

Survival Estimates for the Passage of Juvenile Salmonids Through Dams and Reservoirs of the Lower Snake and Columbia Rivers (Project 199302900)

CBFWA

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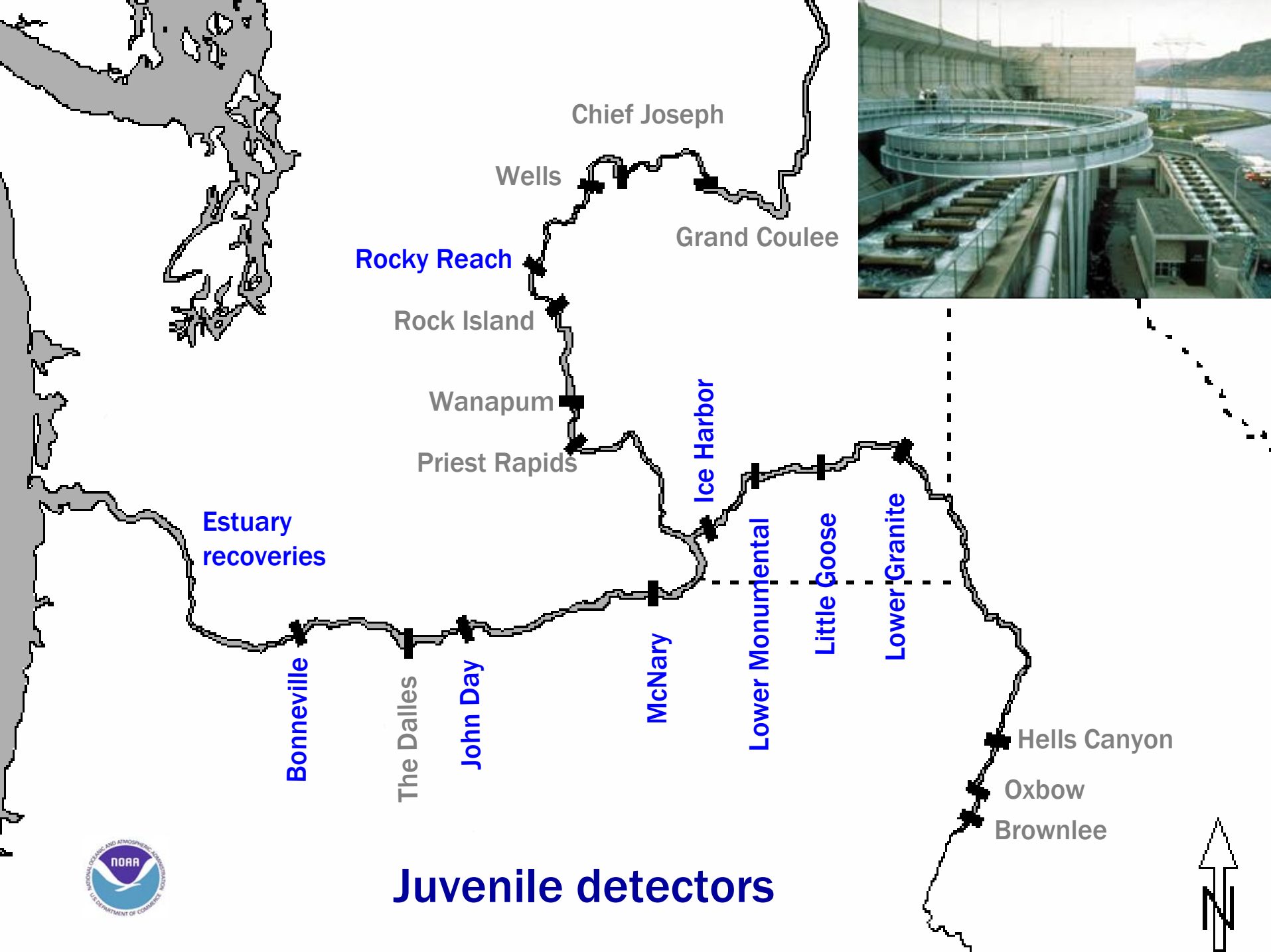
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- **Evaluate adult returns of PIT-tagged fish**

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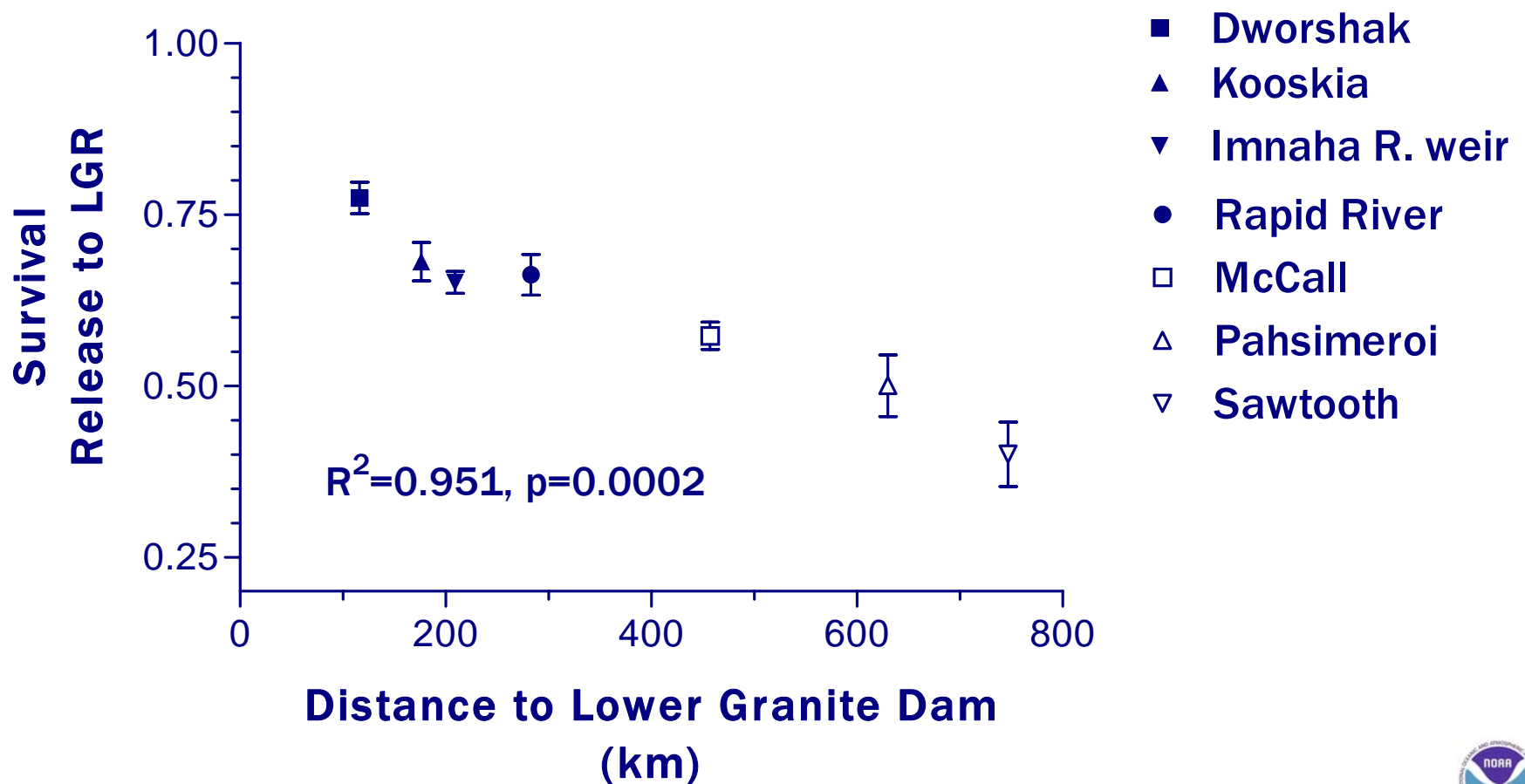




