Can rapid genetic assessment (RGA) improve passage decisions at Willamette basin dams?

Implications for reintroduction of spring-run Chinook salmon in the South Santiam River

Dan Bingham, Hans Berge, Scott Blankenship, and Gregg Schumer

Cramer Fish Sciences, Genidaqs

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aquatic species sampling, simplified

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- We need to know the origin of returning adults to achieve CRR>1.00

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- Example:
  - RGA is used to inform selective transport of natural-origin fish in a reintroduction program

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- Logistics: management event and action need to be feasible in real-time
  1. Capture
  2. Tag
  3. Sample
  4. Mail
  5. Hold
  6. Genetic Analysis (24 to 48 hrs)
  7. Sort
  8. Release

What are examples of RGA?

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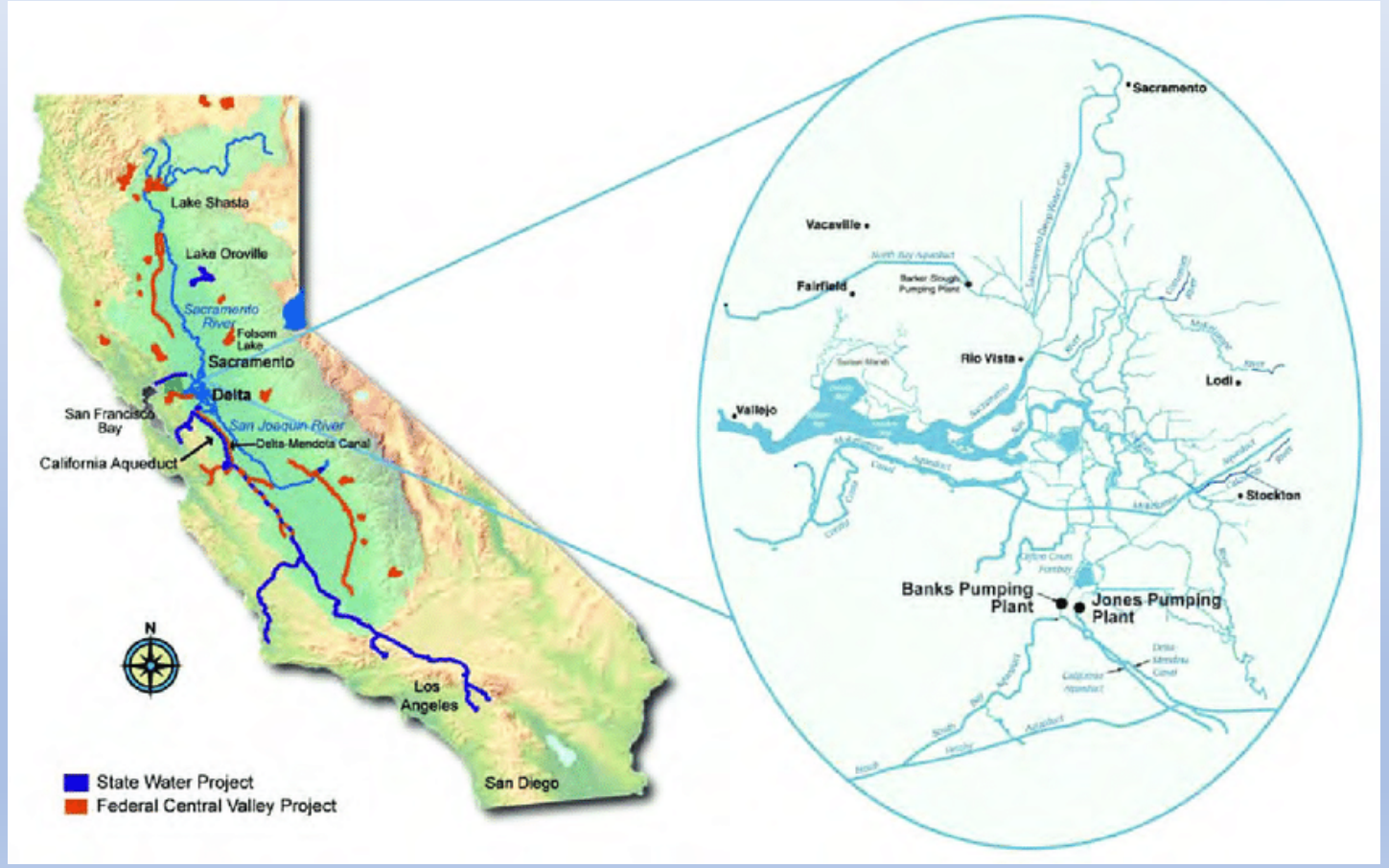

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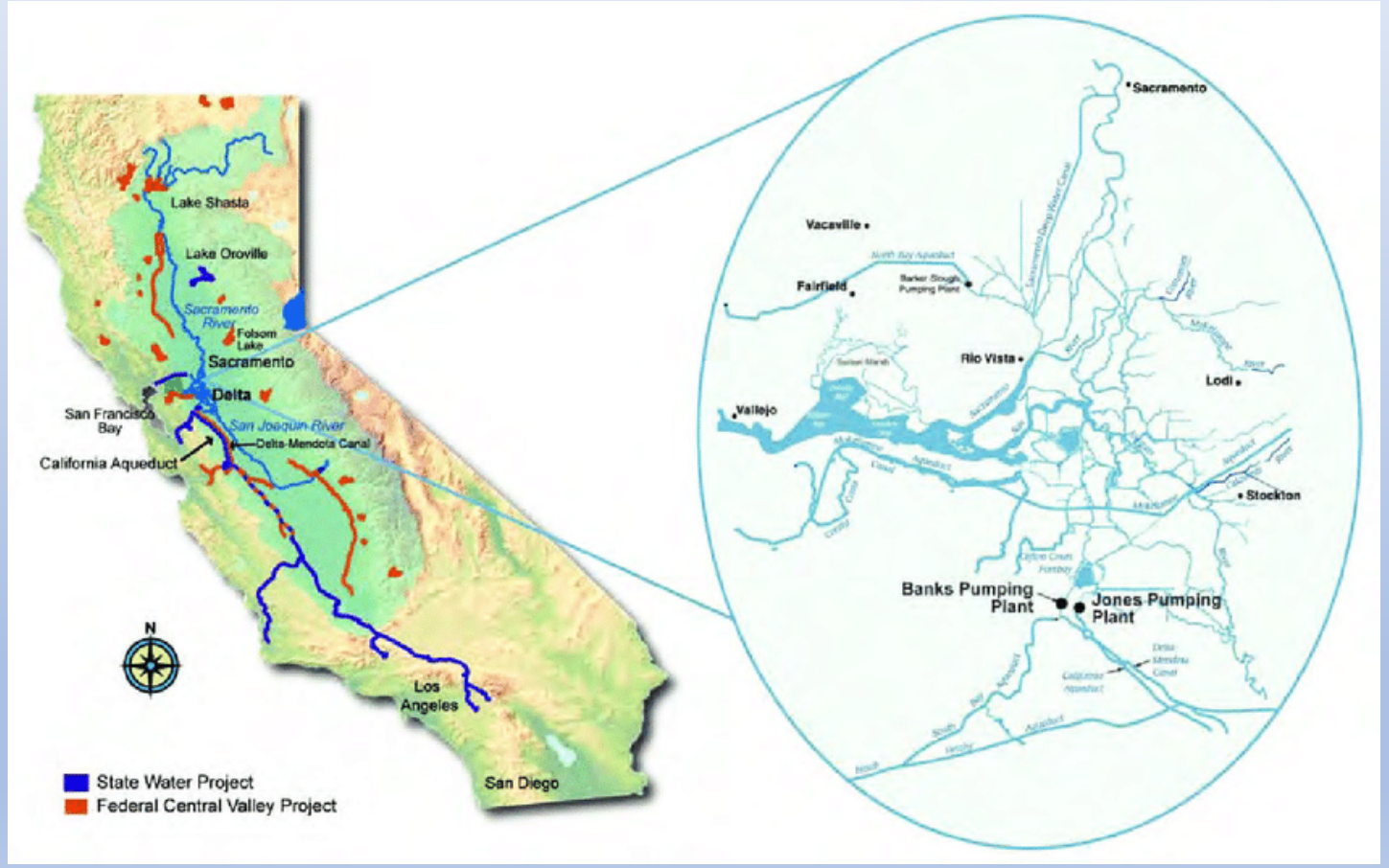

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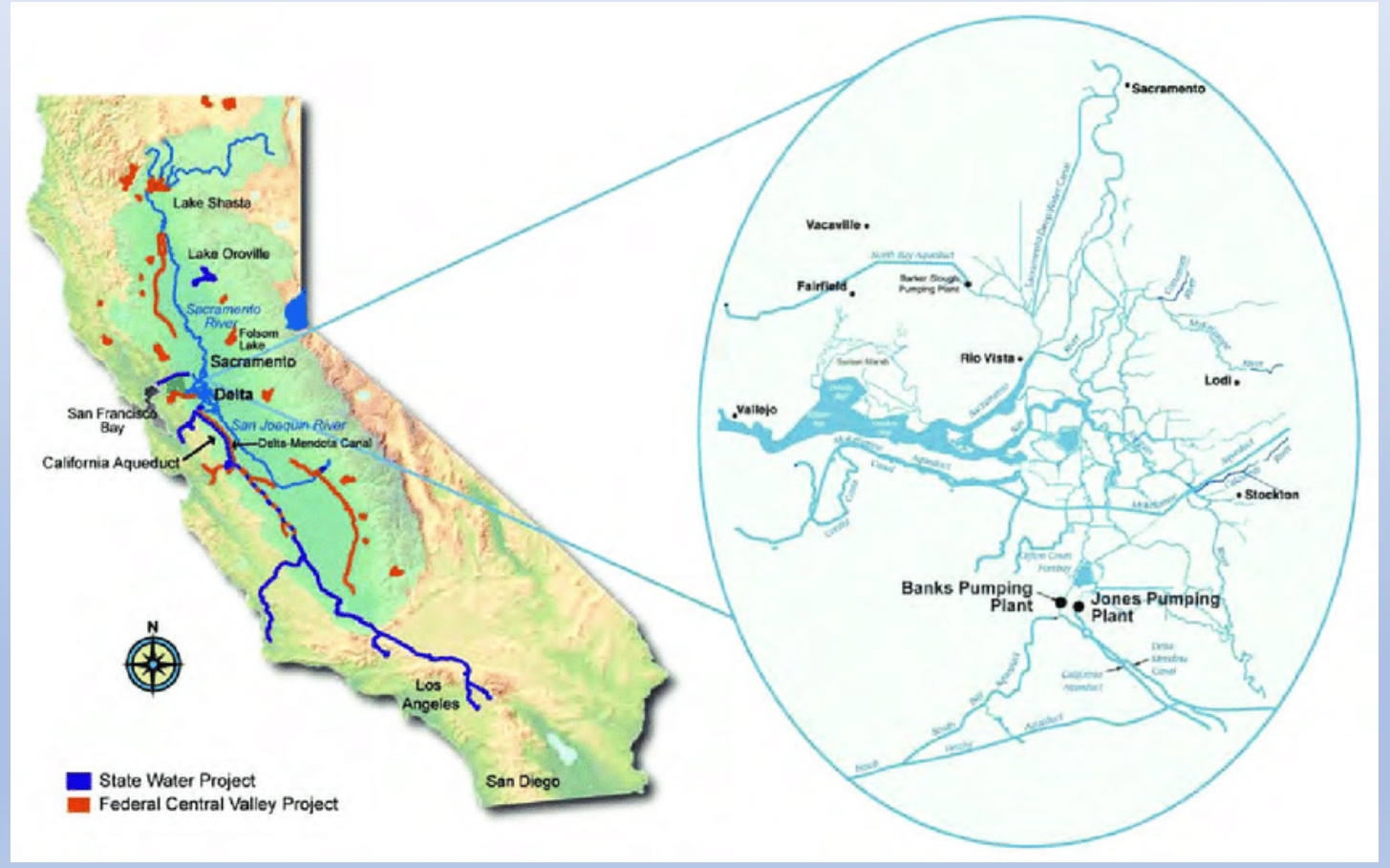

