Biological Opinion Trigger Update: January 2015

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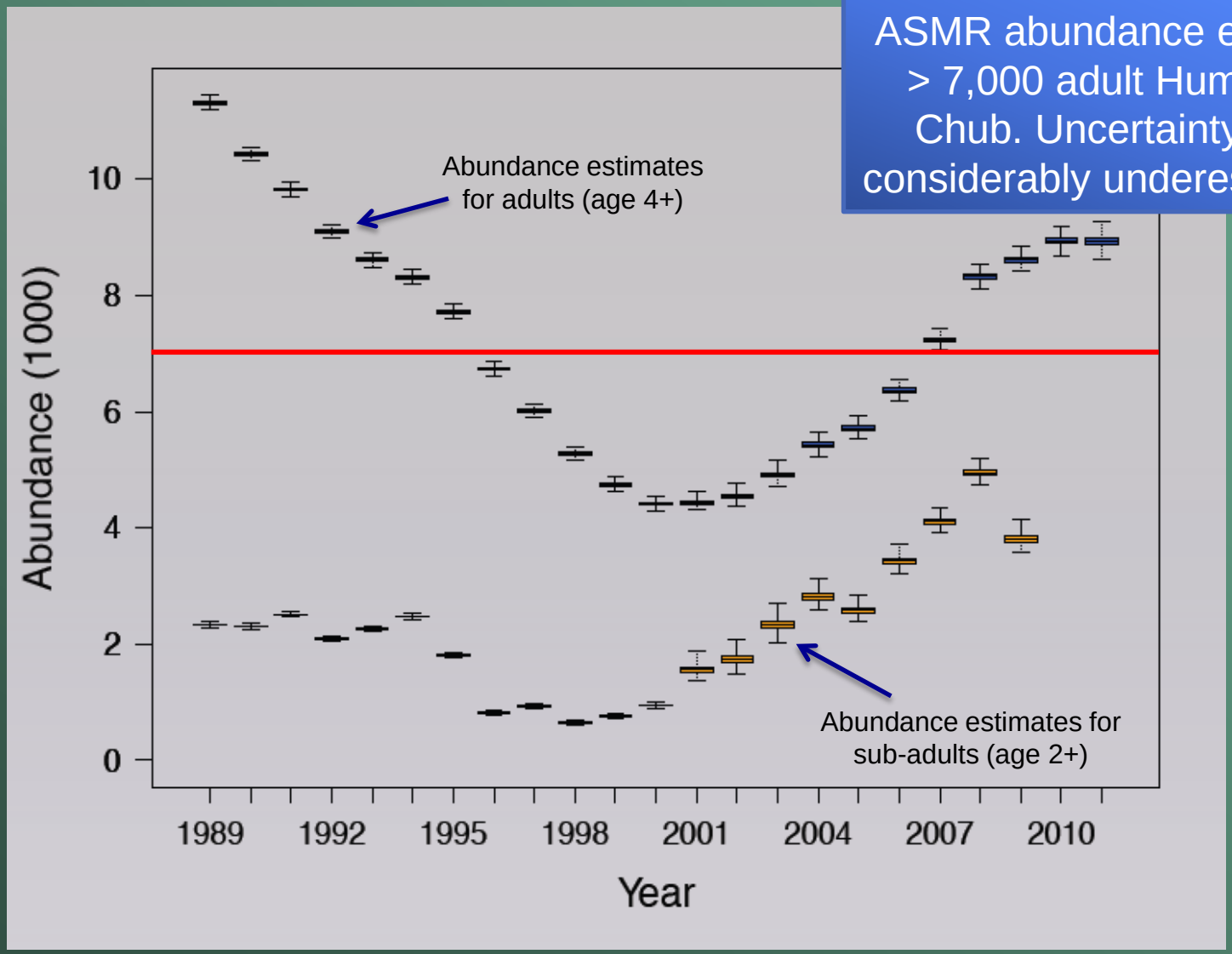
Adult and Sub-Adult Humpback Chub Abundance Estimates

