

## Reliability of trans-generational genetic mark-recapture (tGMR) for enumerating Pacific salmon

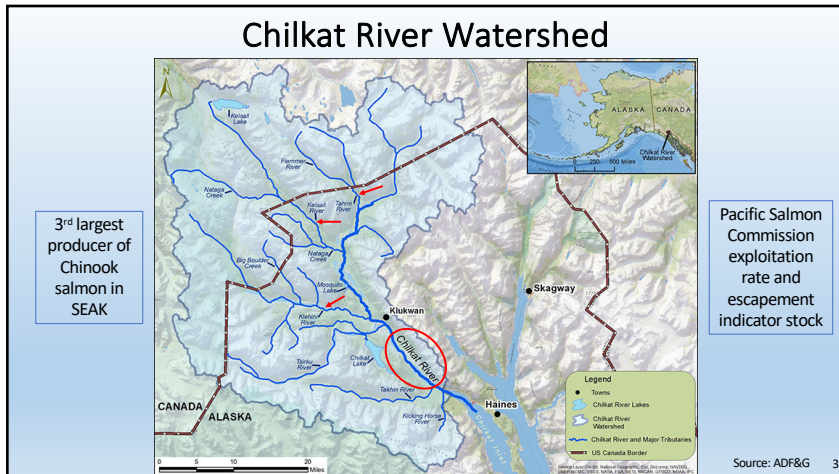


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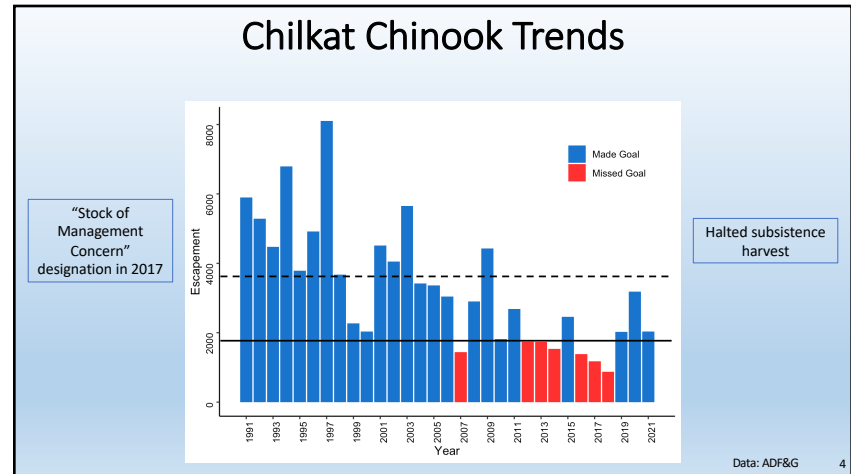
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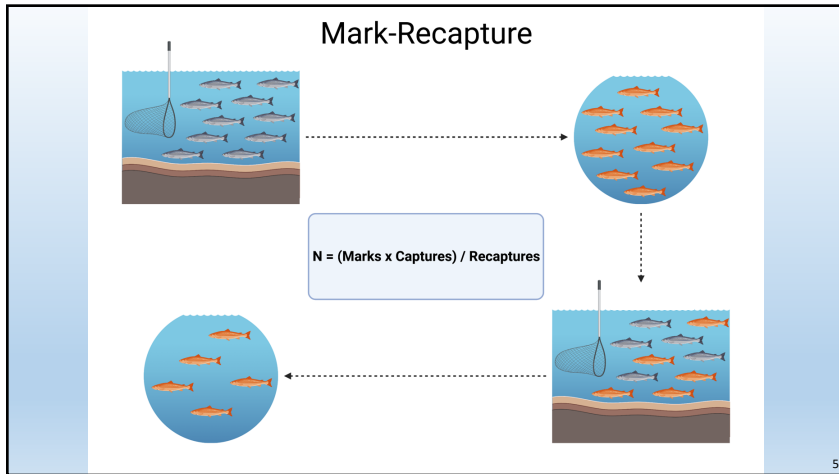
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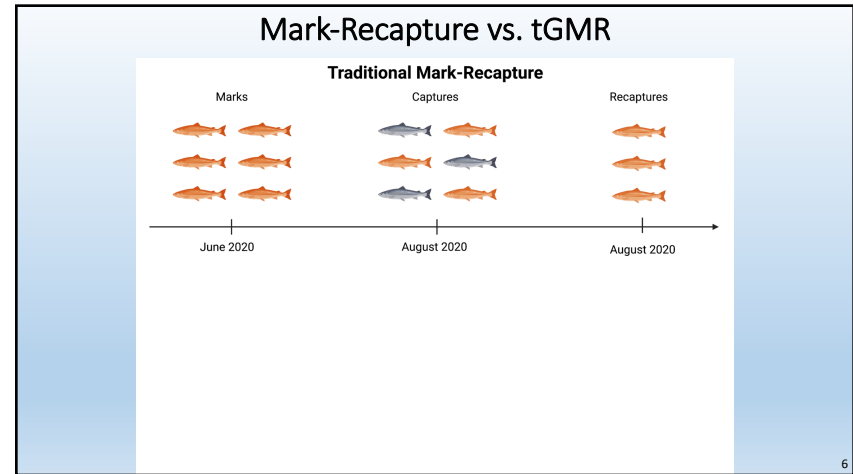
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### Objectives