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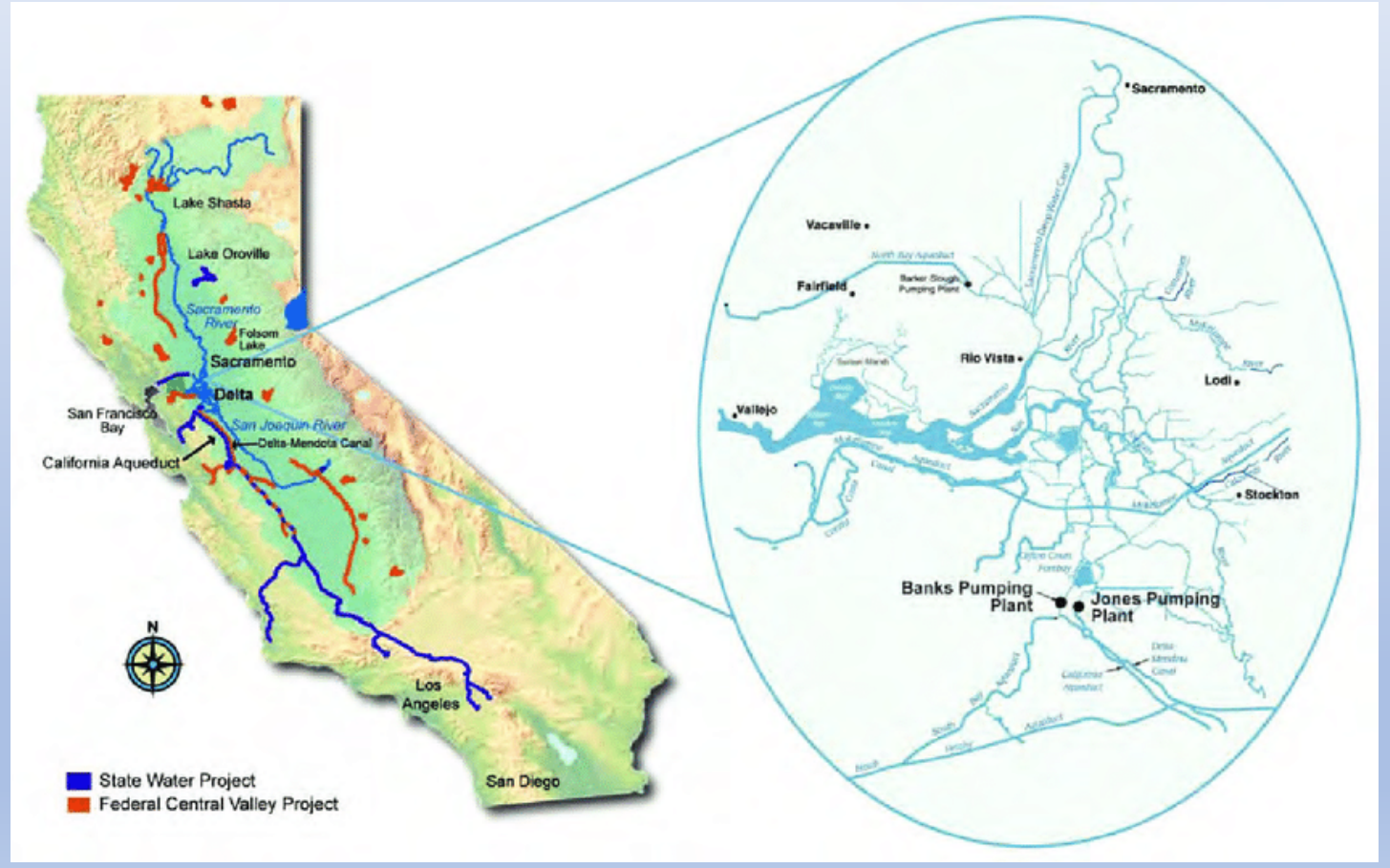

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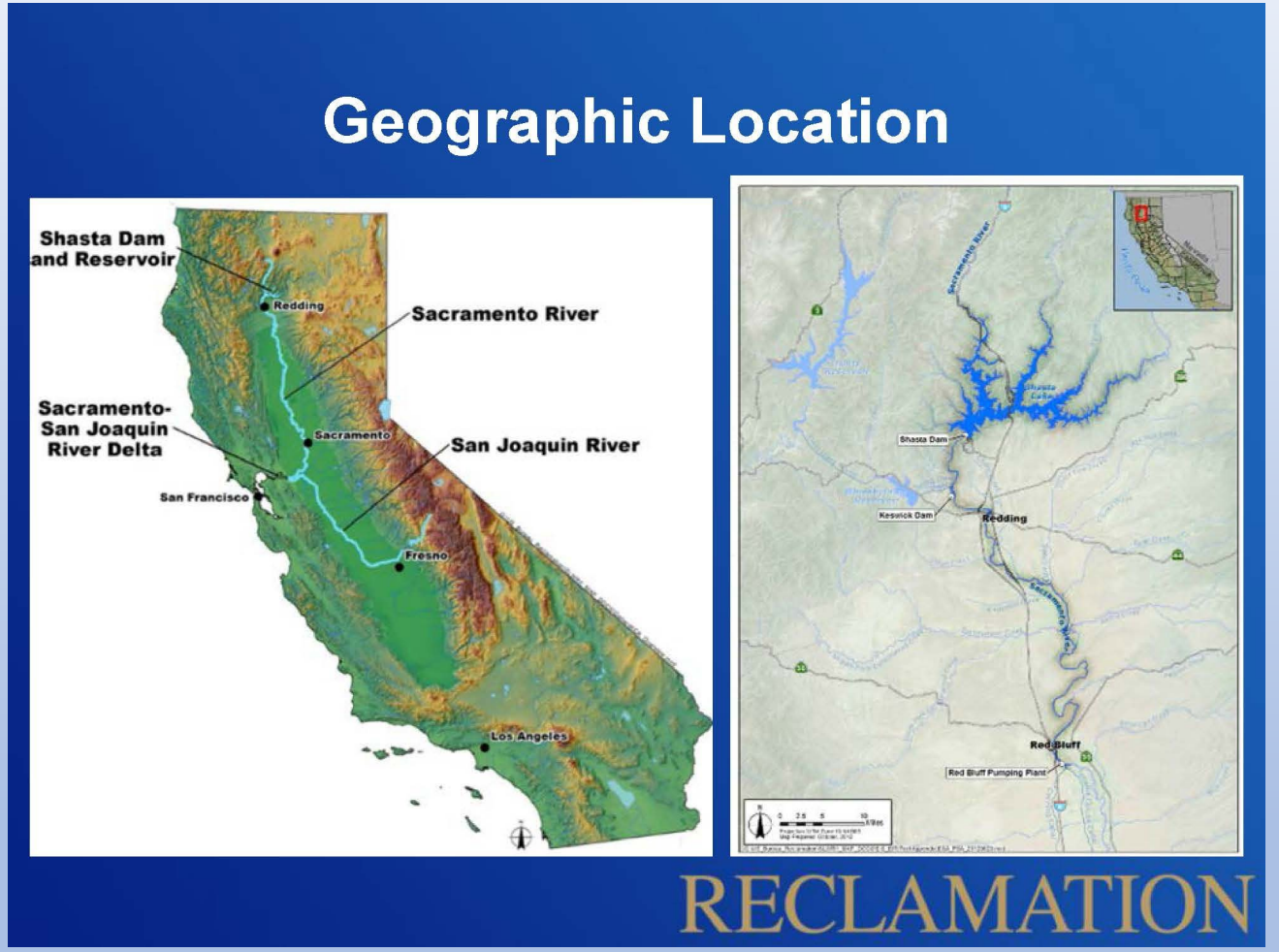

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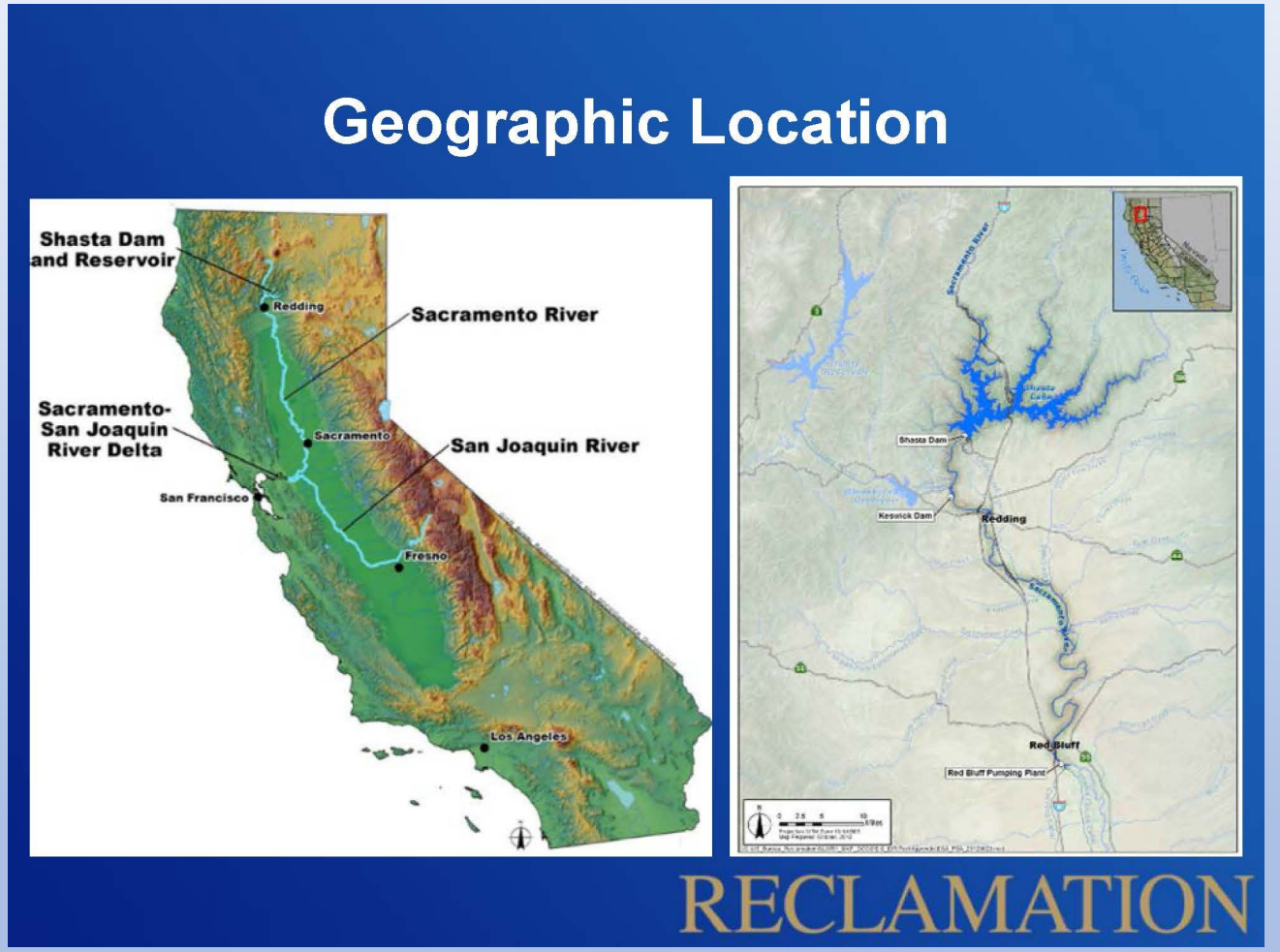

