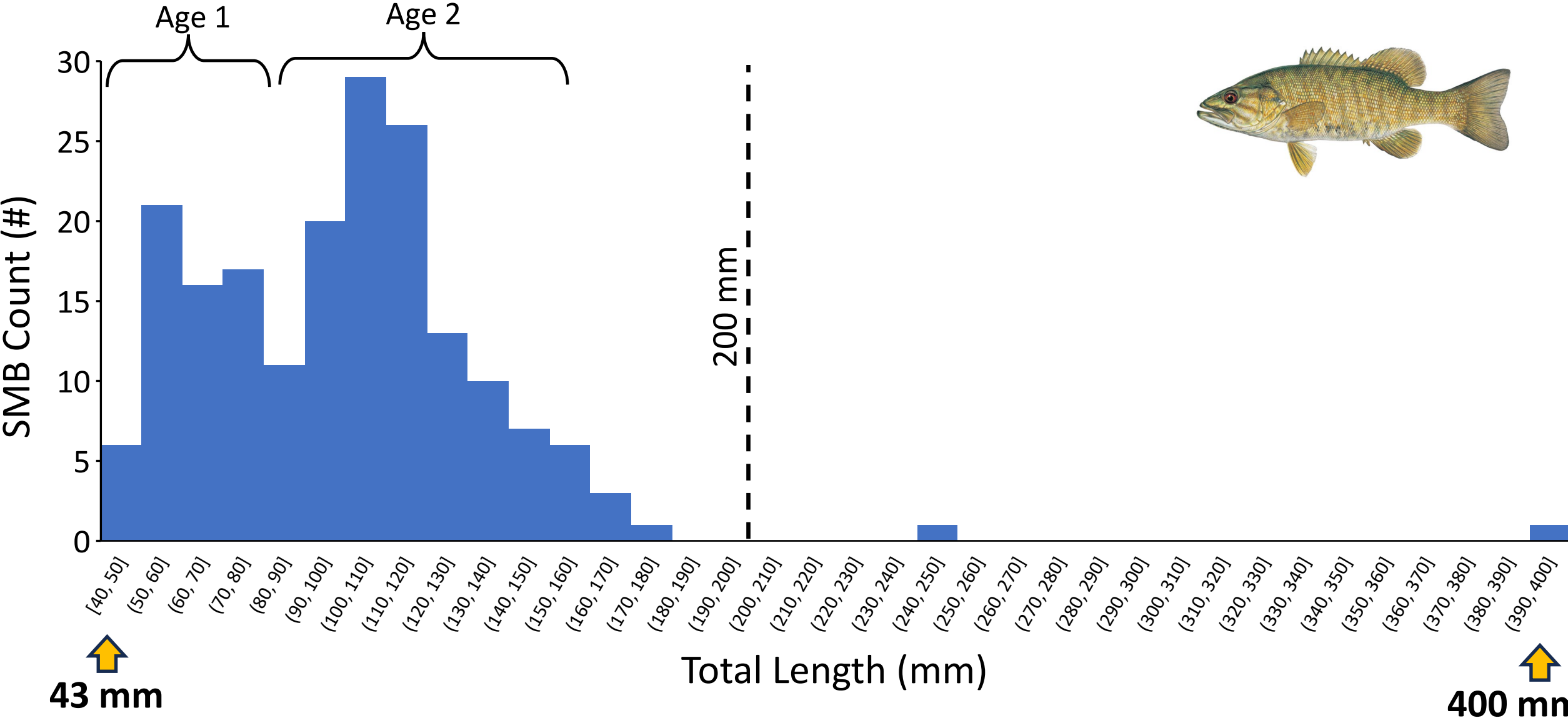
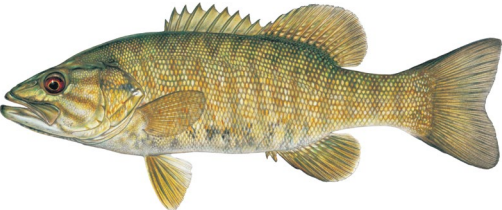
2024 Smallmouth Bass Captures



