Assessment of Passage Route Effects on Survival of Juvenile Chinook Salmon at Roza and Prosser Dams, 2013

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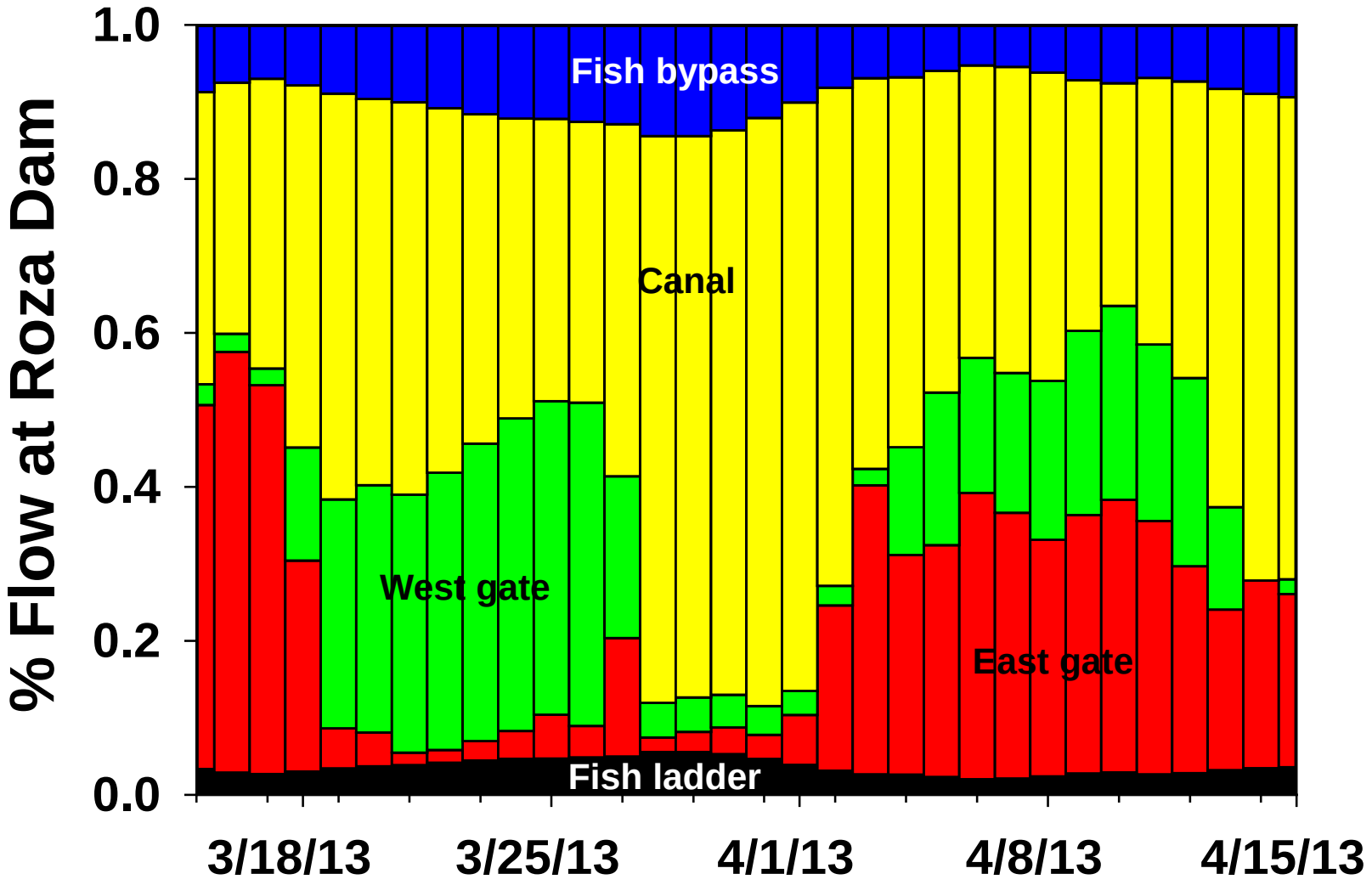
U.S. Department of the Interior
U.S. Geological Survey

River Flows and Dam Operations



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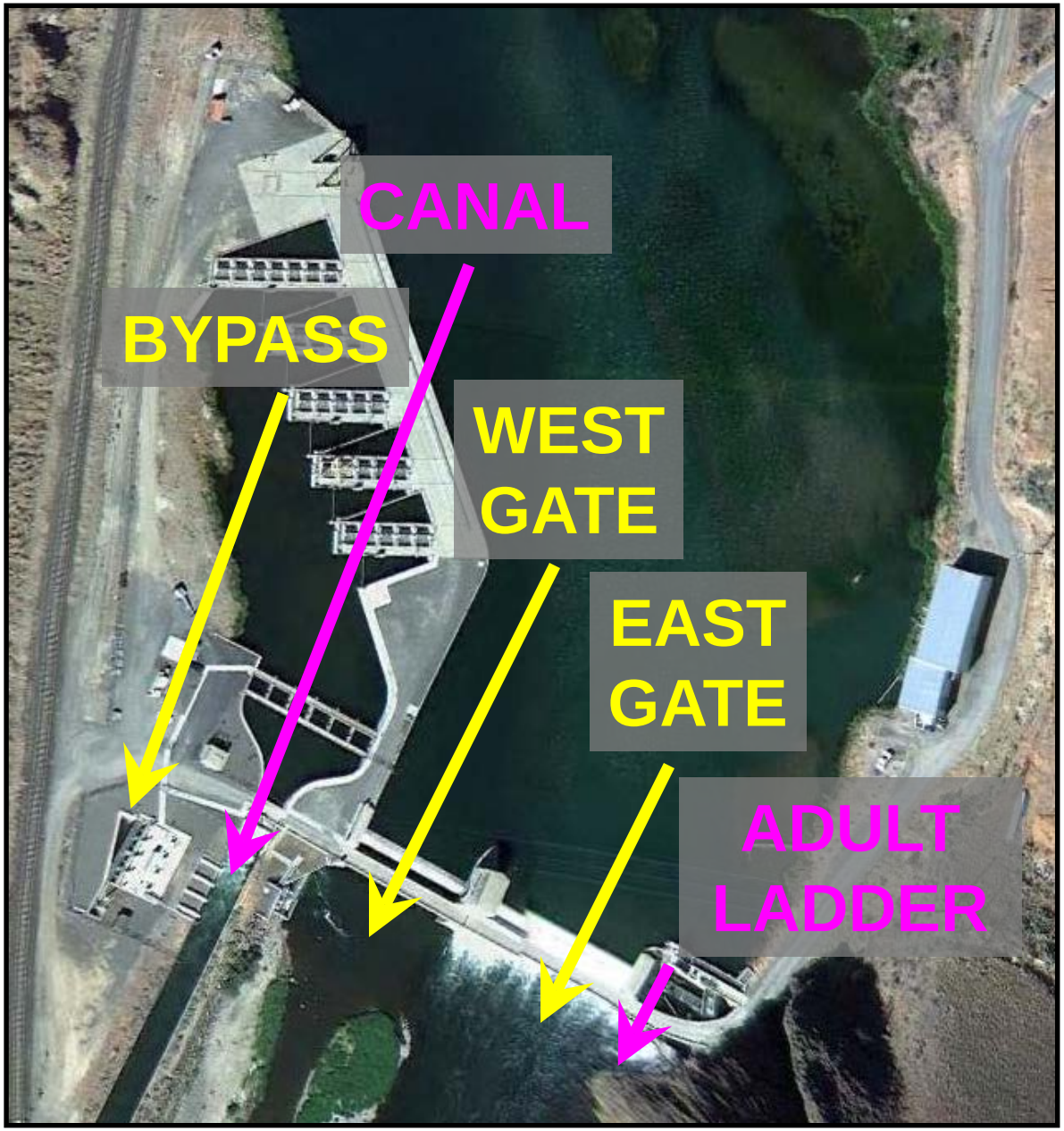
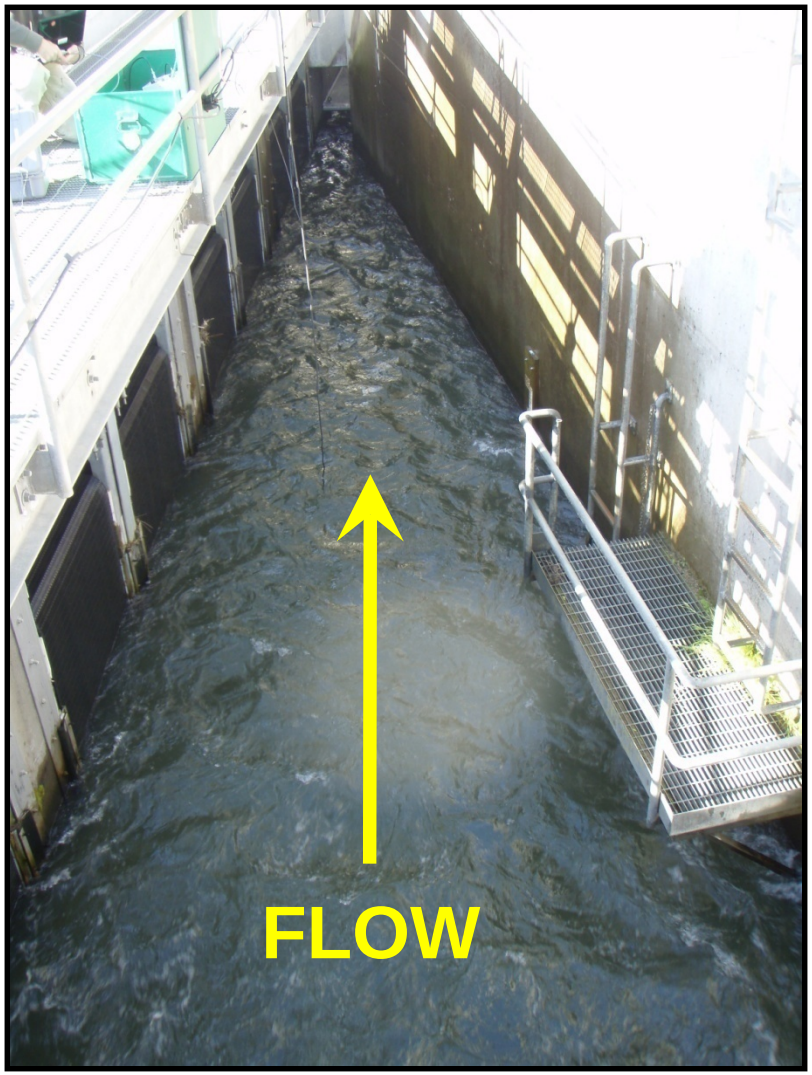
Roza Dam Passage Routes