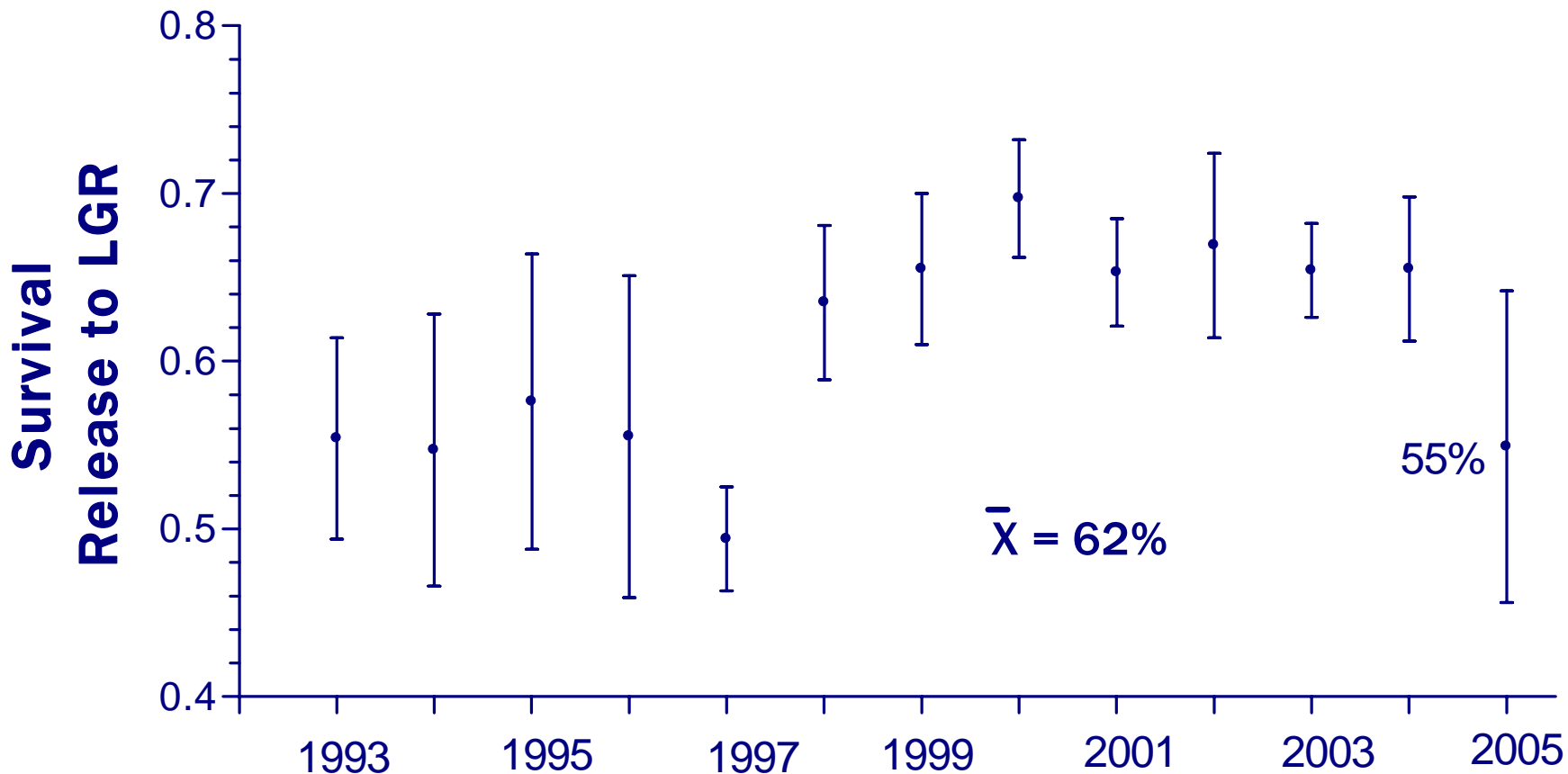
Juvenile detectors



Hatchery stream type Chinook (1993-2005)



Stream type Chinook All Snake River Basin hatcheries combined



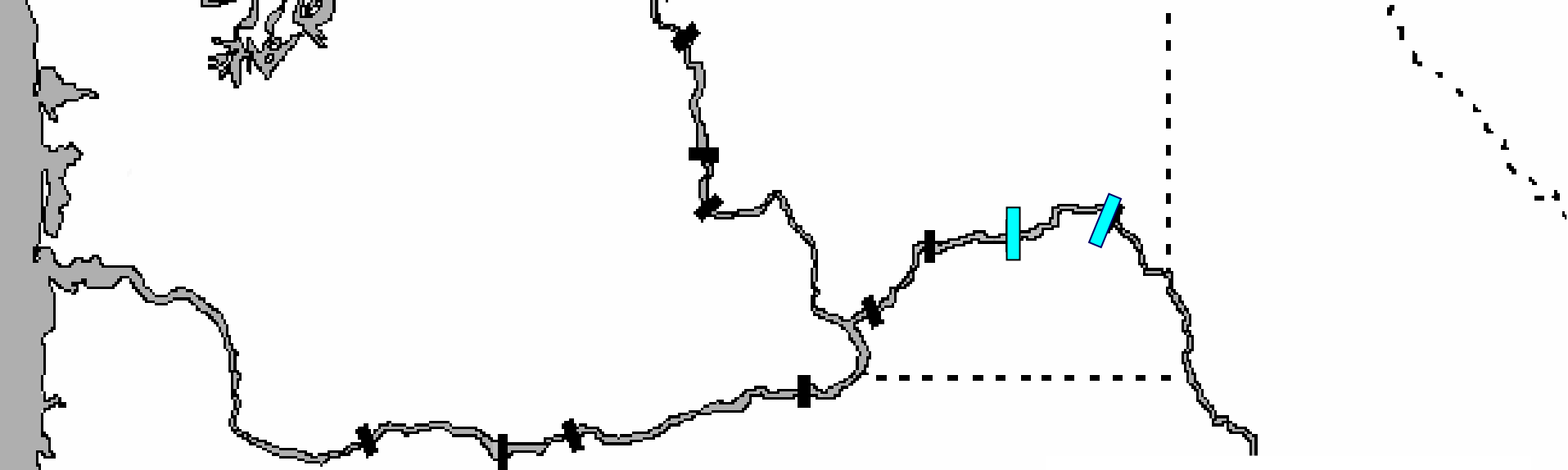


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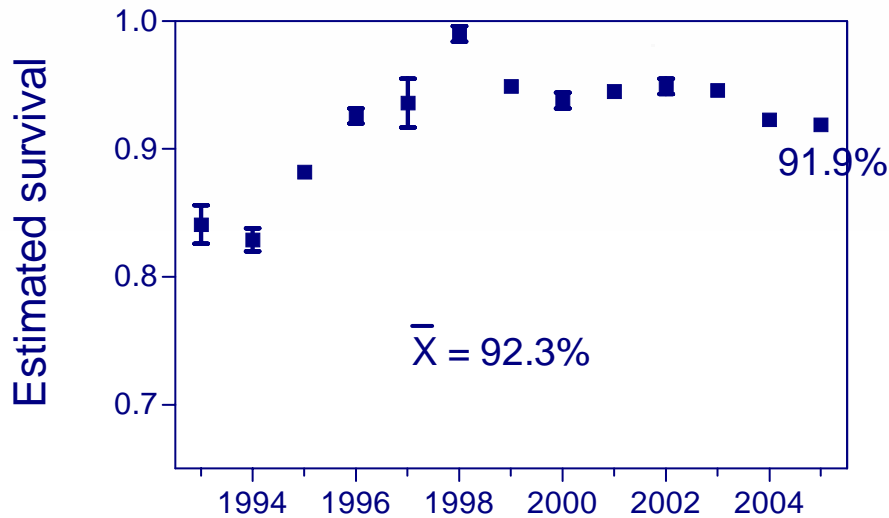
Lower Granite tagging (each year)

- About 20,000 hatchery steelhead
- Up to 10,000 wild steelhead
- Up to 10,000 wild yearling Chinook
- Combined with fish tagged above LGR

