2015 HFE Discussion: Biological Resource Updates

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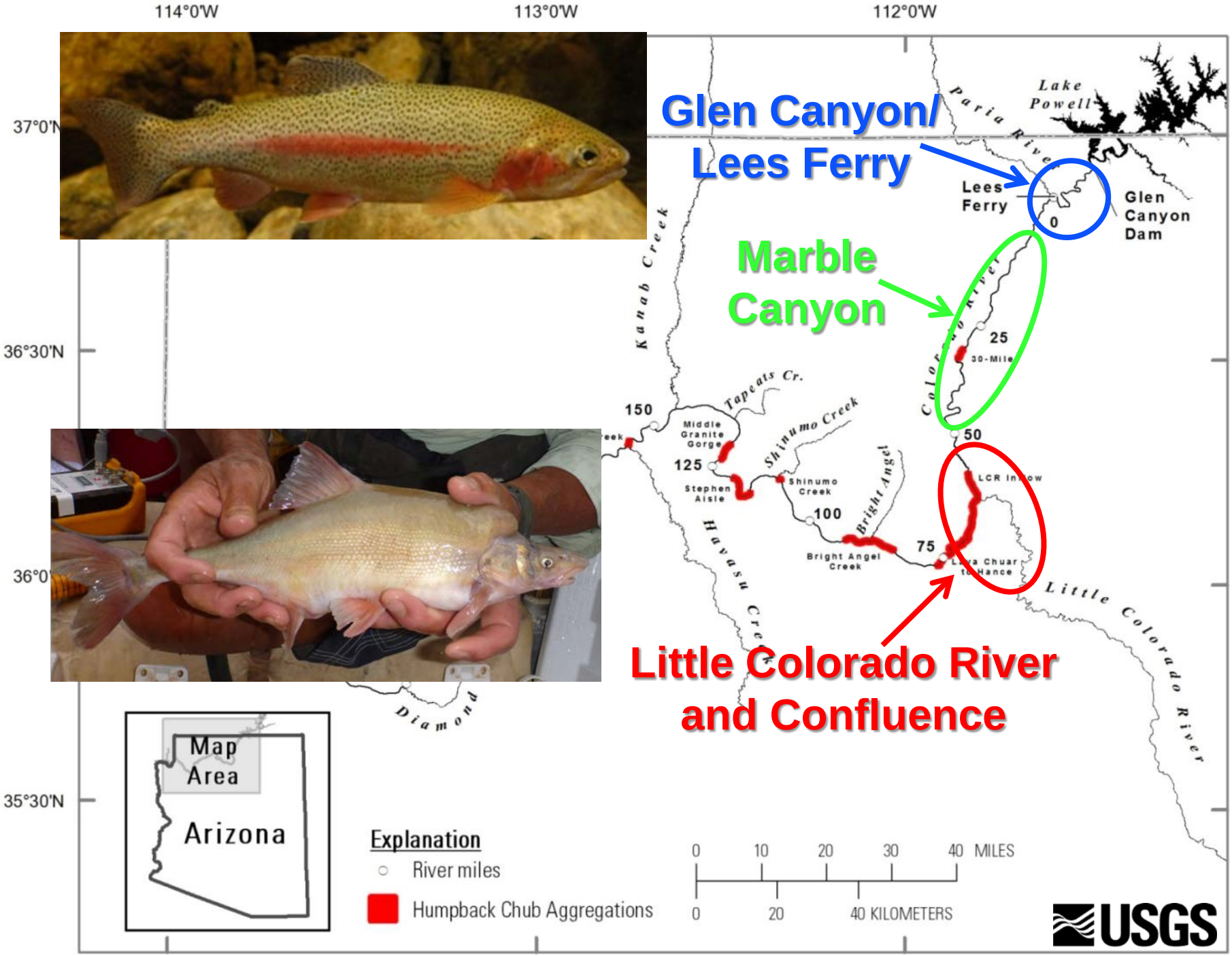
Rainbow Trout and Humpback Chub Updates

