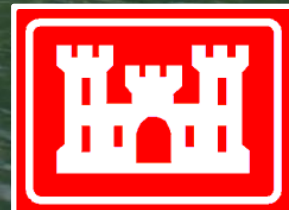


SPRING CHINOOK SALMON MOVEMENT AND DISTRIBUTION IN THE SOUTH FORK MCKENZIE RIVER ABOVE AND BELOW COUGAR DAM



Jeremy D. Romer*
Fred R. Monzyk

Oregon Department of Fish and Wildlife
Corvallis Research Lab
jeremy.romer2@oregonstate.edu



Objectives:

Migration Timing – Reservoir Entry and Exodus

Size – Entry and Exodus

Abundance Estimate – Subyearling Chinook

Reservoir Distribution – Temporal Scale

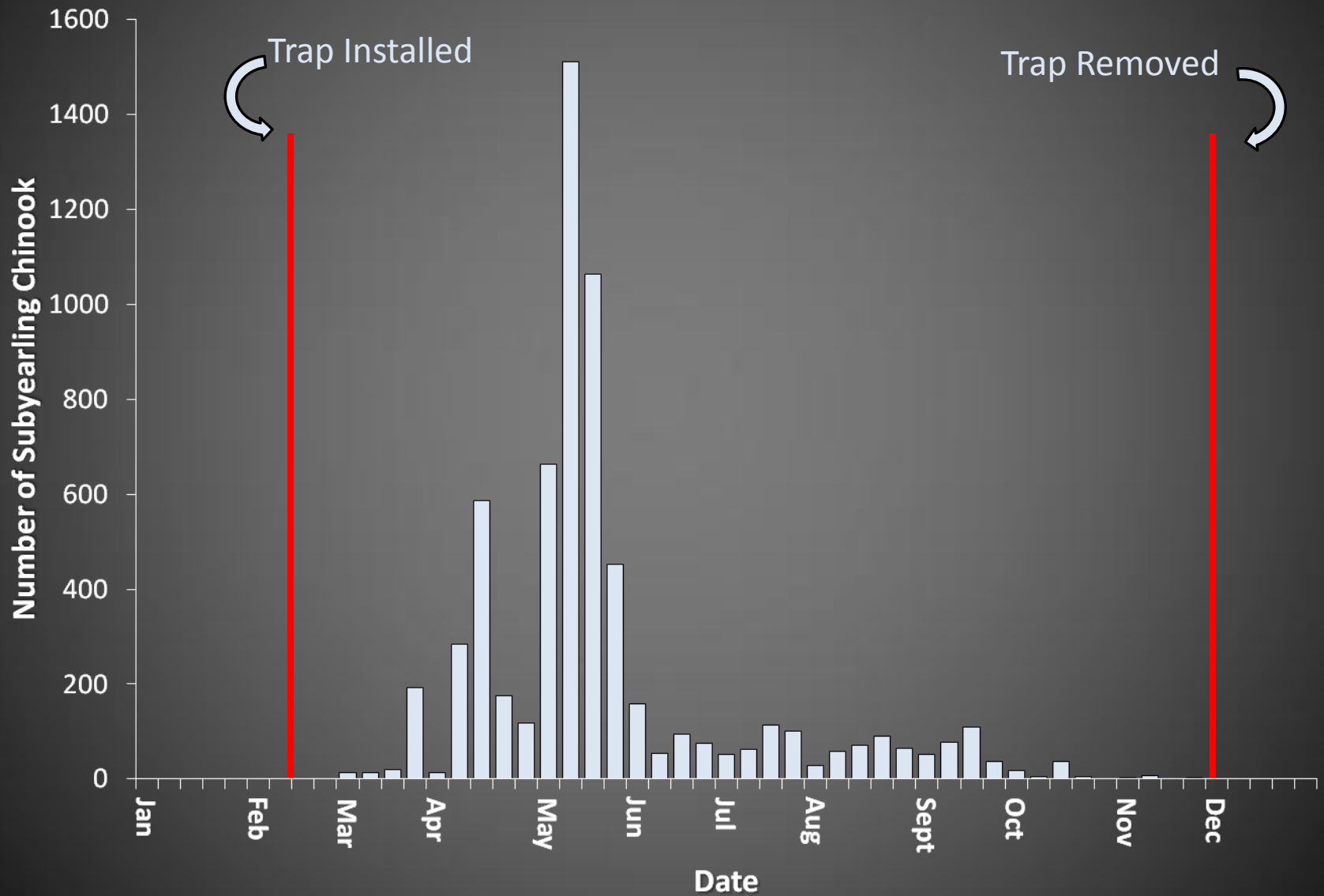
Dam Passage – Differing Operations

SOUTH FORK MCKENZIE RIVER, UPSTREAM OF COUGAR RESERVOIR



Chinook - 2012

Subyearling Migration Timing



Chinook - 2012

Upper South Fk. McKenzie Abundance Estimates

South Fork McKenzie River Above Cougar Reservoir

Brood Year			Number of BY	Total Number of Redds
(BY)	Abundance Est.	95% CI	Females	(peak) Above Trap
2010	685,723	±72,519	629	274
2011	152,159	±26,665	320	190
2012	228,241	±34,715	336	212
2013			448	216