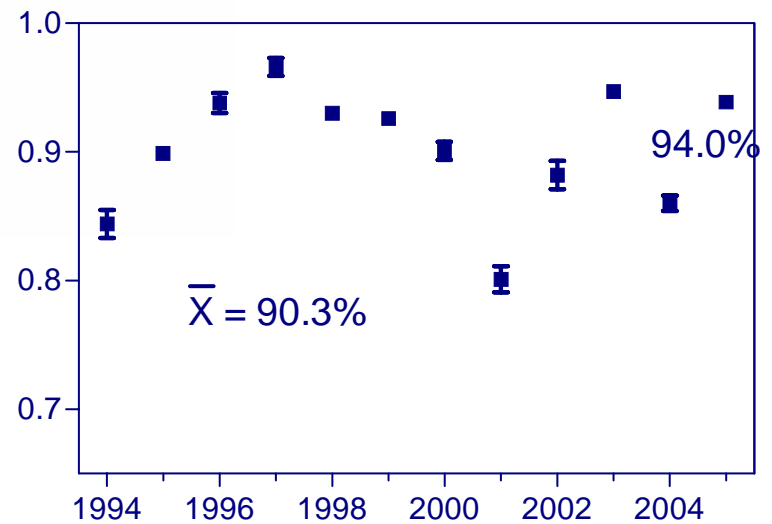


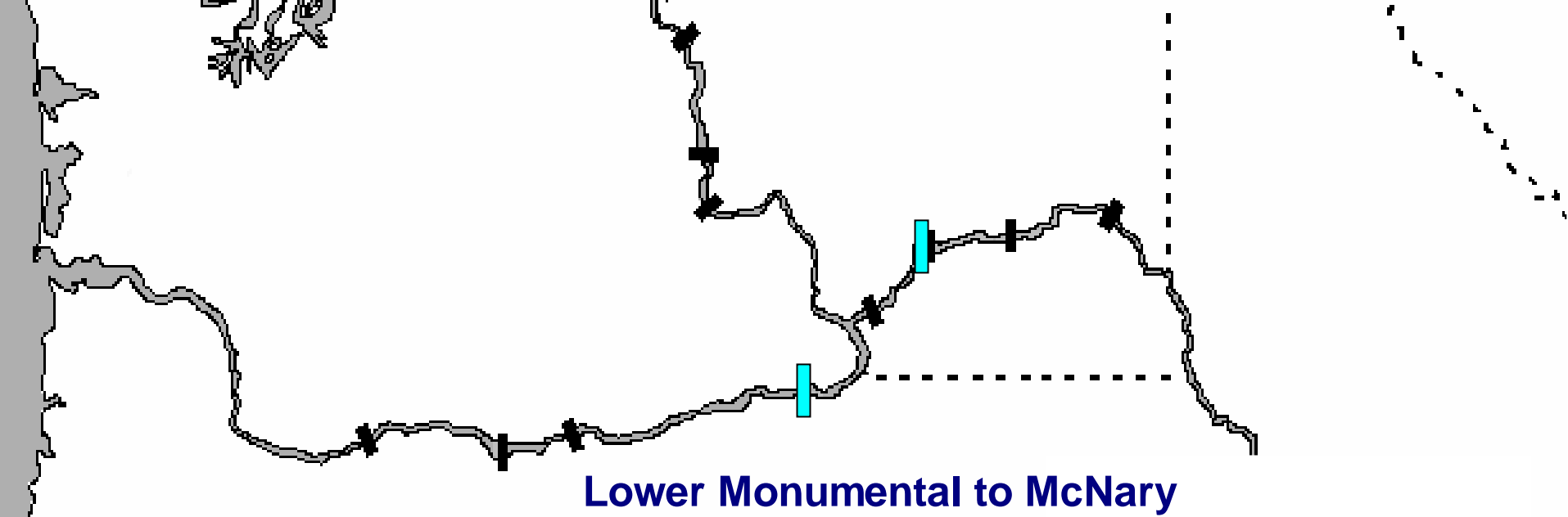
Lower Granite to Little Goose

Stream type Chinook

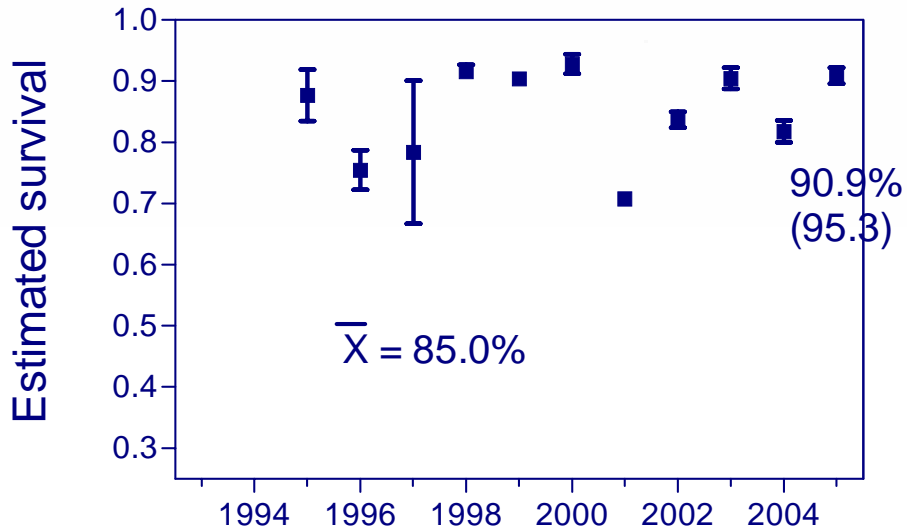


Steelhead

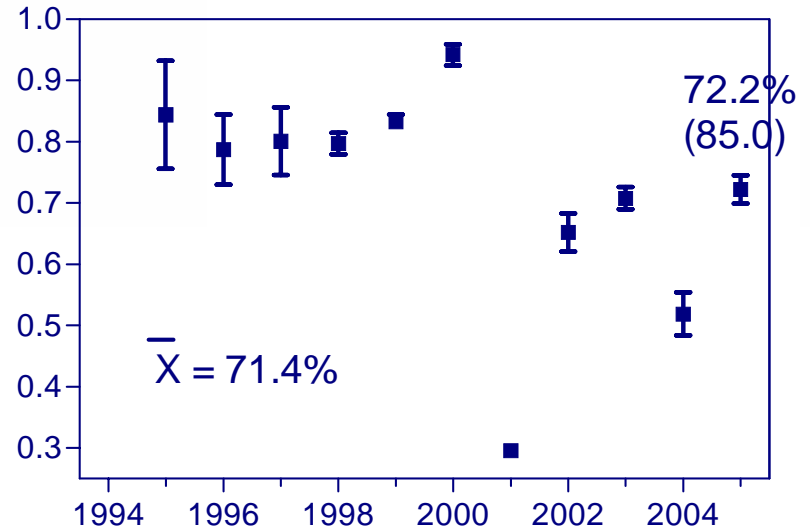


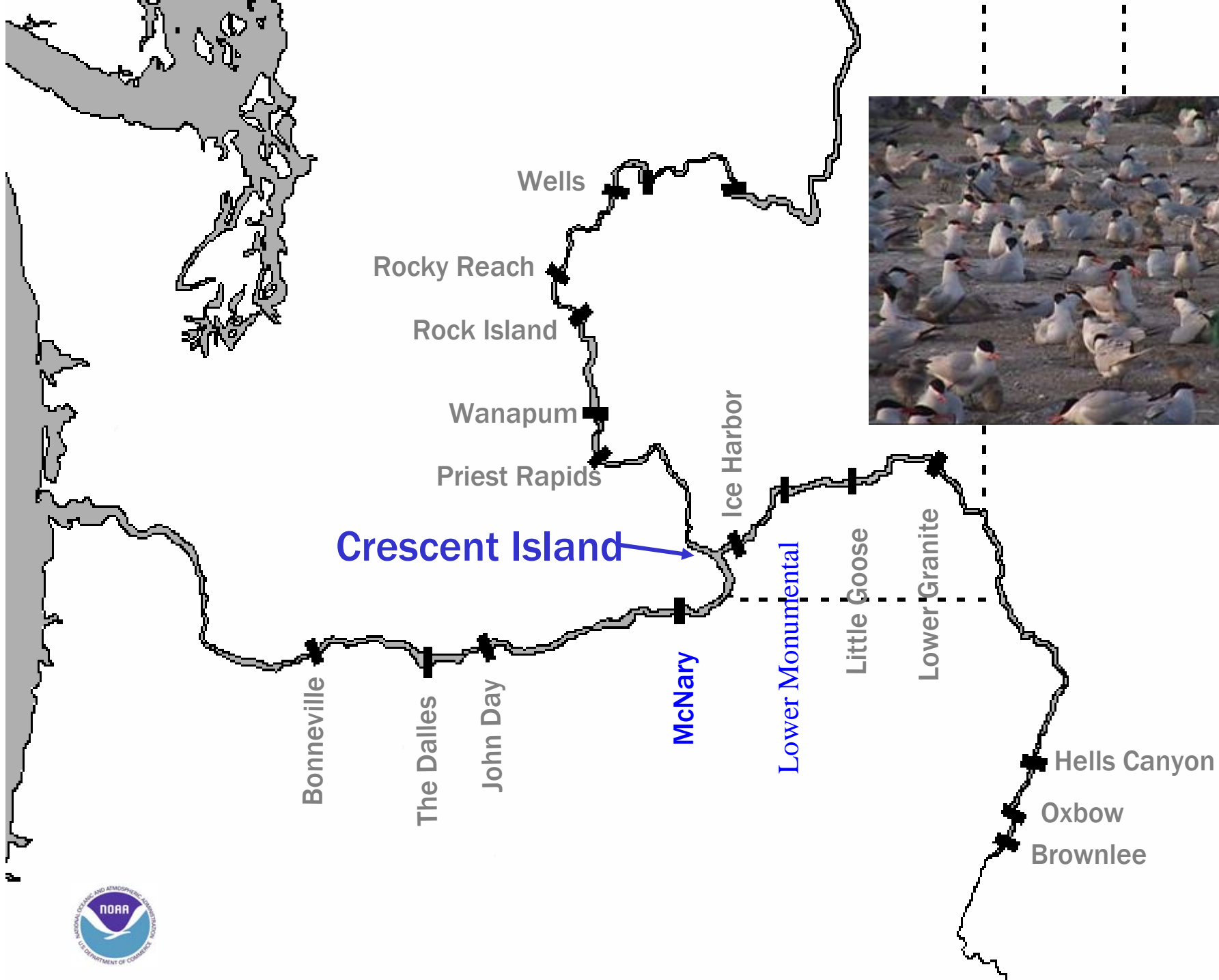