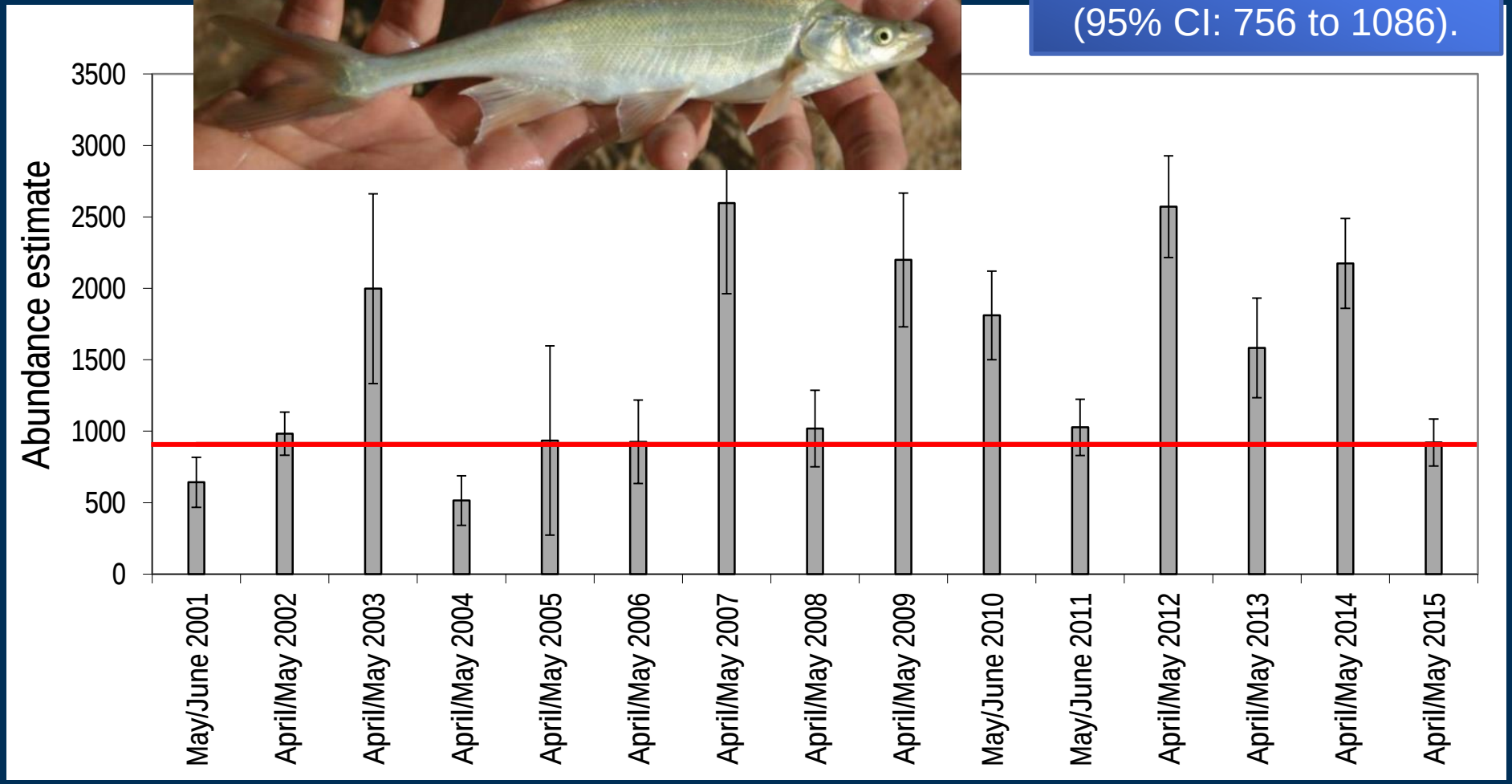
Photo: George Andrejko

Photo: Randall Babb


114°0'W
113°0'W
112°0'W
37°0'N
36°30'N
36°0'
35°30'N
Glen Canyon/
Lees Ferry
Marble
Canyon
Little Colorado River
and Confluence
Lake
Powell
Paria River
Lees
Ferry
0
Glen
Canyon
Dam
Kanab Creek
Colorado River
25
30-Mile
50
Tapeats Cr.
150
Middle
Granite
Gorge
125
Stephen
Aisle
Shinumo Creek
Shinumo
Creek
100
Bright Angel
Bright Angel
Creek
75
LCR Inflow
Lava Chuar
to Hance
Havasu Creek
Little Colorado River
Diamond
Map
Area
Arizona
Explanation
River miles
Humpback Chub Aggregations
0
10
20
30
40
MILES
0
20
40 KILOMETERS
USGS

Spring LCR 150-199 mm Humpback Chub abundance estimates

2015 spring abundance estimate of 150-199 mm HBC = 921 (95% CI: 756 to 1086).