Reservoir Sampling - 2012

Juvenile CHS Distribution in Cougar Reservoir

Oneida Trap



Lead Net
34 m x 3 m

Box Dimensions
2.4 m x 2.4 m x 2.4 m

Nearshore Trap

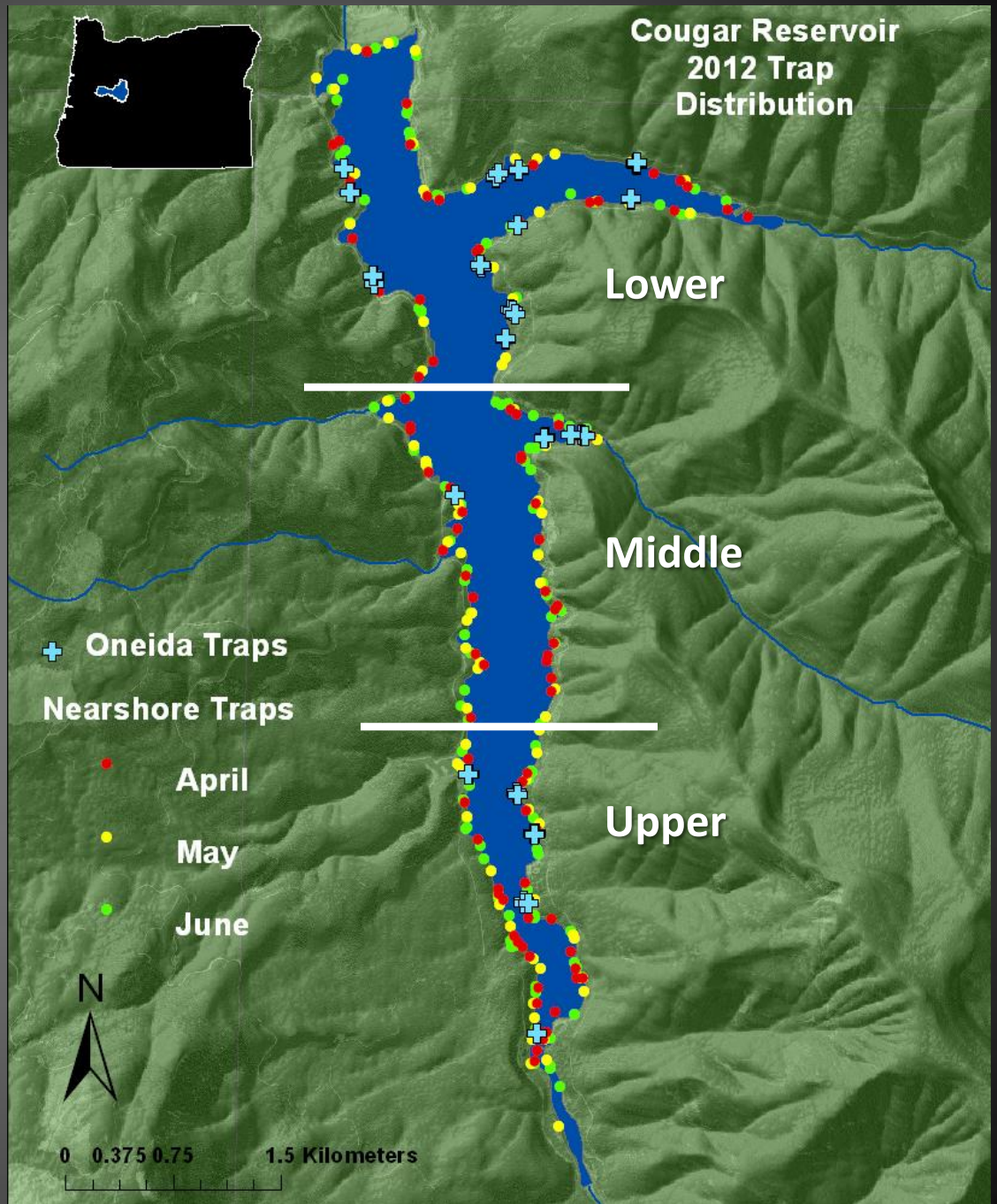


Lead Net
5 m x 0.9 m

Box Dimensions
0.6 m x 0.6 m x 0.9 m