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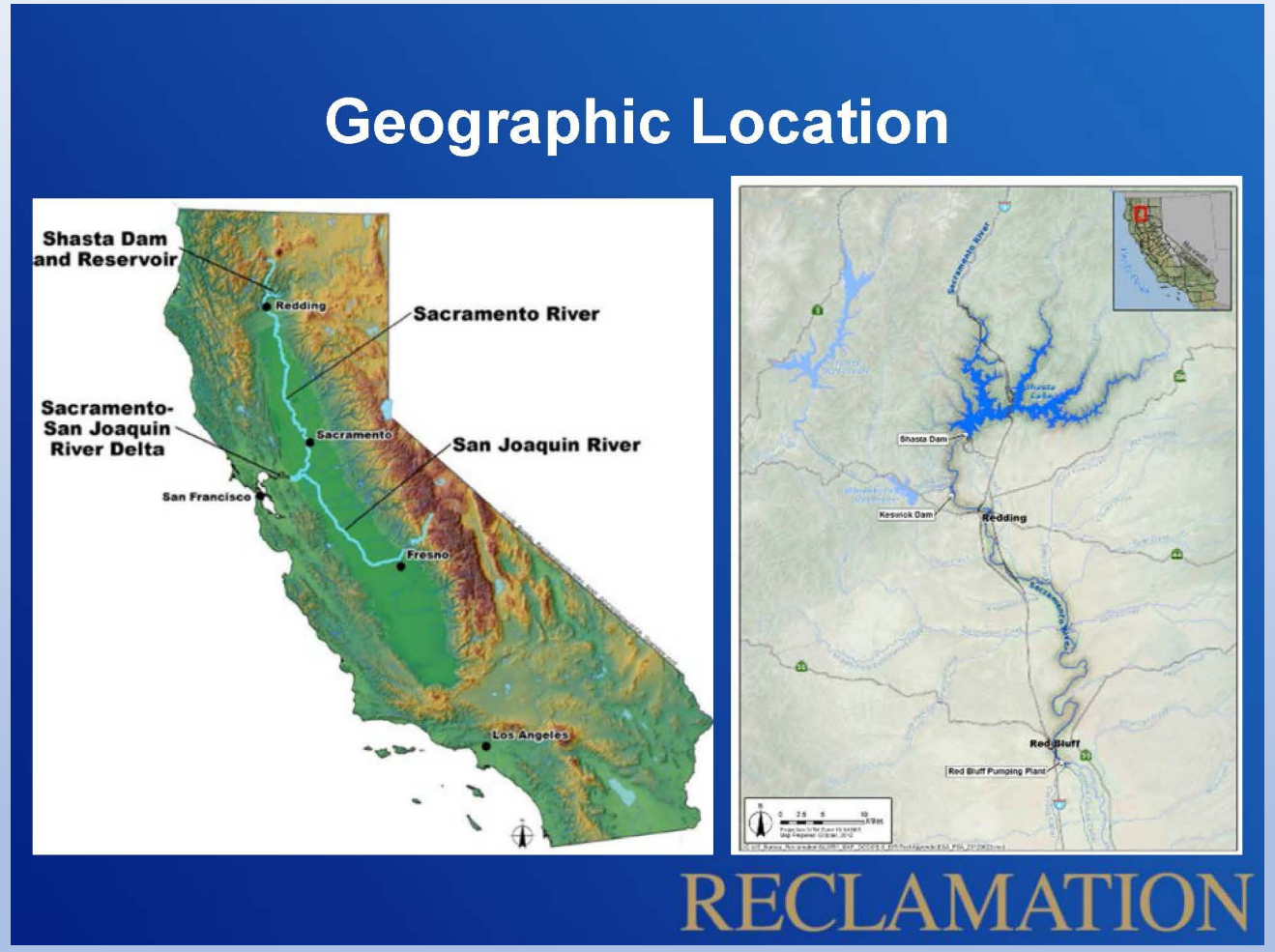

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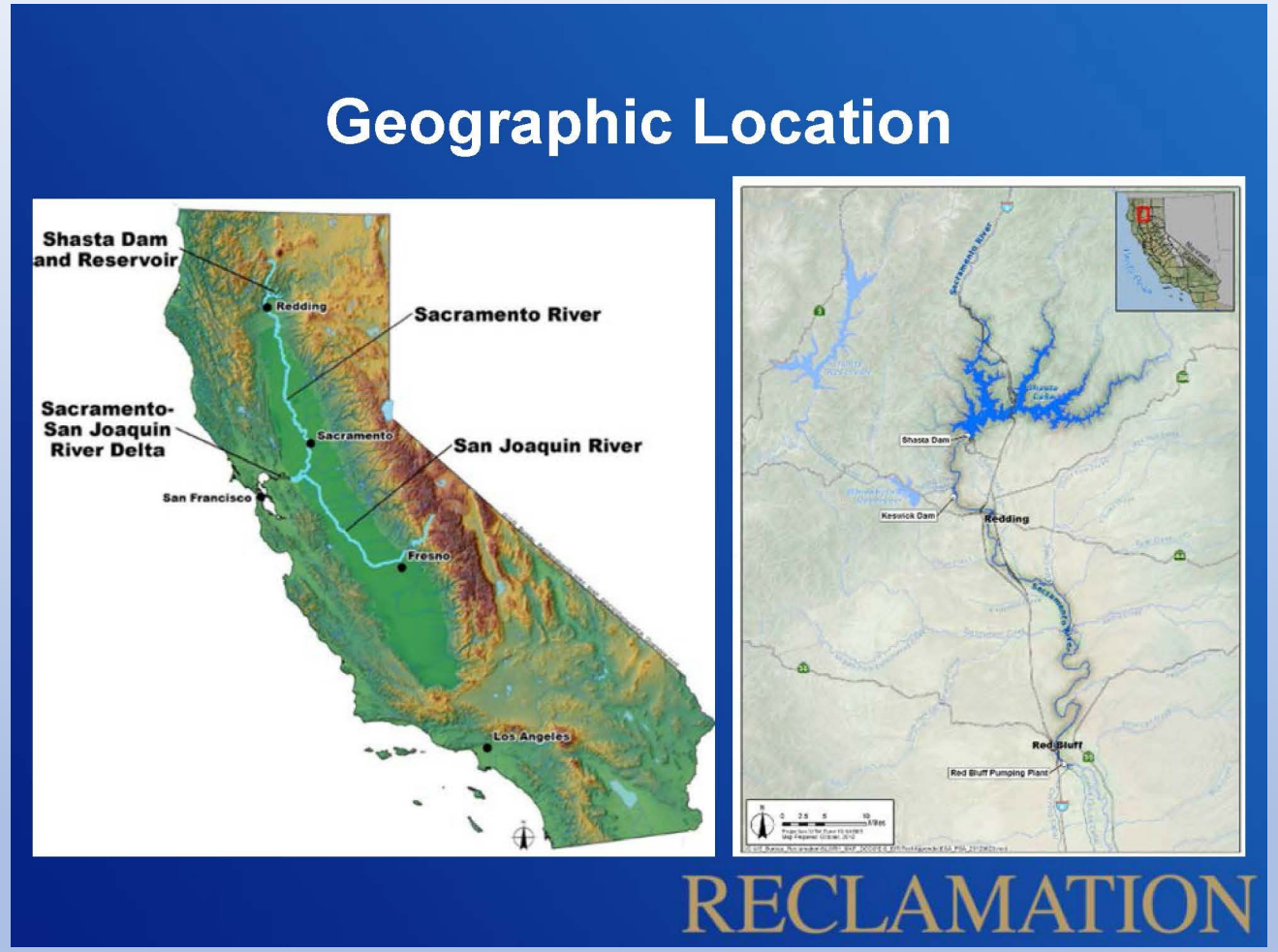

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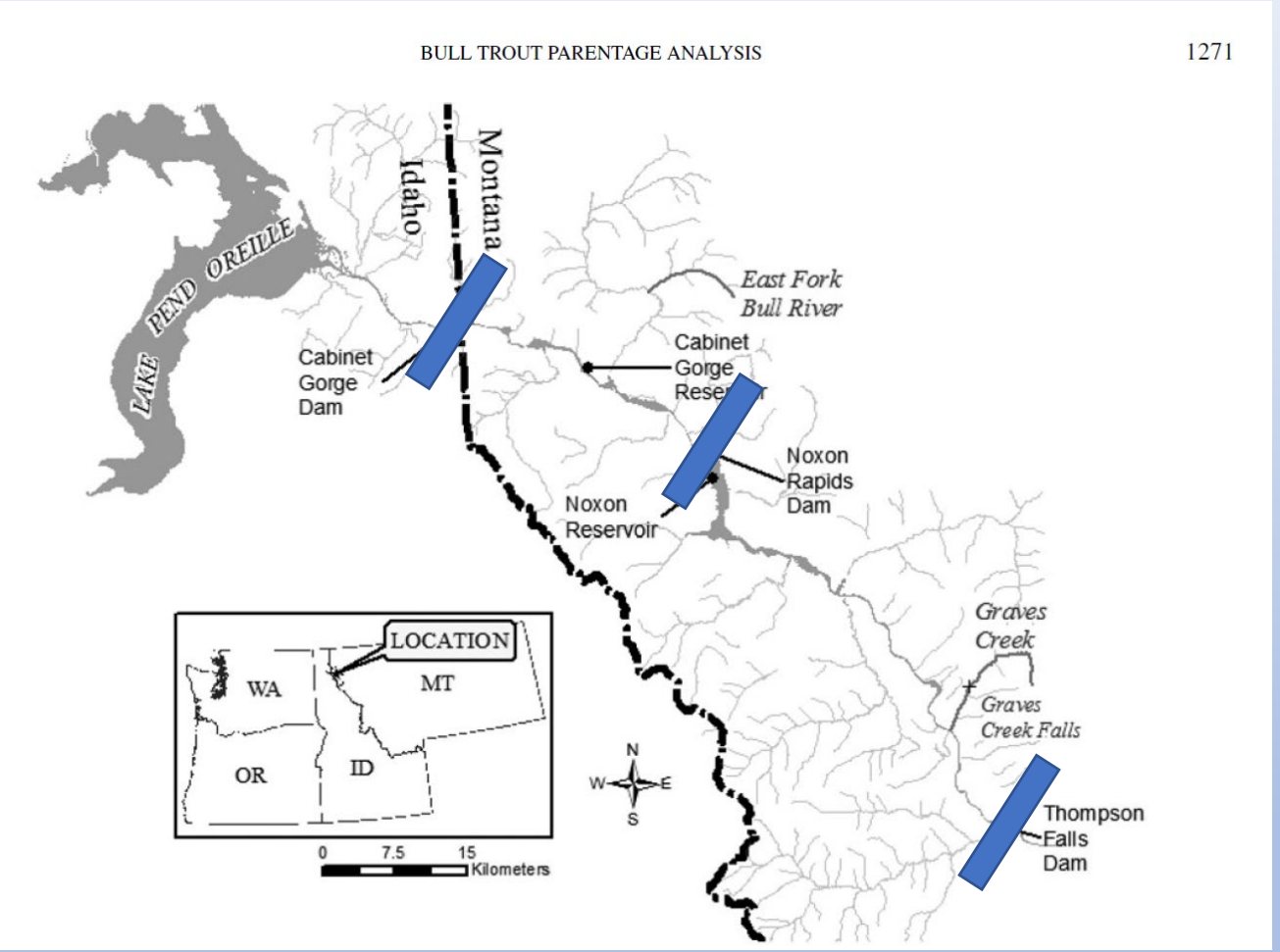