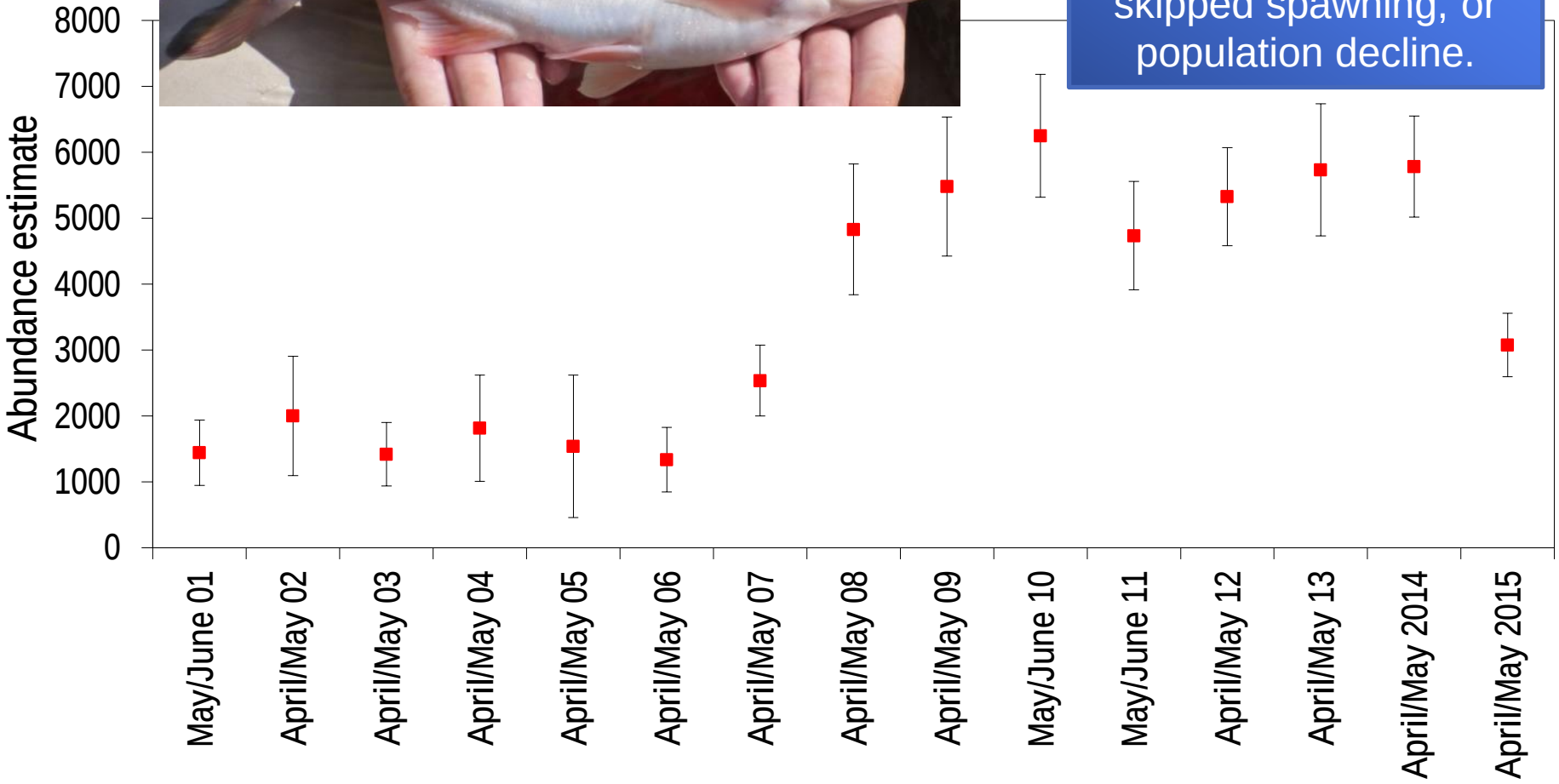


USGS

(Preliminary Data from VanHaverbeke et al. USFWS. 2015. Do Not Cite.)