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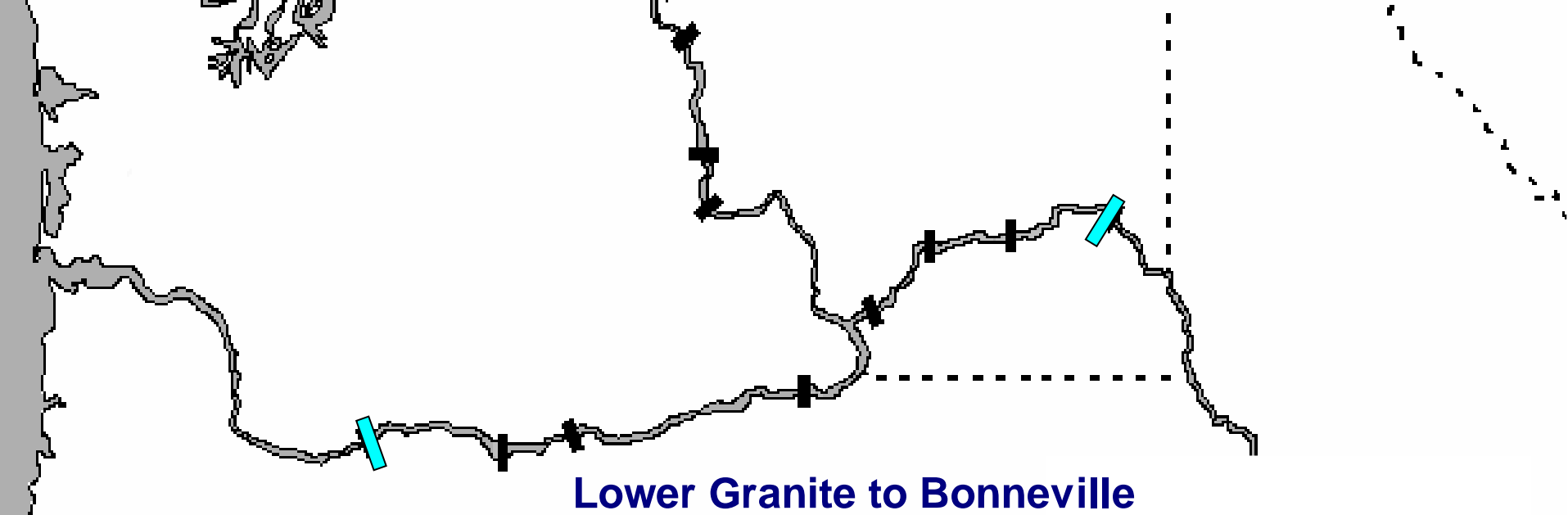






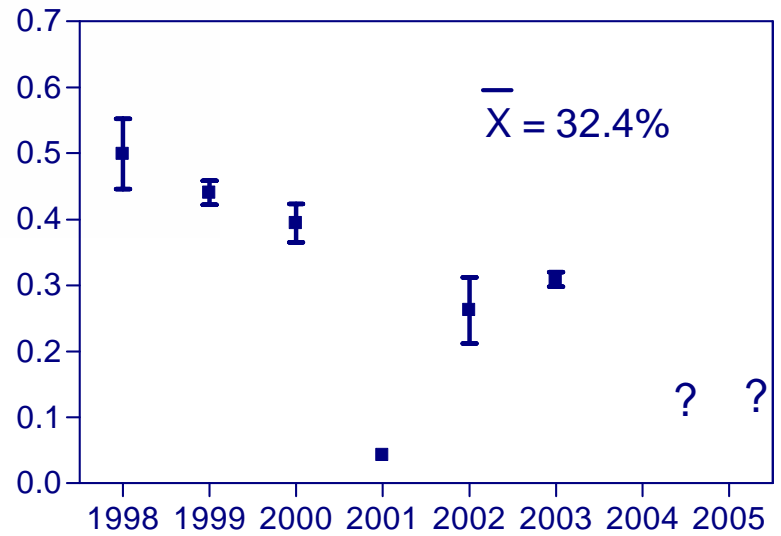
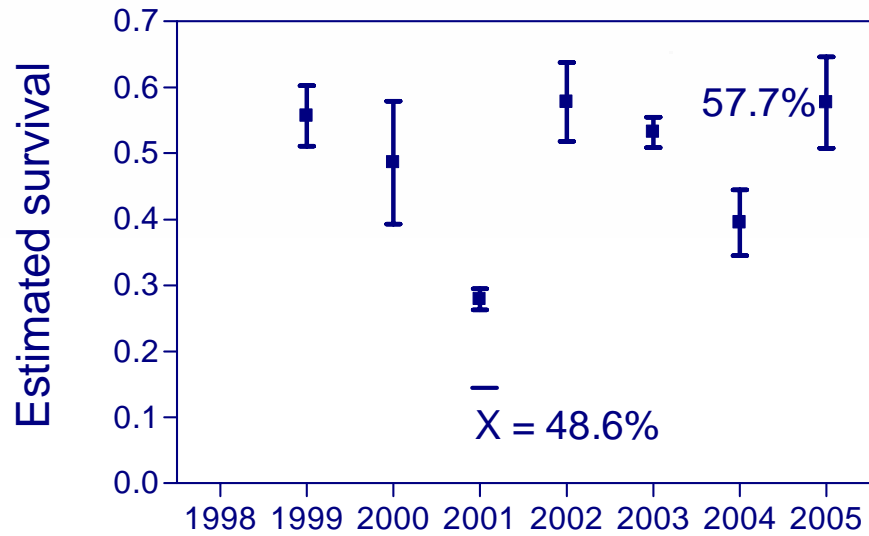
4 to 21% of all PIT-tagged steelhead leaving Lower Monumental Dam found on Crescent Island, 1998-2005