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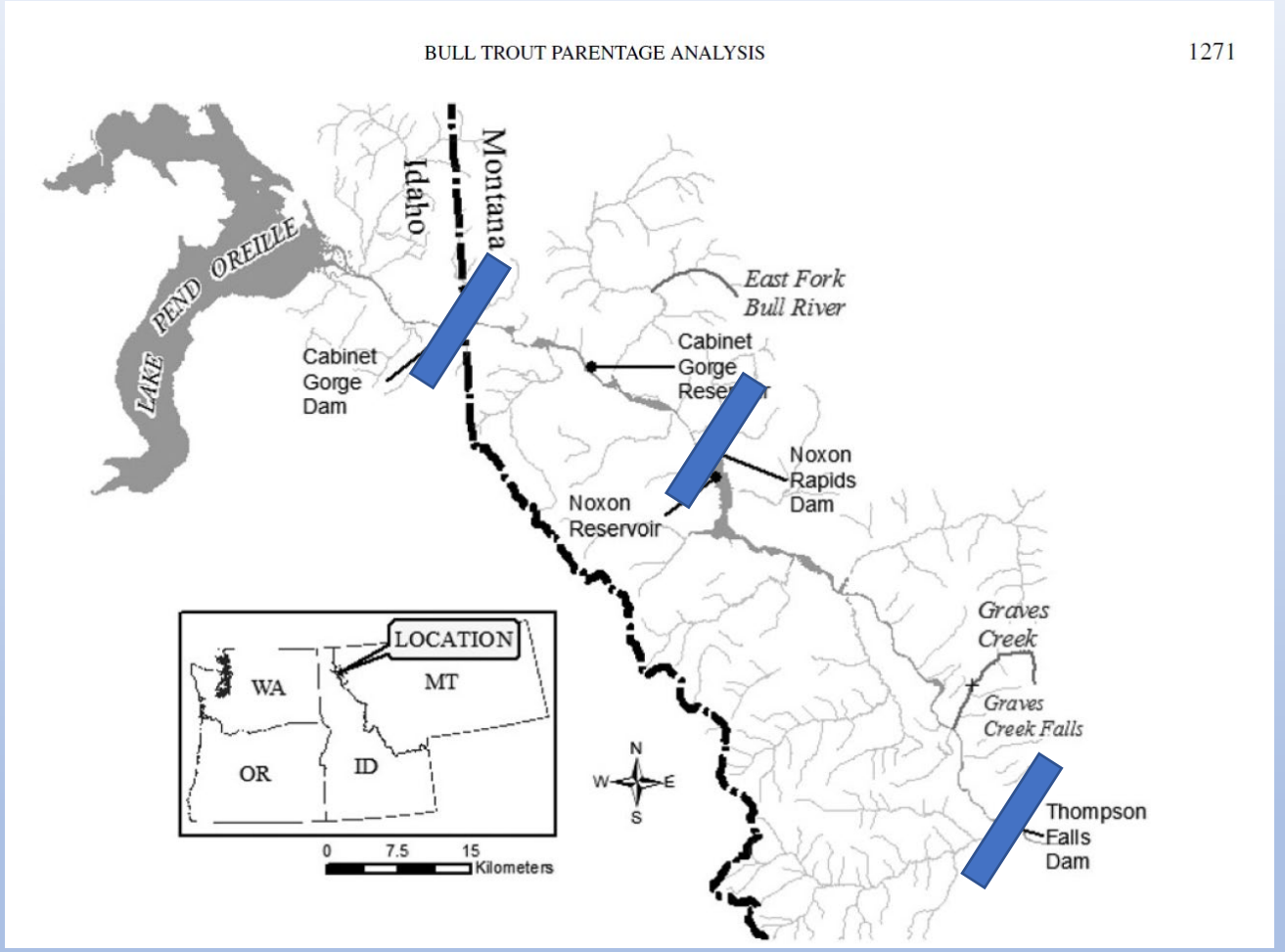

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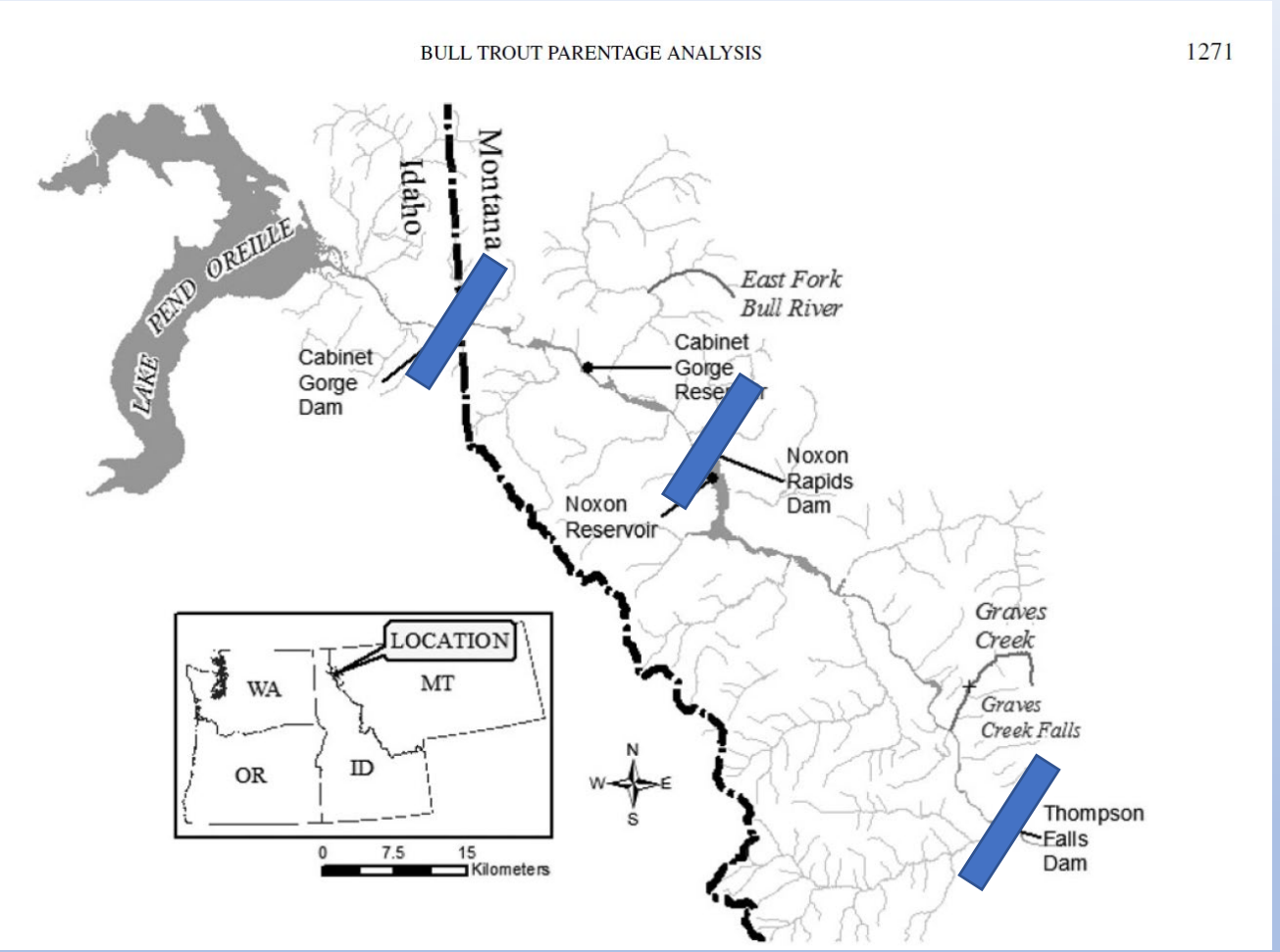

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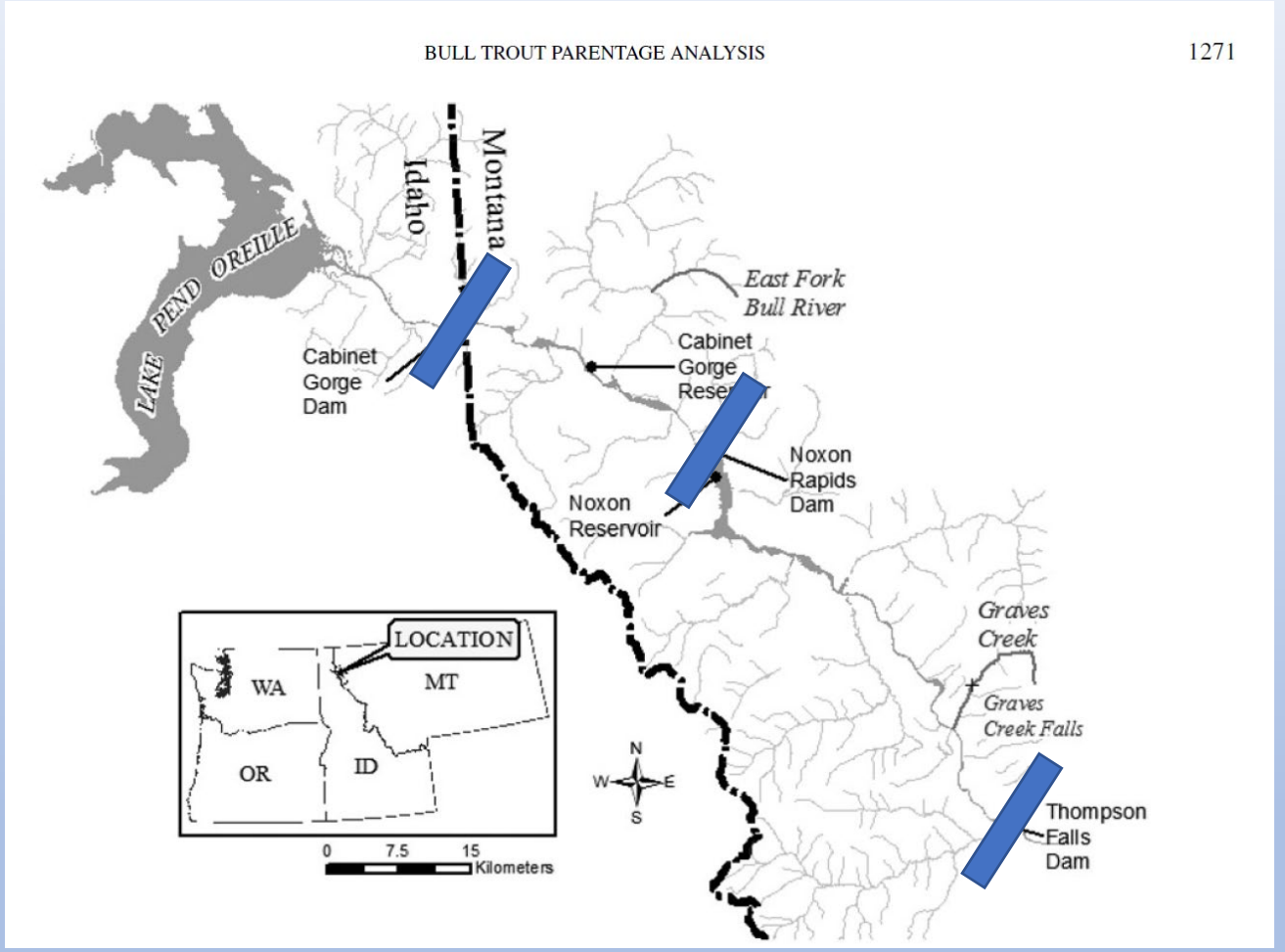