1. Validate tGMR in Alaska
2. Examine bias in abundance estimates
3. Investigate influence of adult dropout on tGMR

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### tGMR Workflow

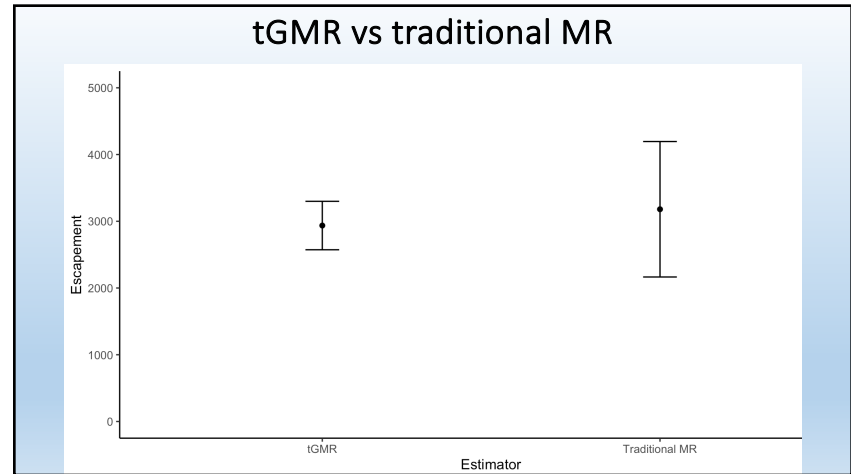
1 Panel Simulations

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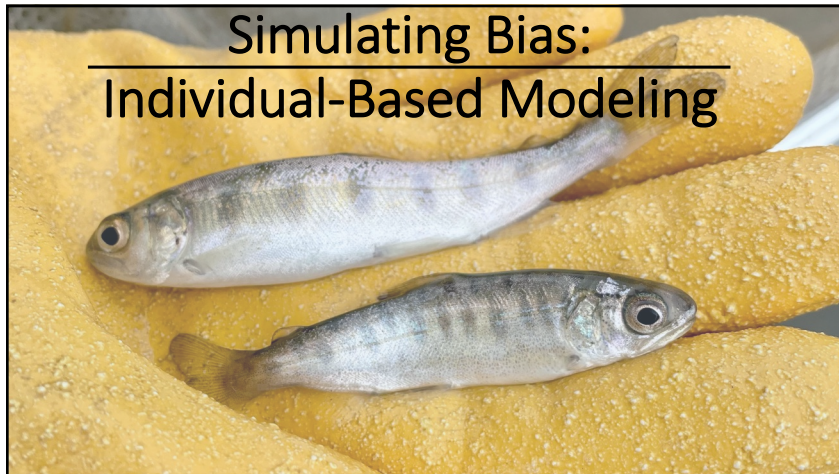
### Estimators

| Estimator      | 2020 Escapement Estimate | Coefficient of Variation (CV) |
|----------------|--------------------------|-------------------------------|
| tGMR           | 2,936                    | 0.06                          |
| Traditional MR | 3,180                    | 0.16                          |