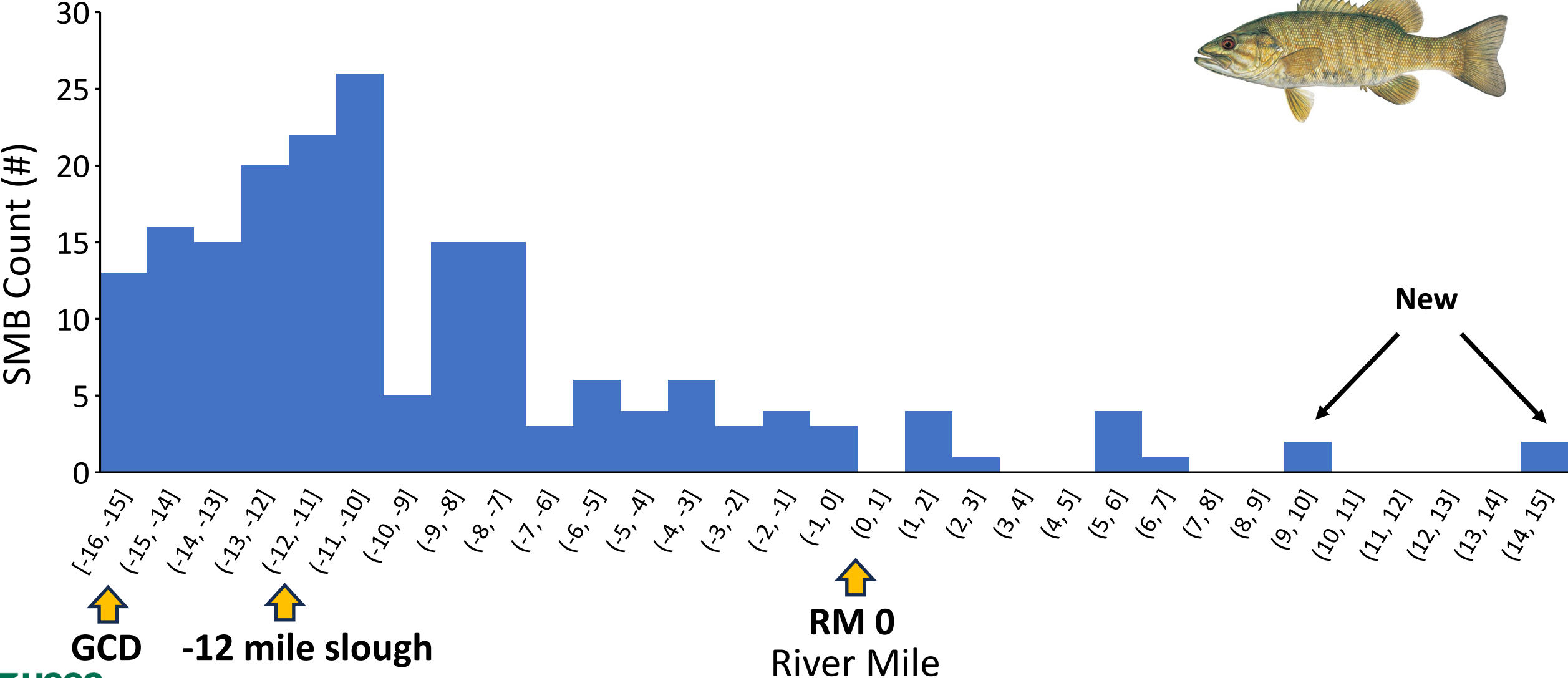
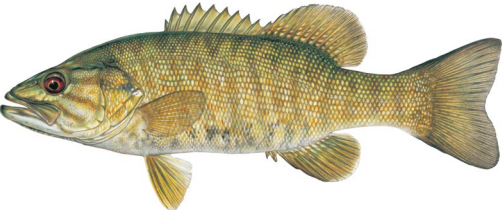
↑
43 mm