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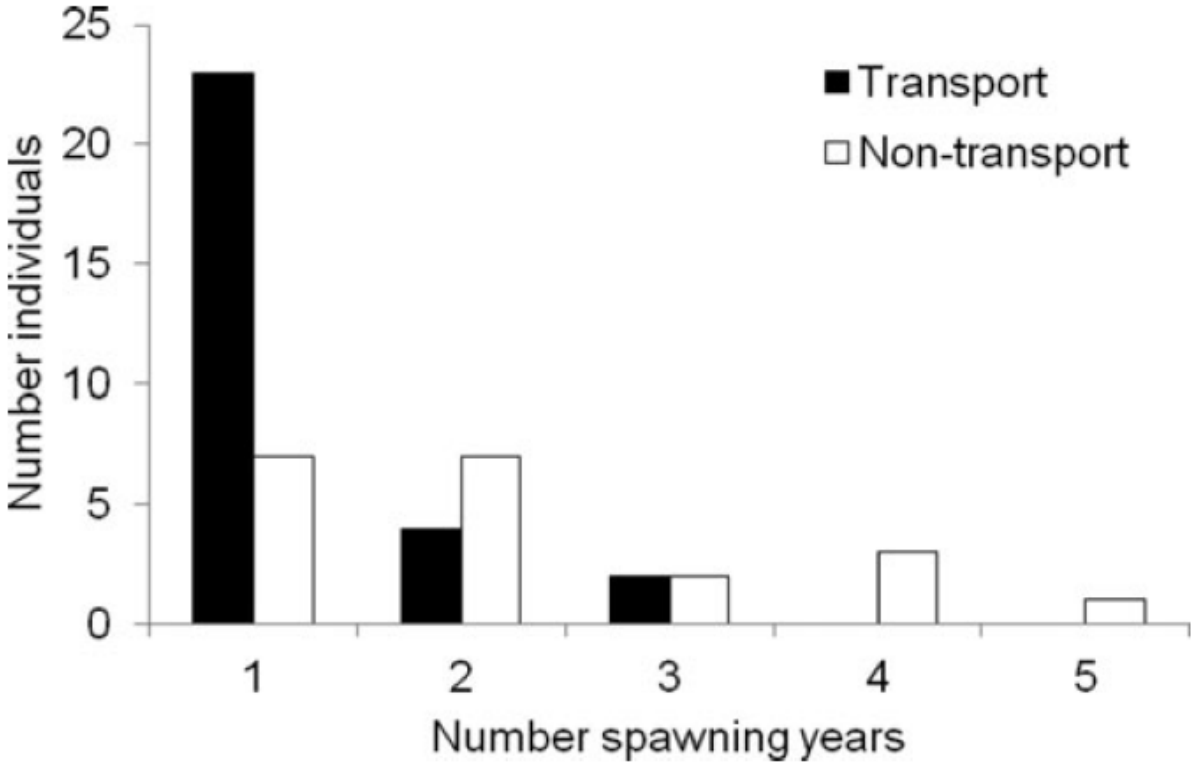

FIGURE 3. Spawning frequency based on parentage assignments for adult Bull Trout in East Fork Bull River and Graves Creek. Black bars represent upstream transport fish and white bars represent nontransport fish.

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- 2008 BiOp identified access to historical spawning habitat as a key factor limiting natural production and recovery
- Trap-and-haul reintroduction program for spring-run Chinook (RPA 4.6 2008 BiOp)

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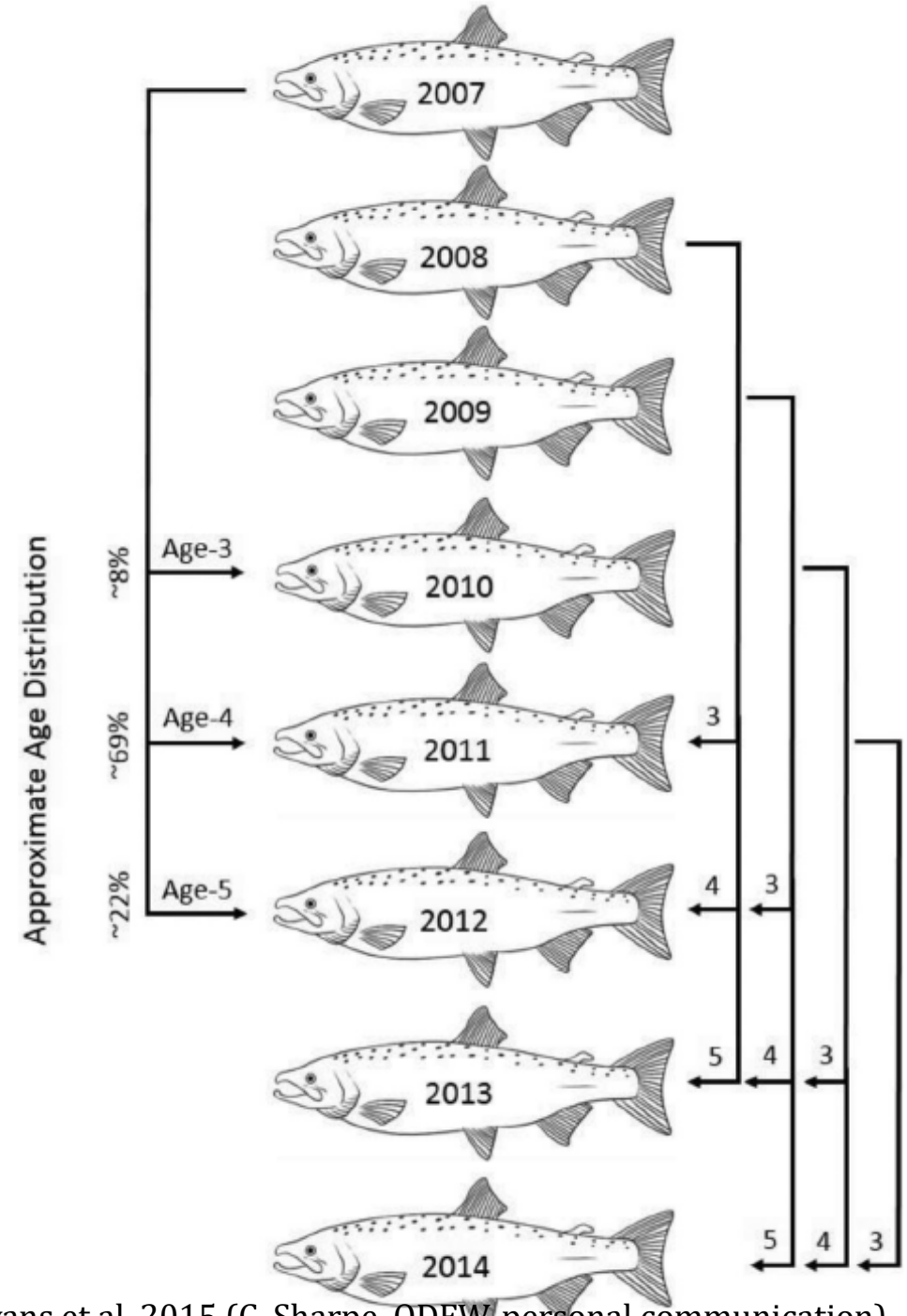
- However, identification of natal natural-origin spring Chinook is a challenge

What is needed to use RGA at Foster and Green Peter?



Evans et al. 2015 (C. Sharpe, ODFW, personal communication)

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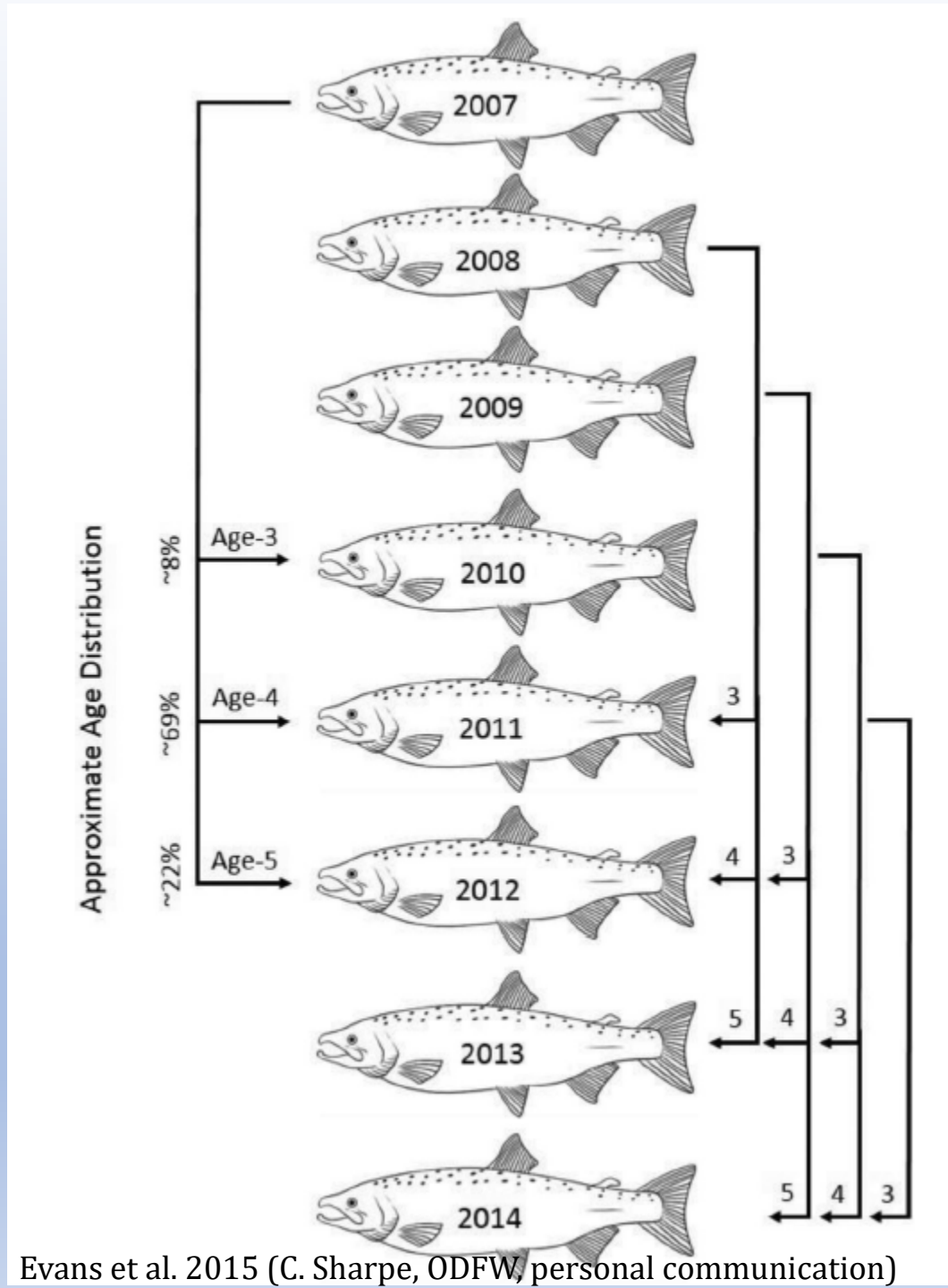