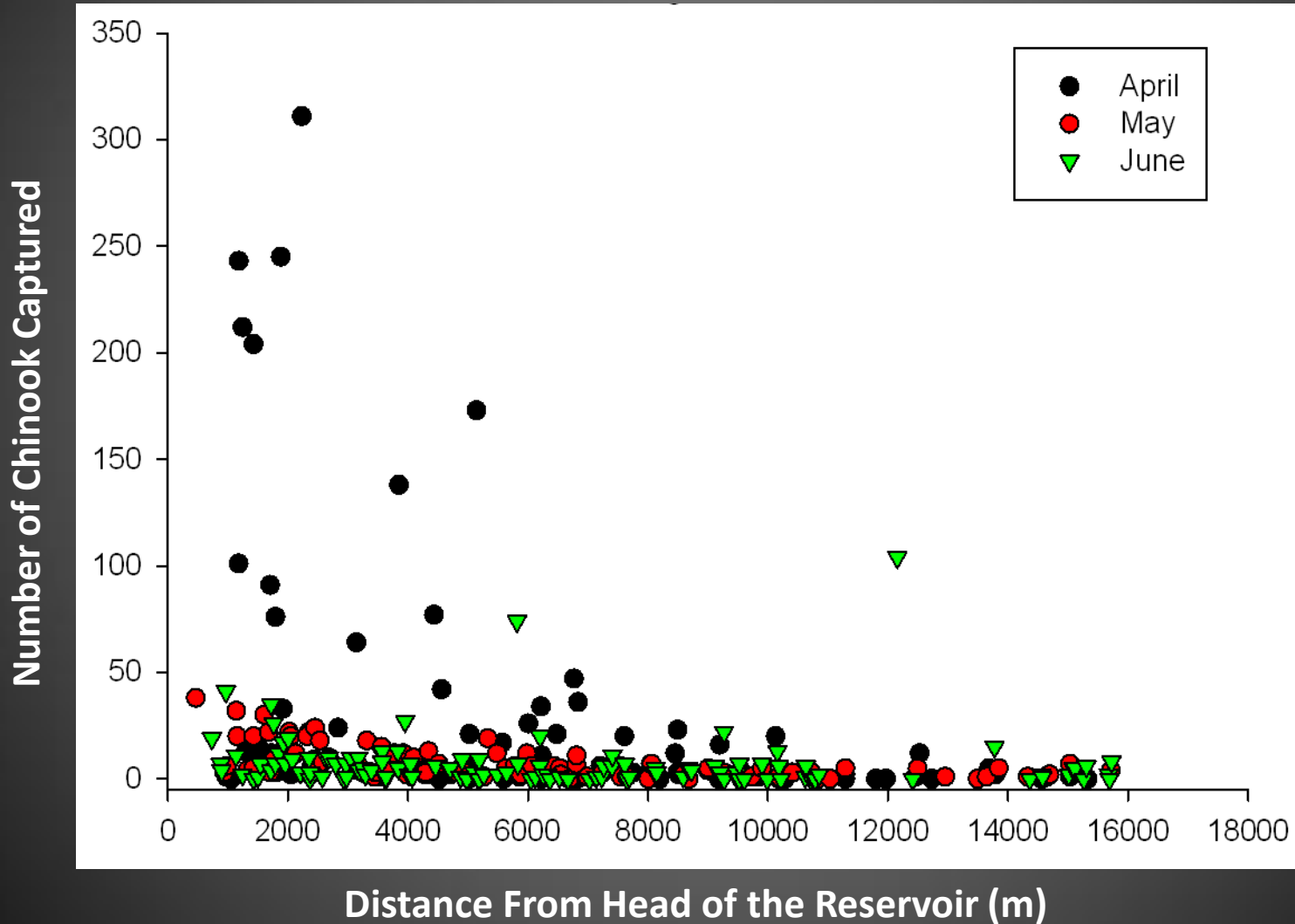
Reservoir Sampling - 2012

Longitudinal Distribution



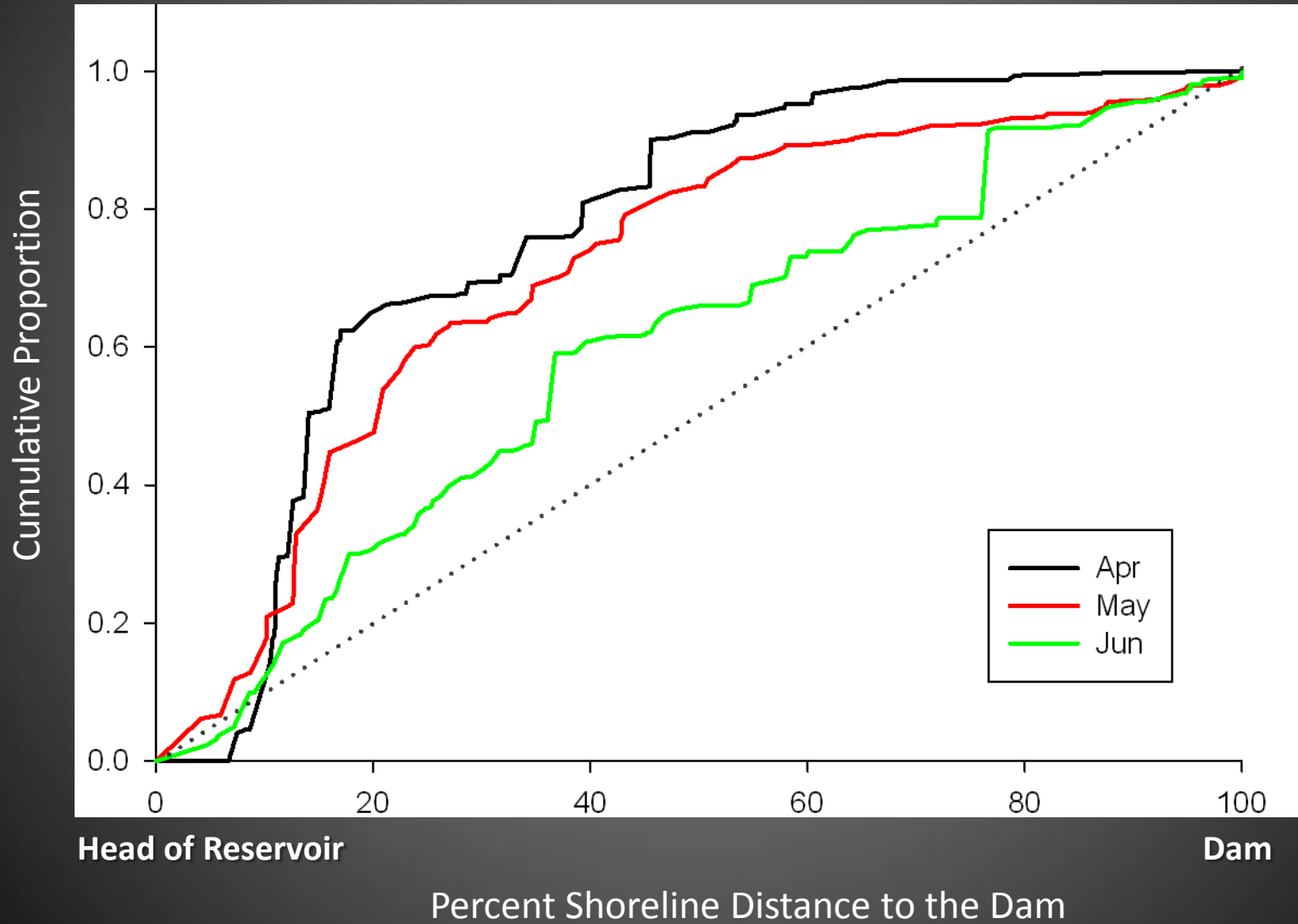
Reservoir Chinook Distribution - 2012

Juvenile Distribution in Cougar Reservoir



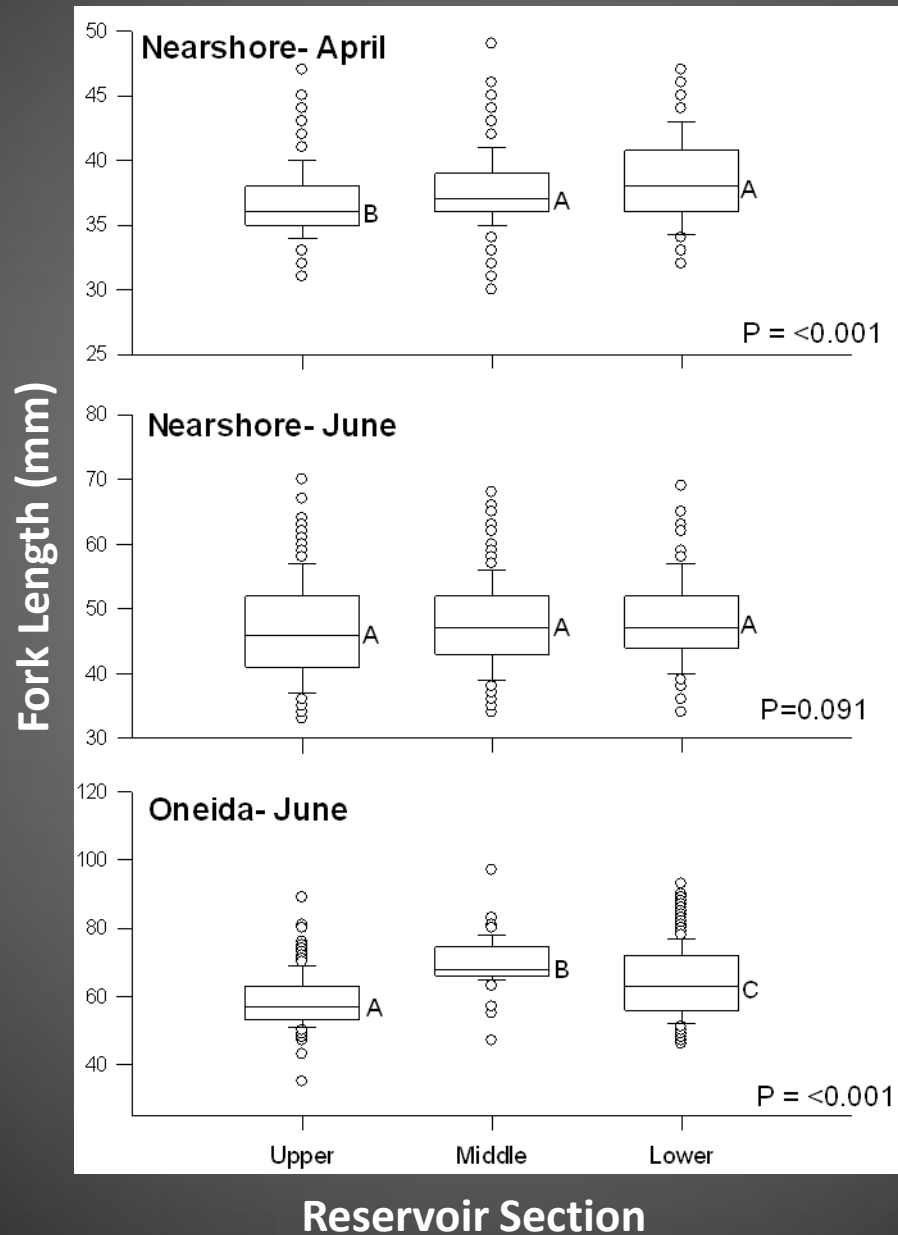
Reservoir Chinook Distribution - 2012

Juvenile Distribution in Cougar Reservoir



Reservoir Chinook Distribution - 2012

Juvenile Distribution in Cougar Reservoir



Largest fish in middle and lower sections.

Equal size distribution throughout.

