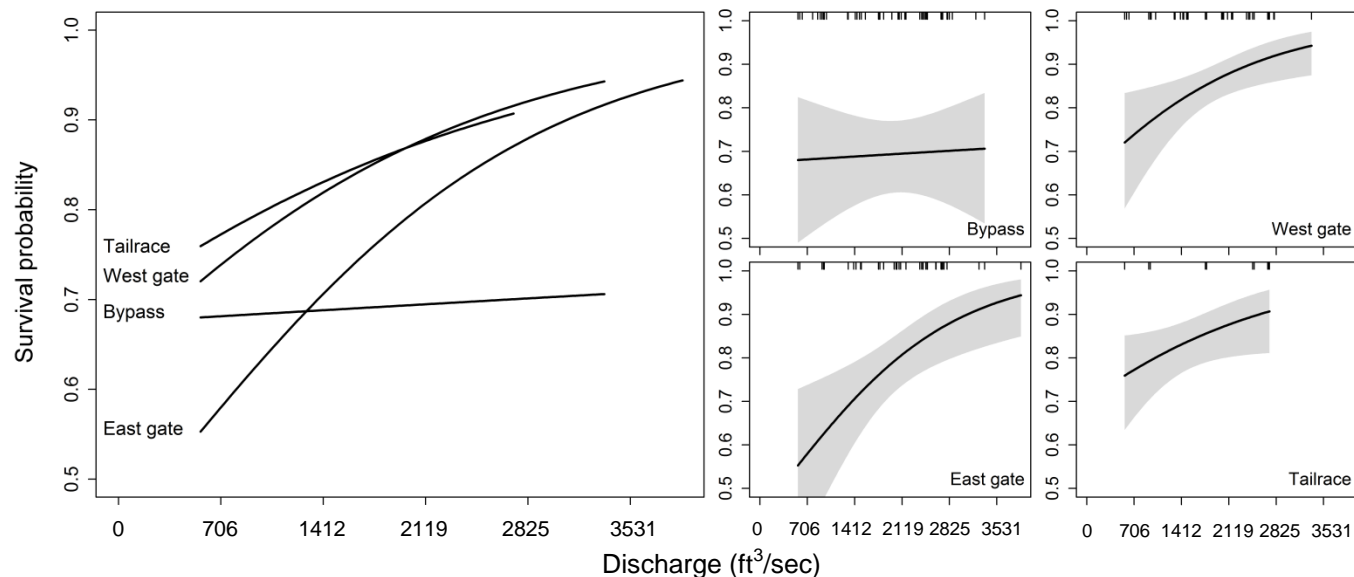# Survival of Juvenile Chinook and Coho Salmon in the Roza Dam Fish Bypass and in Downstream Reaches, 2016