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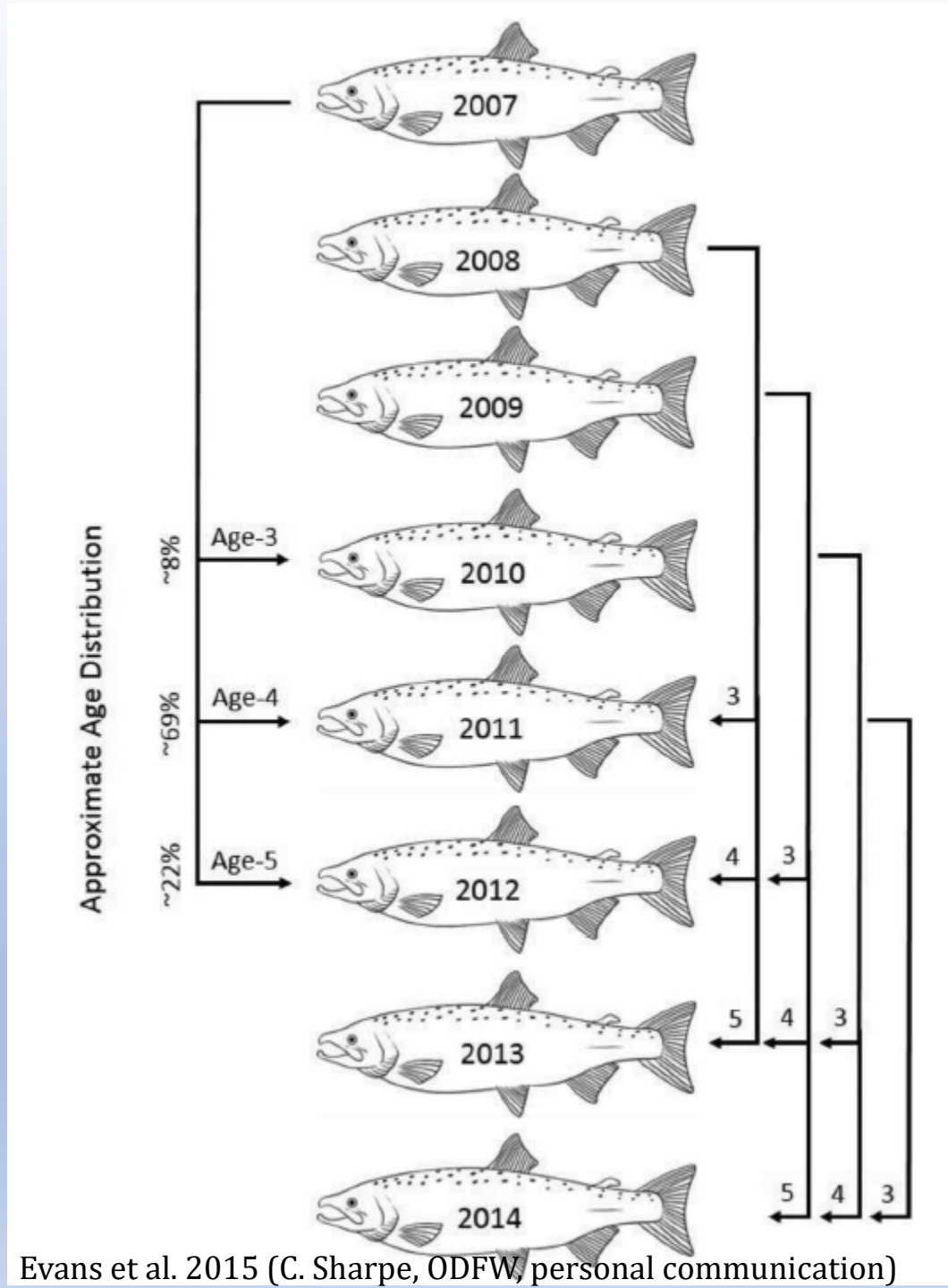

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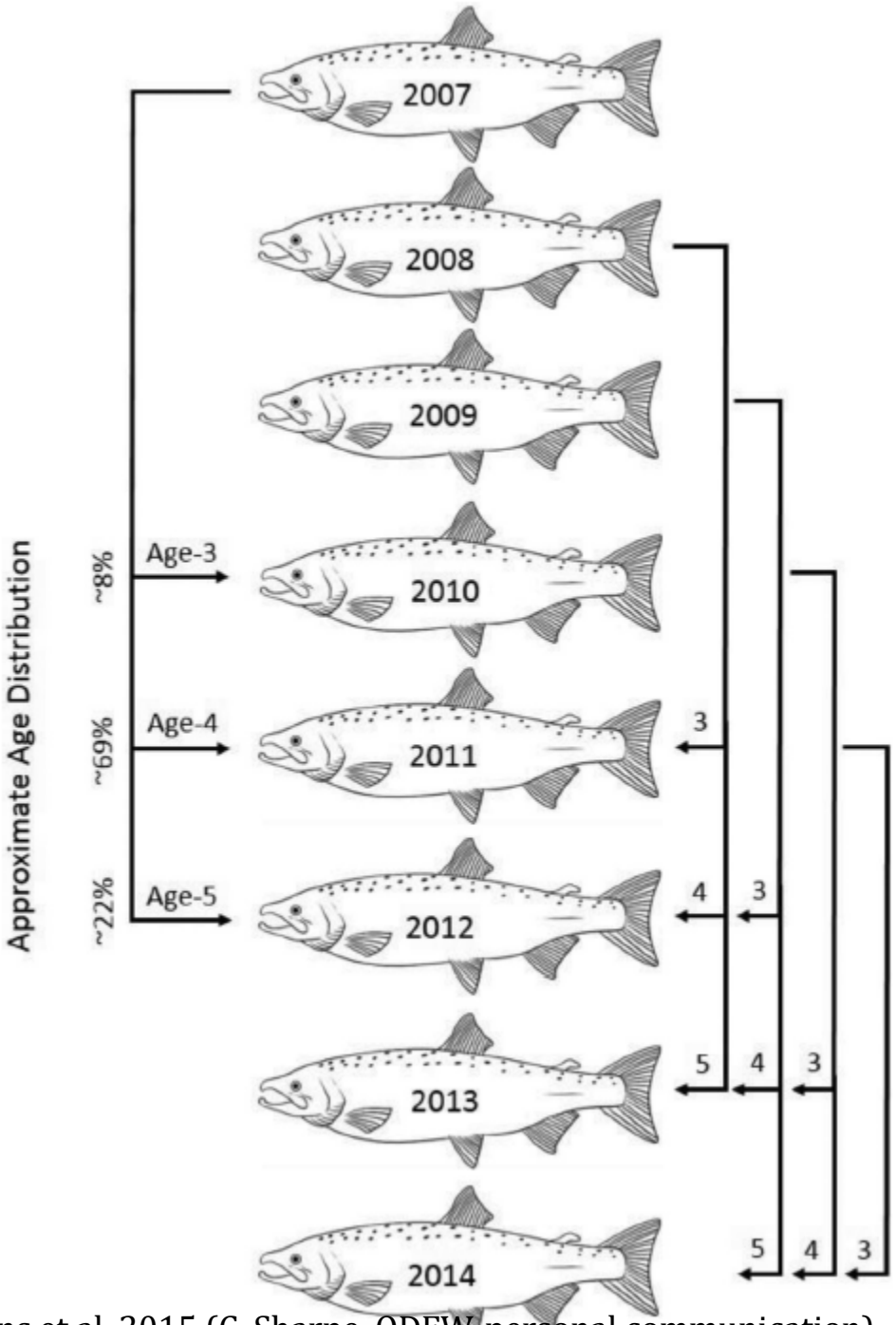

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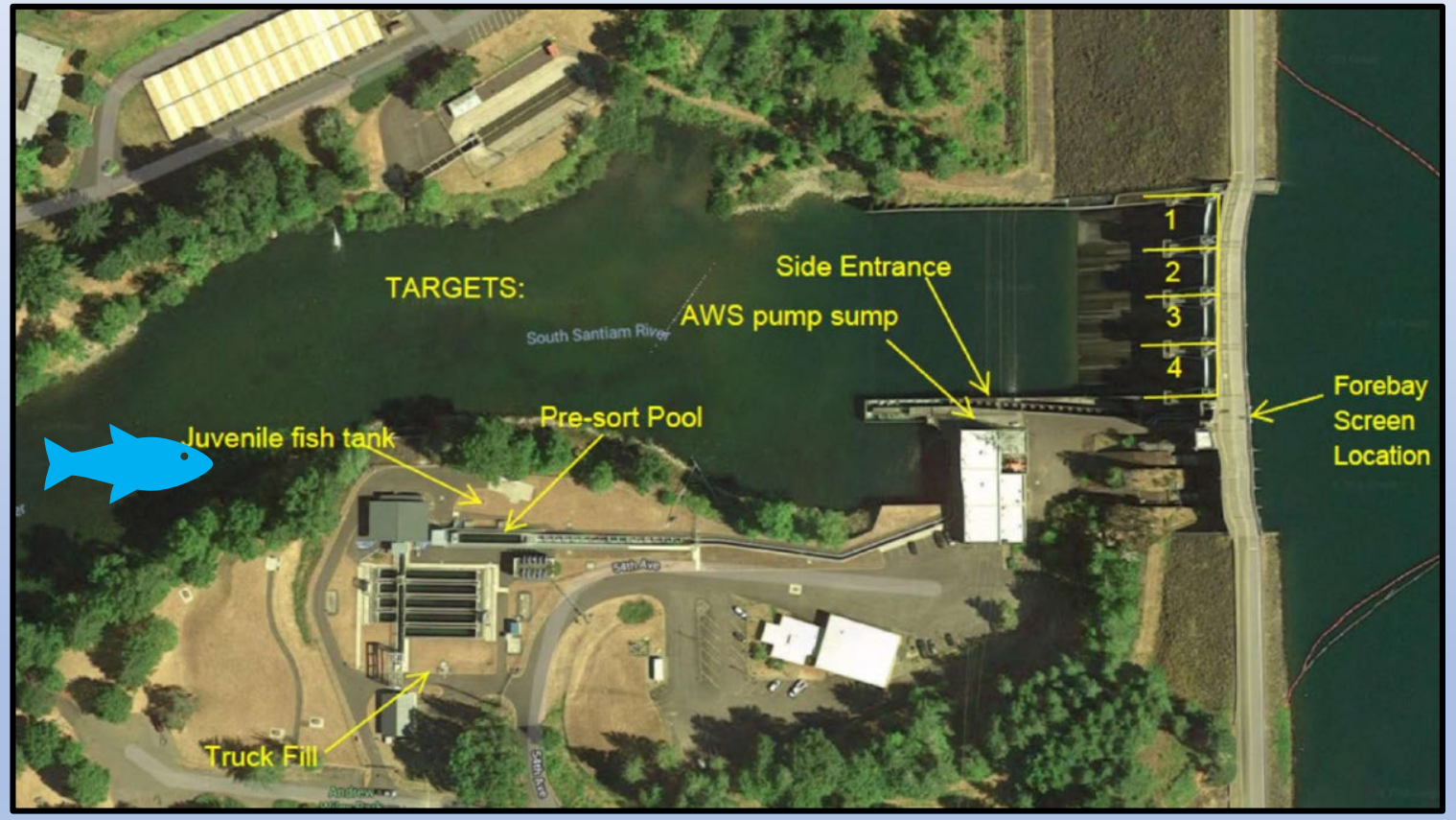