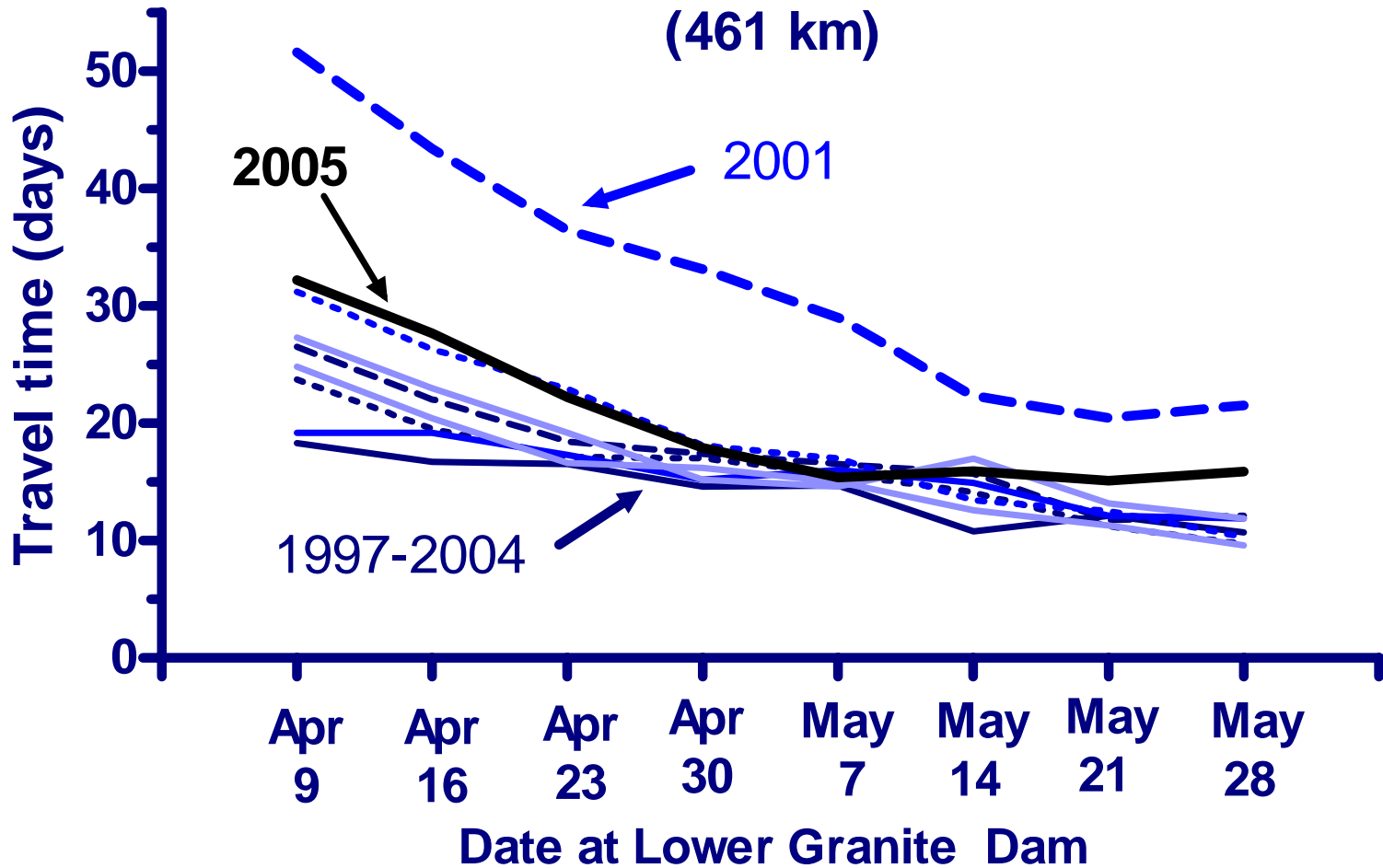


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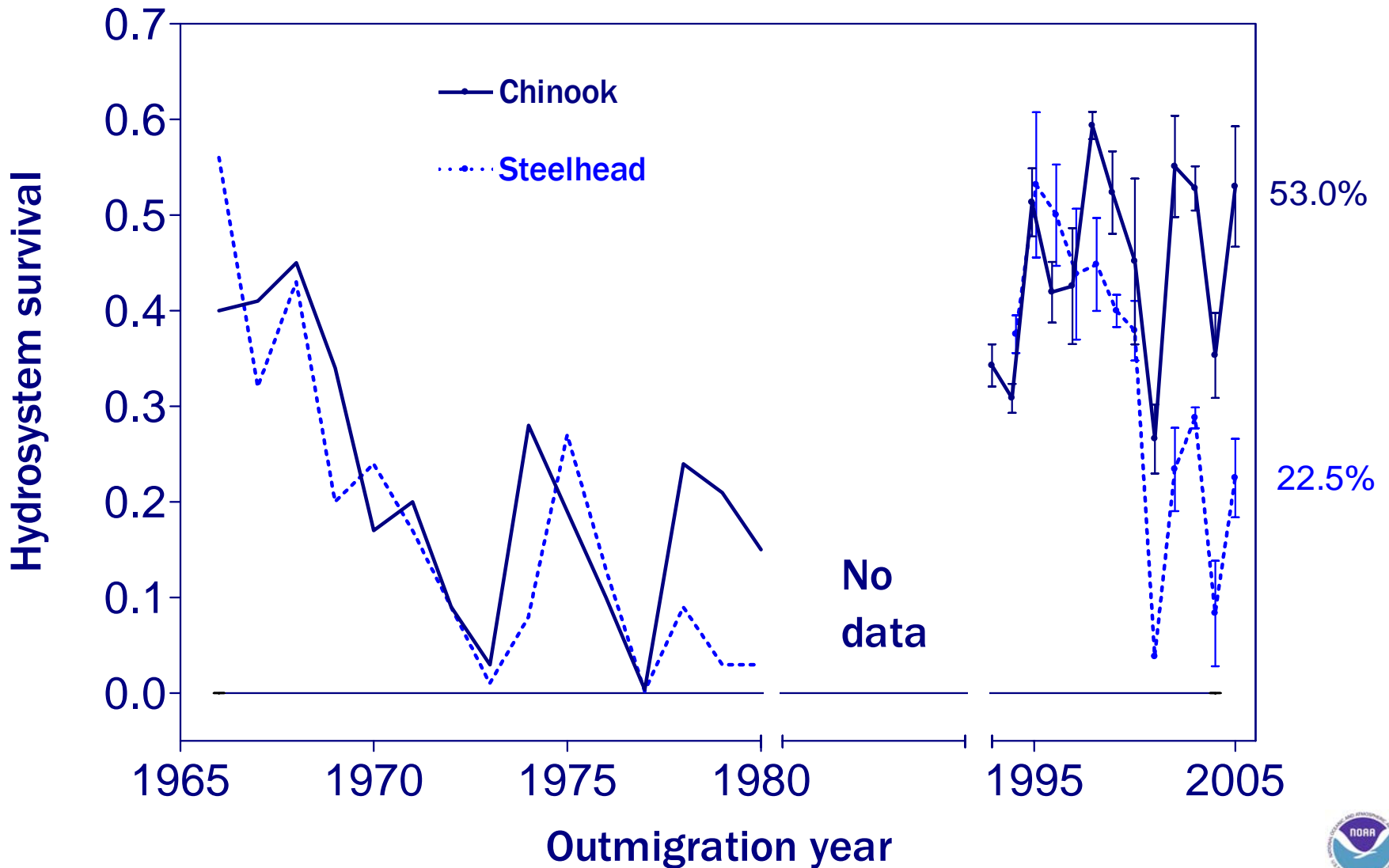


**Median travel time
Stream type Chinook
Lower Granite to Bonneville
(461 km)**



Snake River Trap to Bonneville Dam Tailrace

Per-project extrapolation in some years



Use of survival data

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- **Survival estimates used to determine whether BiOp hydropower performance standards are met each year**

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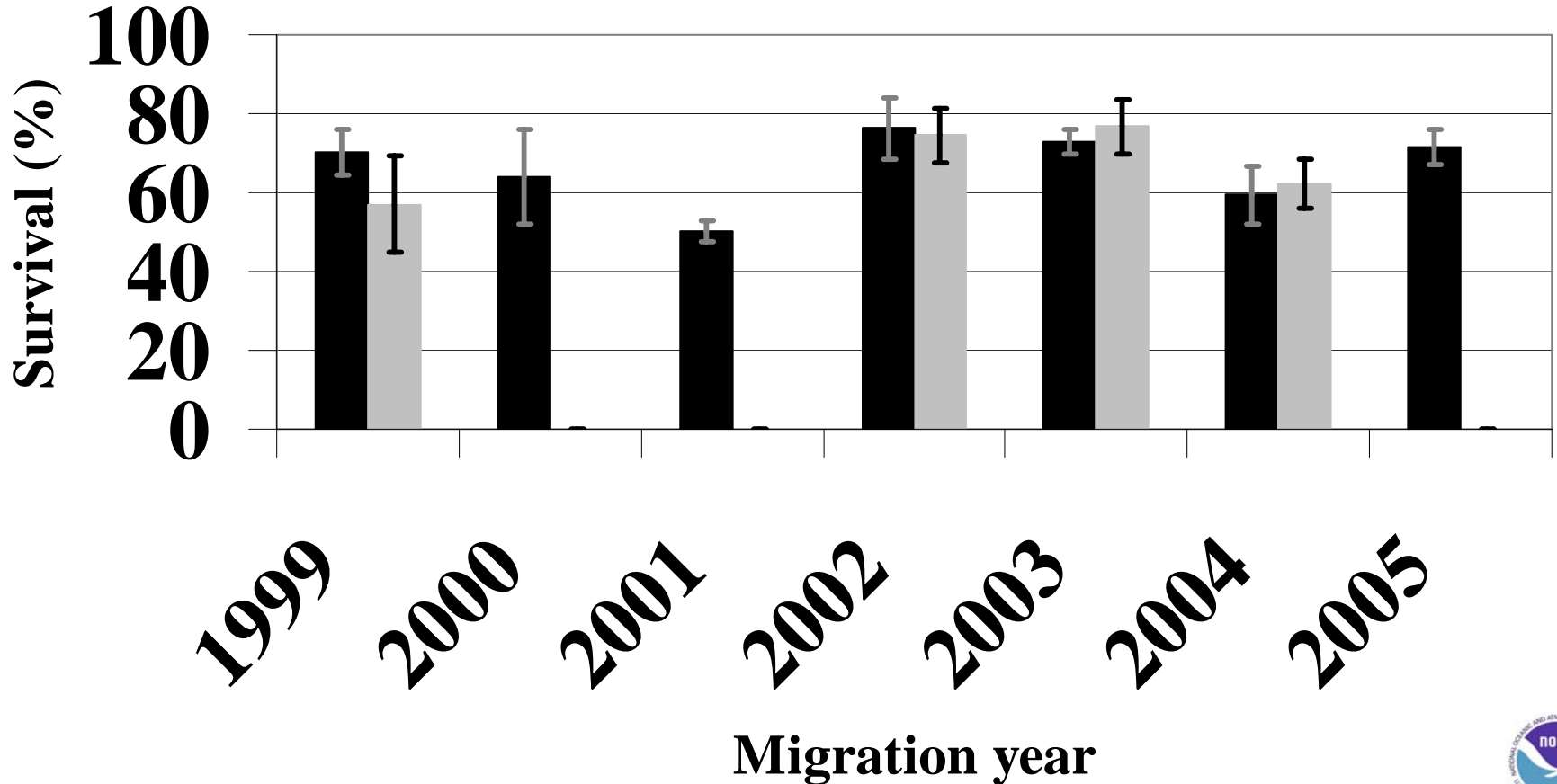