Annual spring abundances of Humpback Chub ≥ 200 mm in lower 13.6 km of LCR

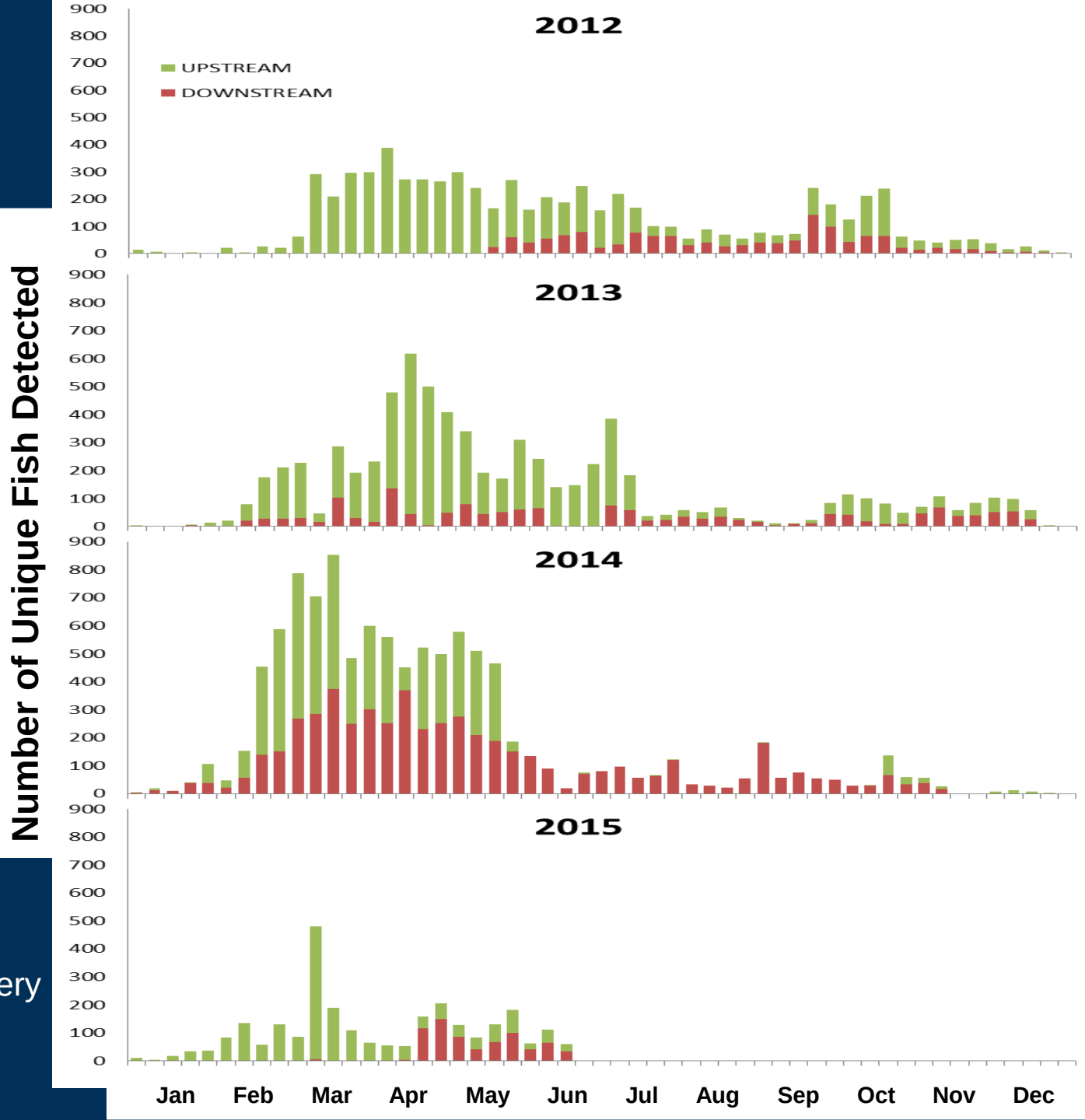
2015 spring estimates considerably lower than recent years. Potentially due to early run timing, skipped spawning, or population decline.



USGS

(Preliminary Data from VanHaverbeke et al. USFWS. 2015. Do Not Cite.)