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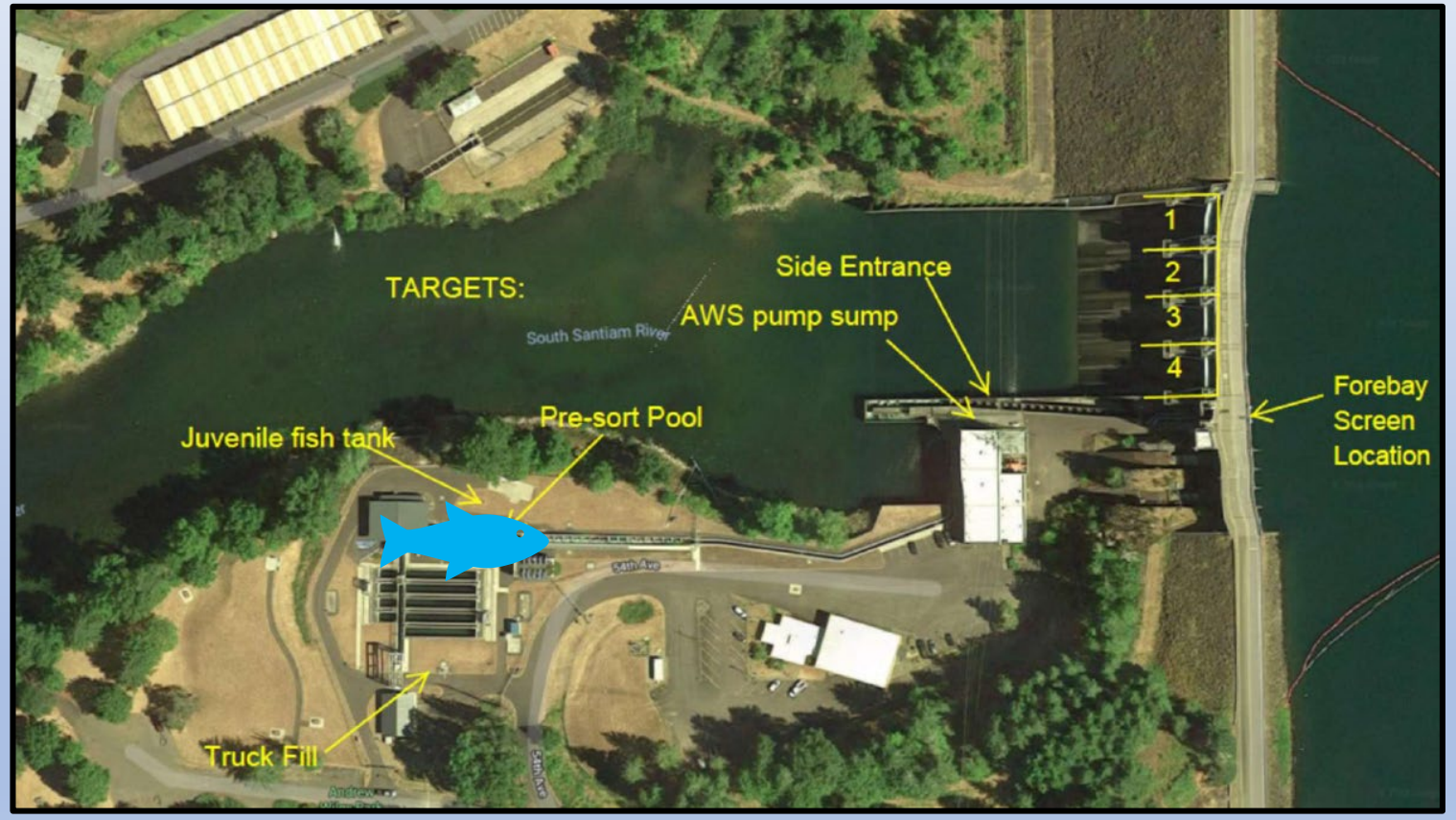

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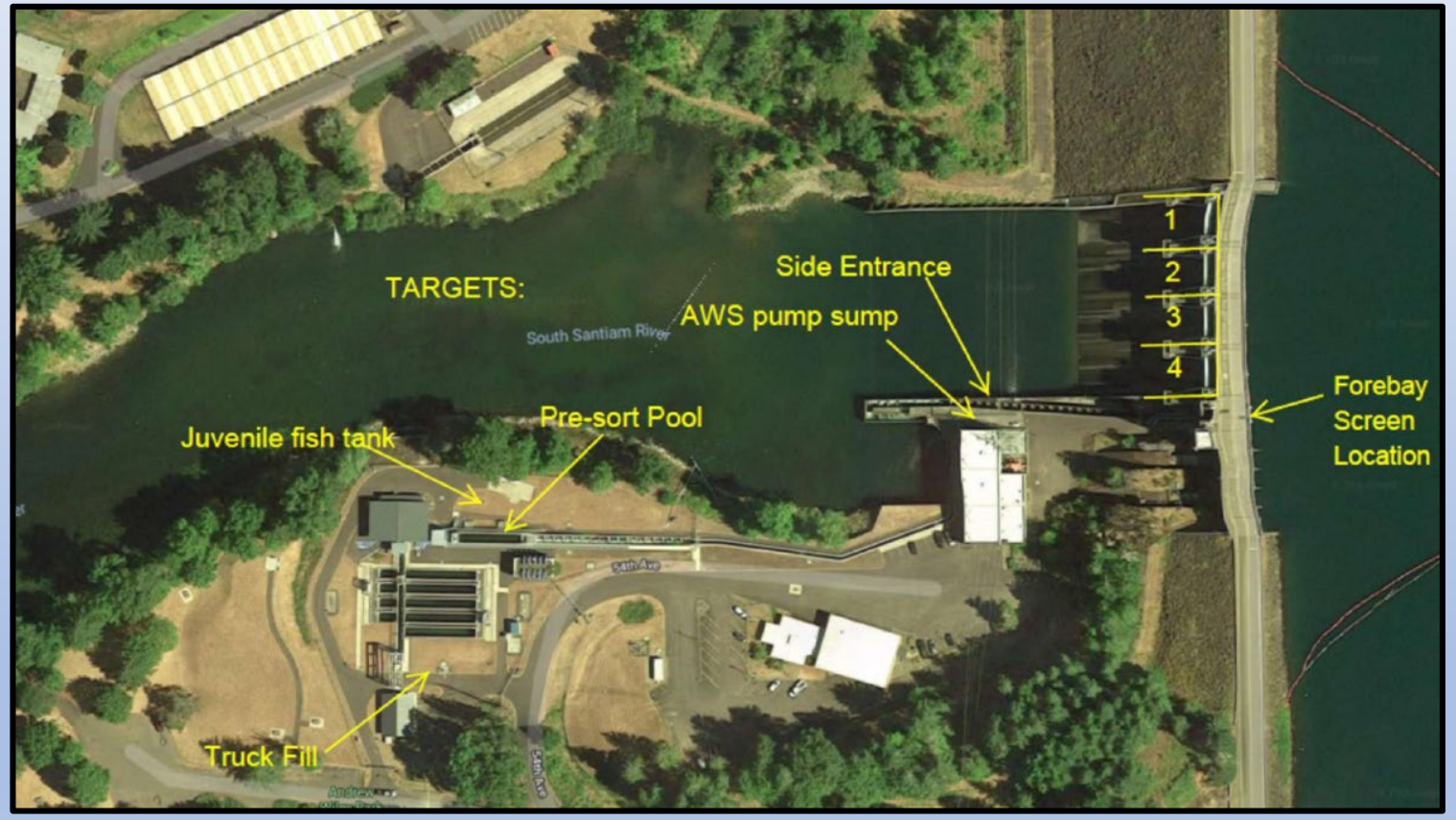

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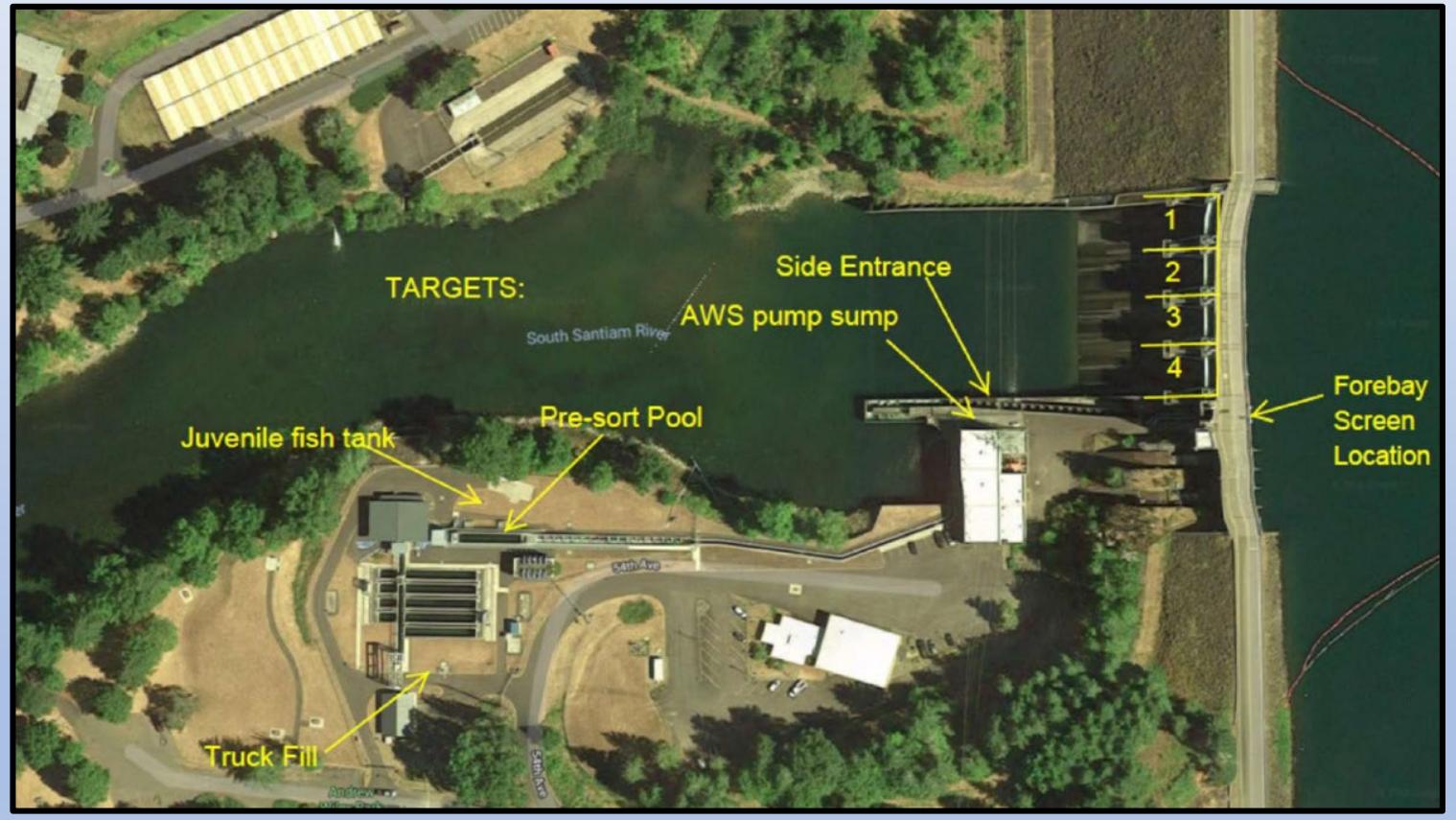