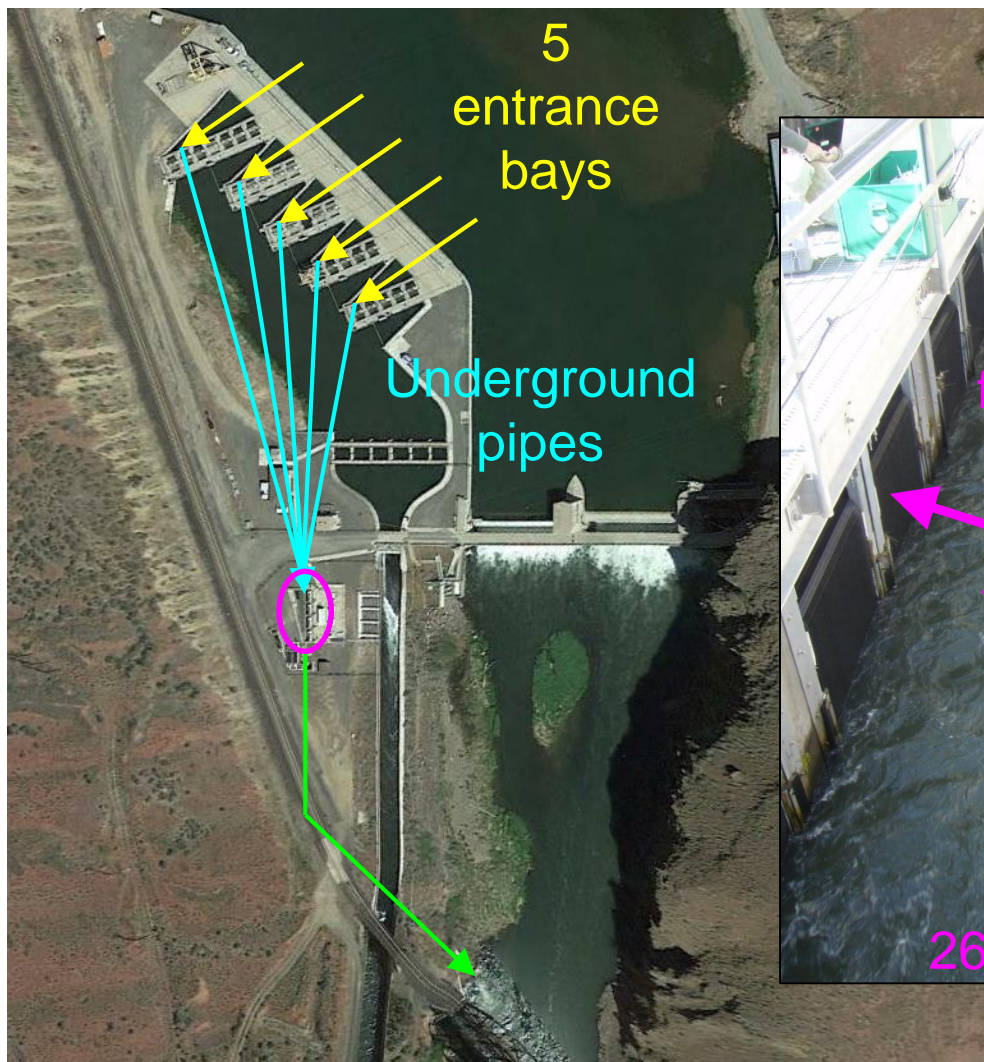
Tobias Kock, Russell Perry, Joel Hubble, and Ian Courter
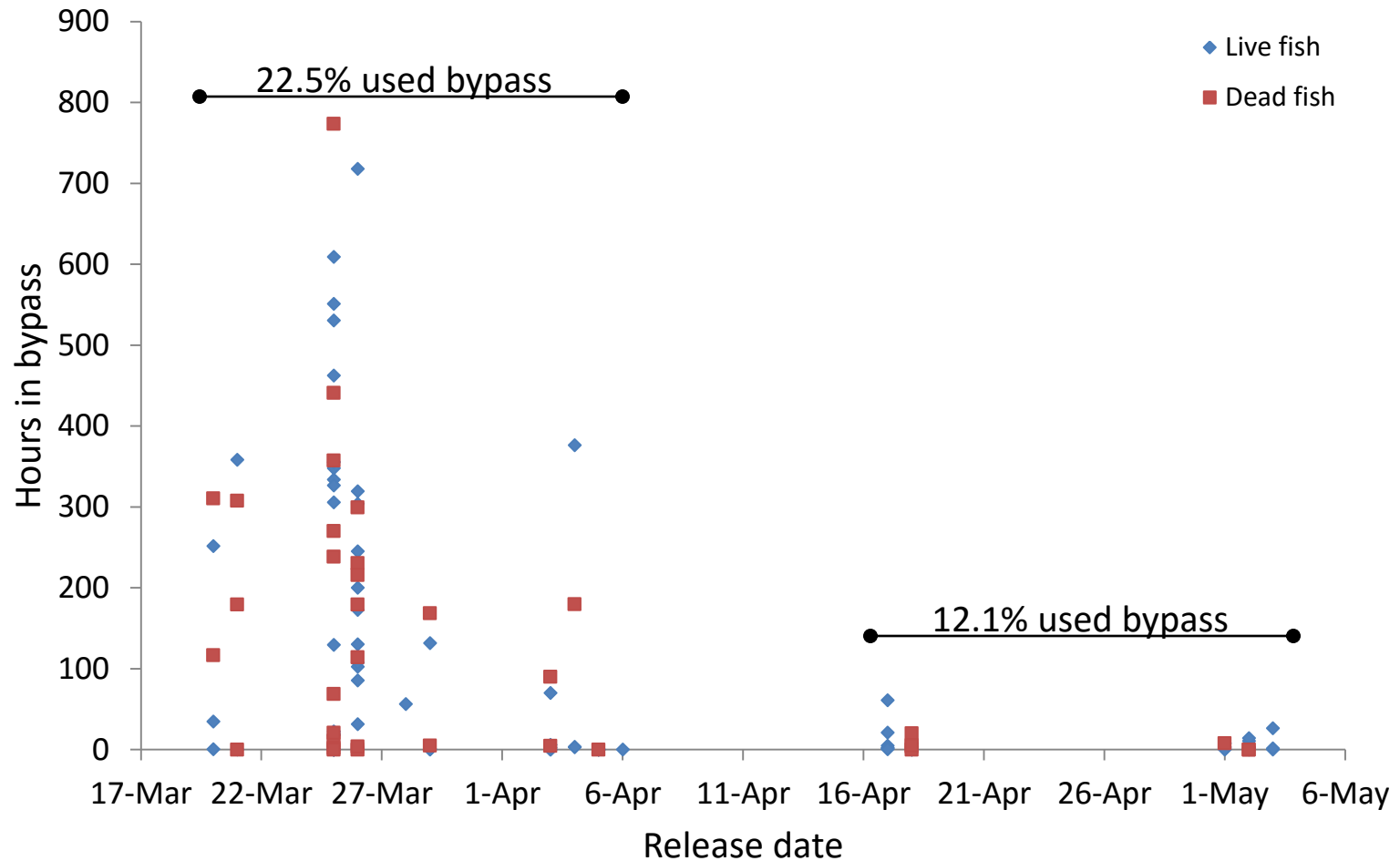
Passage Survival at Roza Dam

