A method for improved utilization of data from experiments with fishing gear

AFS San Francisco

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Outline

- Fishing gear selectivity - notions and concepts
- Motivation - Data
- Methods - Non-technical
- Results
- Discussion

Selectivity - Single Haul

Selectivity: Probability of retention for a length l fish given it has entered the codend $r(l)$

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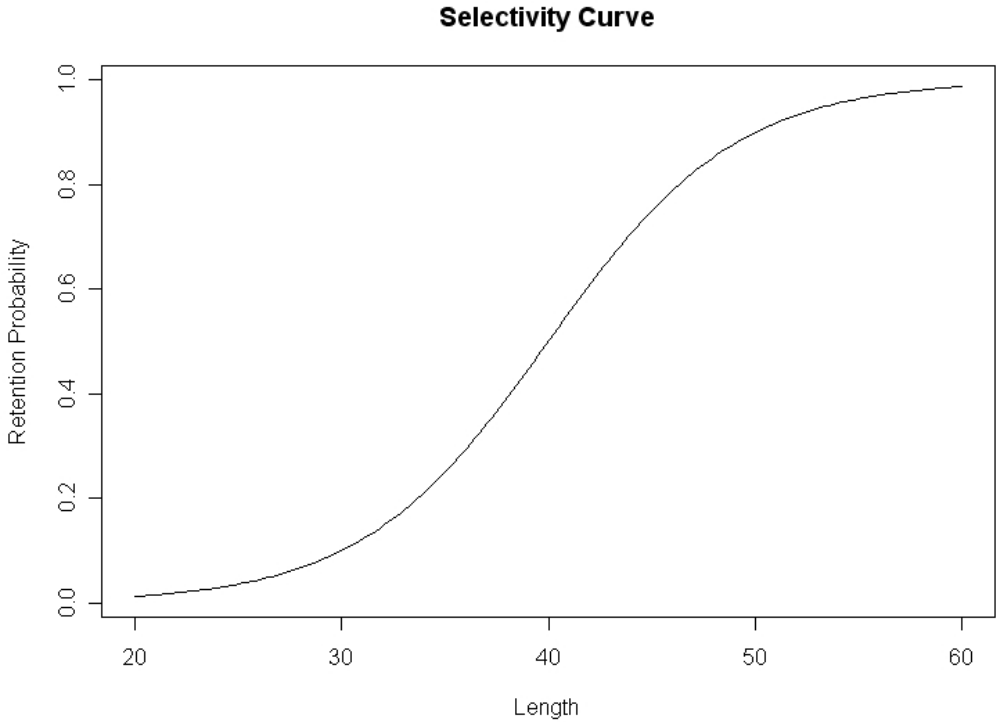

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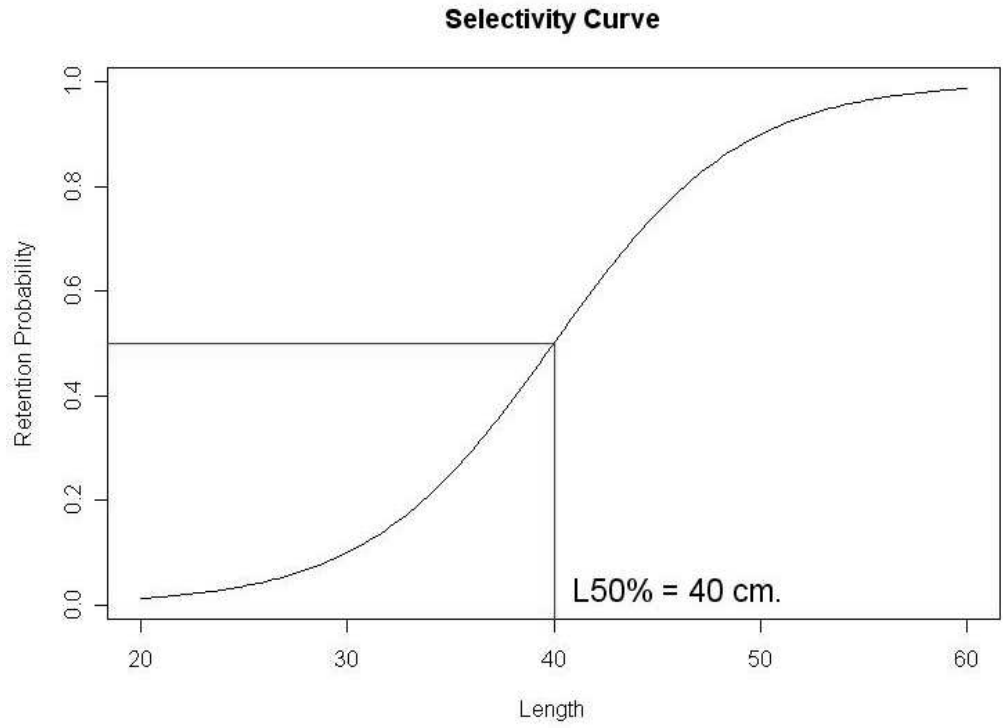