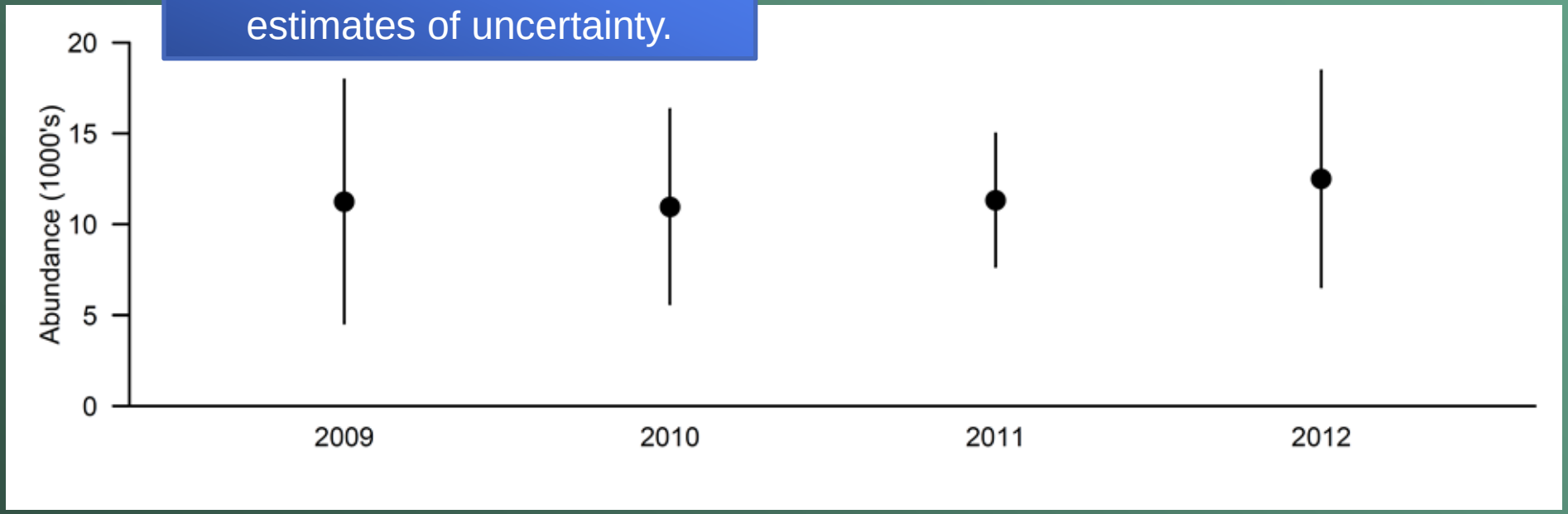
ASMR abundance estimate: > 7,000 adult Humpback Chub. Uncertainty likely considerably underestimated.



(S. Martell, preliminary data, do not cite)

Adult Humpback Chub Abundance Estimates: Multistate Population Model

Suggests adult Humpback Chub abundance stable from 2009 – 2012. Confidence intervals provide reasonable estimates of uncertainty.