↑
400 mm

2024 Smallmouth Bass Captures



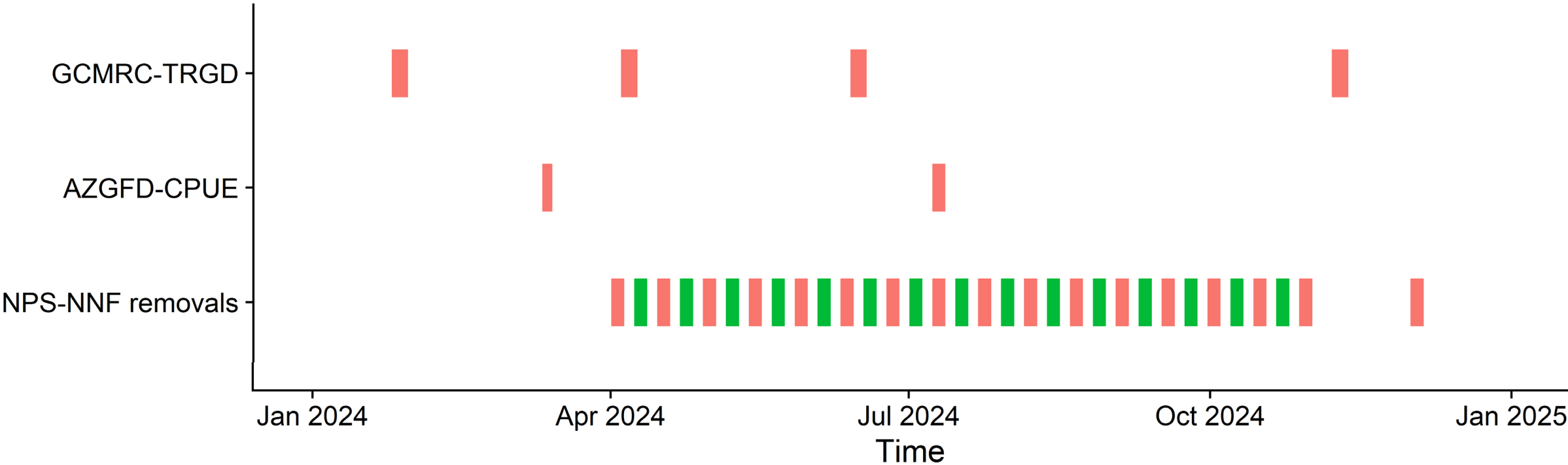
2024 Smallmouth Bass Captures



2024 Sampling Effort: Lees Ferry

Gear
Electrofishing
Netting

Fisheries- Lees Ferry 2024

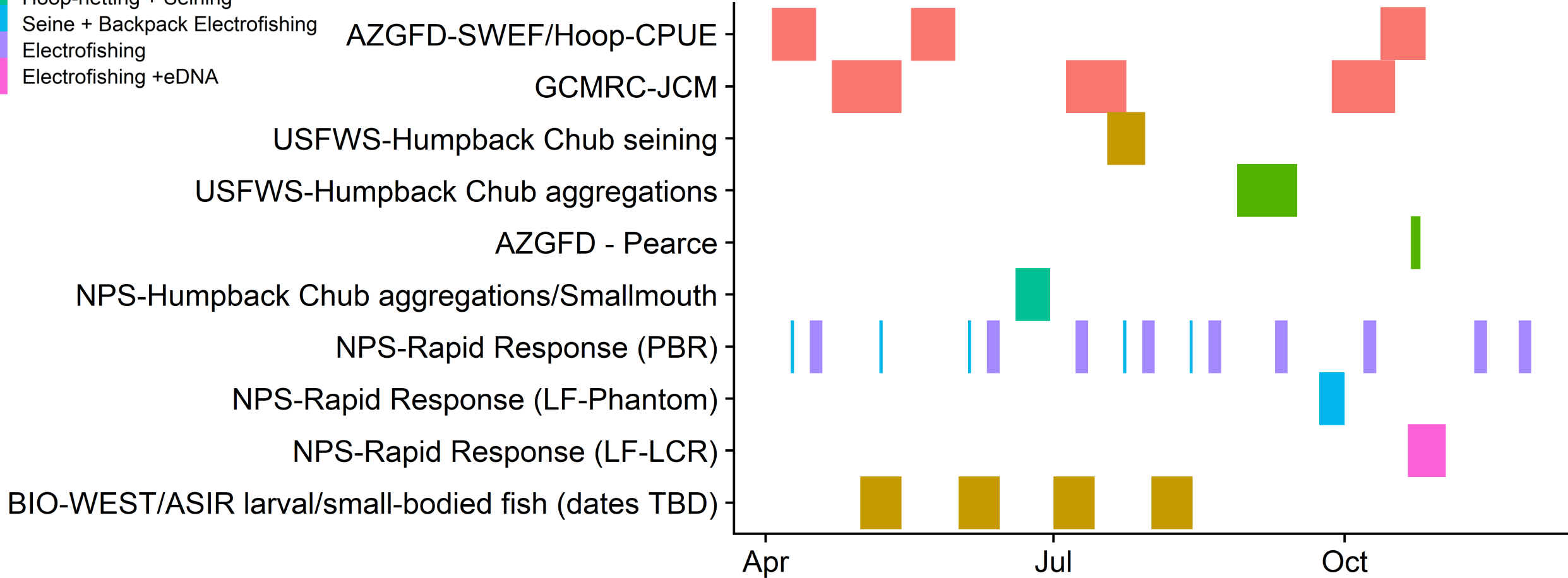


2024 Sampling Effort: Downstream

Gear

- Electrofishing + Hoop-netting
- Seining
- Hoop-netting
- Hoop-netting + Seining
- Seine + Backpack Electrofishing
- Electrofishing
- Electrofishing +eDNA

Fisheries- Grand Canyon Mainstem 2024



SMB Research and Monitoring

Determining the effectiveness of removals & flow experiments

**Abundance/
Catch**

**Distribution/
Dispersal**

Growth

Diet

Kinship

Reproduction?

No evidence of
Age-0

Evidence of
Age-0

Age-0 Growth
Rate

Recruitment?

Entrained
from Lake?

Reproduced
locally?

When?
(relative to
experimental
actions)

Pop Growth?

Entrainment?

Where?
(mainstem or
backwater)

SMB Research and Monitoring

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(mainstem or
backwater)

Age-0 Growth
Rate

When?
(relative to
experimental
actions)

Over winter survival

Recruitment?

Pop Growth?

SMB Research and Monitoring

Determining the effectiveness of removals & flow experiments

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Catch**

**Distribution/
Dispersal**

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Age-0

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Age-0

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Reproduced
locally?

Entrainment?

Where?
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backwater)

Age-0 Growth
Rate

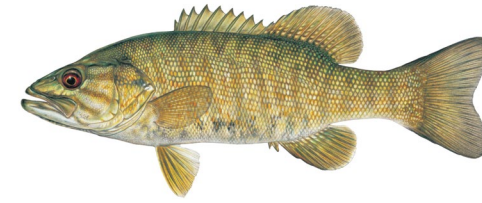
When?
(relative to
experimental
actions)