USGS

Bypass Channel



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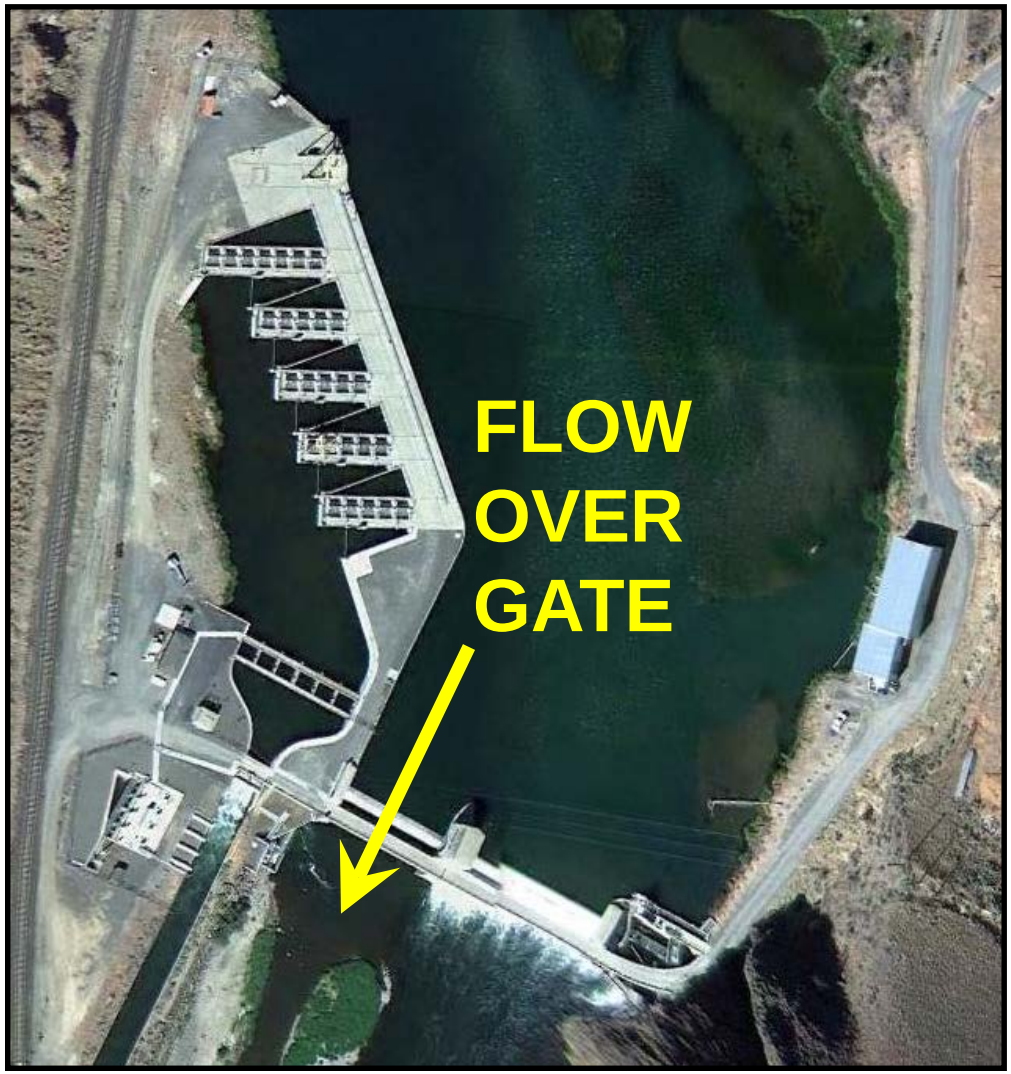
West Gate