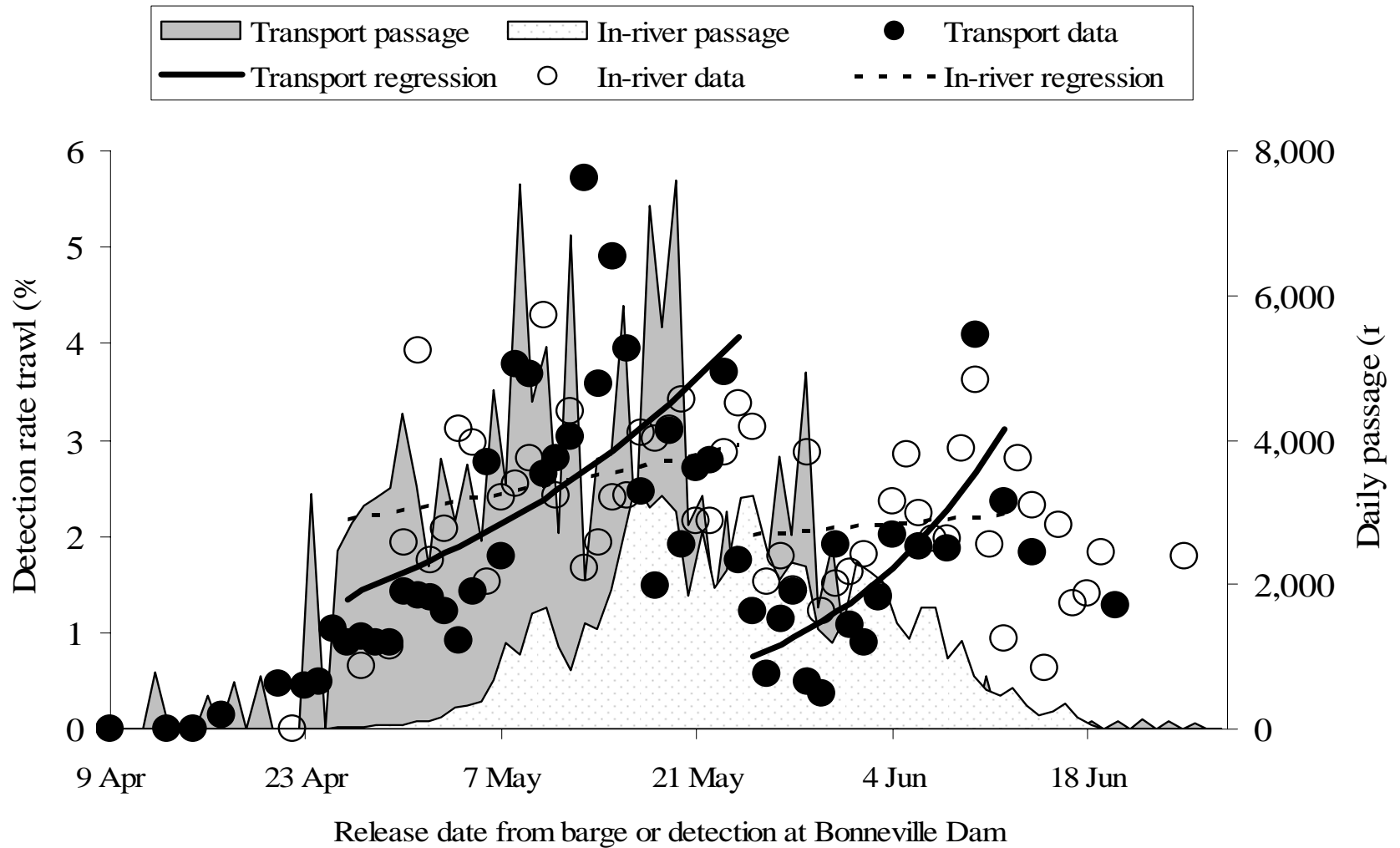
R/V ELECTRA
F3101

Yearling Chinook Salmon Survival McNary to Bonneville

■ Snake River ■ Mid-Columbia



Detection rates trawl at Jones Beach
 Yearling chinook salmon, 2003
 5,184 detections



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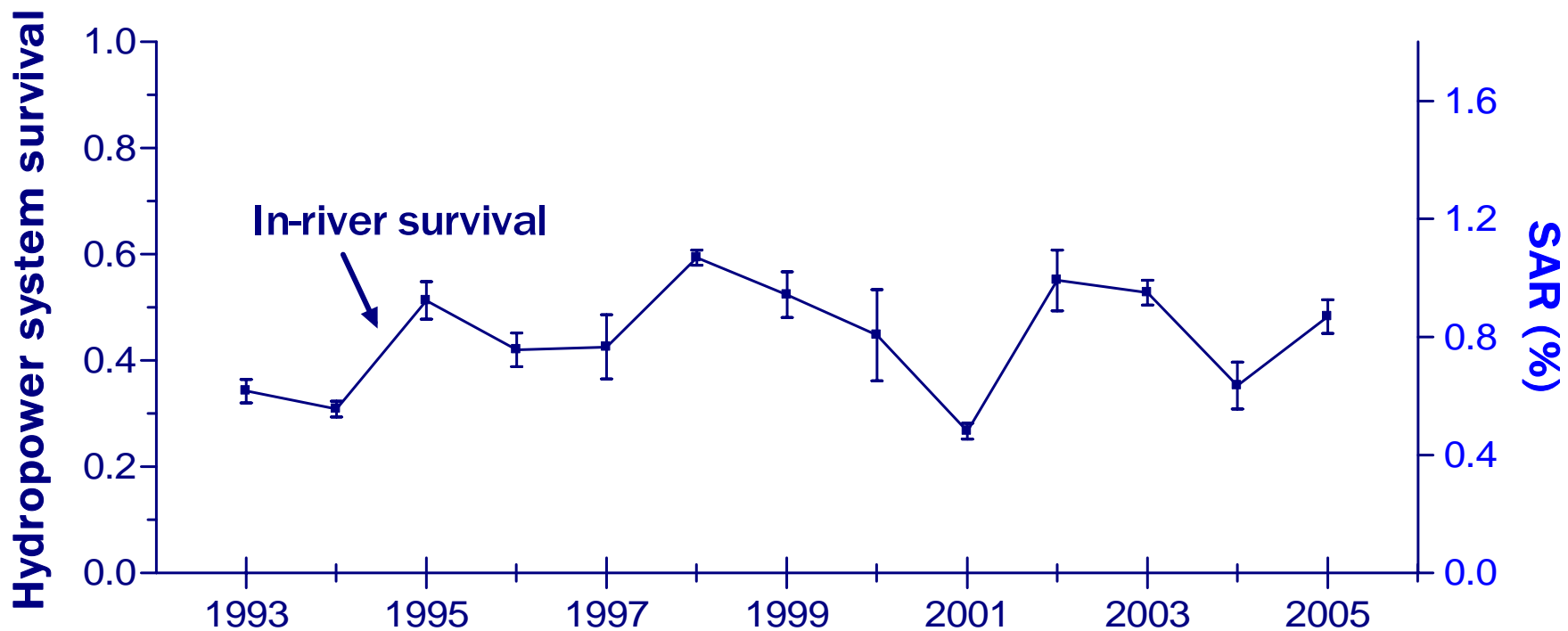
- Used to determine smolt arrival timing to the estuary
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- **Used as final PIT tag recapture site, necessary for survival estimation to the tailrace of Bonneville Dam**