Largest fish in middle and lower sections.
Larger fish move offshore.

SCREW TRAPPING OPERATIONS BELOW COUGAR DAM

Cougar Dam

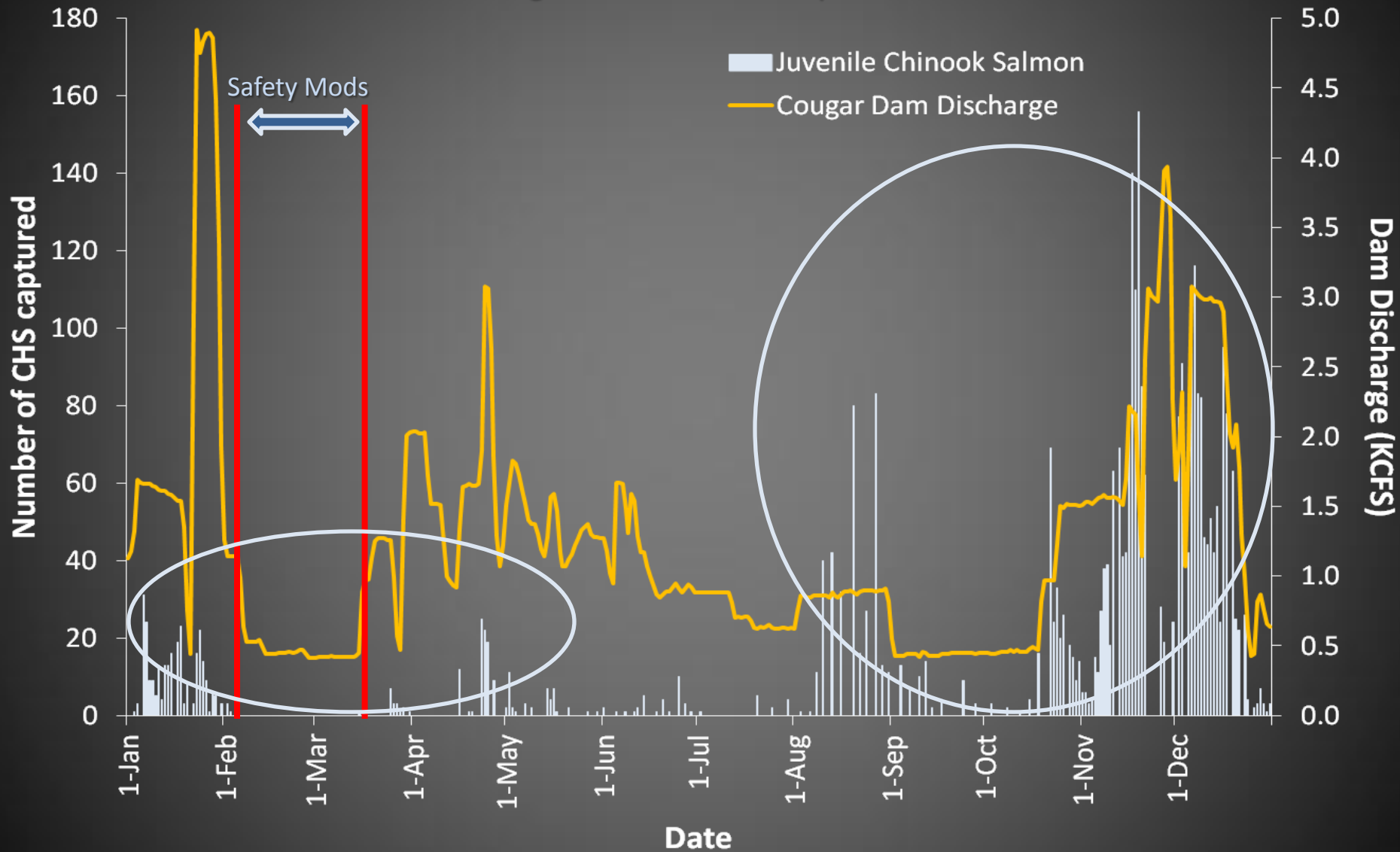
Regulating Outlet

Tailrace