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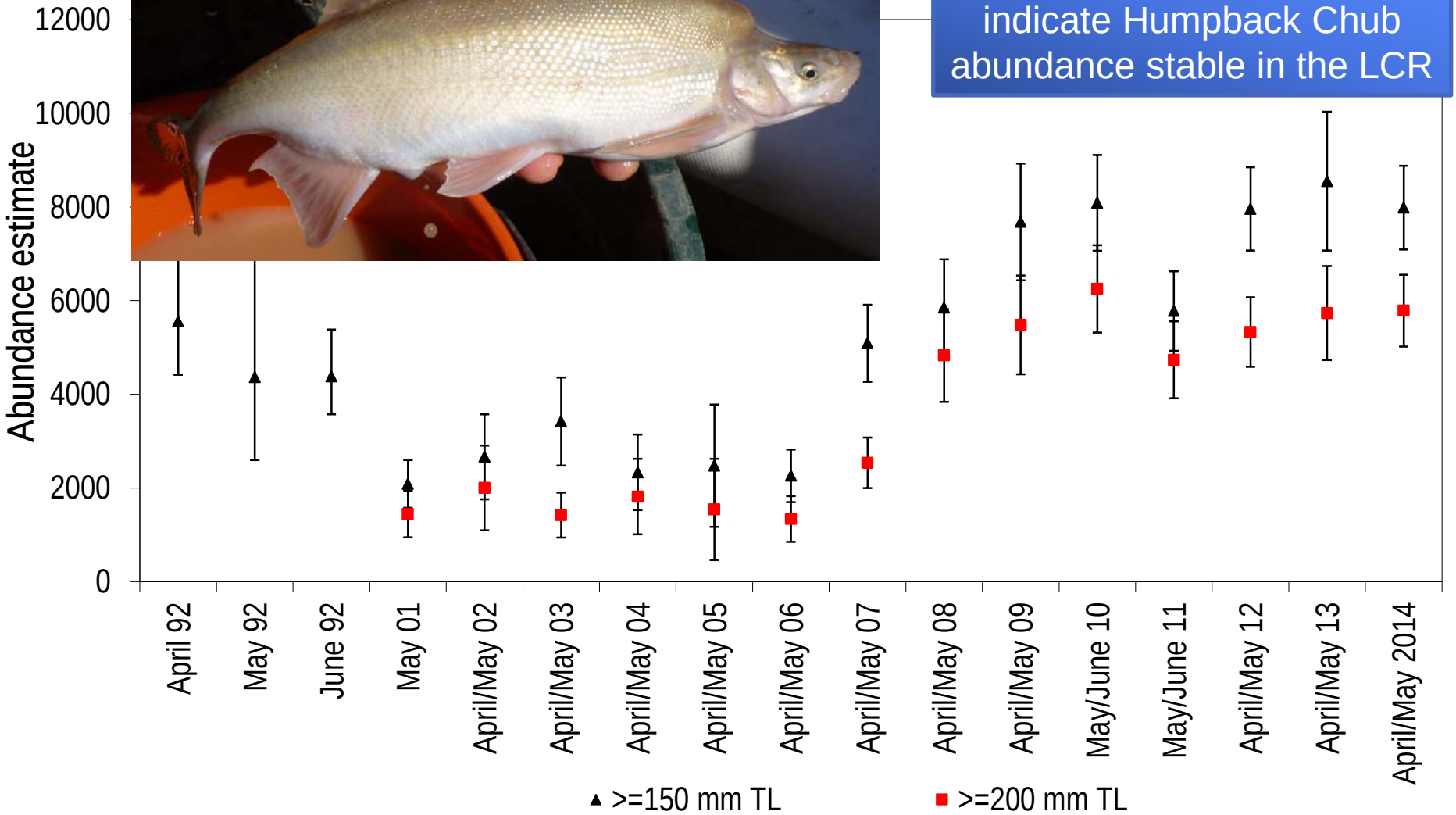
(Yackulic et al. 2014)

Annual spring abundances of humpback chub ≥ 150 mm and ≥ 200 mm in lower 13.6 km of LCR