➤ Survival studies conducted during 2012-2014

➤ Chinook salmon

  ➤ n = 149 in 2012

  ➤ n = 226 in 2013

  ➤ n = 520 in 2014

➤ Route-specific passage survival estimates[1]

≋USGS

[1]Perry et al. (*in press*)
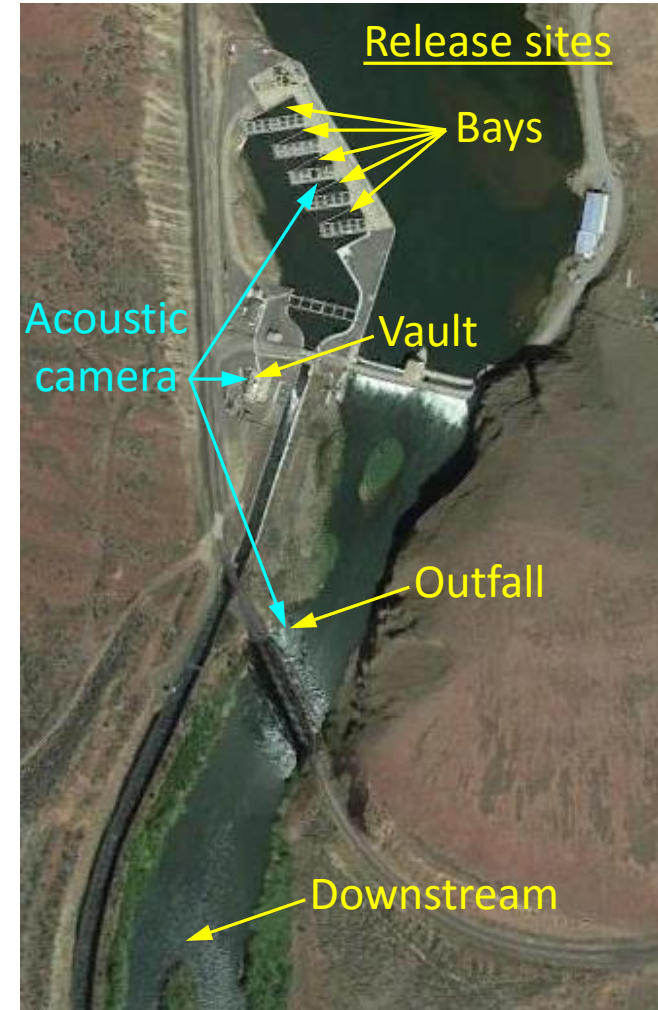
Roza Dam Fish Bypass

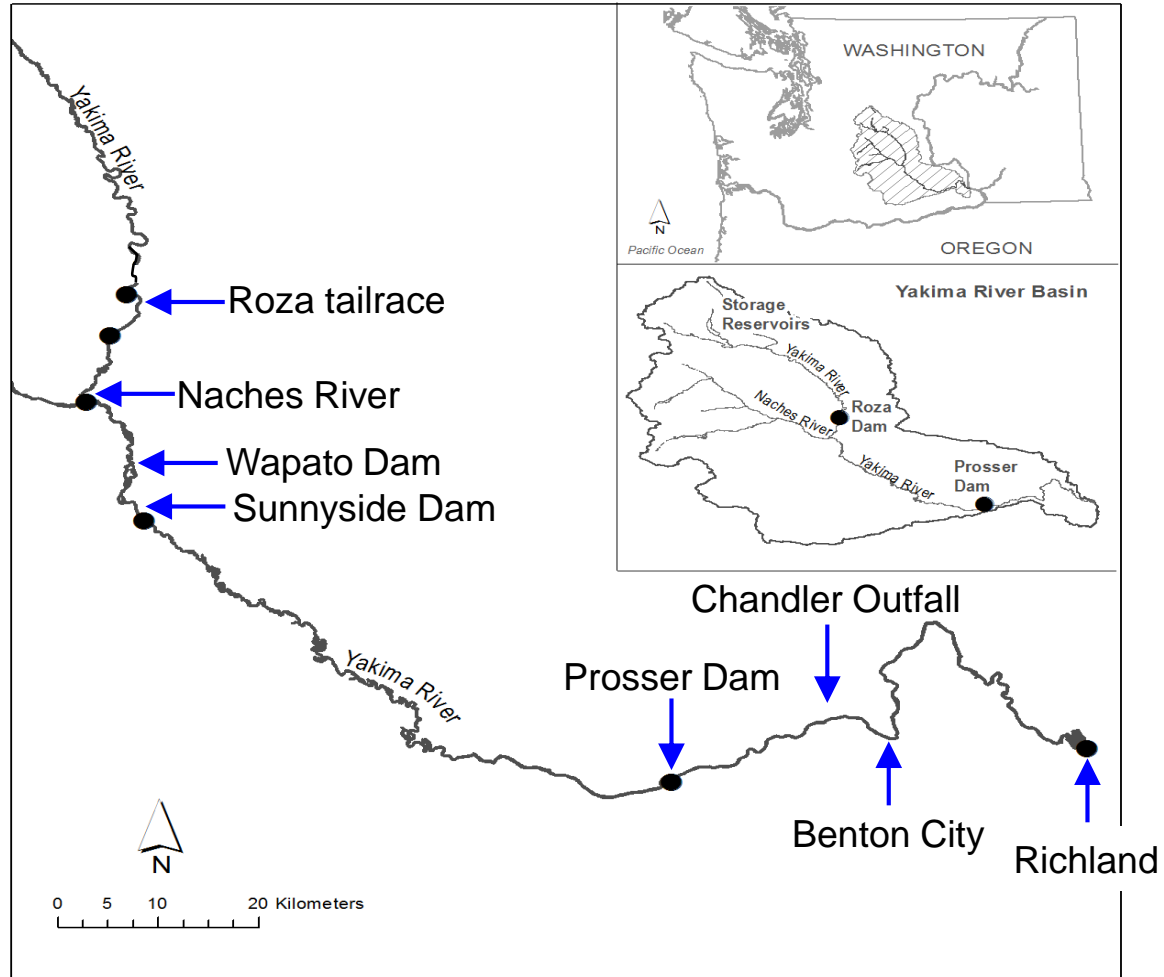# Delay in the Fish Bypass

USGS

2016 Study Design

- ➤ Study period
  - ➤ ~~late March~~ to early May
    mid April
- ➤ Acoustic camera

- ➤ Acoustic telemetry
  - ➤ Chinook salmon ~~(*n* = 800)~~
    n = 549
  - ➤ 4 release sites
    +
    Coho salmon *n* = 260