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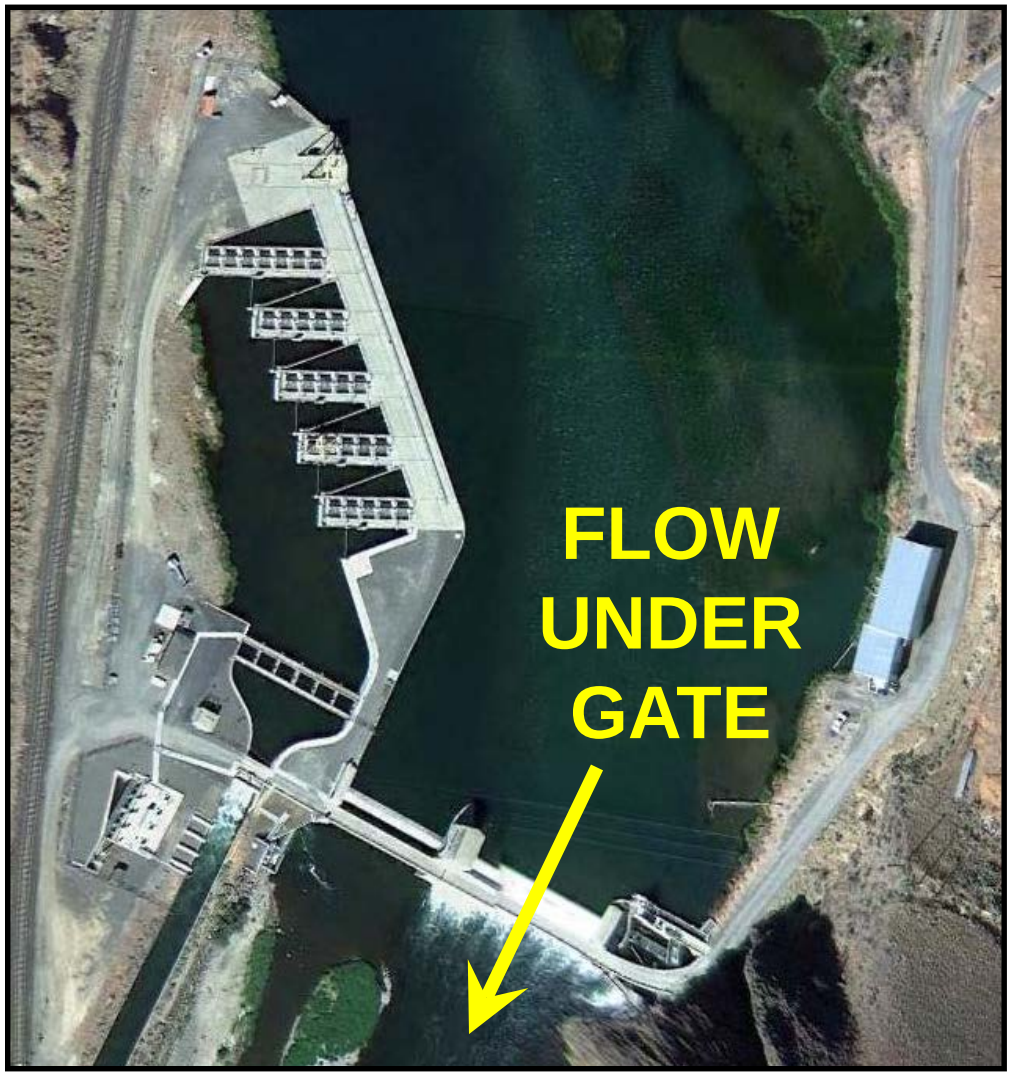
East Gate



LOW FLOW

HIGH FLOW

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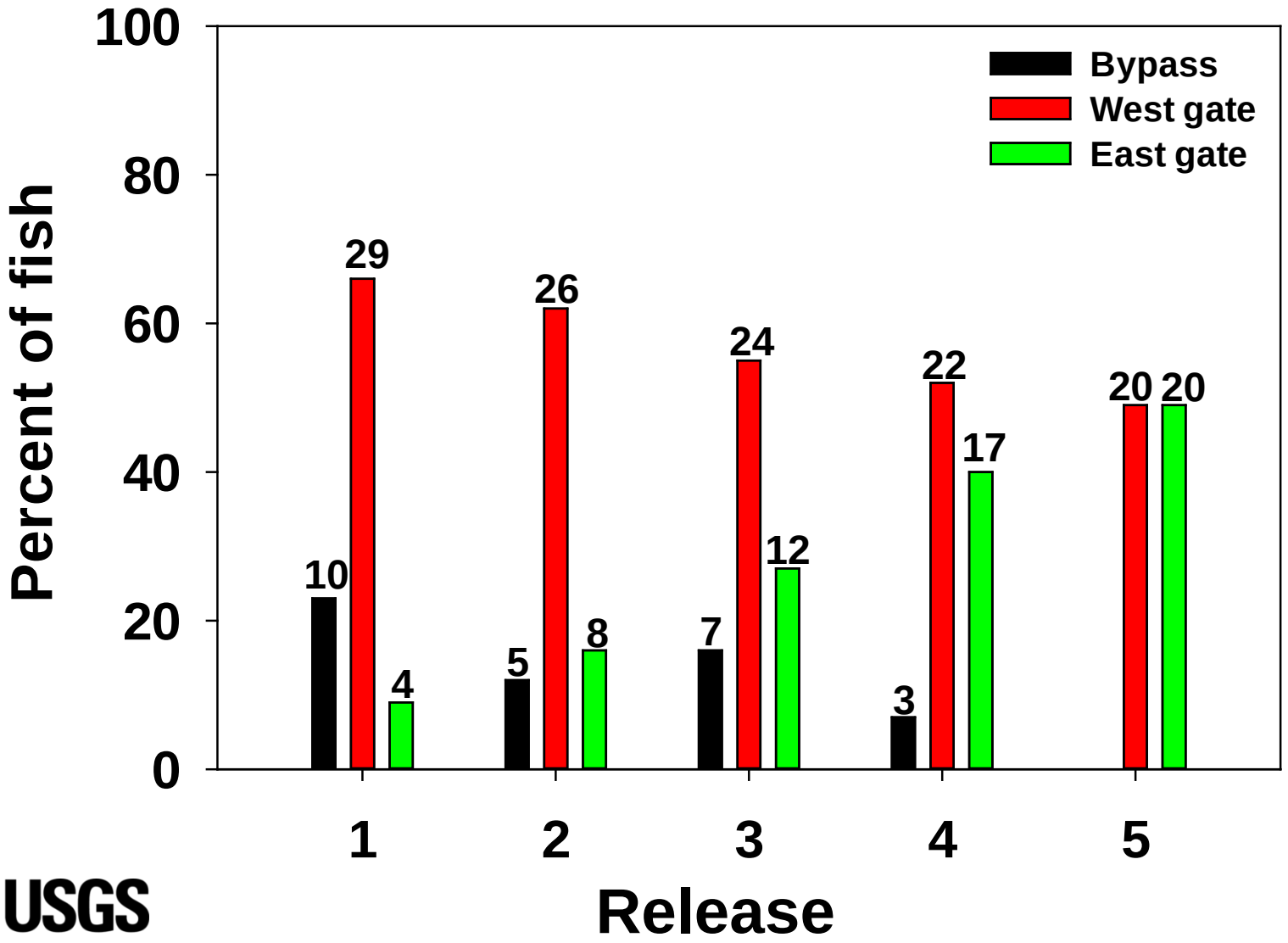
Observed Passage



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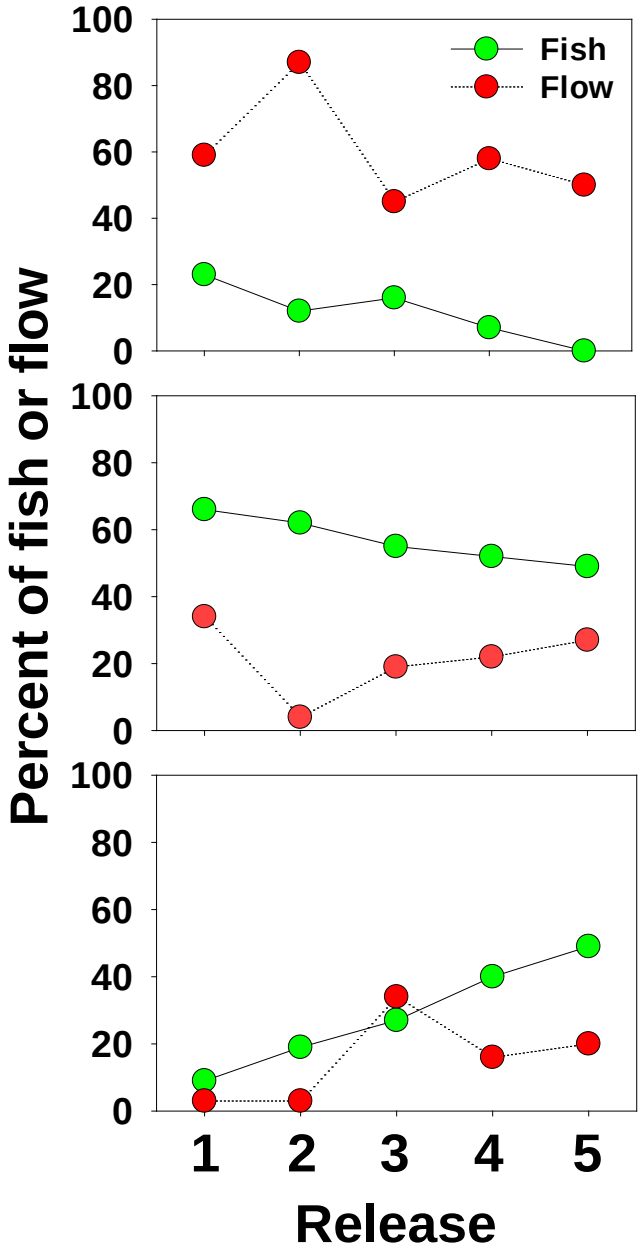
Passage vs Flow