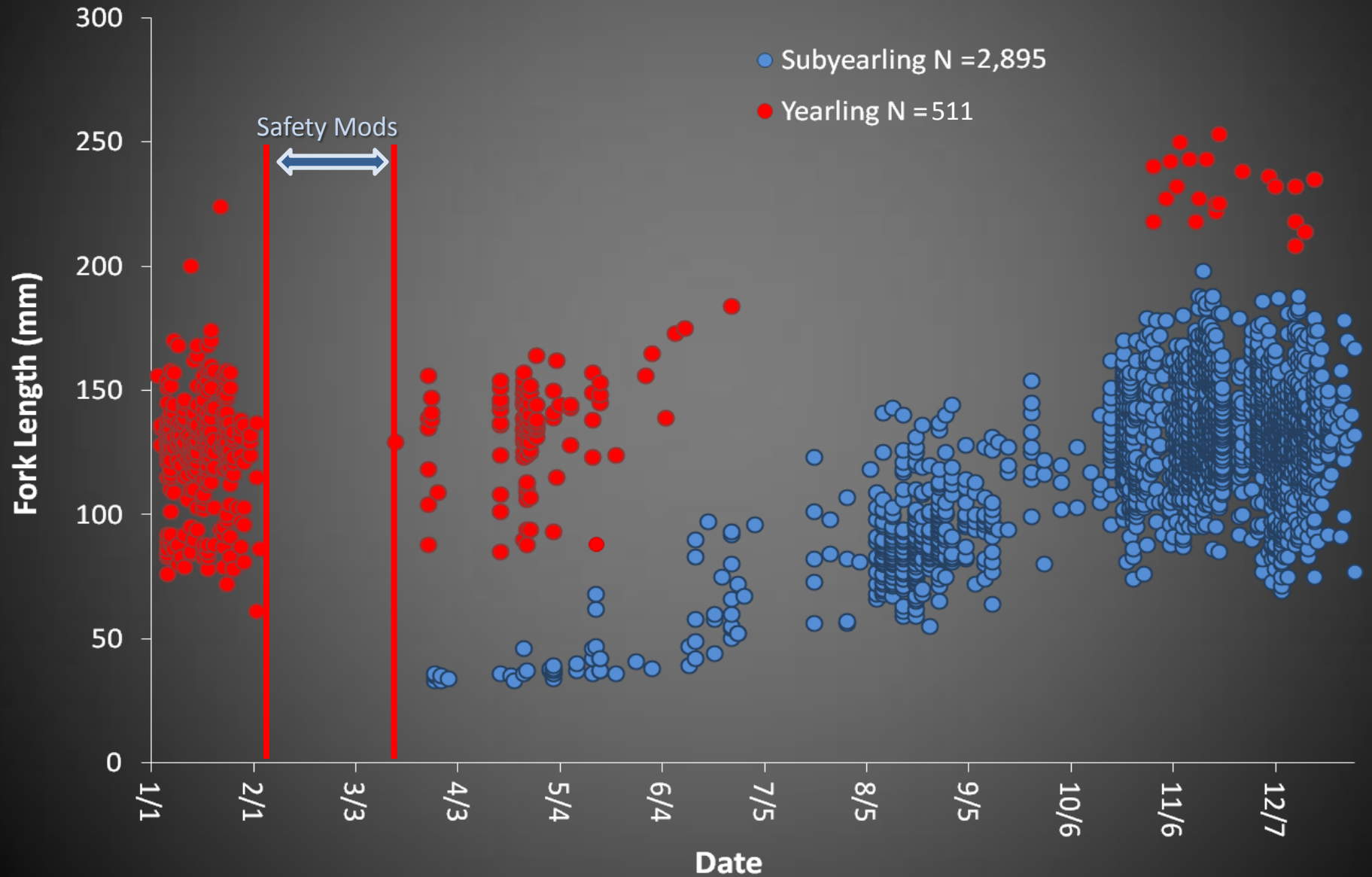
Chinook Below Cougar Dam – 2012

Timing of Juvenile CHS captured



Chinook Below Cougar Dam - 2012

Size and Brood Year (subyearling, yearling)