Humpback Chub detections on Little Colorado River PIT-tag arrays

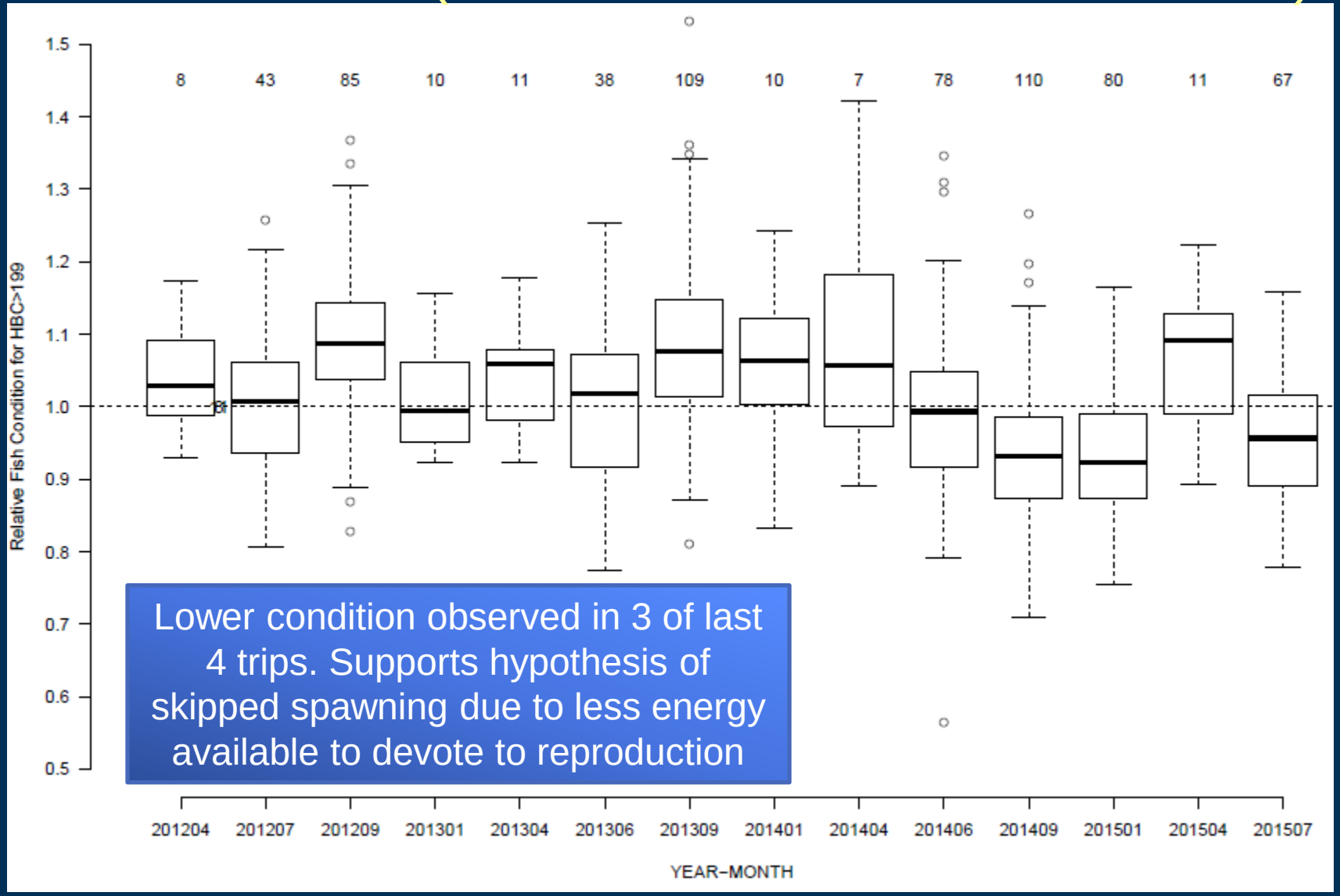


2015 run timing similar to 2014. Fewer detections could be due to skipped spawning or population decline.

(Preliminary data from Avery 2015. Do Not Cite.)