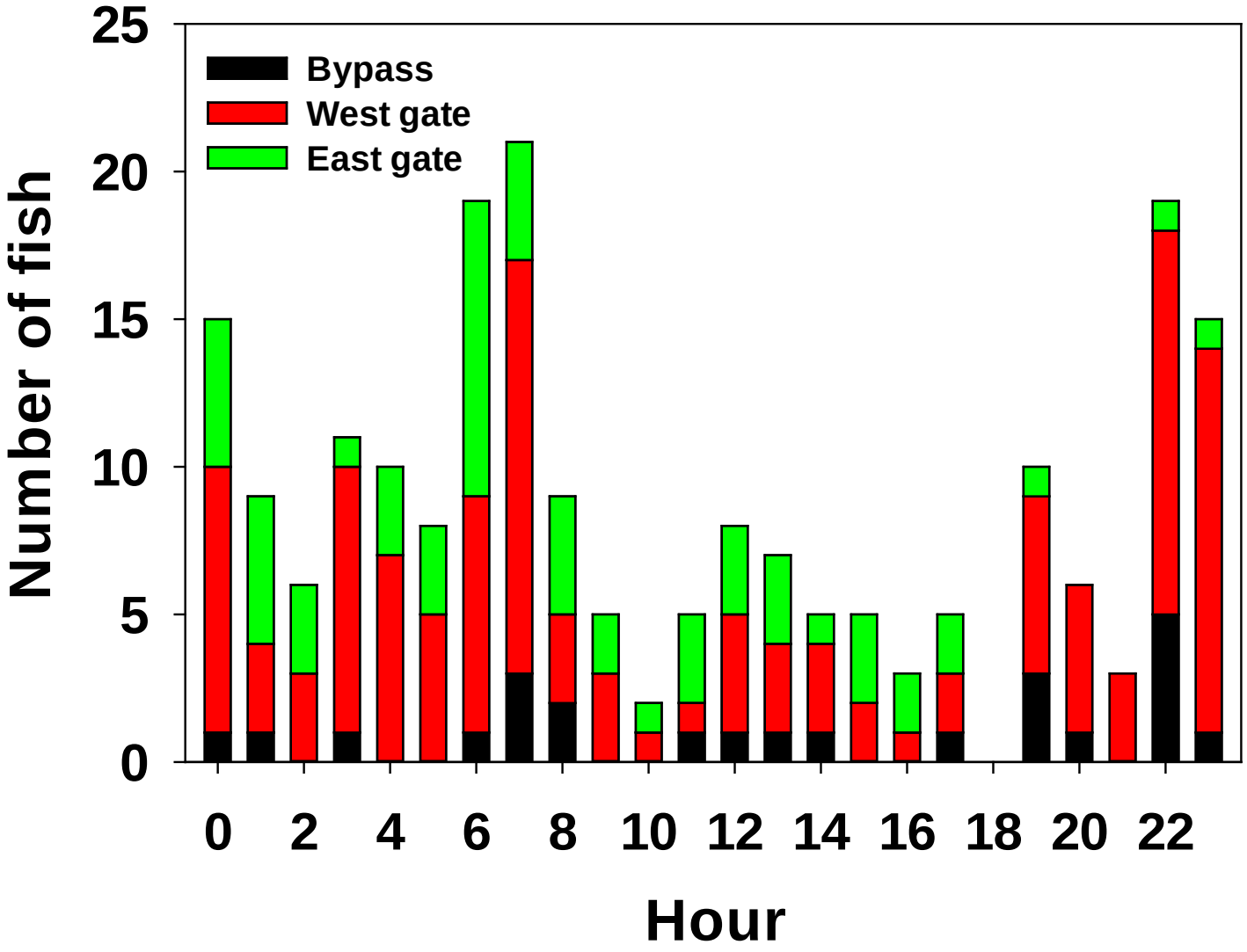
Bypass
(canal + bypass flow)

West gate

East gate

USGS

Time of Passage



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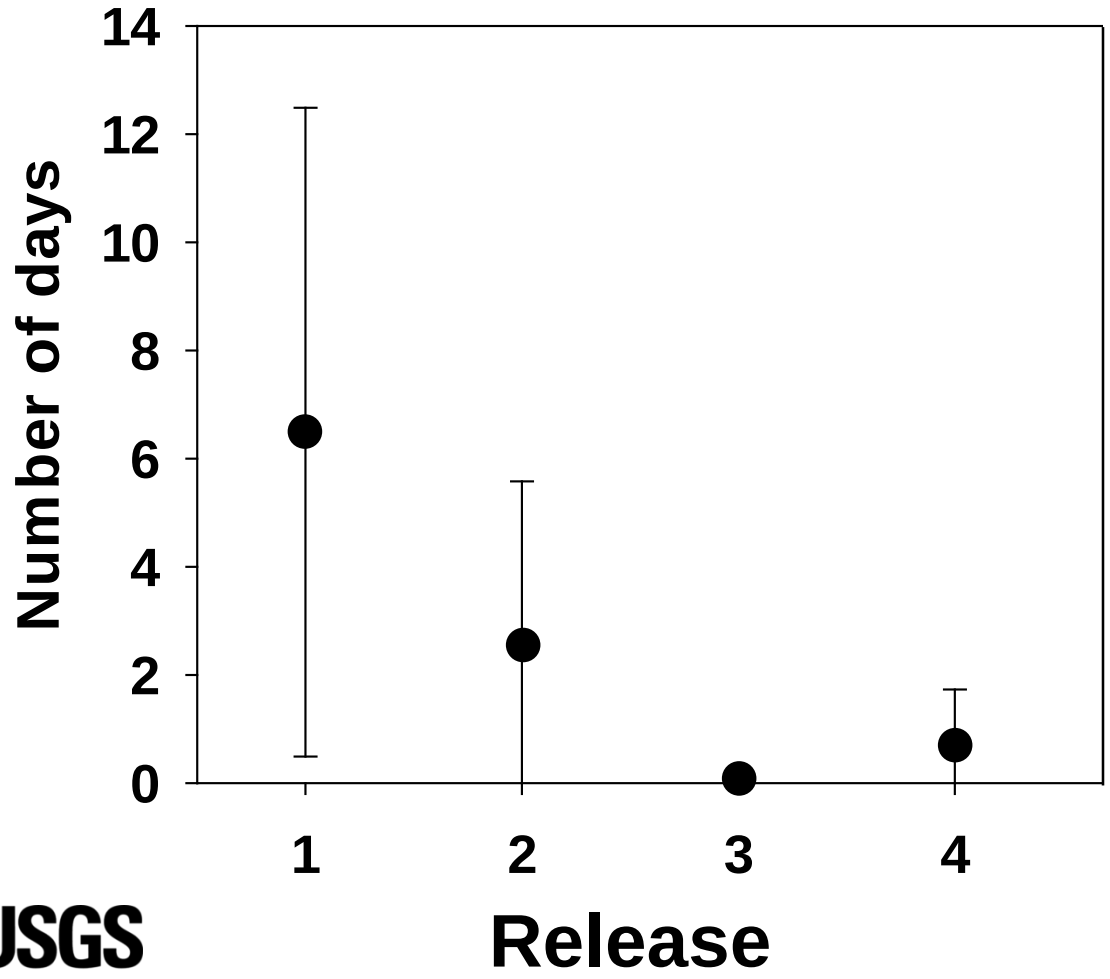
Residence Time in Bypass