Release sites
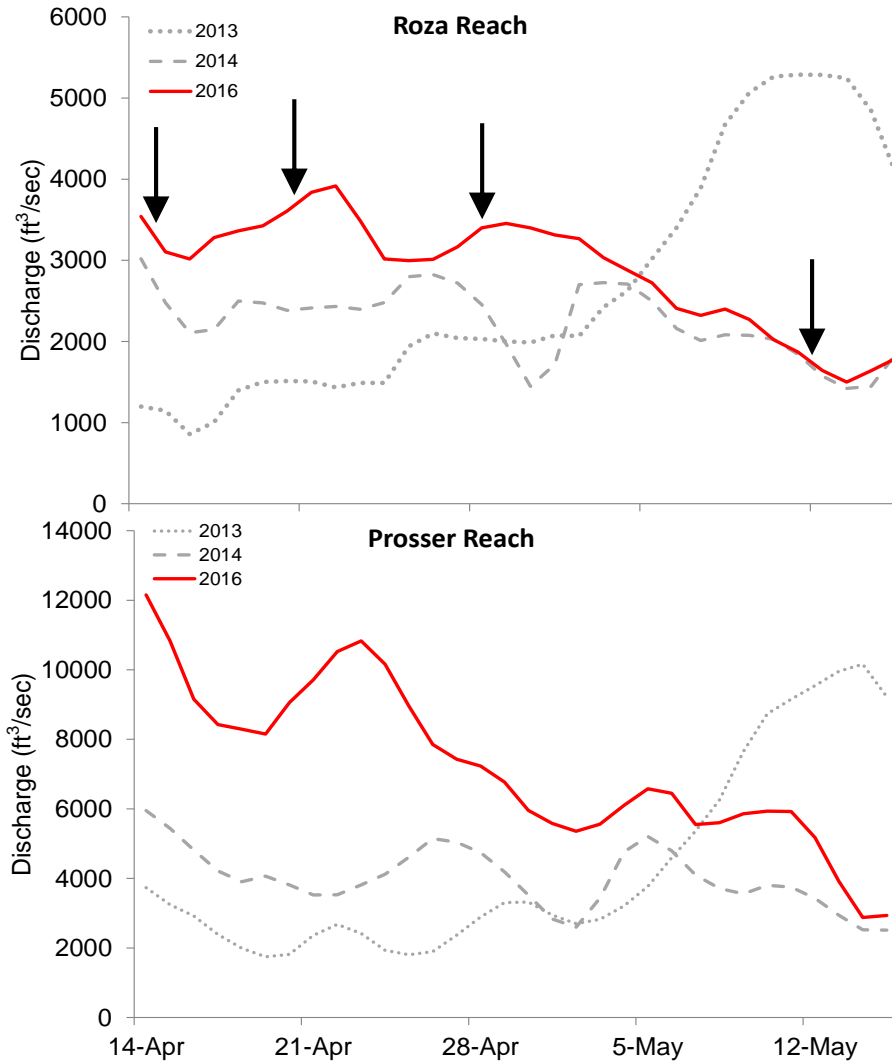Bays
Acoustic camera
Vault
Outfall
Downstream