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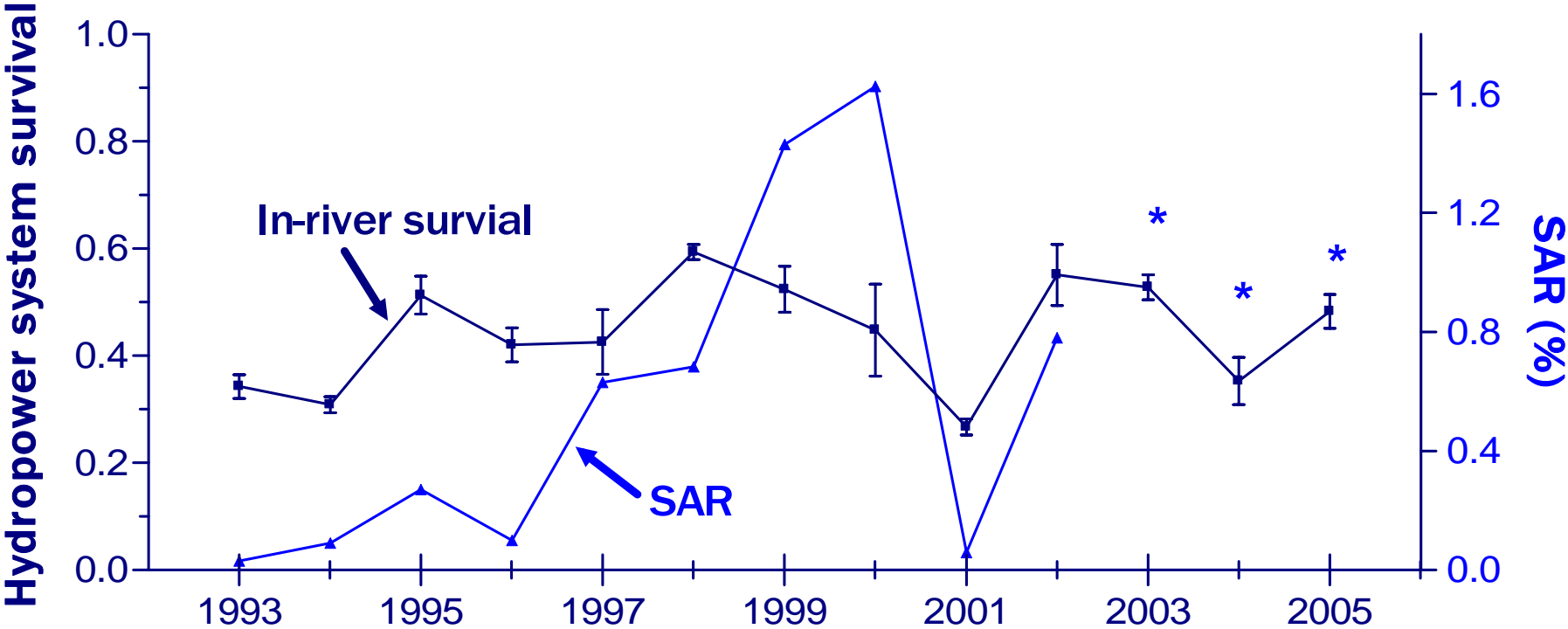
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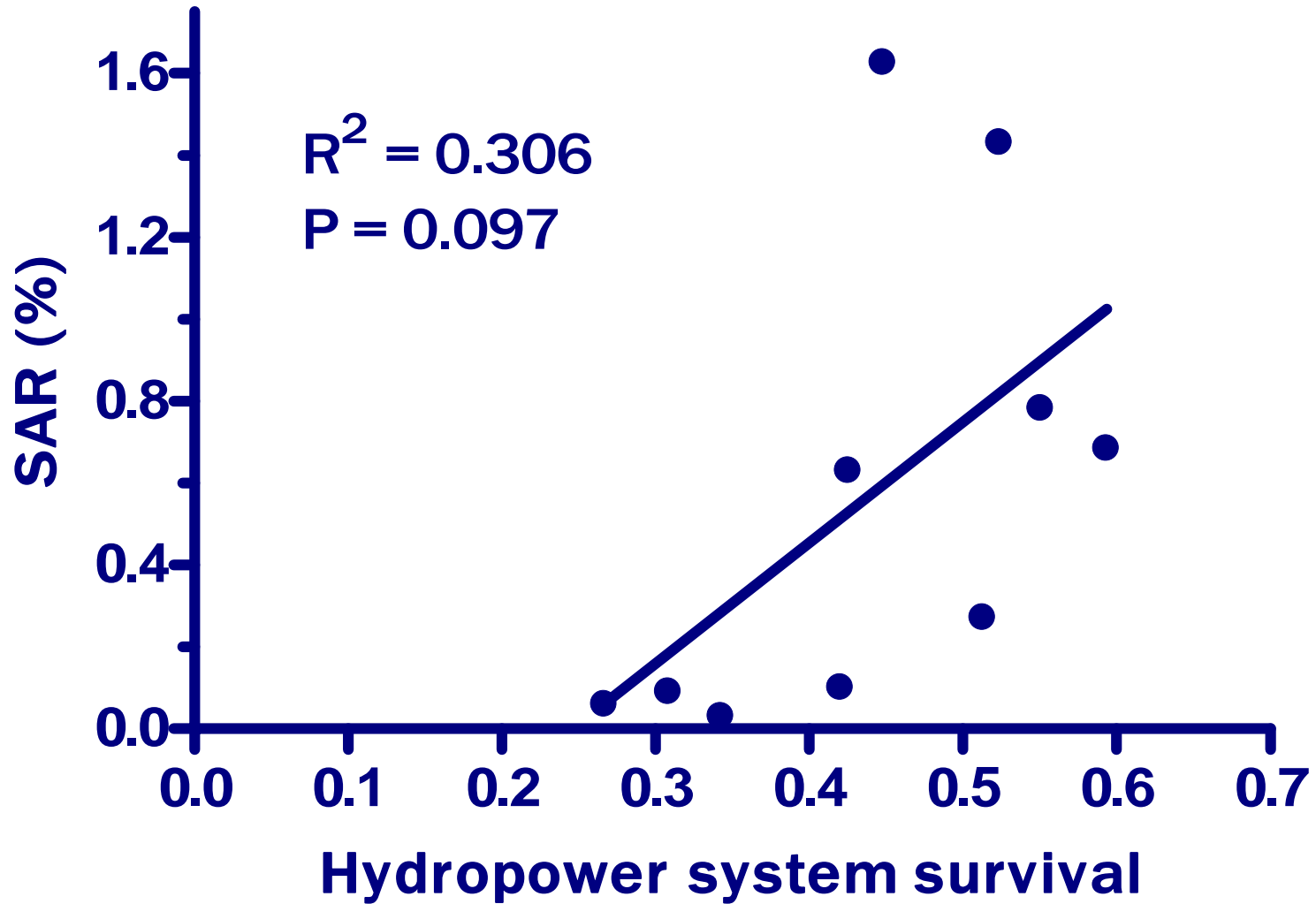
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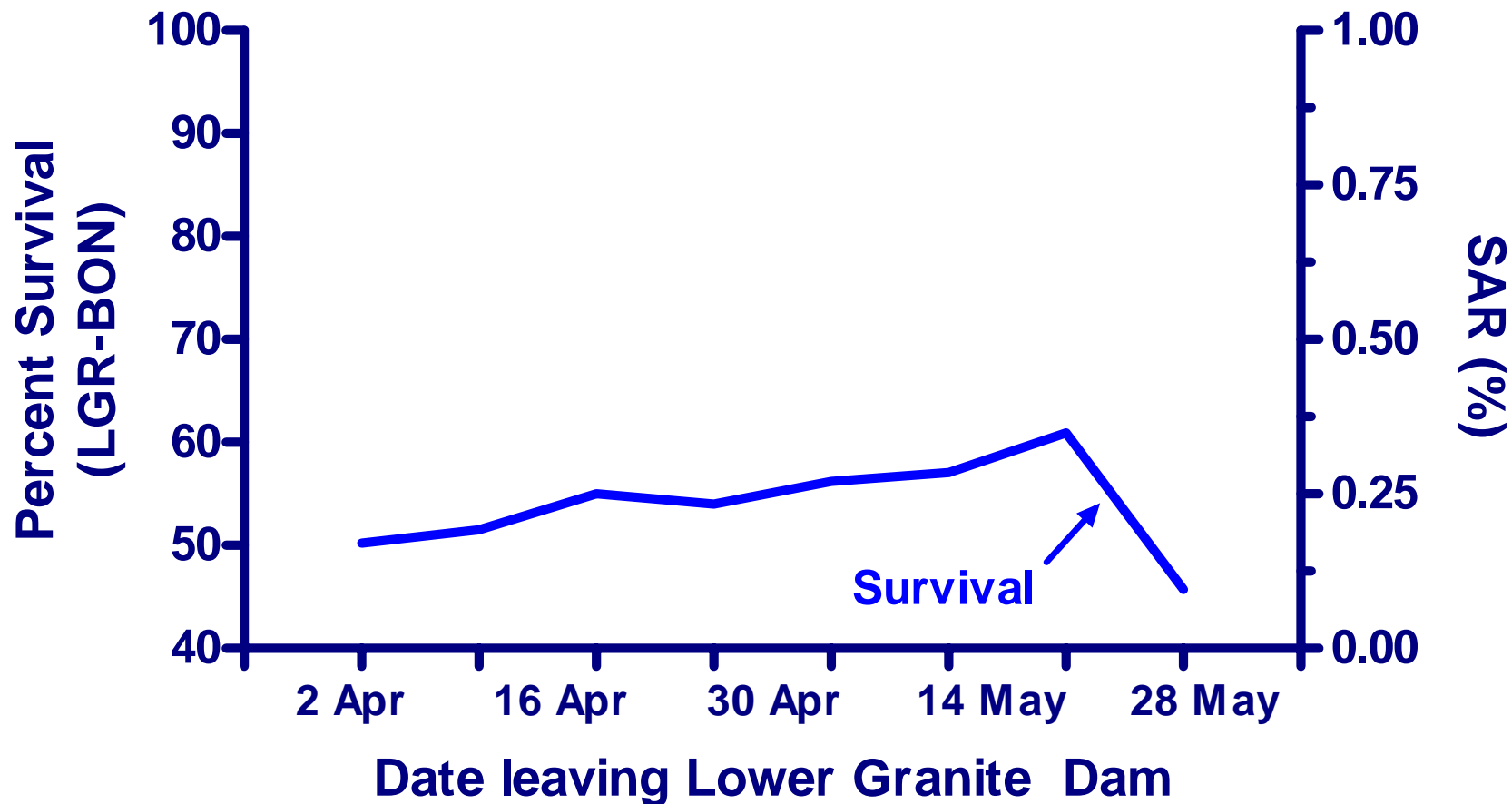
* Incomplete adult returns