19 sec - 30 min	2 hr - 1 day	1 - 5 days	5 - 10 days	10 - 15 days
16 fish	4 fish	4 fish	3 fish	4 fish



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Migration Delay

R	Bypass		East/West Gates	
	n	Median	*n*	Median
1	10	6.2 d	34	1.4 h
2	6	1.3 d	36	18.7 h
3	7	57 s	33	31.8 m
4	5	4.7 h	38	16.7 h
5	3	63 s	25	7.5 h

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Migration Delay

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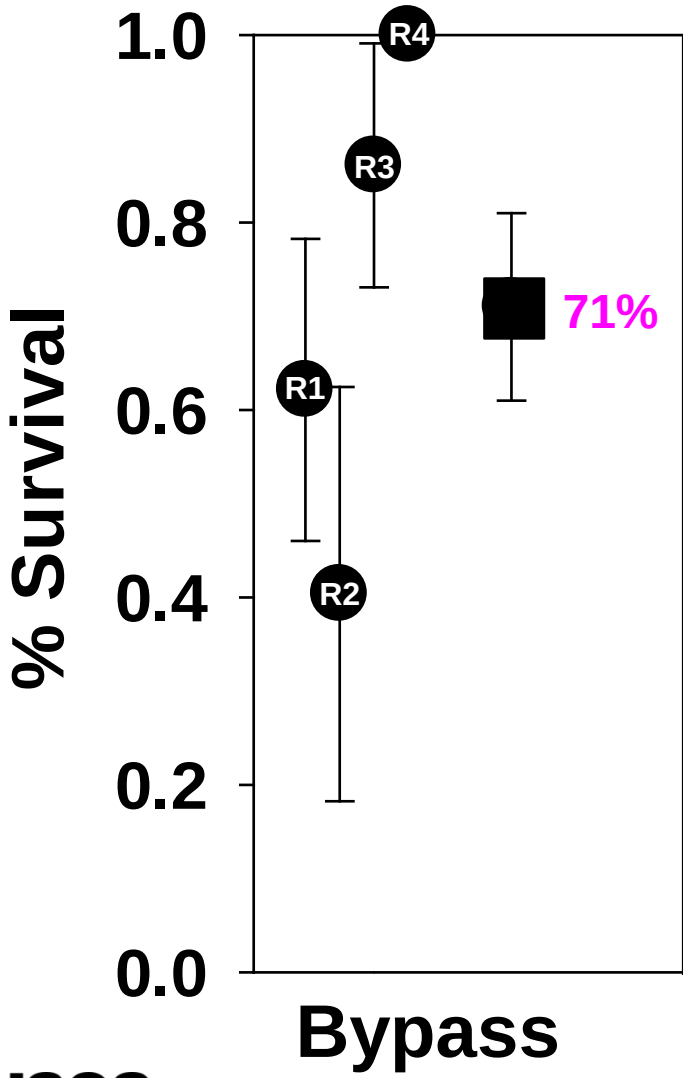
USGS

Route-Specific Survival



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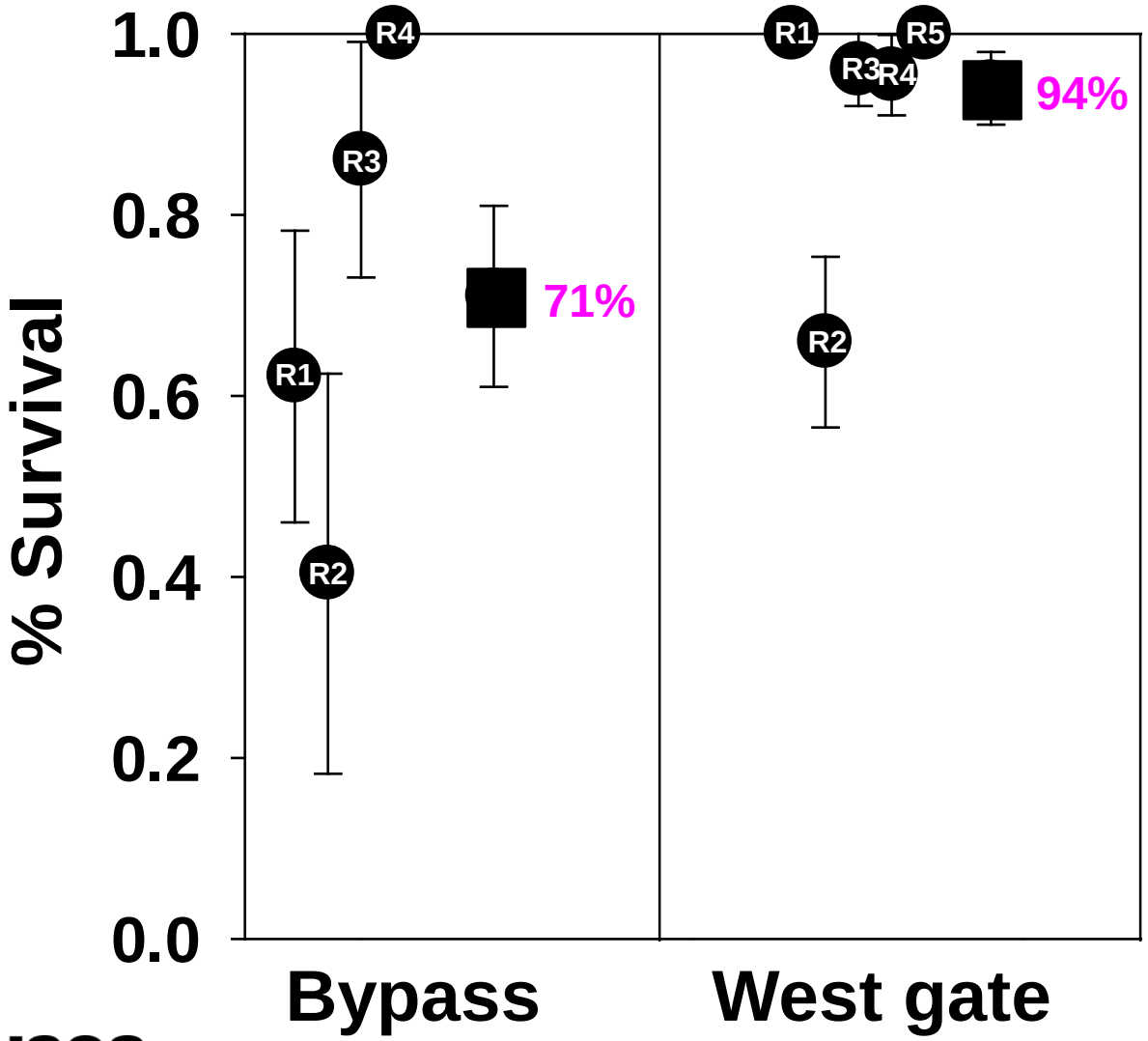
Survival estimates and standard errors