SMB size and 10C "starvation days"
↑
Over winter survival

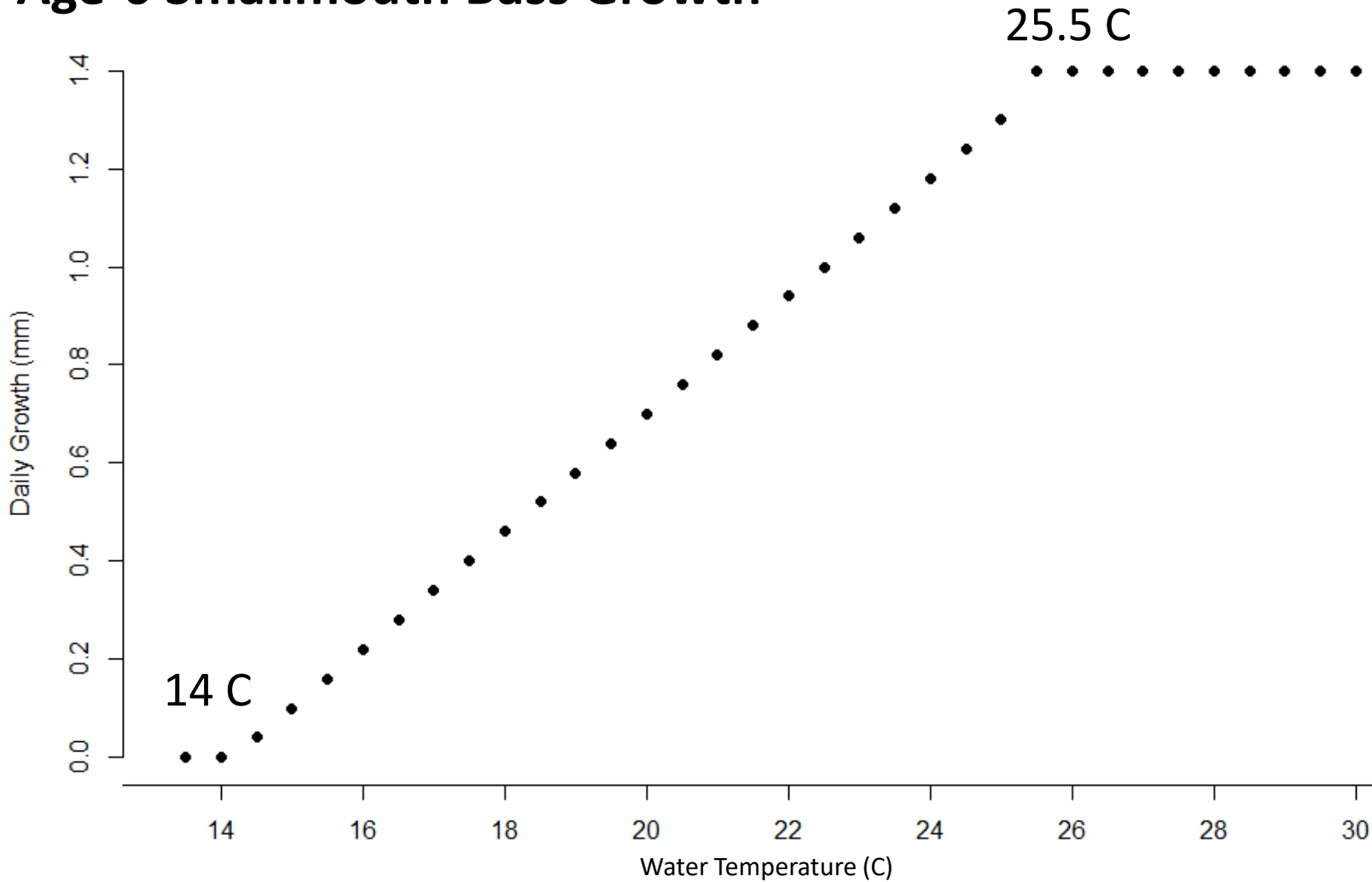
Recruitment?

Pop Growth?