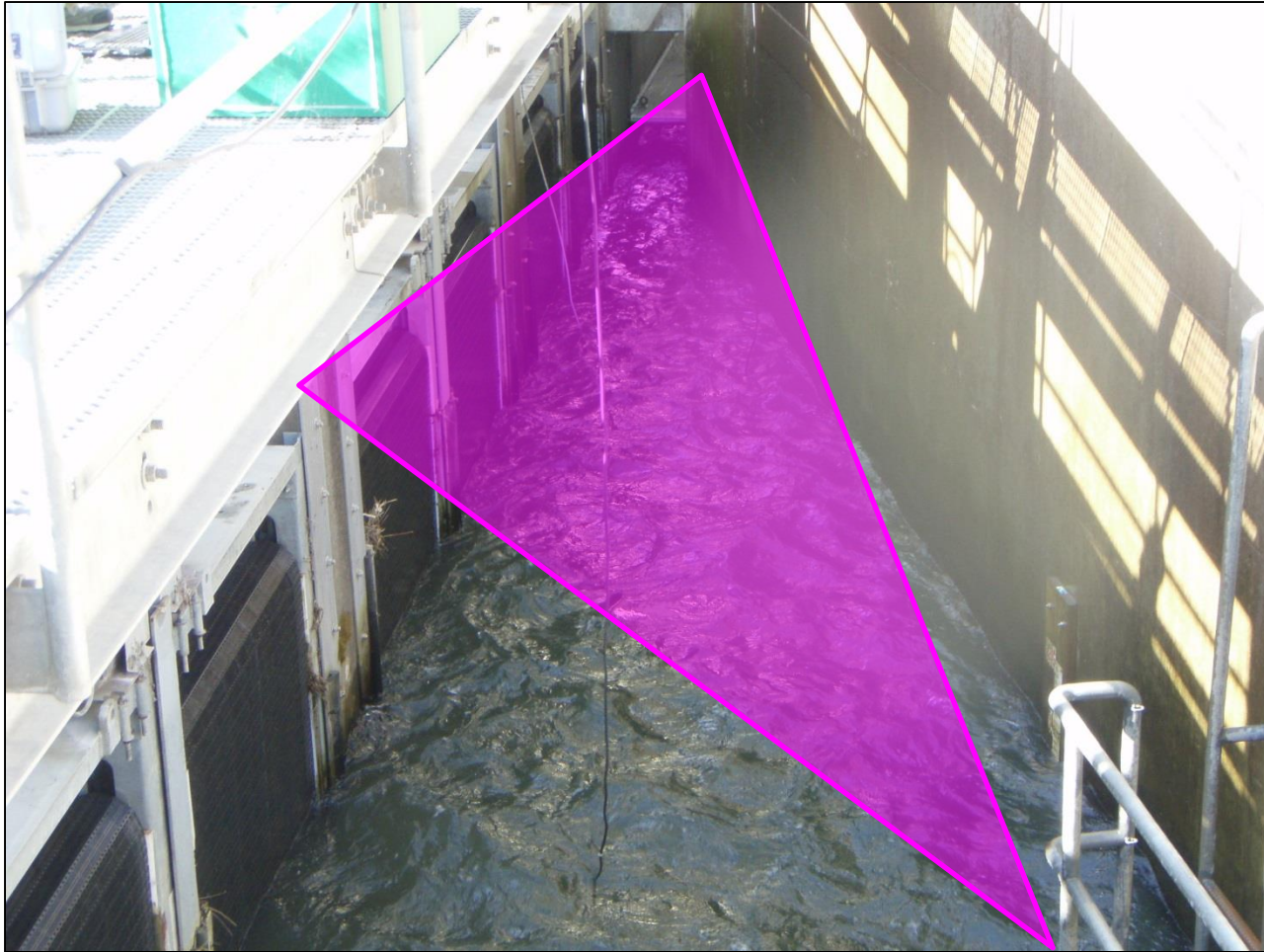**≋USGS**

Study Area

Flow Data

= fish releases

Entrance Bay Footage

Vault Footage

Outfall Footage

Delay in the Fish Bypass

7 fish: 4.0-17.5 d
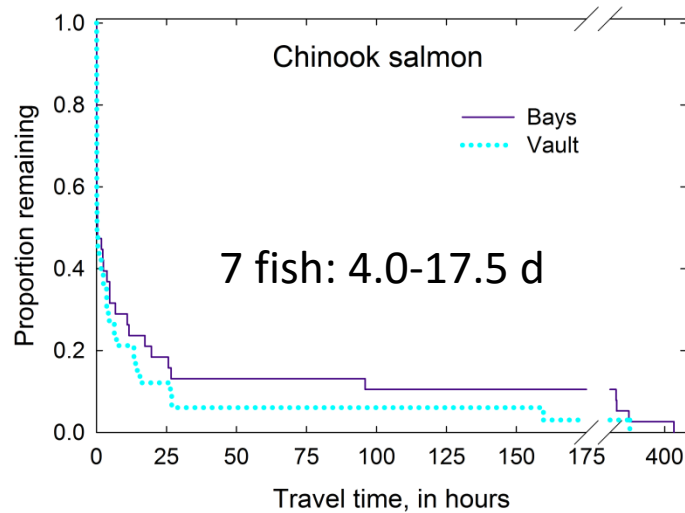
Percentile	Release site	
	Bays	Vault
75th	11.6 h	6.4 h
50th	22.2 min	9.6 min
25th	5.6 min	3.1 min

11 fish: 2.5-17.4 d
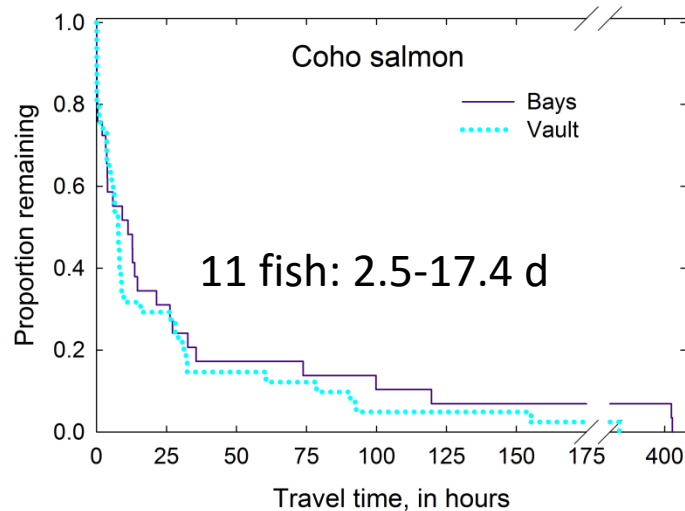
Percentile	Release site	
	Bays	Vault
75th	27.2 h	28.1 h
50th	11.2 h	7.7 h
25th	2.0 h	2.3 h