Route-Specific Survival



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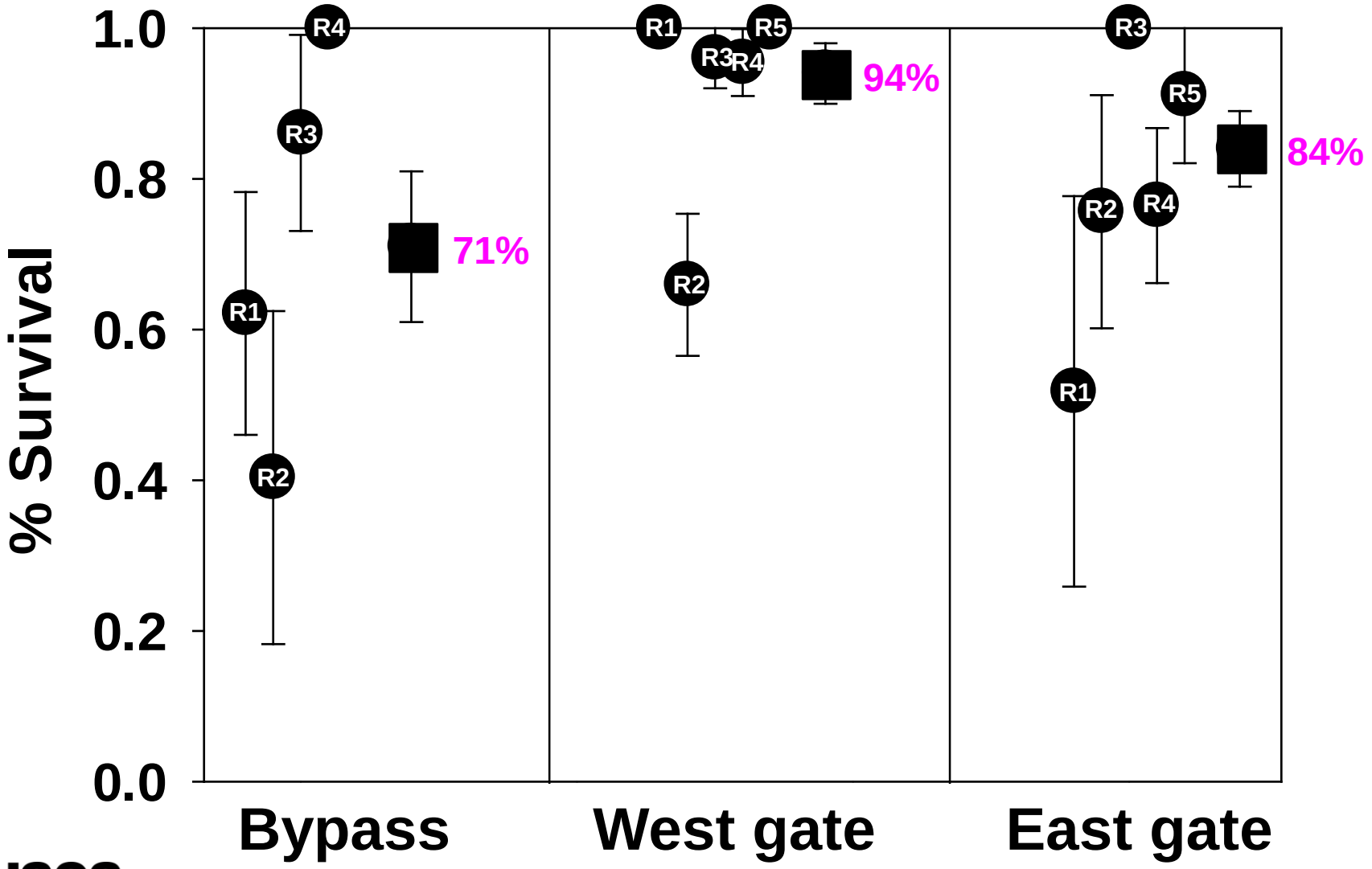
Survival estimates and standard errors