Cougar Dam Operations - 2012

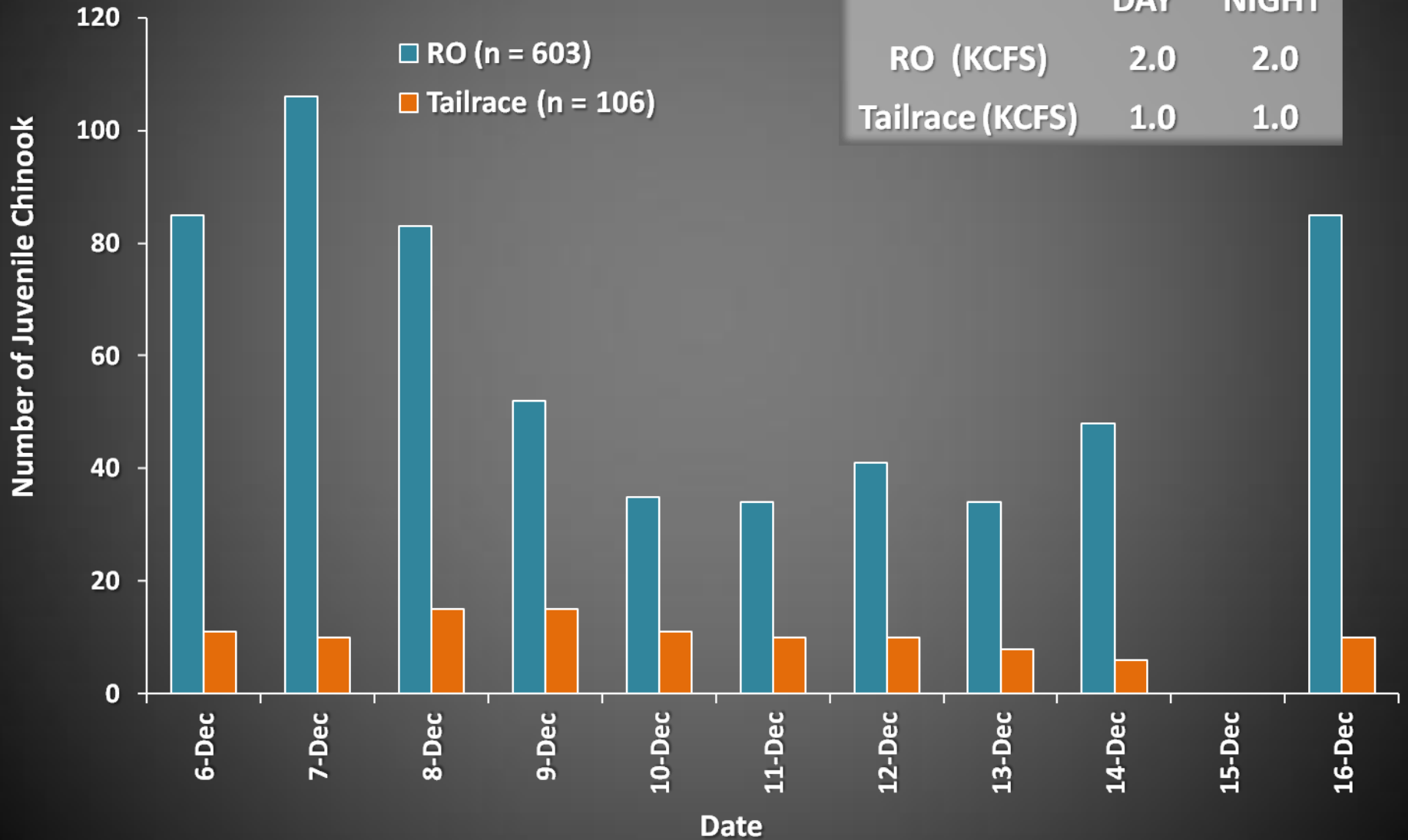
- Day vs. Night
- Deep Drawdown



Photo: USACE

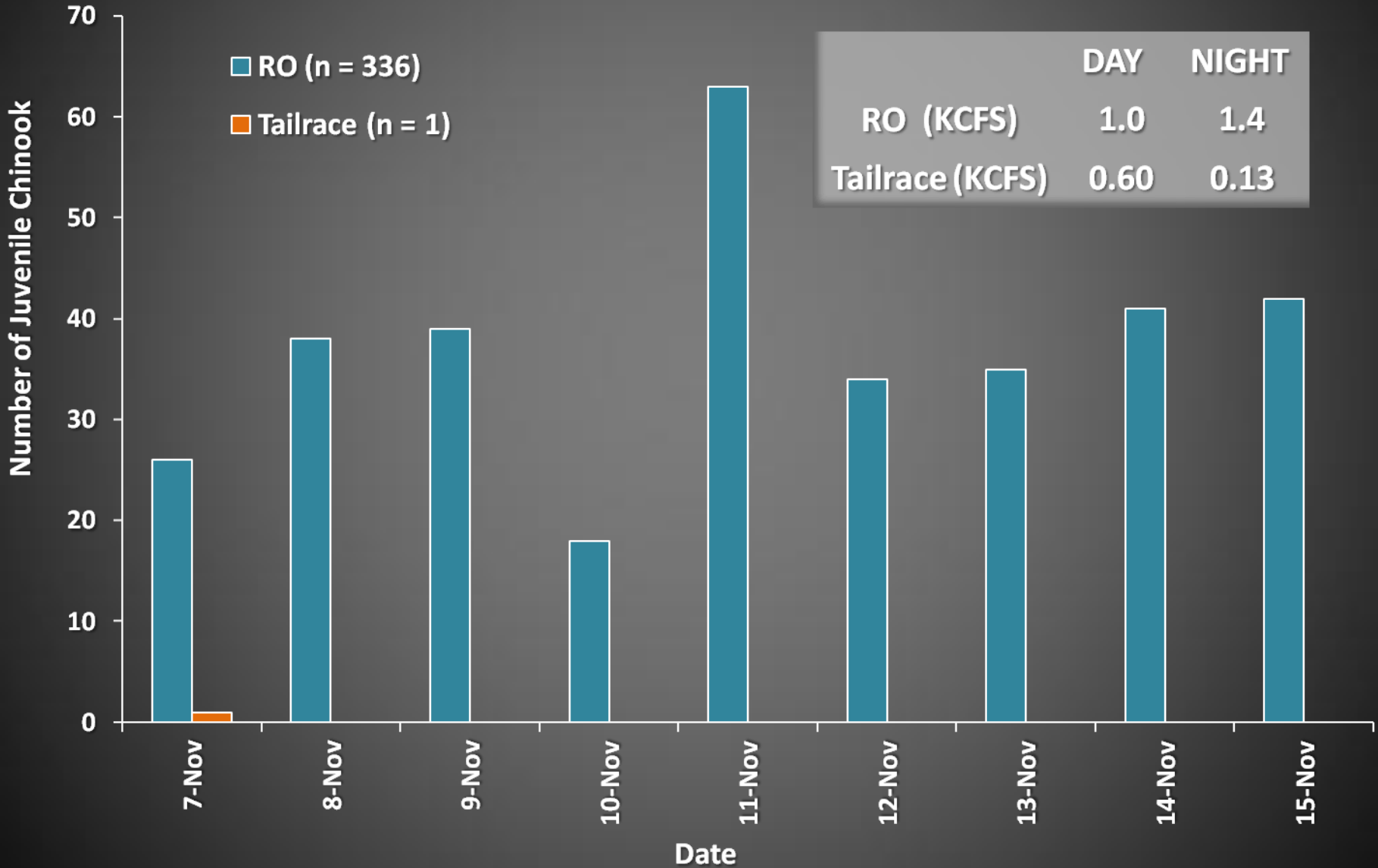
Cougar Dam Operations - 2012

December - Constant Flow, Majority RO



Cougar Dam Operations - 2012

November - Day vs. Night



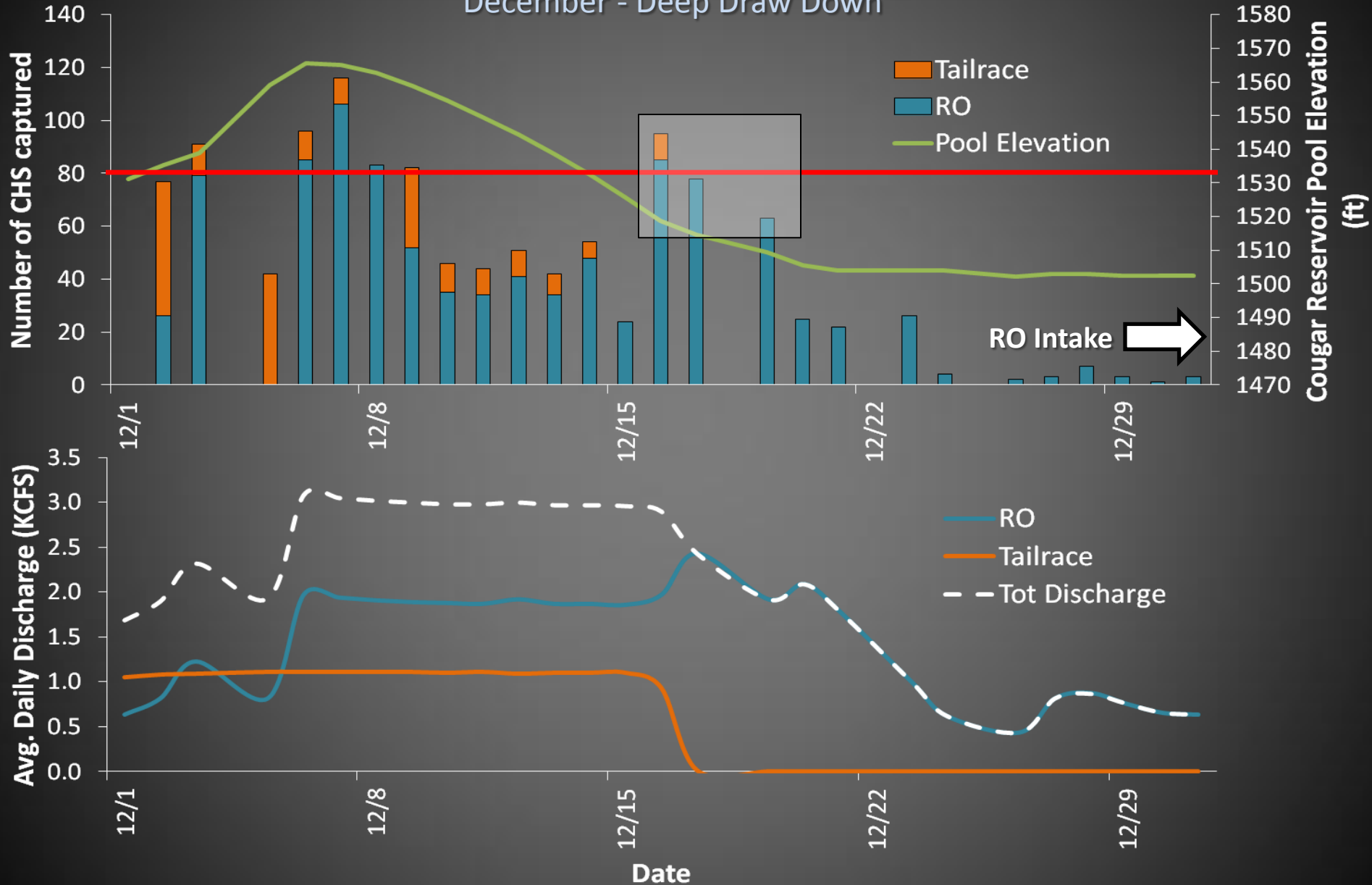
Deep 'er' Drawdown - December 2012

- 1530 ft Standard – 1500 ft in 2012



Cougar Dam Operations- 2012

December - Deep Draw Down



Key Points :

Subyearling Chinook migrate into Cougar Reservoir beginning in March with a peak in movement in May (avg. 35 mm FL in March).

Few subyearlings are able to move through Cougar Reservoir in spring.

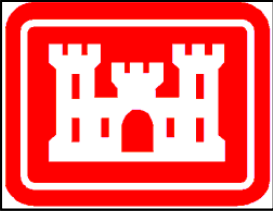
Subyearlings are nearly evenly distributed throughout Cougar Reservoir by the end of June/July.

Most subyearlings exit Cougar Reservoir through Cougar Dam during fall - winter (avg. 130 mm FL in December).

Most juvenile CHS exit Cougar Dam at night.

Deep drawdown in December may advance the timing of juveniles exiting Cougar Reservoir.

Acknowledgements



Doug Garletts
Chad Helms
Greg Taylor
Rich Piaskowski



Randy Wildman



Jeff Ziller



Ryan Emig
Khoury Hickman
Chris Abbes
Kris Clemons
Greg Gilham
Mario Minder
Meghan Horne-Brine
John Elliott
Kevin Stertz
Matt Walker