USGS

Condition factor of Humpback Chub in JCM reach (downstream of LCR confluence)



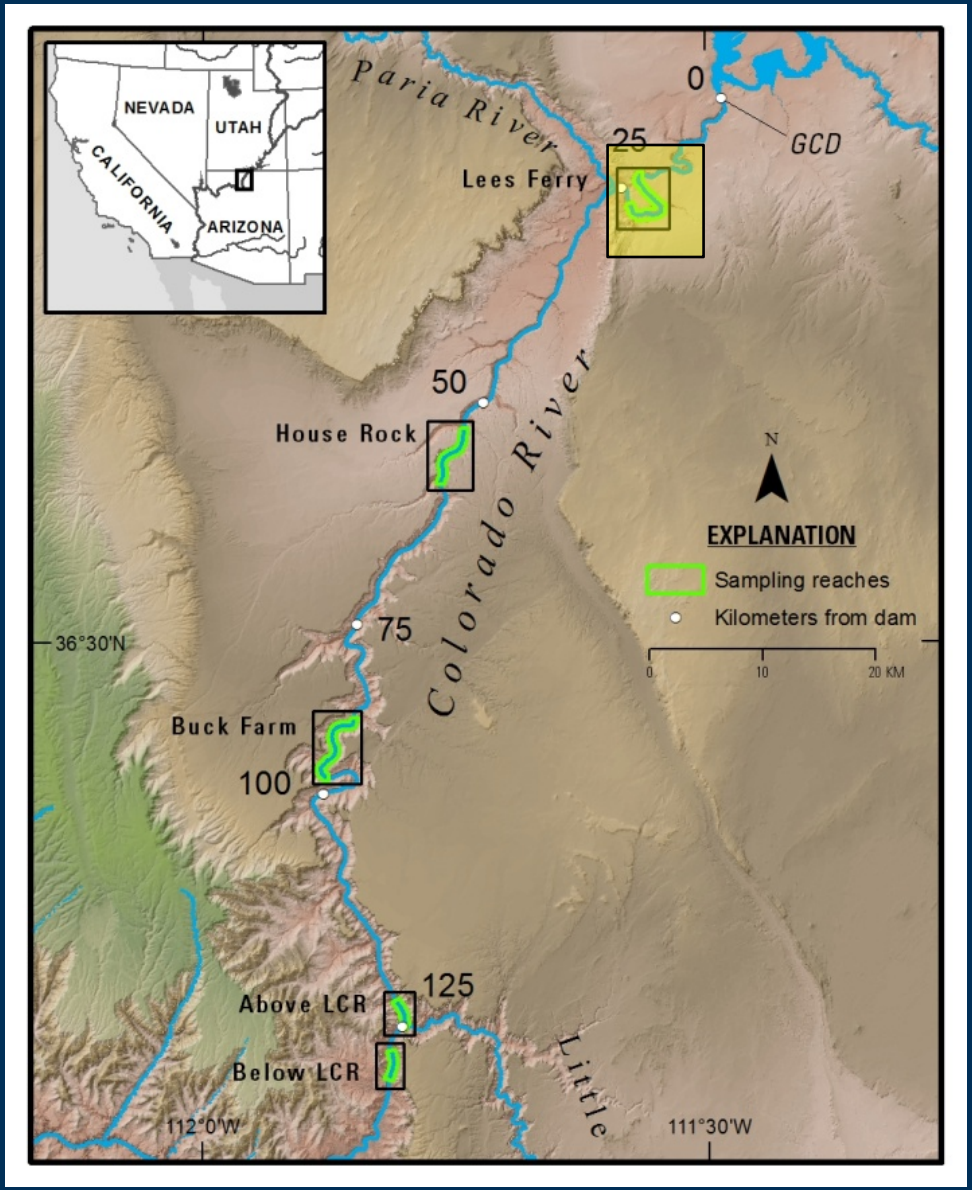
Lower condition observed in 3 of last 4 trips. Supports hypothesis of skipped spawning due to less energy available to devote to reproduction

USGS

(Preliminary data from Yackulic and Korman 2015. Do Not Cite.)