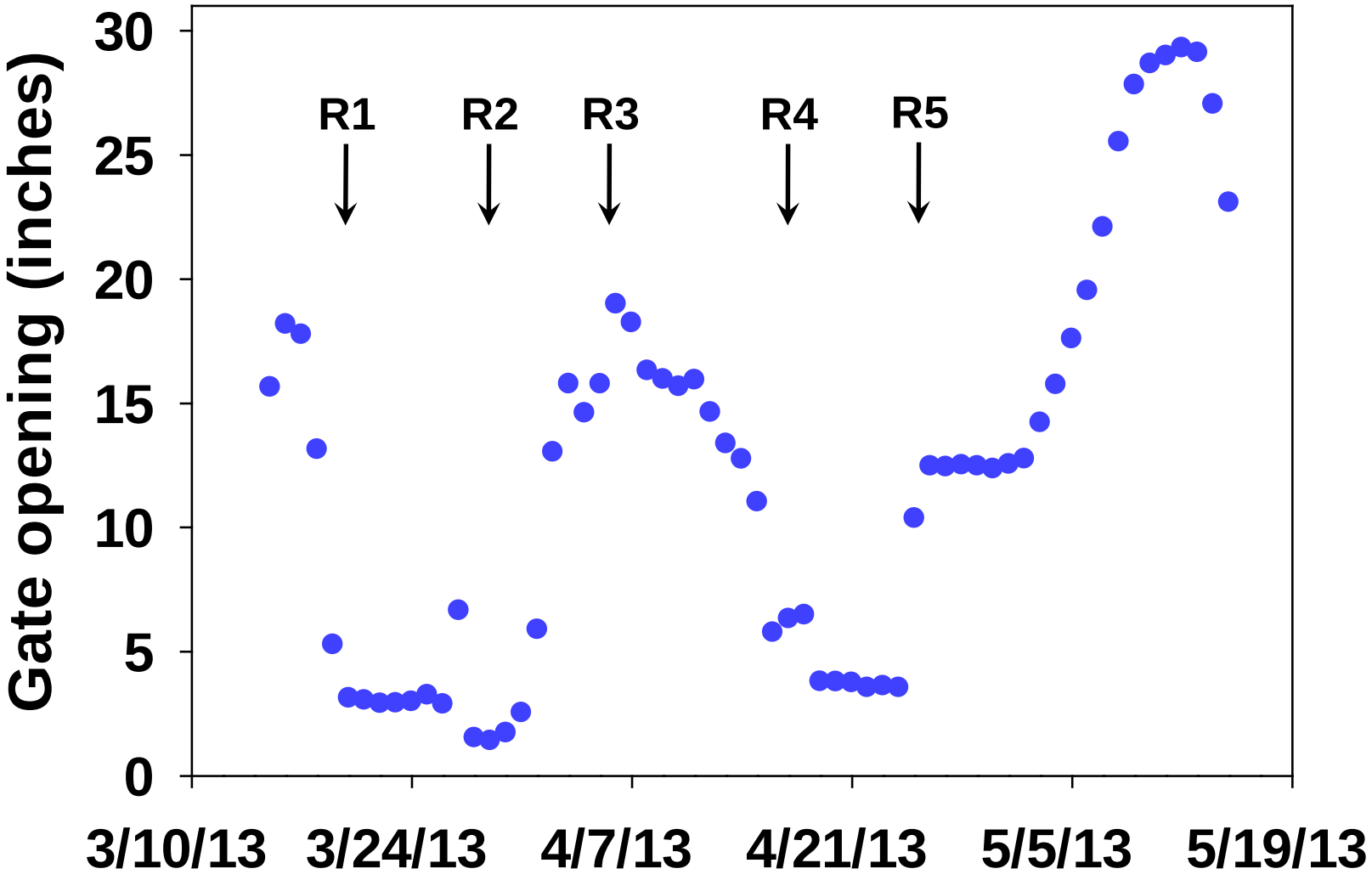
Route-Specific Survival



USGS

Survival estimates and standard errors

East Gate Opening



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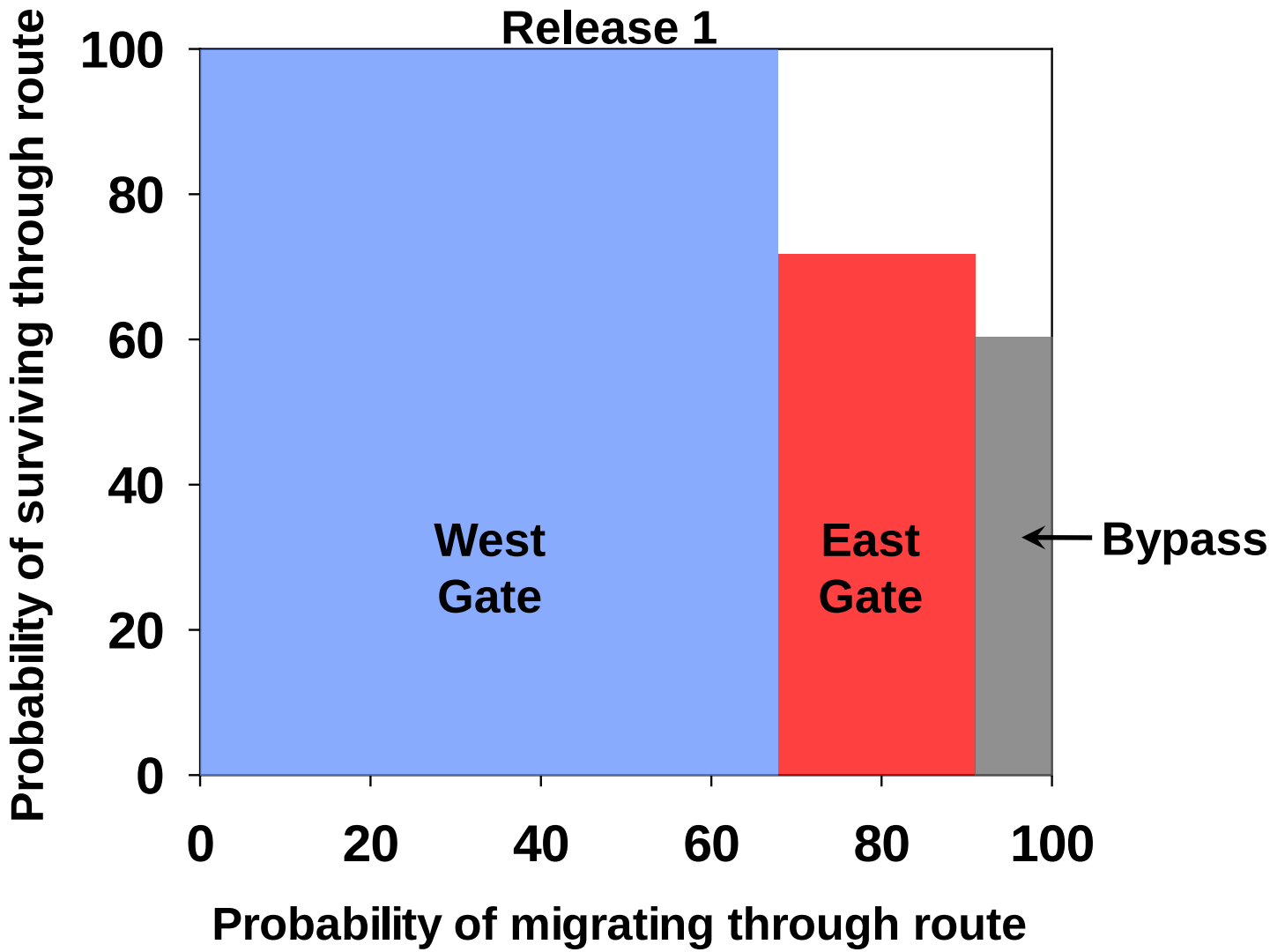
Passage and Survival



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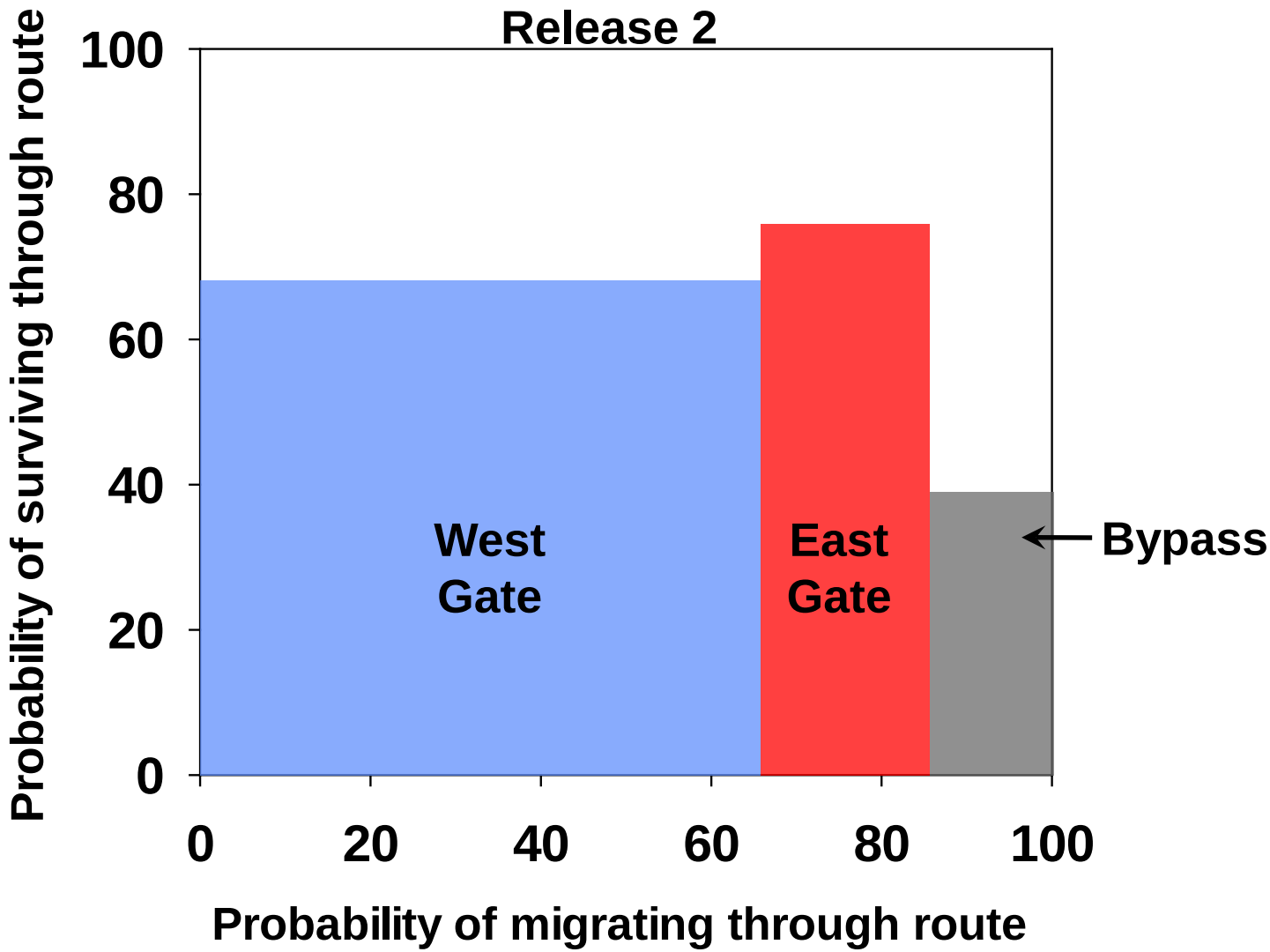
Passage and Survival