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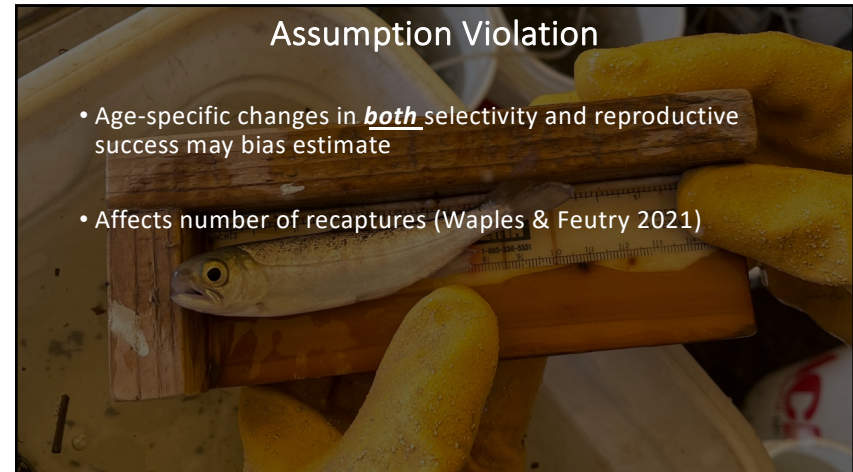
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- ### tGMR Assumptions
1. Equal probability of sampling adults
  2. Closed population
  3. Marking does not affect behavior
  4. Marks are retained
  5. Marks are correctly identified

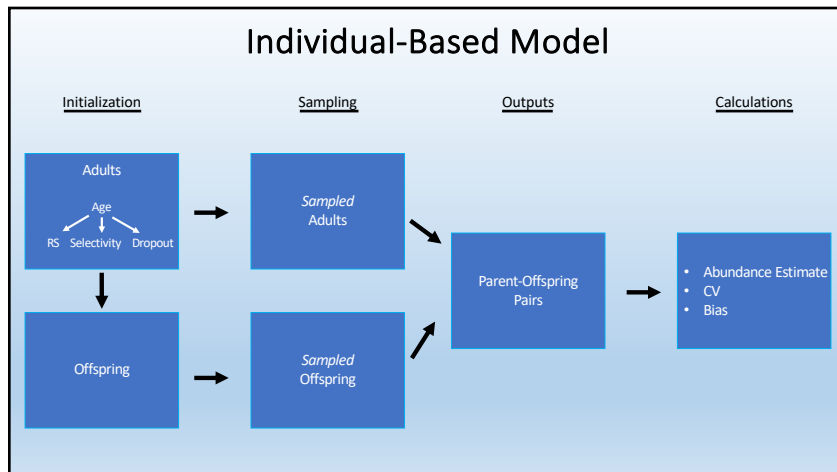
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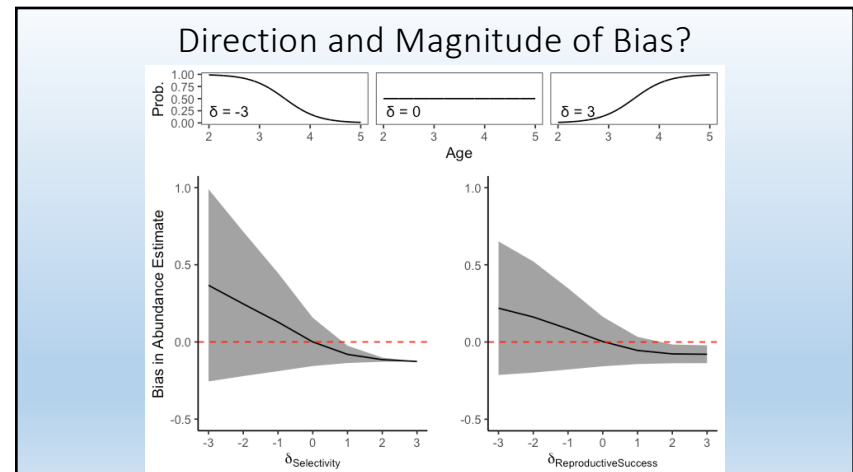
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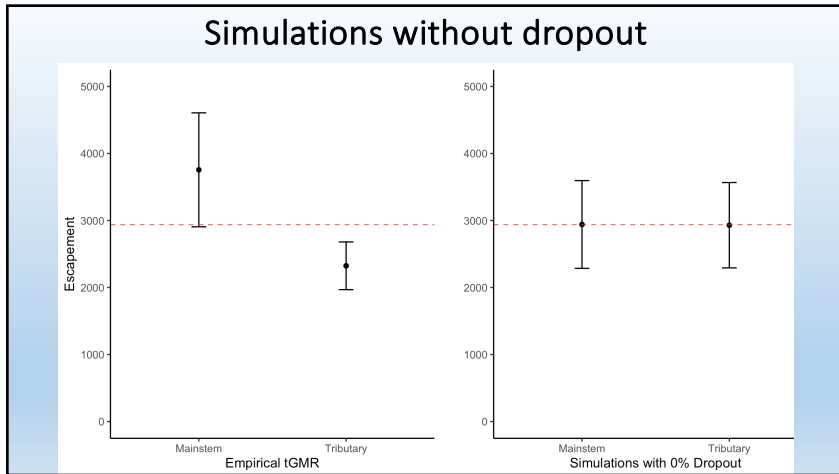