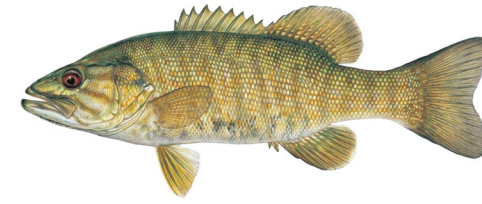
Smallmouth Bass and Temperature



Age-0 Smallmouth Bass Growth

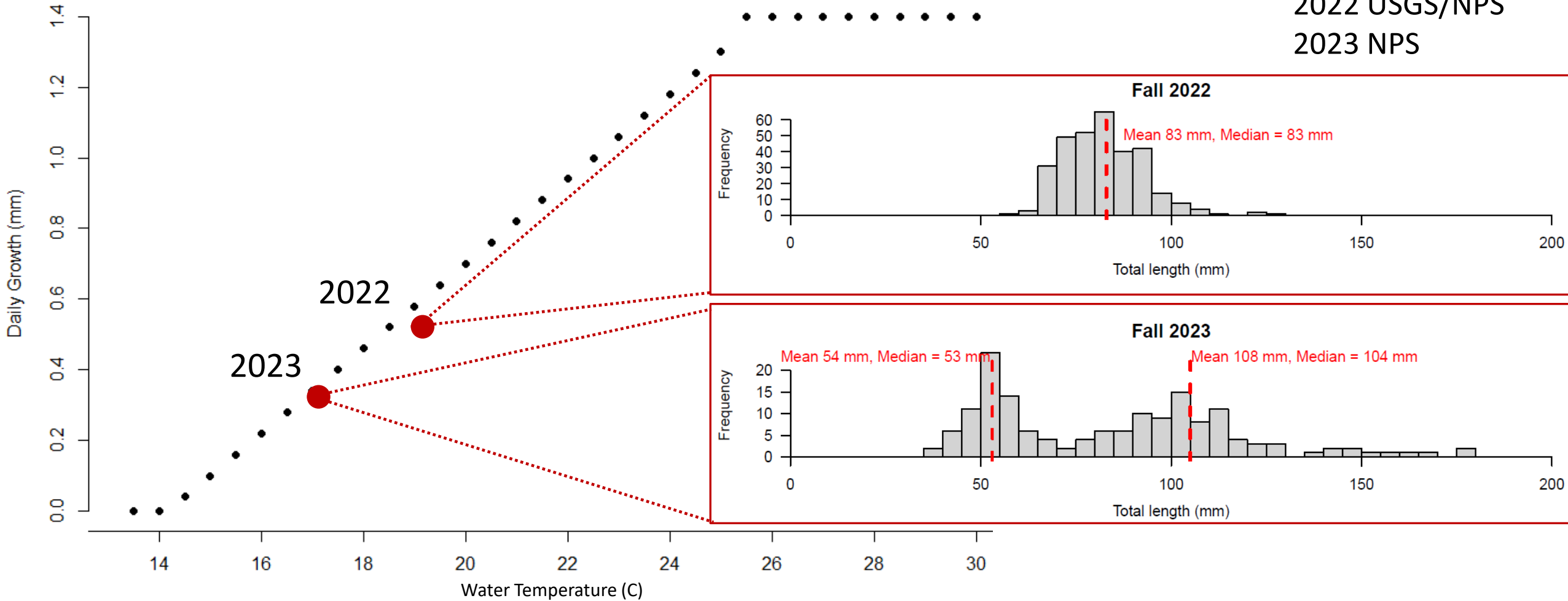


Smallmouth Bass and Temperature

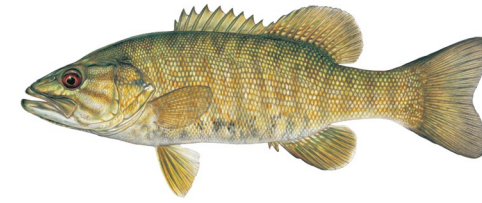


SMB Data:
2022 USGS/NPS
2023 NPS

Age-0 Smallmouth Bass Growth