2014 spring estimates indicate Humpback Chub abundance stable in the LCR



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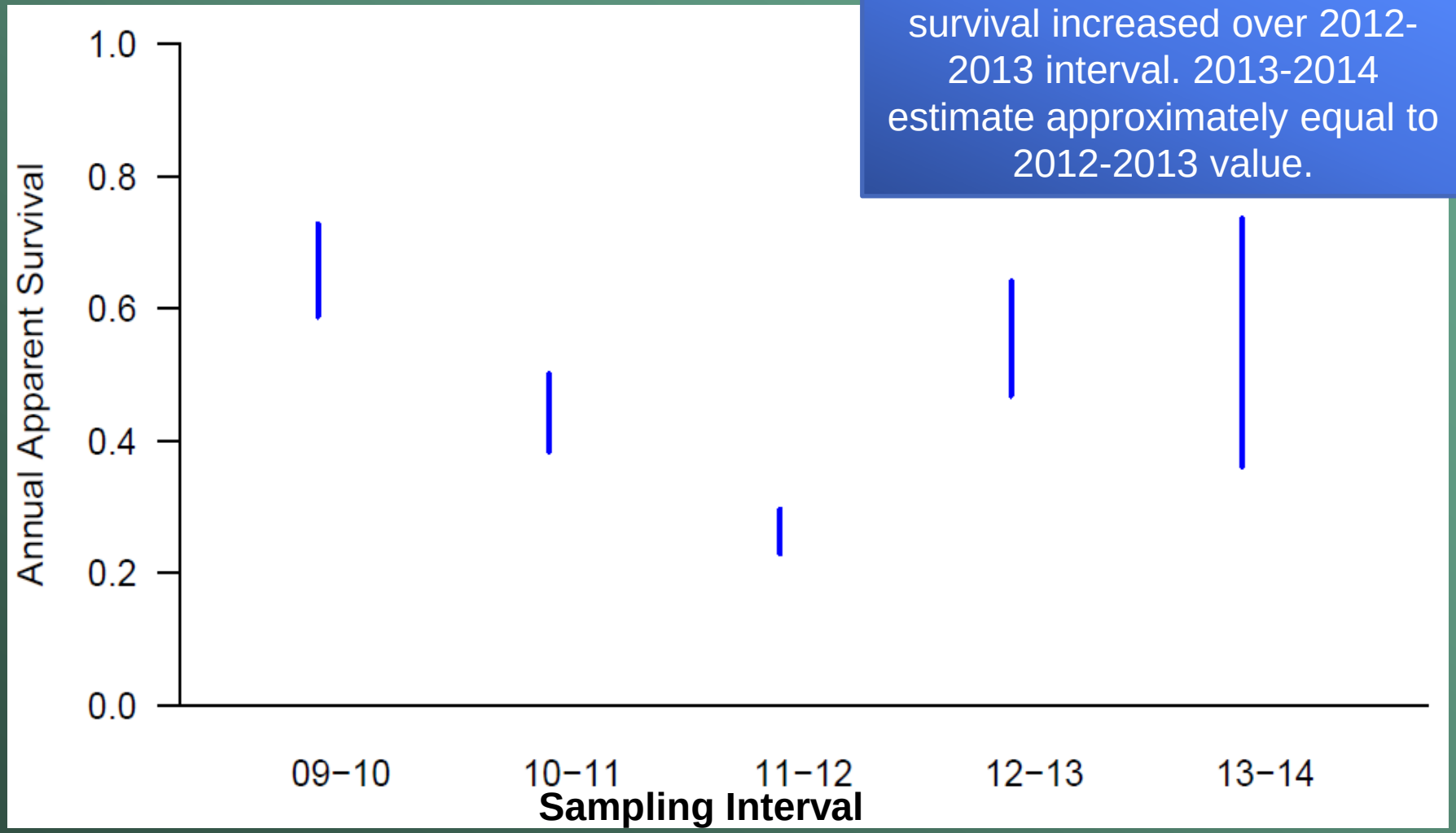
(Preliminary Data from VanHaverbeke et al. 2014, Do Not Cite)

Annual Survival of Humpback Chub (40-99 mm) in the Colorado River Study Site

Juvenile humpback chub survival increased over 2012-2013 interval. 2013-2014 estimate approximately equal to 2012-2013 value.