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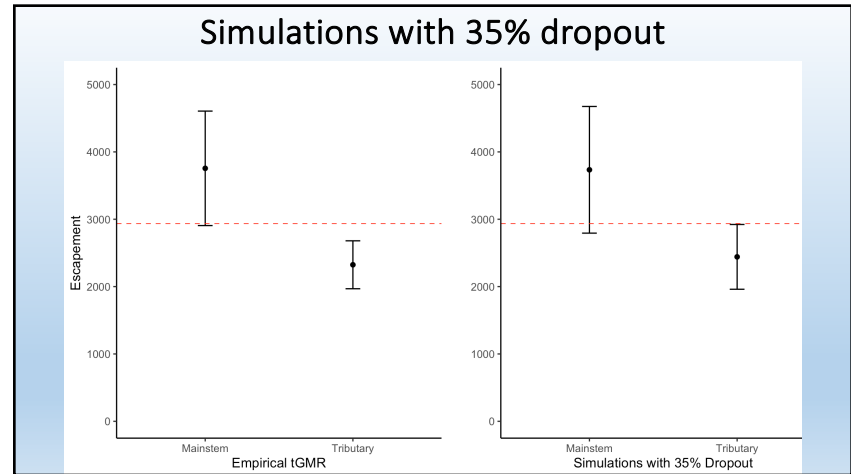


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## Key takeaways

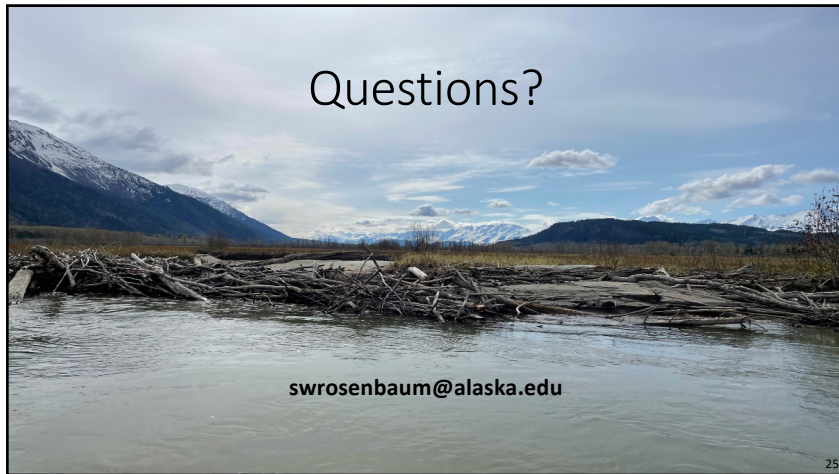
1. tGMR is accurate and more precise than traditional mark-recapture
2. Potential biases may be identified and corrected
3. Adult sampling location influences abundance estimation

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## Acknowledgements

- **UAF Collaborators:** Dr. Megan McPhee, Dr. Sam May, Dr. Curry Cunningham, and Dr. Jessica Glass
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- **Land:** Ancestral home of the Klukwan people

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