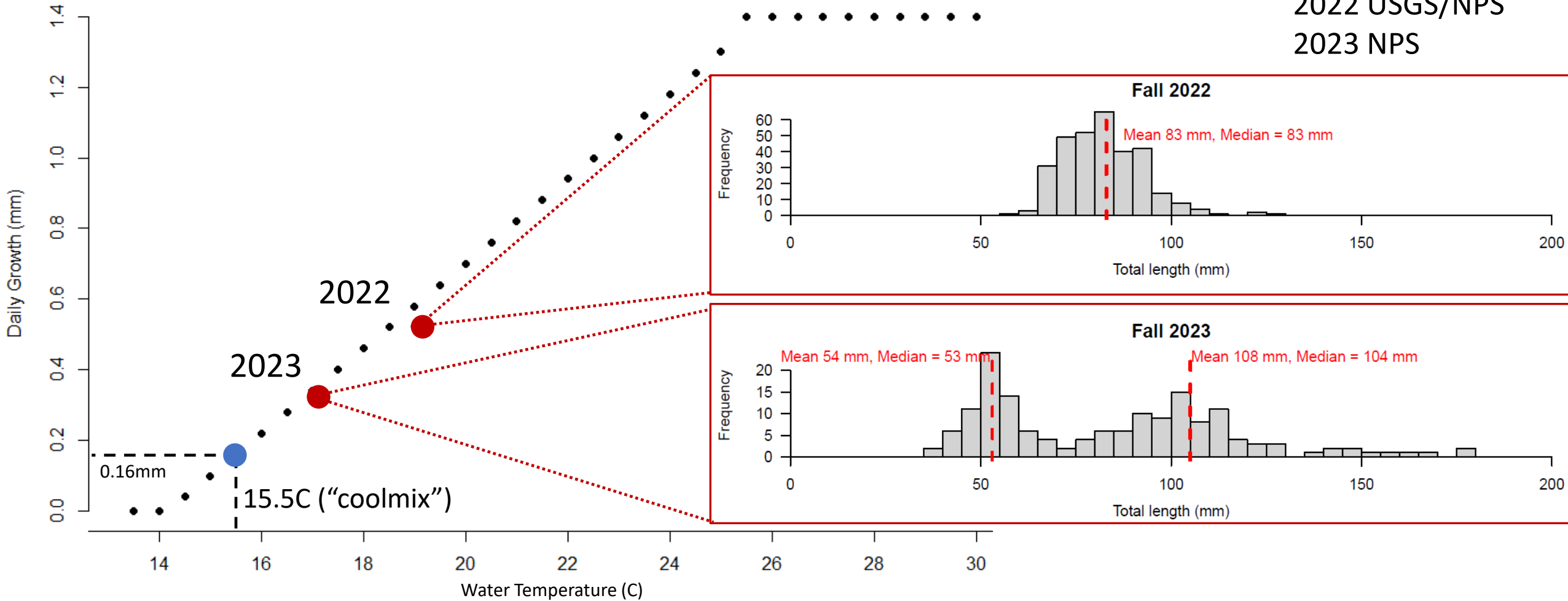


Smallmouth Bass and Temperature



SMB Data:
2022 USGS/NPS
2023 NPS

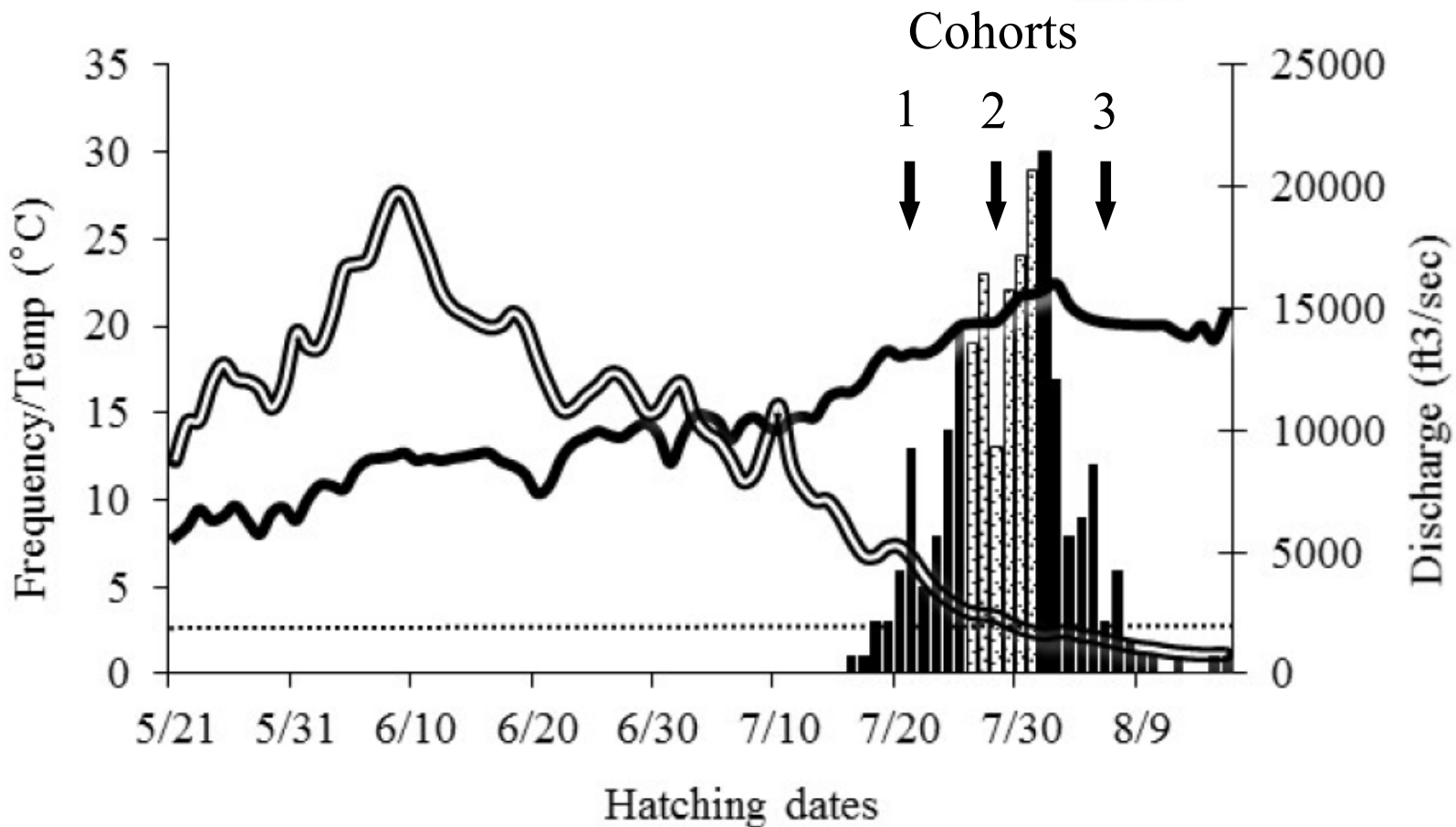
Age-0 Smallmouth Bass Growth



Smallmouth Bass and Temperature

Bestgen and Hill 2016

Yampa River 2011



Latest observed hatch