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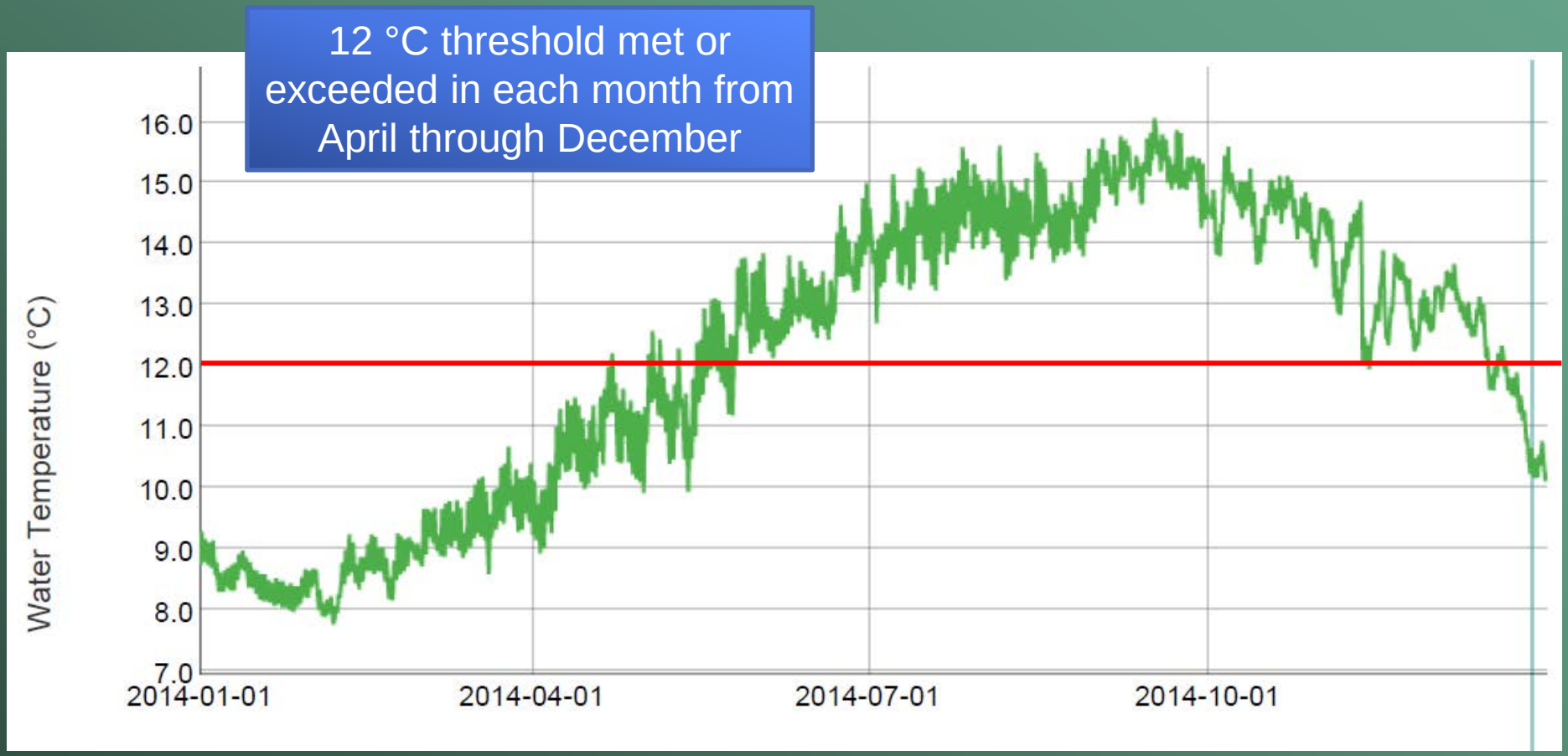
(Preliminary Data from Yackulic 2014. Do Not Cite.)