USGS

Rainbow Trout Natal Origins Study Sampling Design

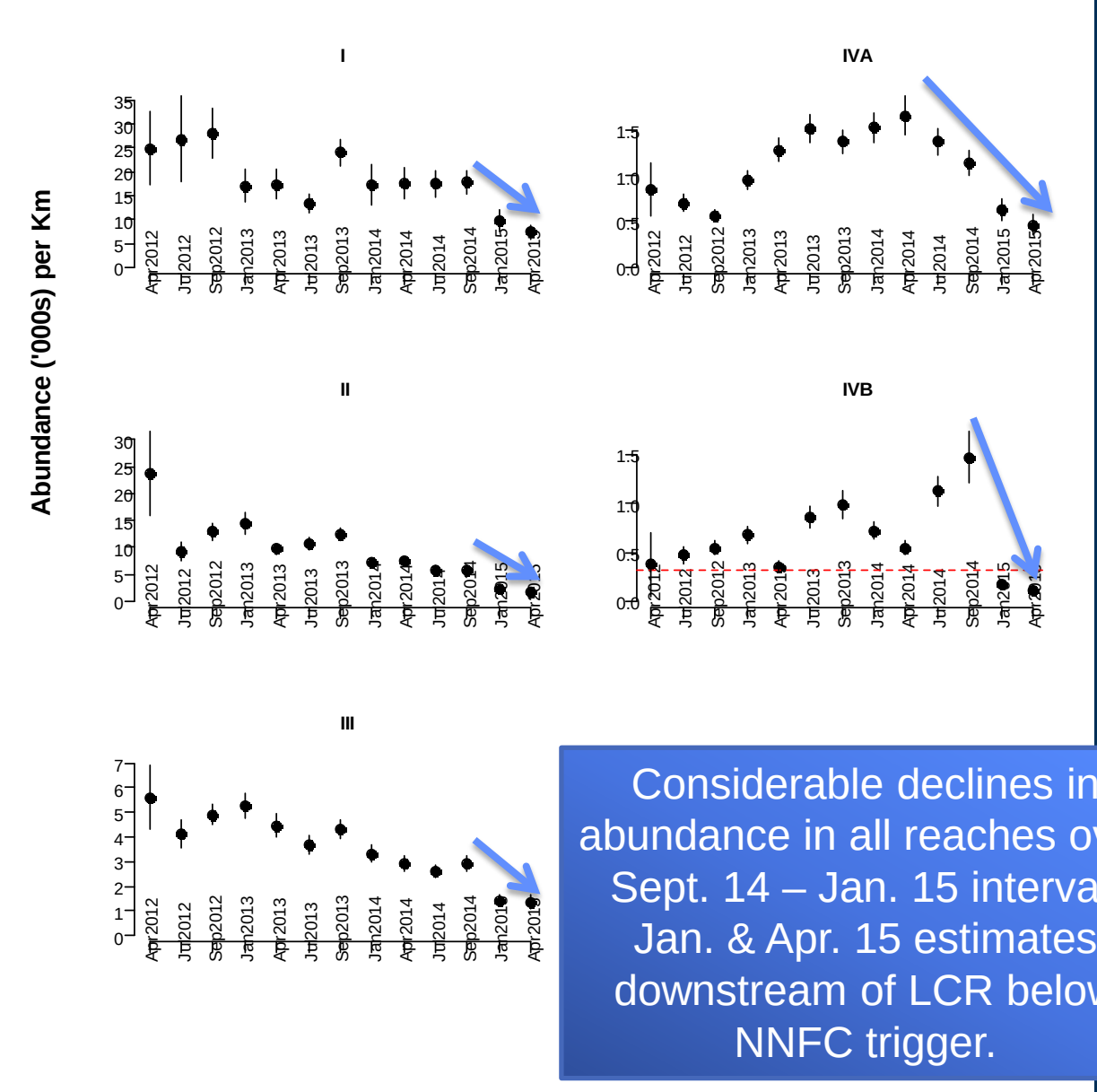


- **Annual age-0 marking trips from dam to Lees Ferry**
  - **Length >75 mm**
  - **~ 10,000 marked/yr**
  - **Nov. 2011, Oct & Dec 2012, 2013, and 2014**

- **Quarterly trips for marking and tag recovery by reach**
  - **Jan, Apr, Jul, and Sept**
  - **LEES FERRY (I, -5.5 to -2.1 RM)**
  - **HOUSE ROCK (II, 17.2-20.6 RM)**
  - **BUCK FARM (III, 38.2 to 41.6 RM)**
  - **ABOVE LCR (IVa, 60.2 to 61.2 RM)**
  - **BELOW LCR (IVb, 63.4 to 64.9 RM)**

USGS

Rainbow Trout Abundance Estimates By Reach



Considerable declines in abundance in all reaches over Sept. 14 – Jan. 15 interval. Jan. & Apr. 15 estimates downstream of LCR below NNFC trigger.

I – Glen Canyon/Lees Ferry

II – House Rock

III – Buck Farm

IVa – Upstream of LCR

IVb – Downstream of LCR

USGS

(Preliminary data from Korman and Yard 2015. Do Not Cite.)