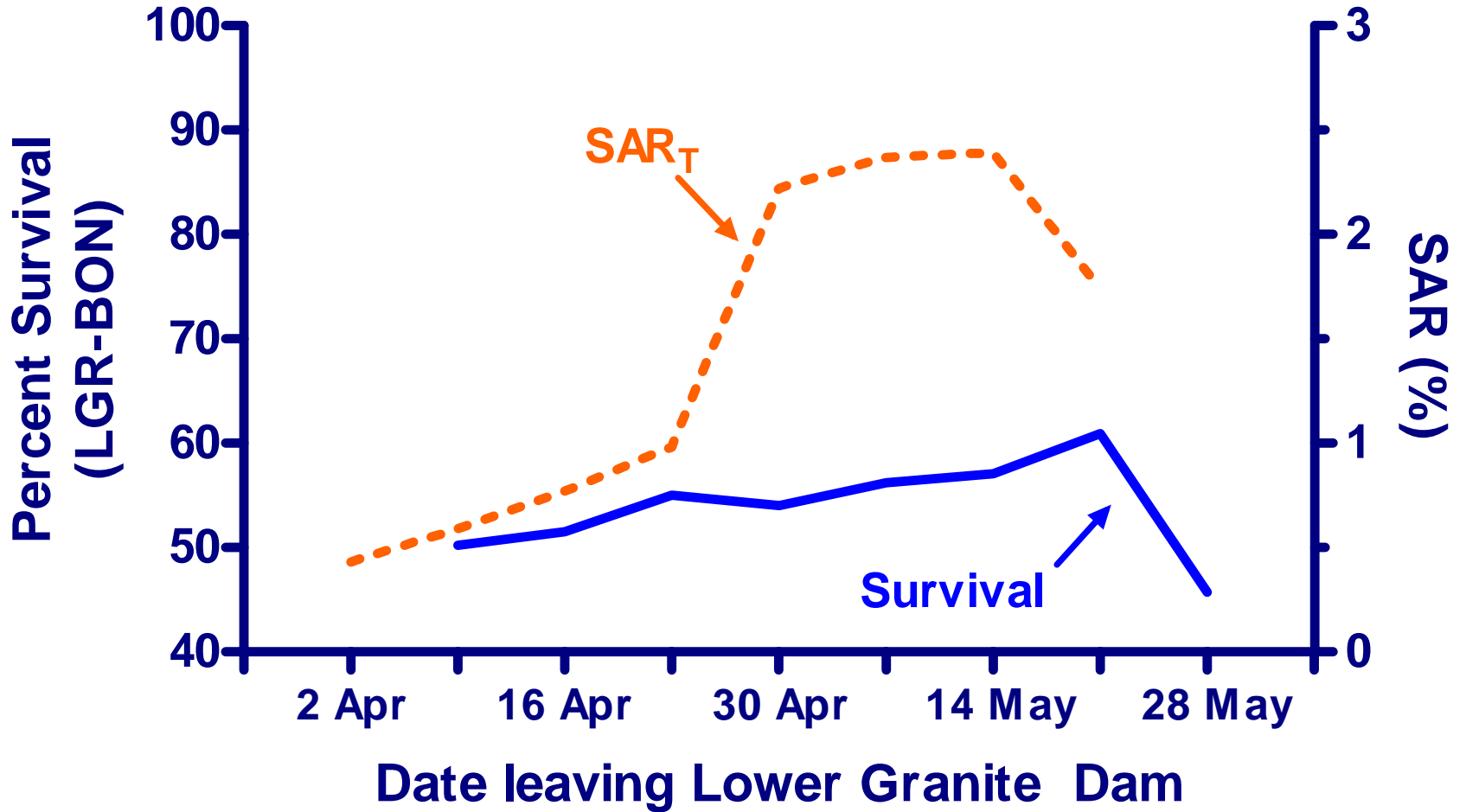
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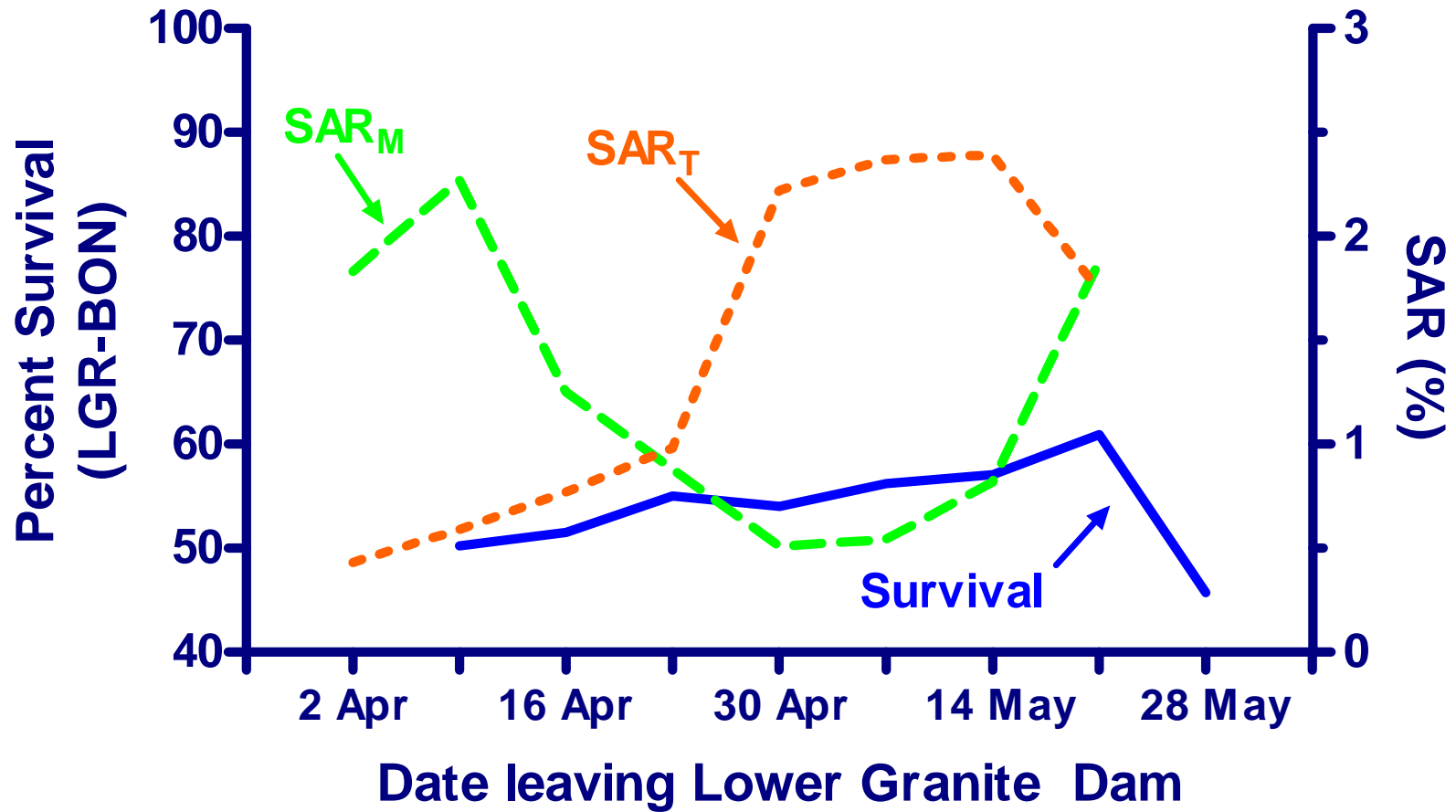
Hatchery Chinook Salmon 1998



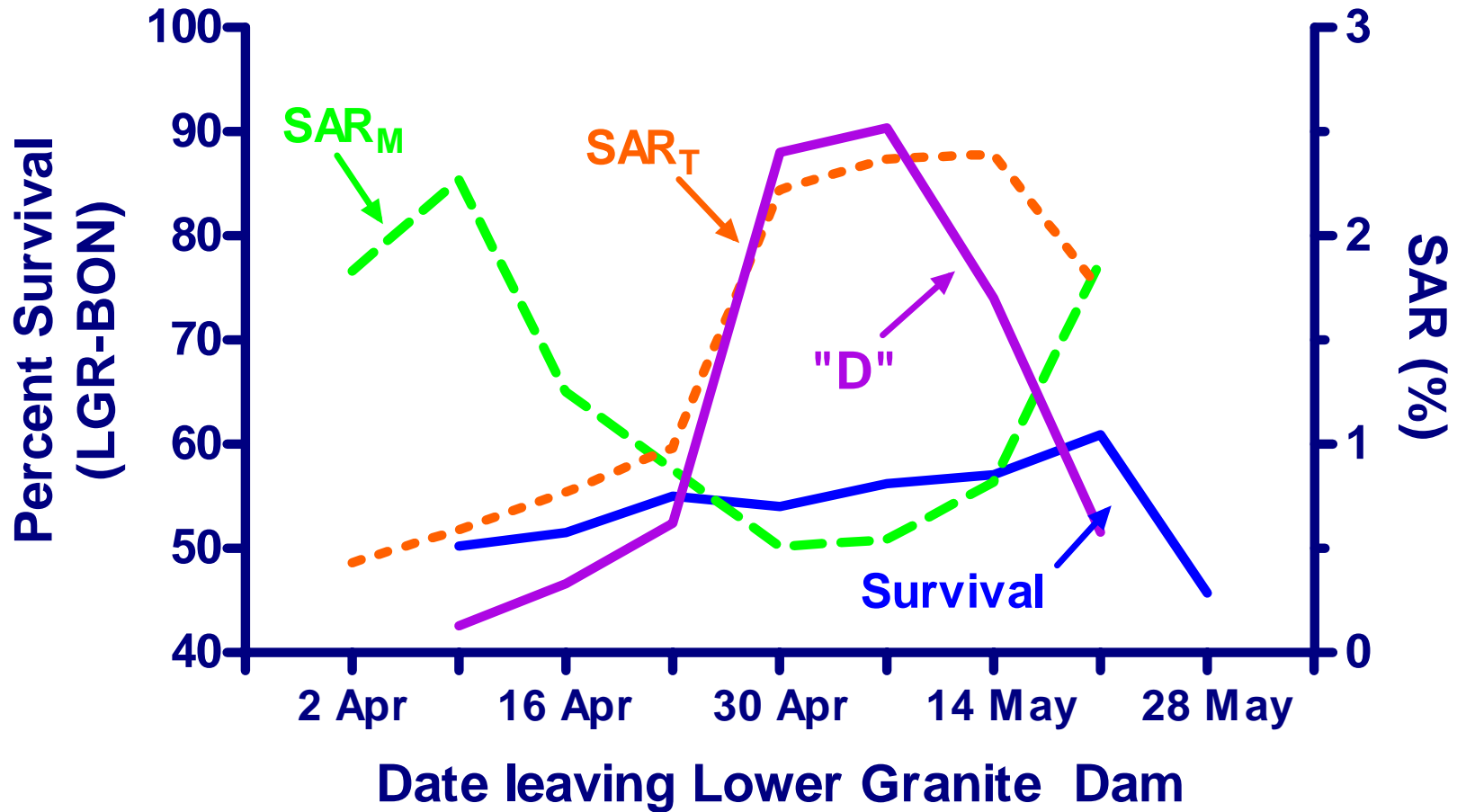
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- **Hydropower system mortality's role in life cycle mortality**

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- Reach survival has averaged 90% per project for Chinook and 85% for steelhead
- Hydropower system survival has averaged 46% for Chinook and 32% for steelhead
- **Migrant survival only weakly related to SAR, ocean entry timing appears important**

Publications

- 18 reports to BPA (available on BPA website)
- 11 peer-reviewed publications

Questions