2014 Water Temperatures: Colorado River near Little Colorado River Confluence



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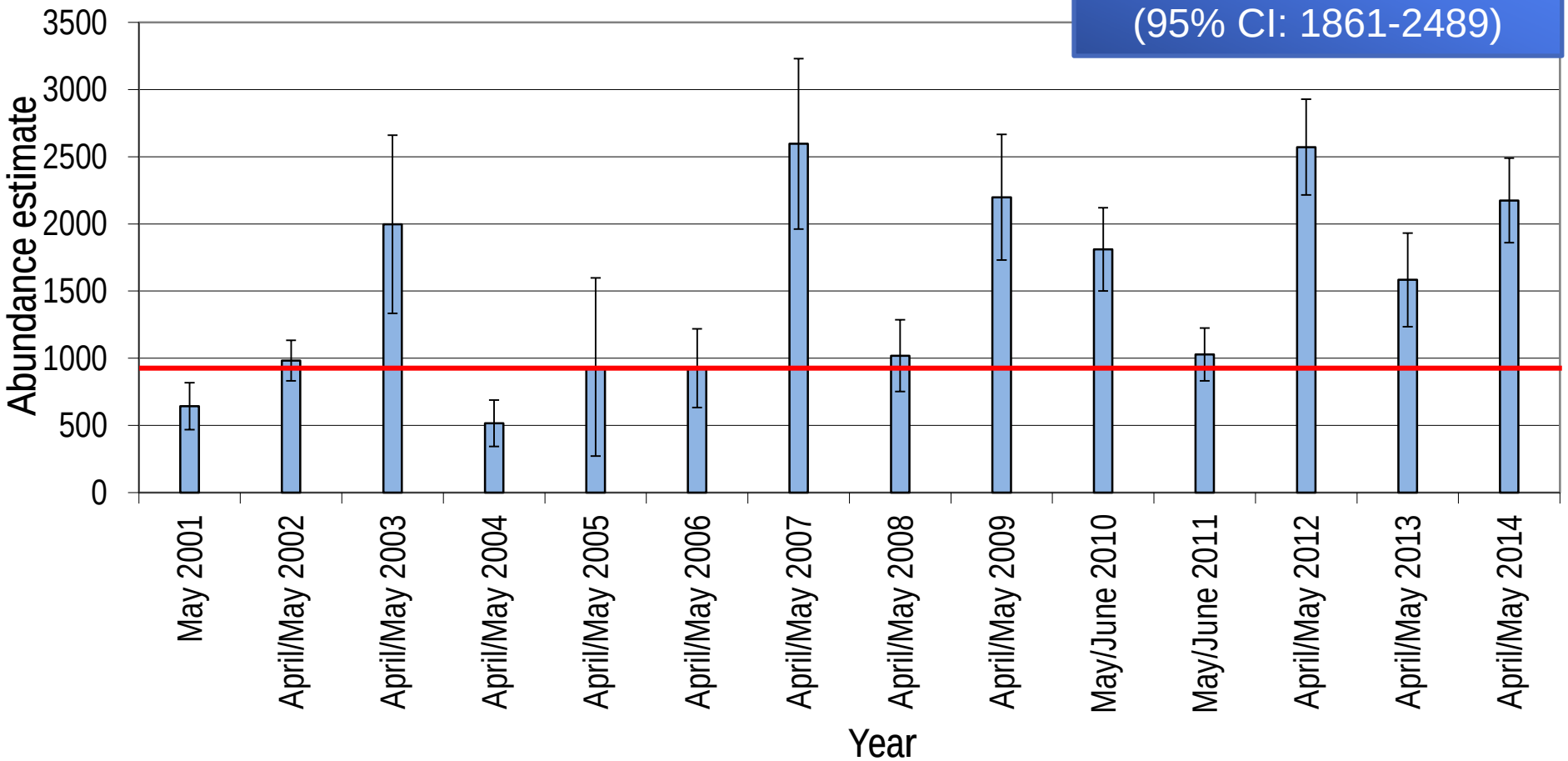
(UGSG gage 09383100: http://www.gcmrc.gov/discharge_qw_sediment/station/GCDAMP/09383100)

Spring LCR 150-199 mm humpback chub abundance estimates

2014 spring abundance estimate of 150-199 mm HBC = 2175 (95% CI: 1861-2489)