≈USGS

Bypass Survival Estimates

Tailrace
- CHK = 87%
- COH = 90%

Bypass
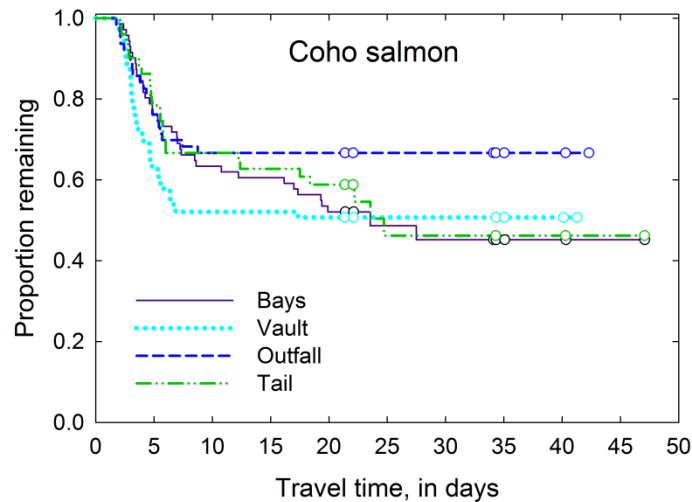- CHK = 88%
- COH = 87%