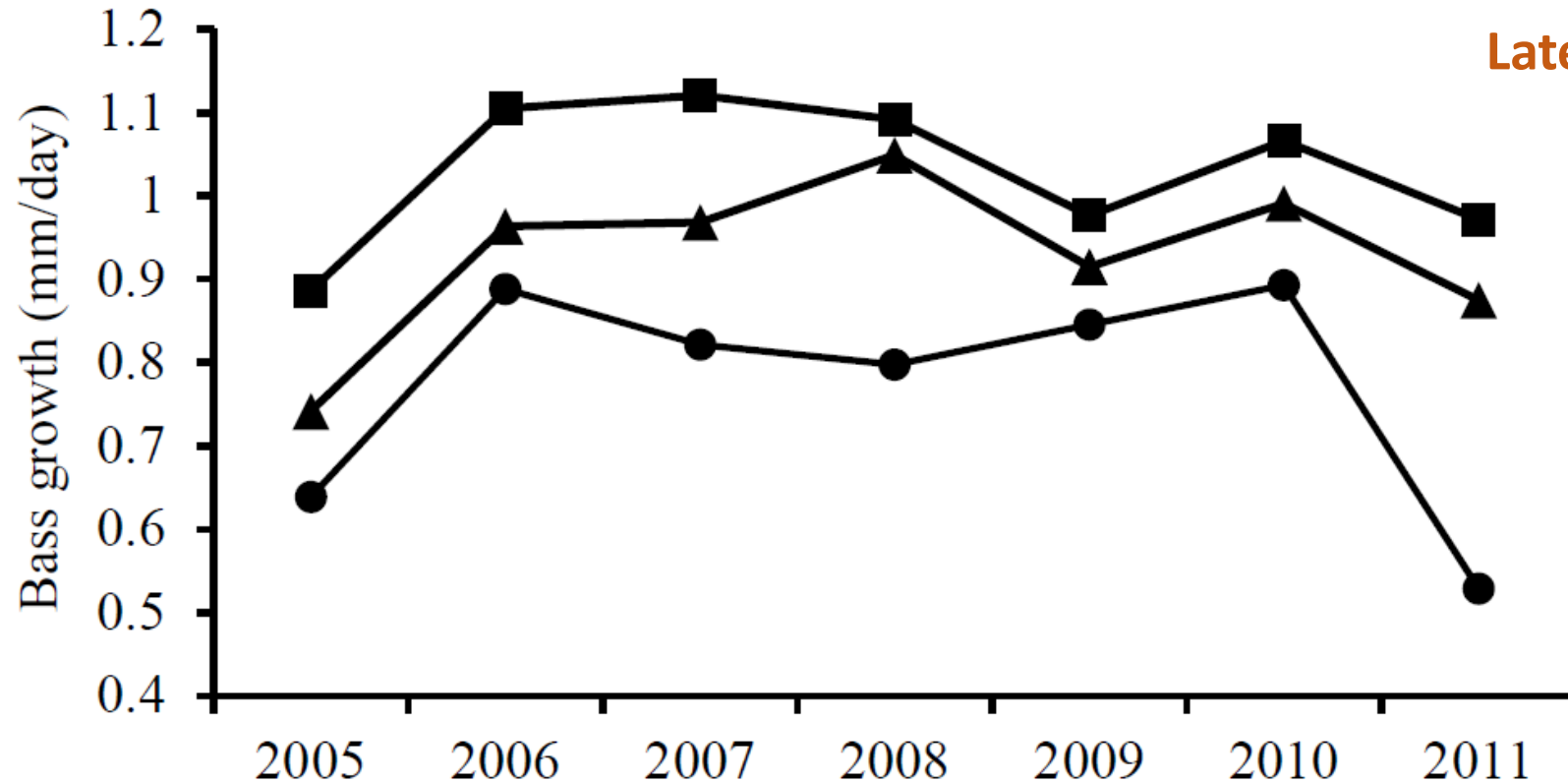


Smallmouth Bass and Temperature

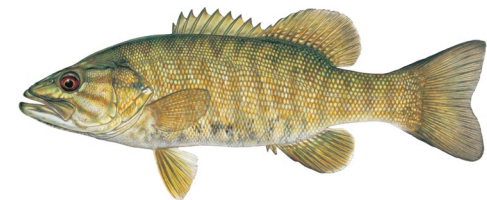
Bestgen and Hill 2016

Yampa River

■ Cohort 1 ▲ Cohort 2 ● Cohort 3



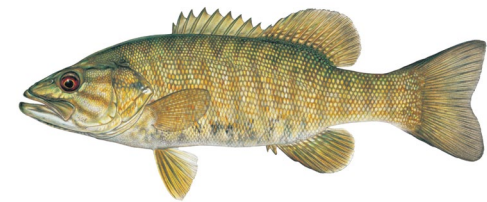
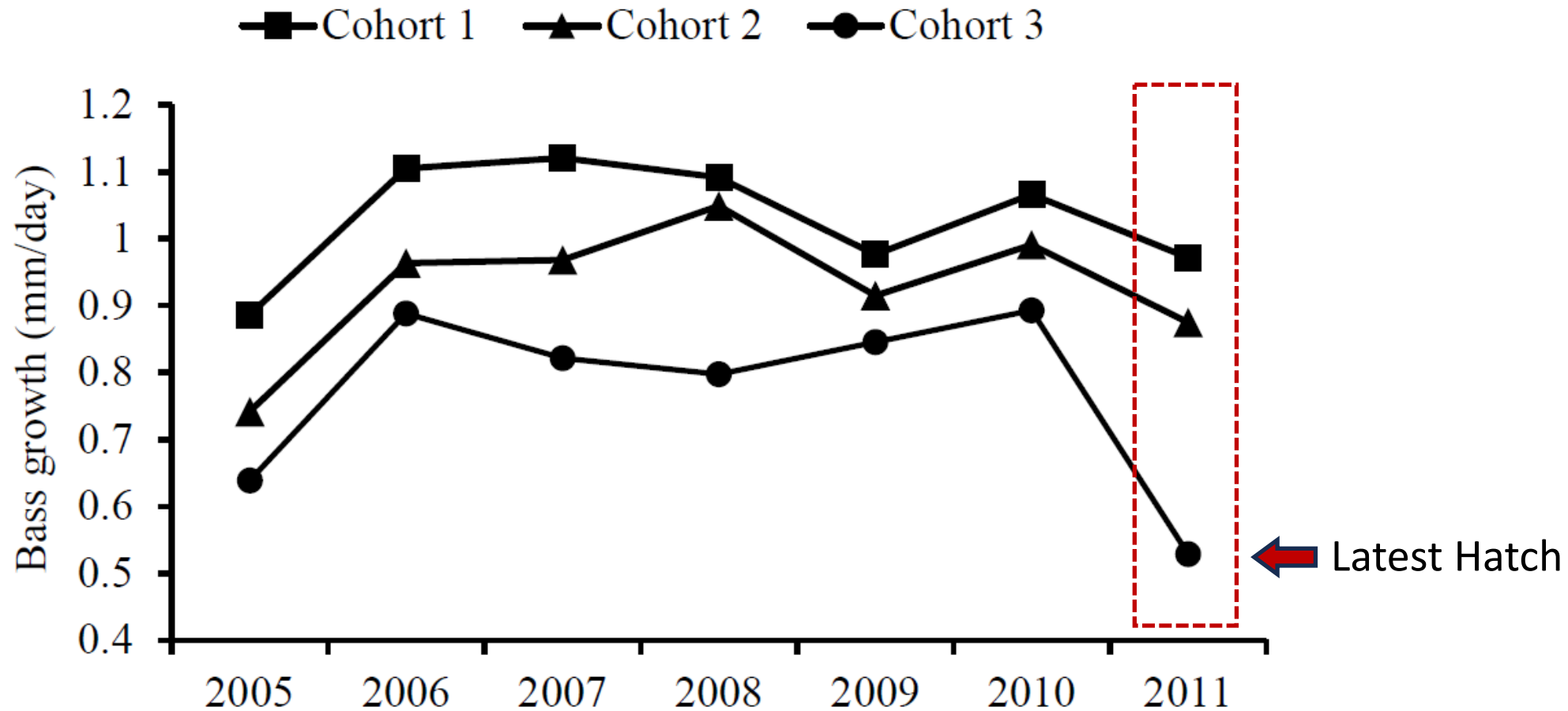
Later hatching SMB have slower growth