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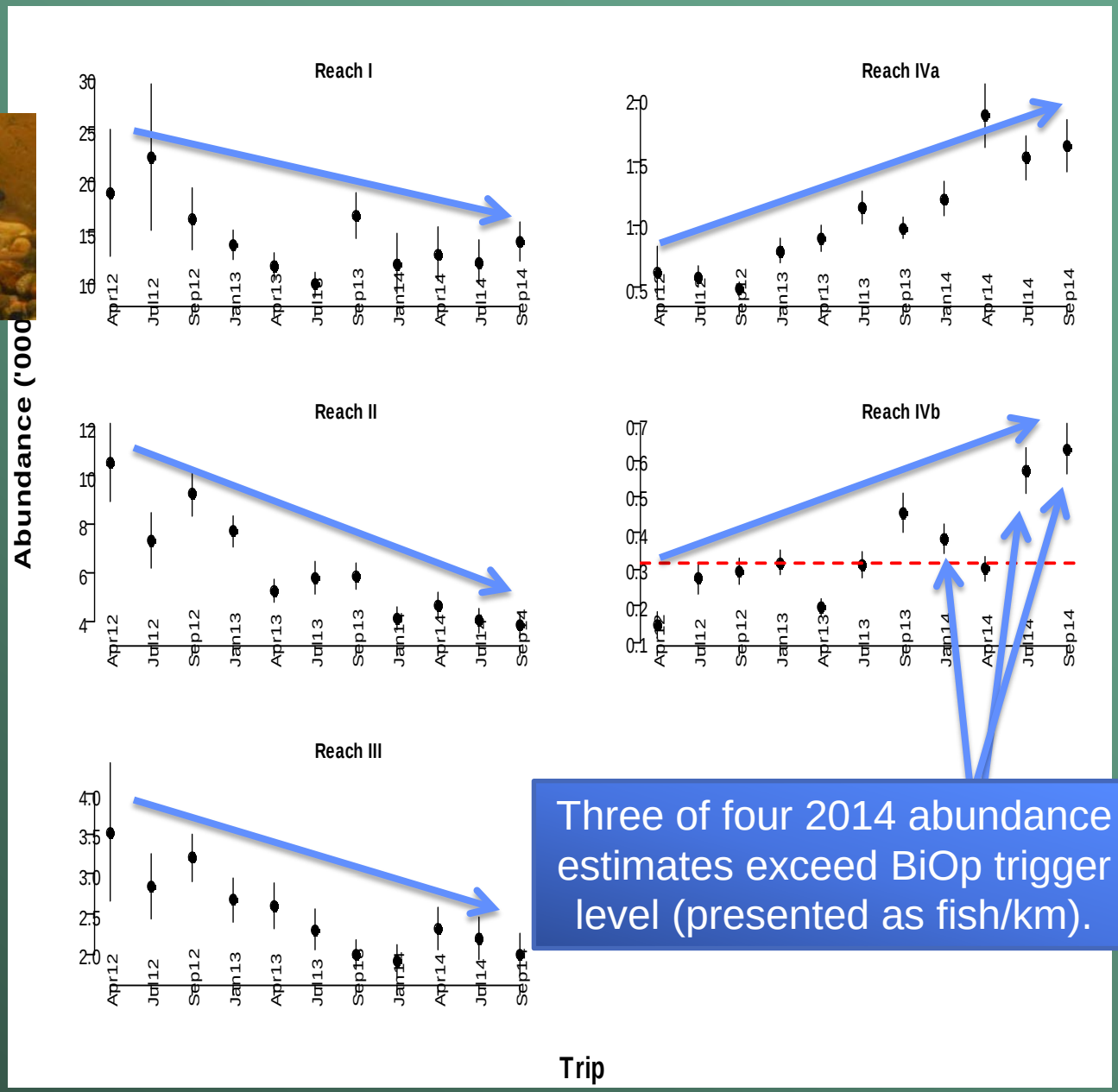
(Preliminary Data from VanHaverbeke et al. 2014, Do Not Cite)

Rainbow Trout Abundance By Reach



Three of four 2014 abundance estimates exceed BiOp trigger level (presented as fish/km).