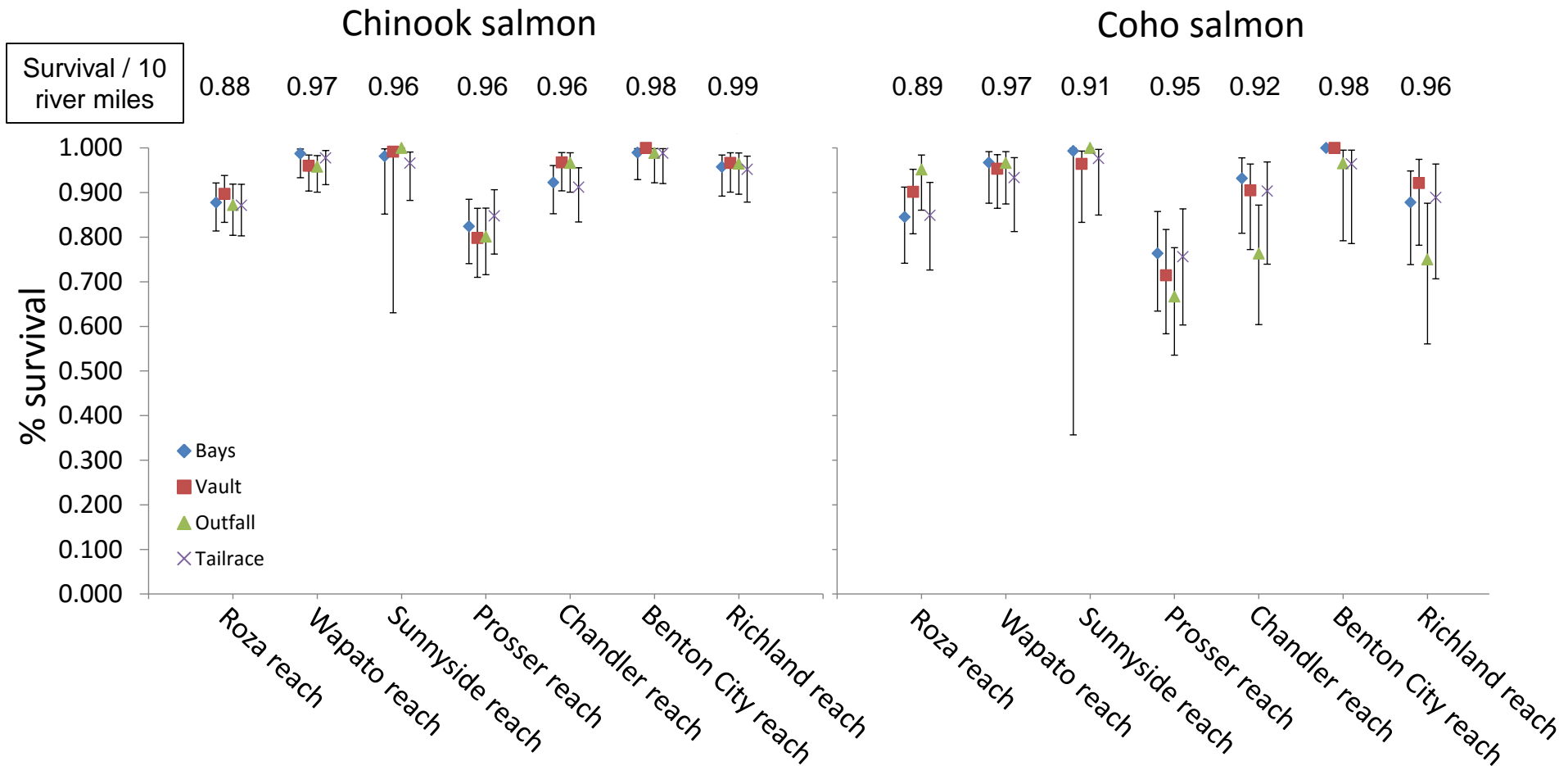Chinook salmon   Coho salmon
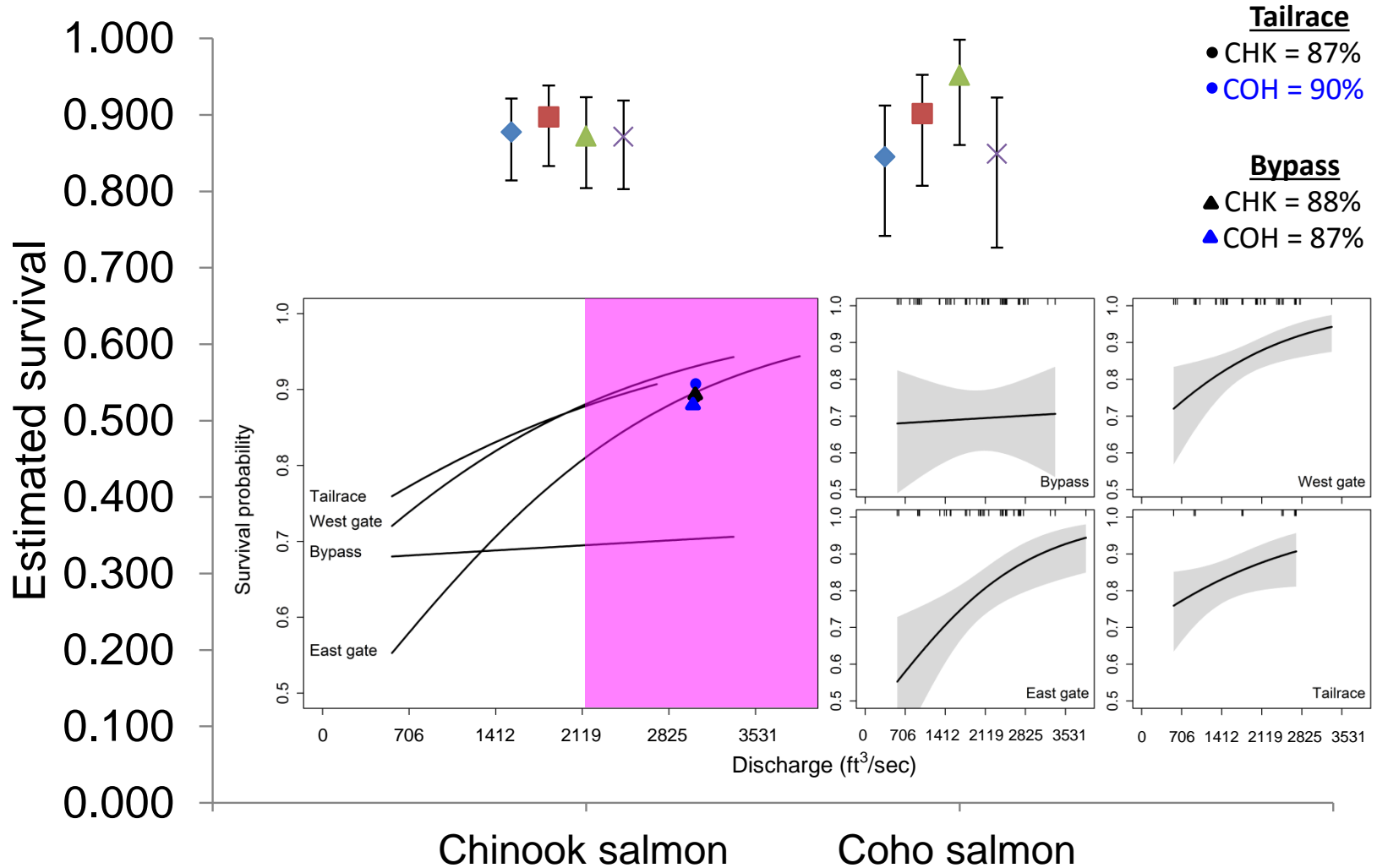
Travel Times
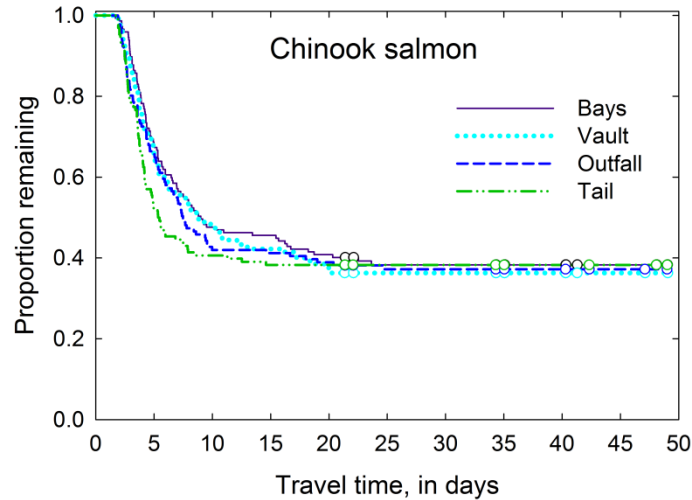
Roza Dam to Richland