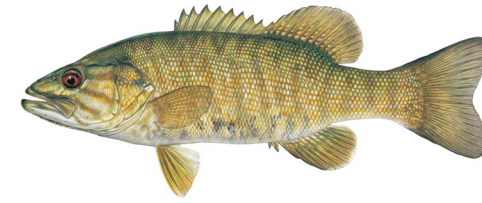
Smallmouth Bass and Temperature

Bestgen and Hill 2016

Yampa River

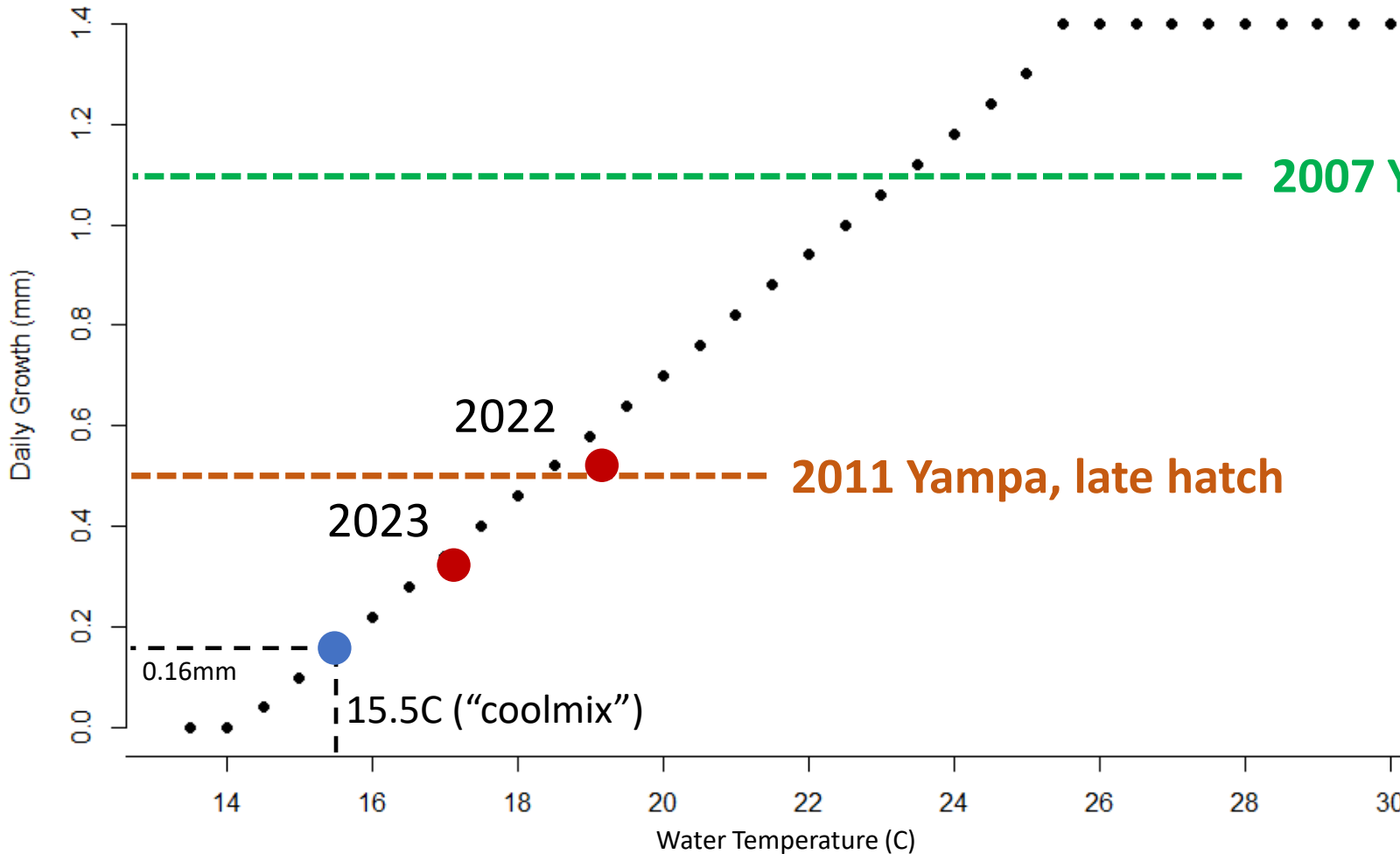


Smallmouth Bass and Temperature



SMB Data:
2022 USGS/NPS
2023 NPS

Age-0 Smallmouth Bass Growth



Bestgen and Hill 2016

*Comparing GC to Yampa