I – Glen Canyon/Lees Ferry

II – House Rock

III – Buck Farm

IVa – Upstream of LCR

IVb – Downstream of LCR

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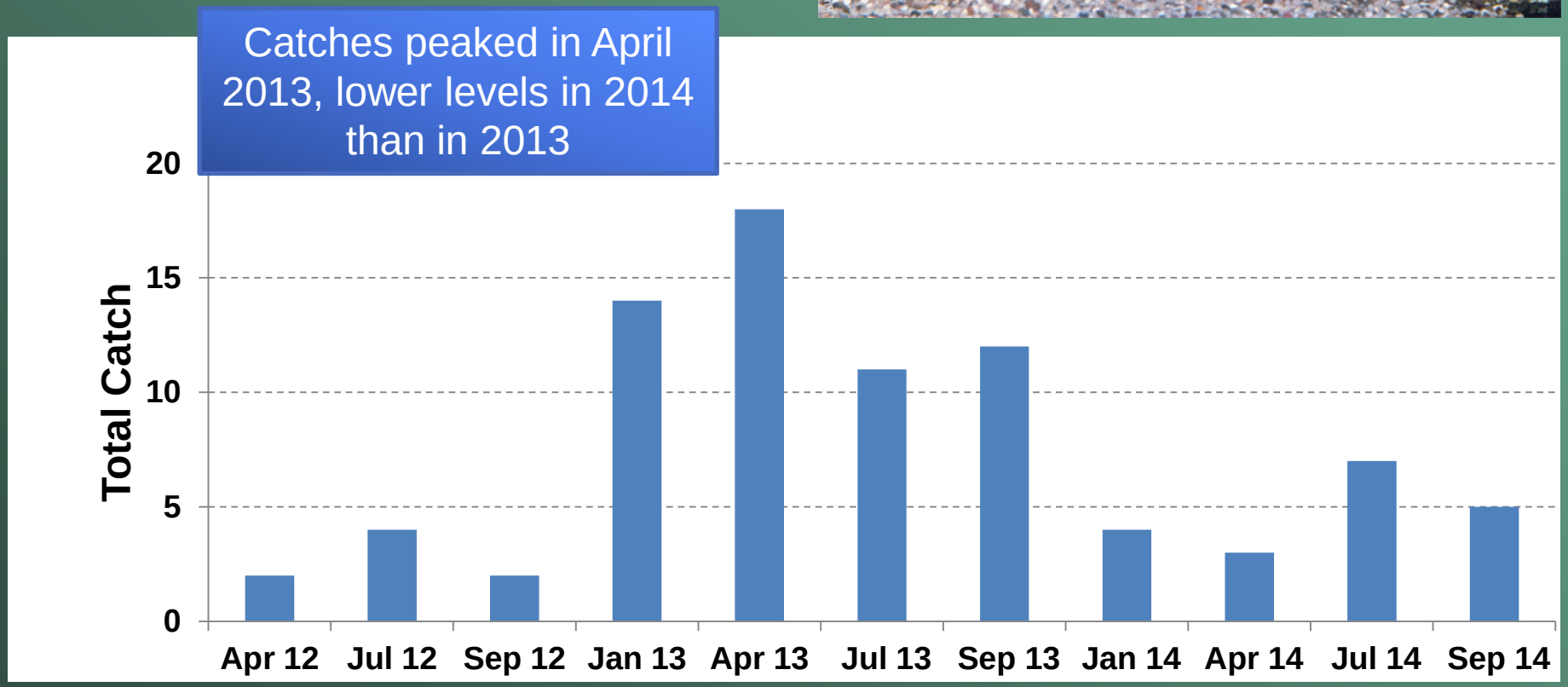
(Preliminary Data from Korman and Yard 2015. Do Not Cite.)

Brown Trout Catches: Below the Little Colorado River Reach



USGS

(Preliminary Data from Yard and Korman 2015, Do Not Cite)

2011 USFWS Biological Opinion Non-native Fish Control Trigger

- Adult humpback chub <7000 fish? No
- OR
- ALL THREE? No
  - 3 of 5 years 150-199 mm humpback chub in the LCR drops below 910? No
  - Temperature <12° C for 2 consecutive years at LCR? No
  - Annual survival of 40-99 mm humpback chub in JCM drops 25% from preceding year? No

USGS

2011 USFWS Biological Opinion Non-native Fish Control Trigger

- **AND**
- **Rainbow trout abundance over 760?** **Yes**

  Open model estimates exceed threshold for three of four trips in 2014 (Korman and Yard, preliminary data)
- **AND**
- **Brown trout abundance over 50?** **Unknown**

  2014 catches lower than in 2013, only 5 total caught in Sept. 2014 – catches too low to generate abundance estimate (Yard and Korman, preliminary data)

USGS

Questions?
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