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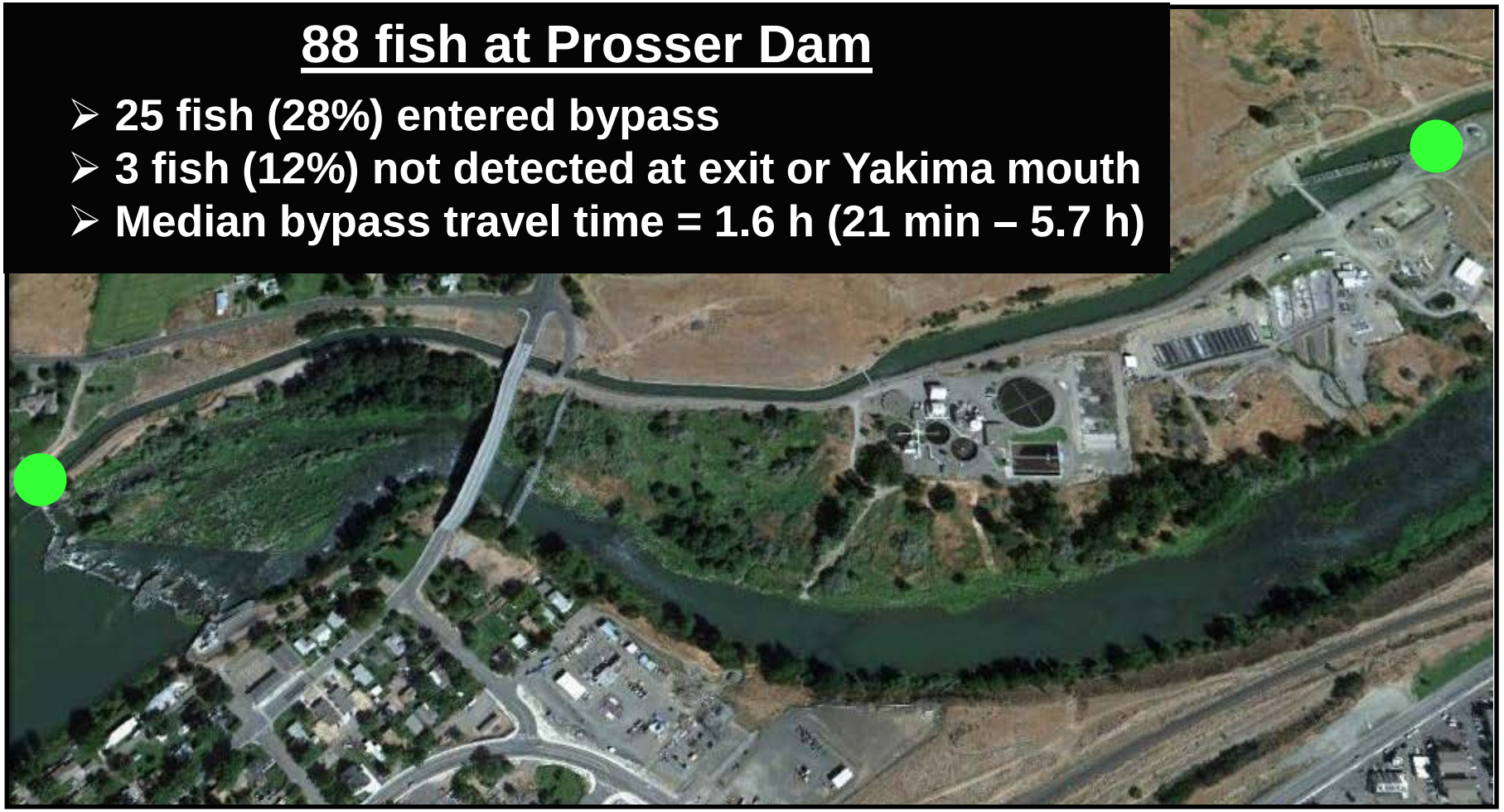
Prosser Dam



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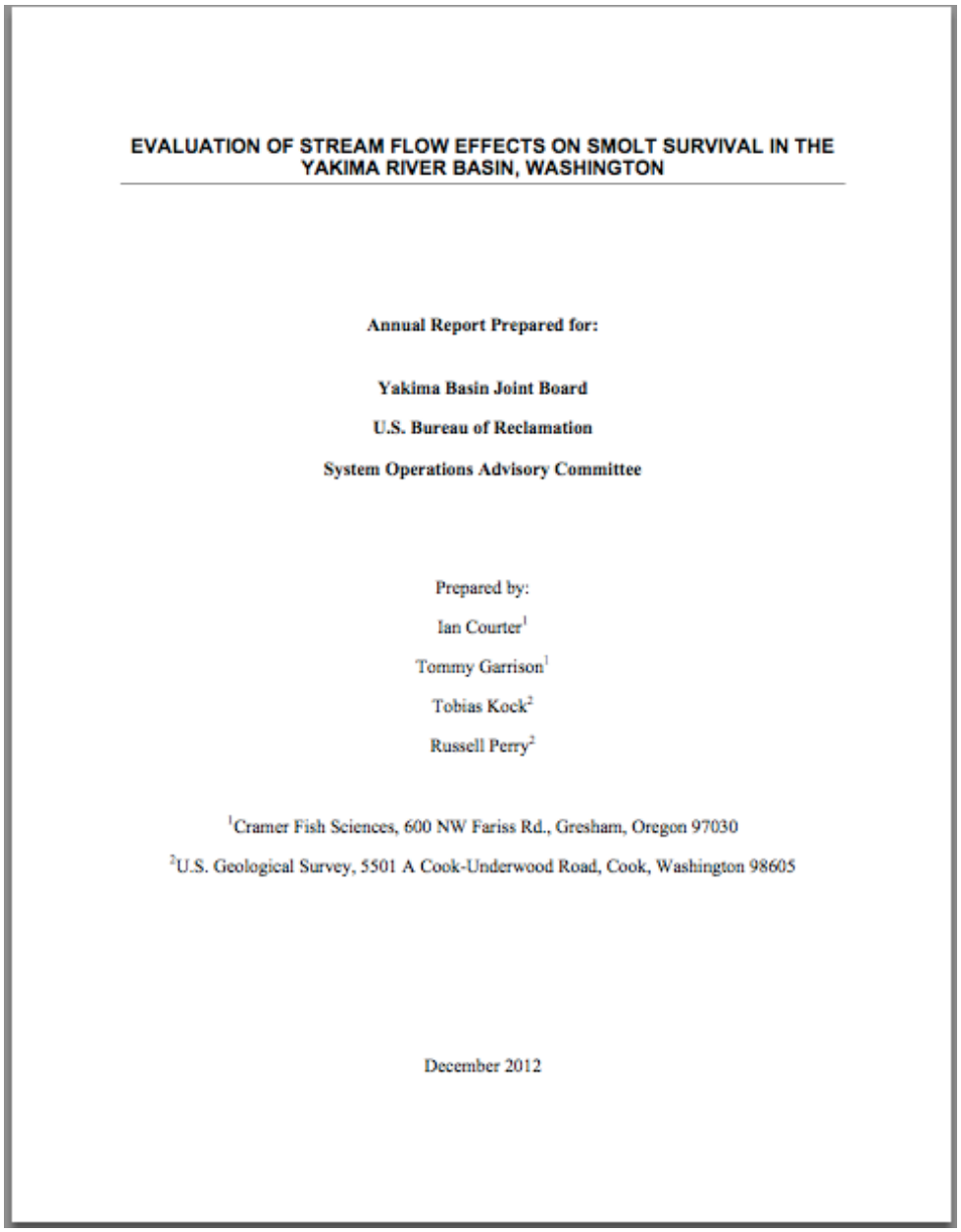
Conclusions

- **Data suggests that:**
  - **Flow-related mortality occurs in the Roza Reach**
  - **Survival differences exist between passage routes at Roza Dam**
  - **Substantial in-river mortality occurs downstream of the Naches River**

- **2014 evaluation will likely focus on:**
  - **Better understanding route-specific mortality at Roza Dam**
  - **Refining flow/survival relationship in the Roza Reach**

USGS

http://www.fishsciences.net/reports/2012/2012_Roza_Reach_Final_Report.pdf



EVALUATION OF STREAM FLOW EFFECTS ON SMOLT SURVIVAL IN THE YAKIMA RIVER BASIN, WASHINGTON

Annual Report Prepared for:

Yakima Basin Joint Board

U.S. Bureau of Reclamation

System Operations Advisory Committee

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