Median = 7.8 d

Median = 22.4 d

Reach Survival Estimates

Chinook salmon

Coho salmon

Cumulative Mortality

Chinook salmon

Coho salmon

62%

48%

2012-2014[1]
CHK = 32%

[1]Courter et al. (*in review*)
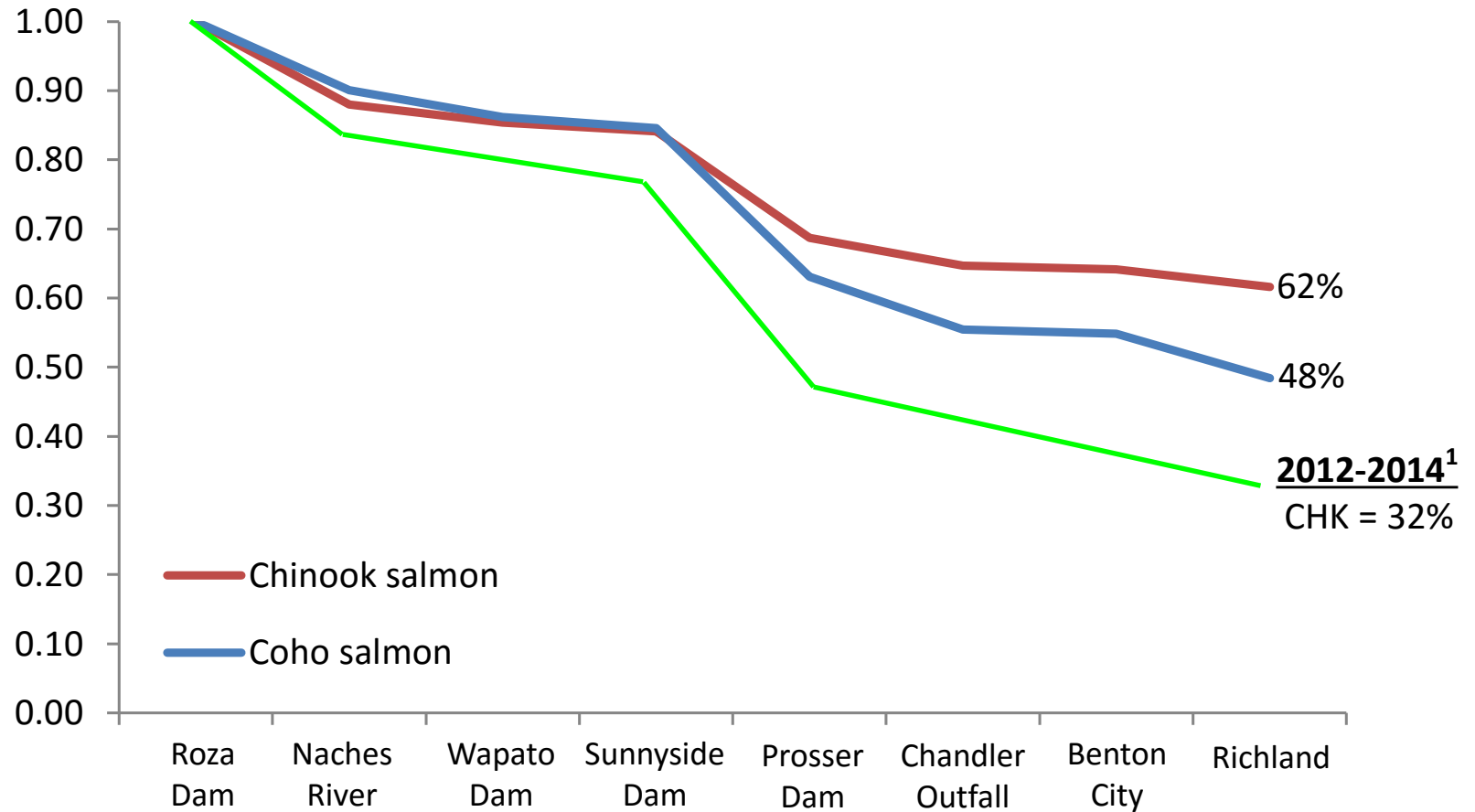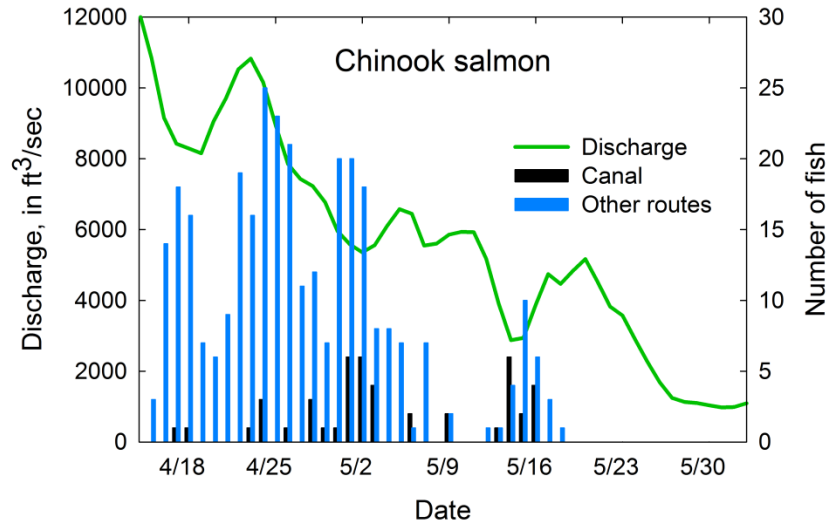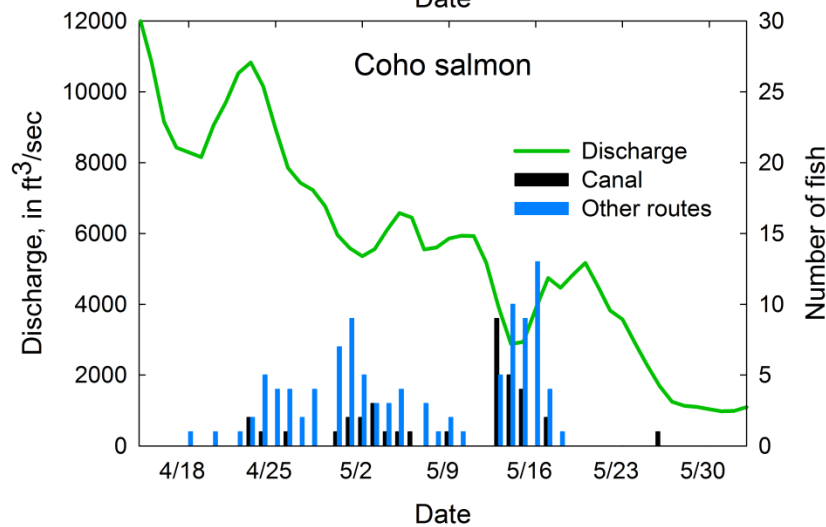
Prosser Dam Passage

12% canal passage

26% canal passage

Next Steps

➢ Finish data collection

➢ Roza fish bypass
  ➢ Assess release group differences
  ➢ Merge current and past datasets and re-analyze data
  ➢ Summarize acoustic camera results

➢ Downstream reaches
  ➢ Conduct "cohort" analysis
    ➢ Include important covariates
  ➢ Merge current and past datasets and re-analyze data

➢ Acknowledgements
  ➢ Mark Johnston and Roza crew
  ➢ Funding: BOR and Joint Board

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