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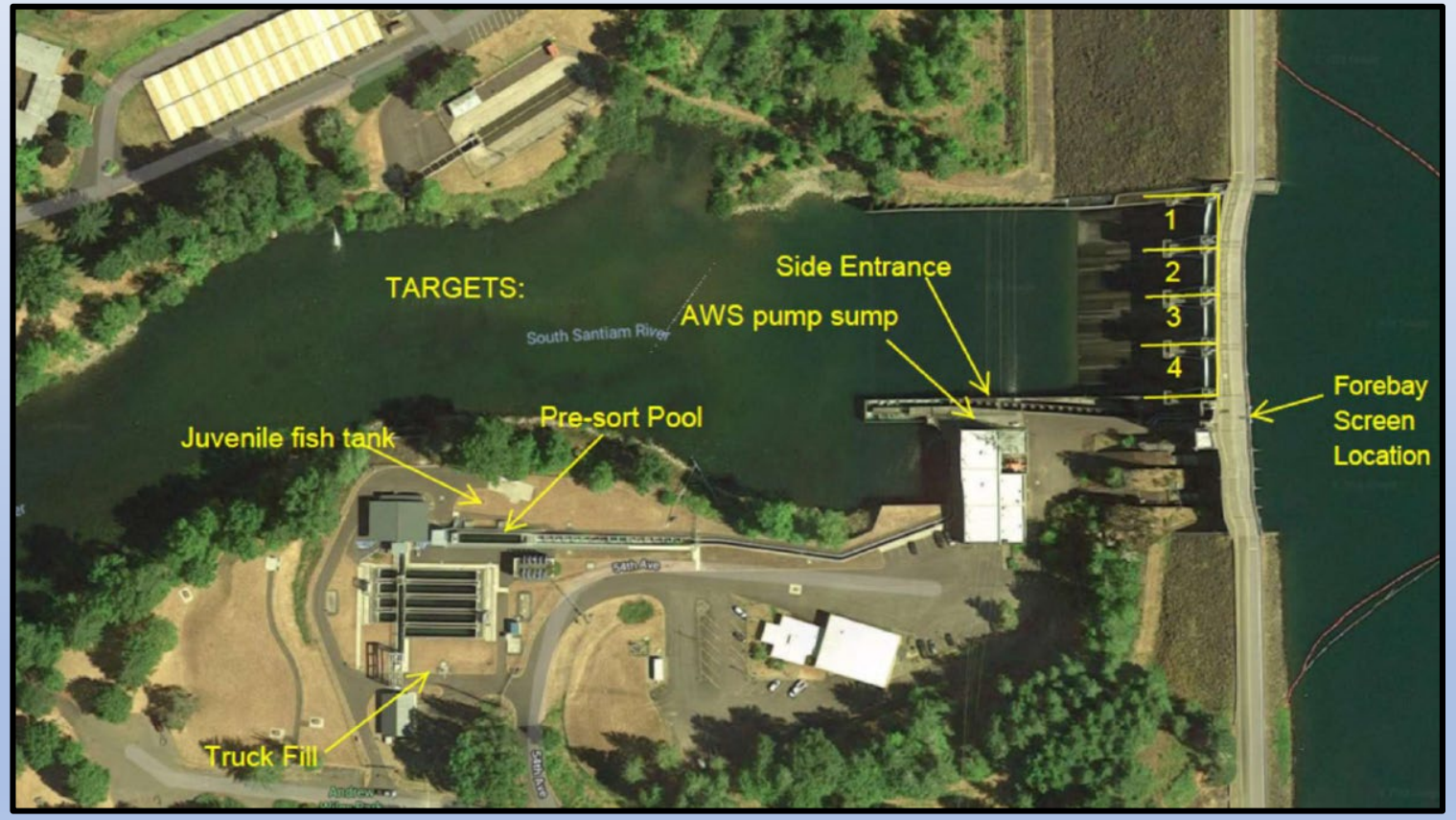

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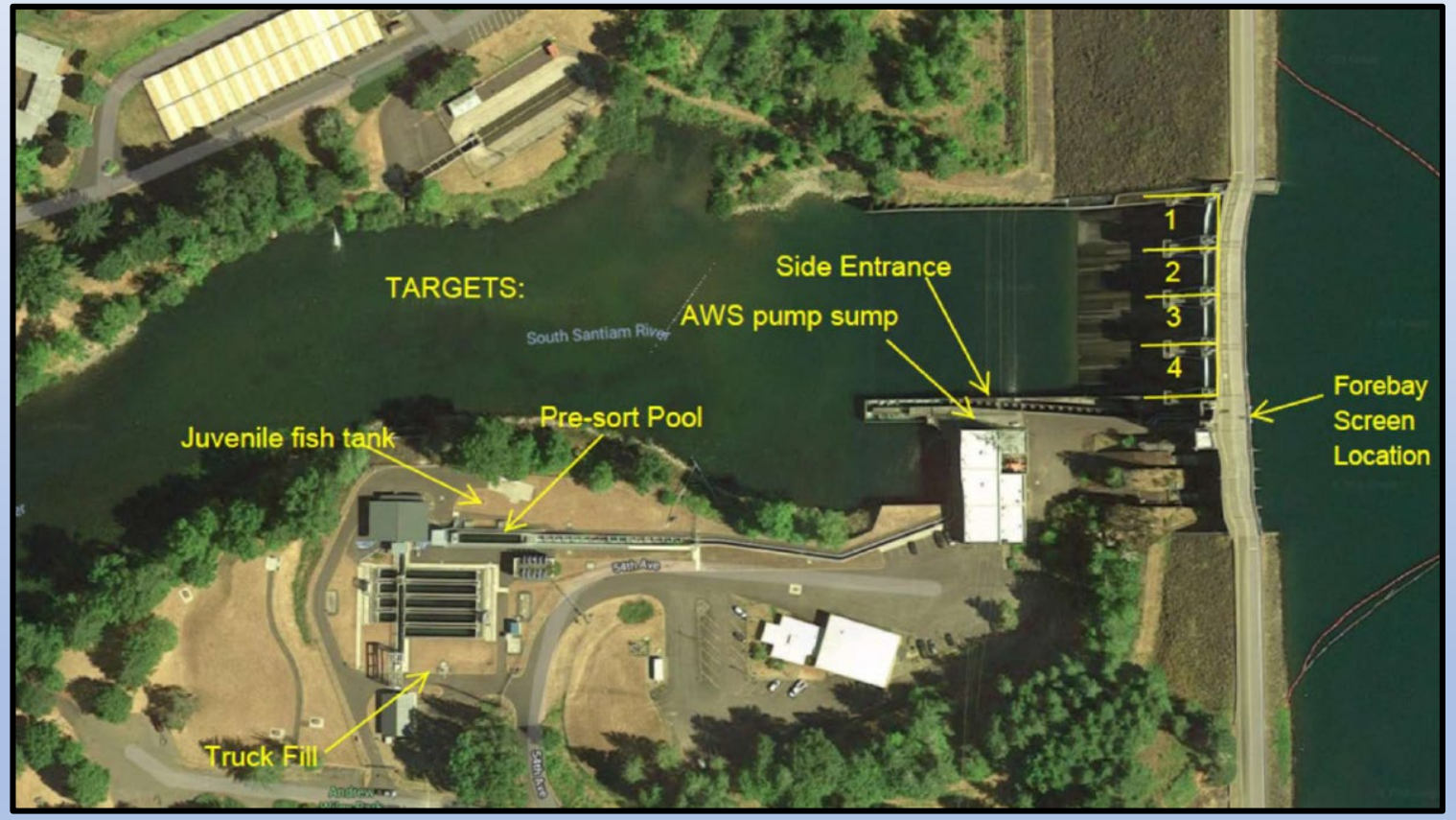

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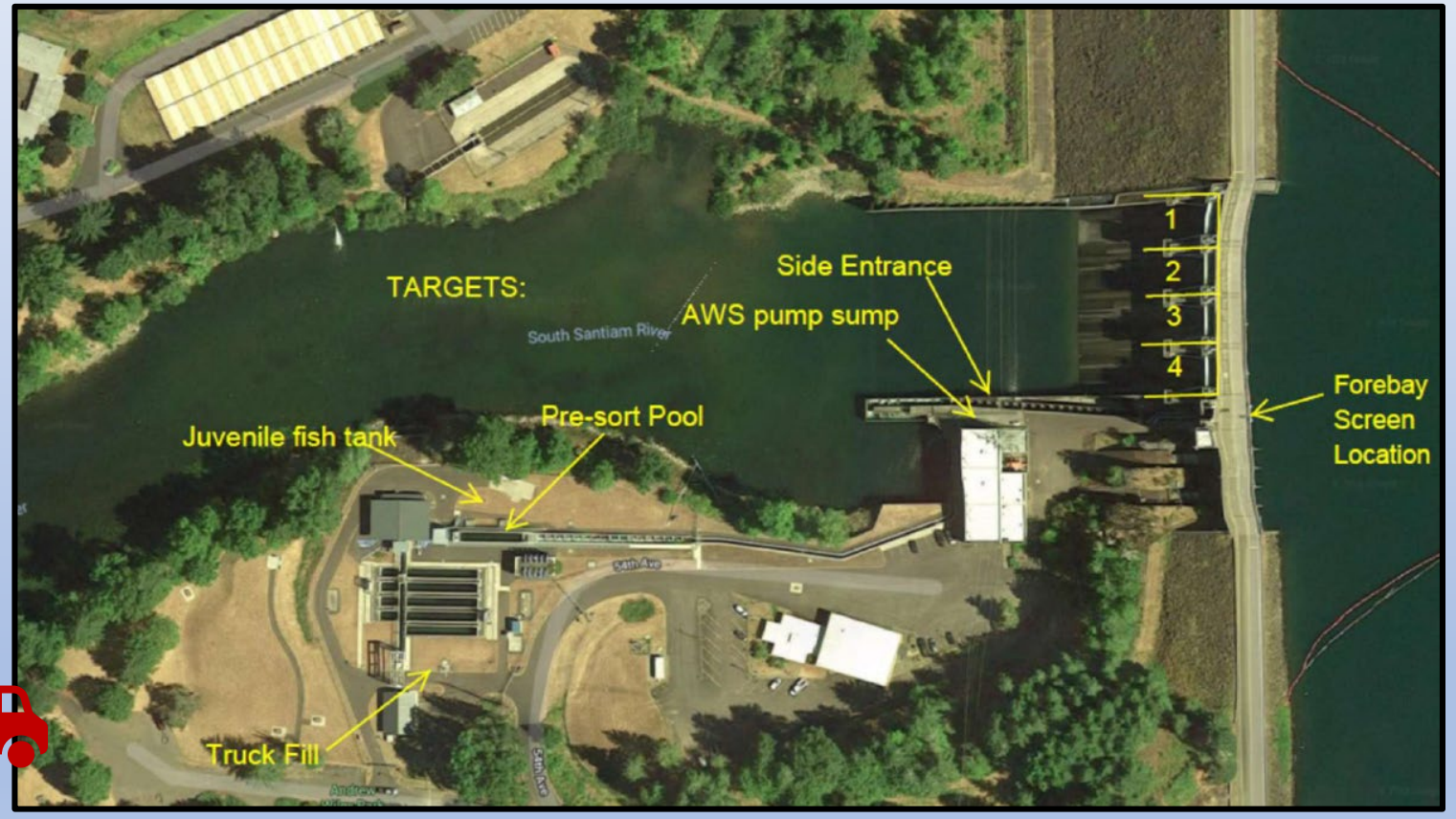

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- Predict and model CRR

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Acknowledgements

- USACE Portland District
- ODFW
- Rich Piaskoski
- Brett Boyd
- Ida Royer
- Chad Helms
- Lindsey Belcher
- Ryan Flaherty

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