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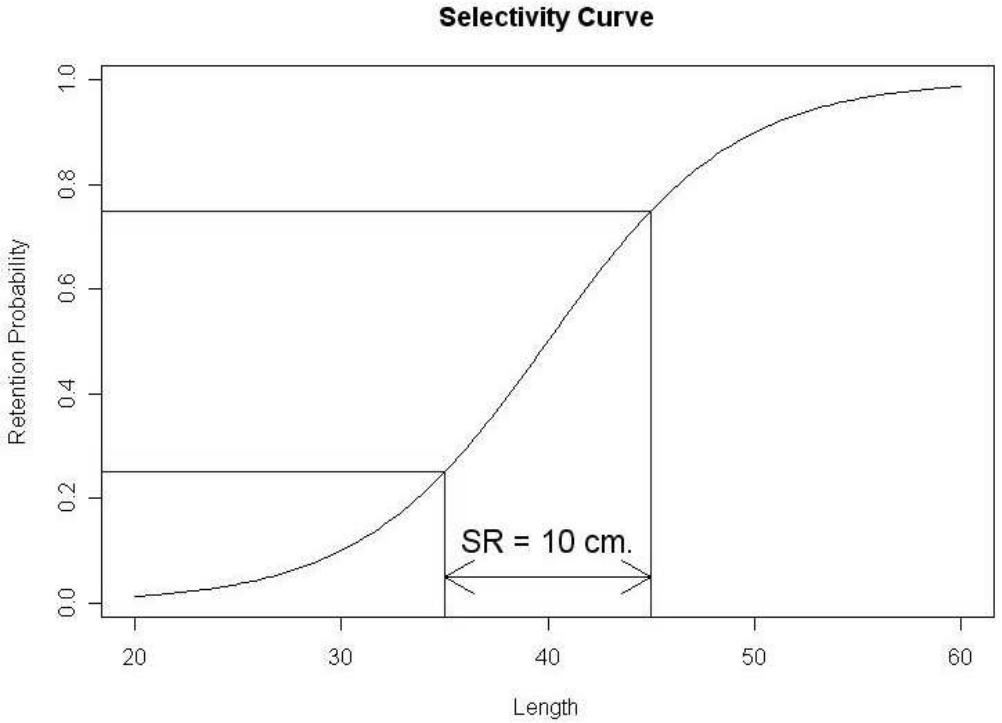

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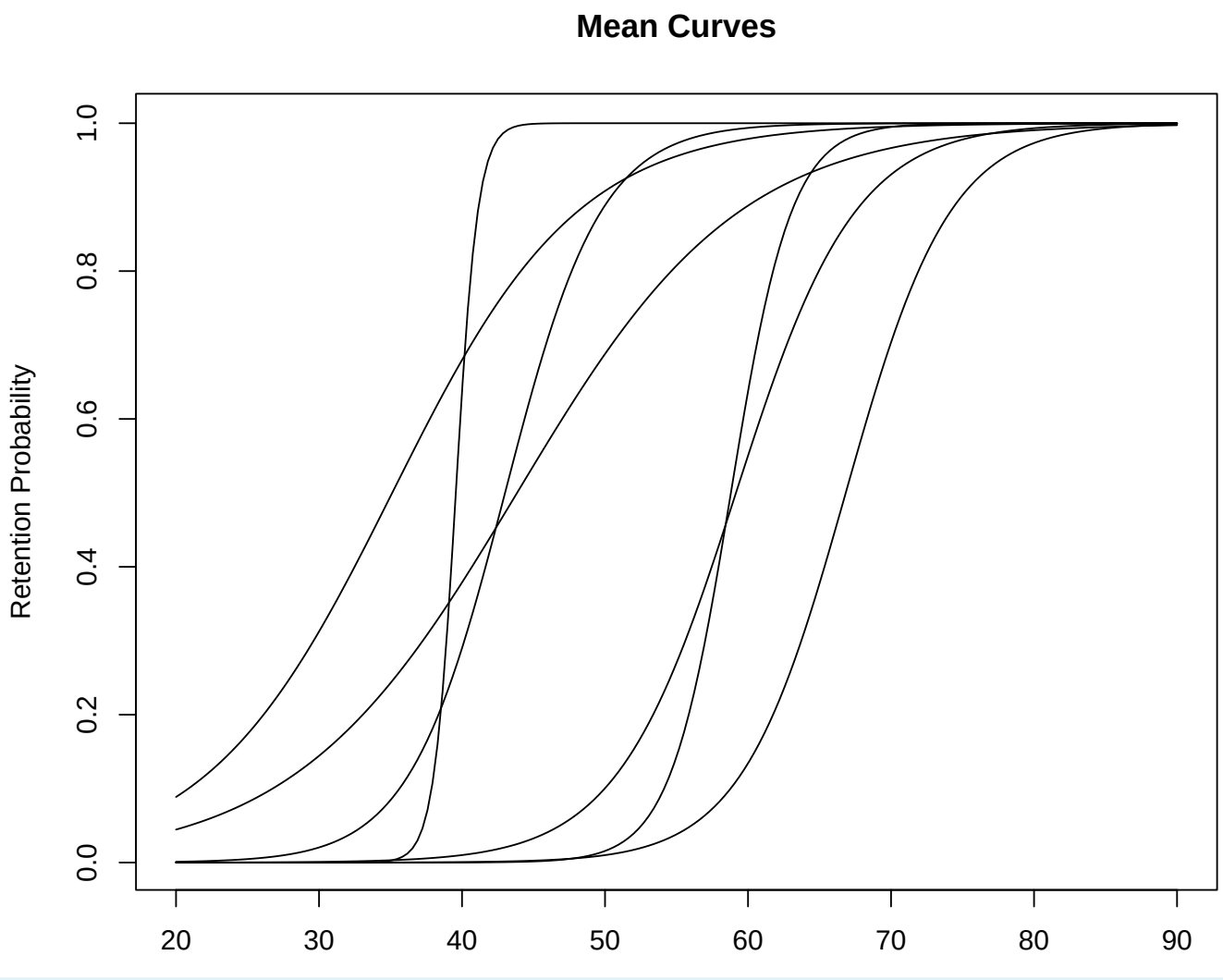
$$(\beta_0, \beta_1)^\top \leftrightarrow (\mathsf{L}_{50}, \mathsf{SR})^\top$$

Cruise - Multiple Hauls



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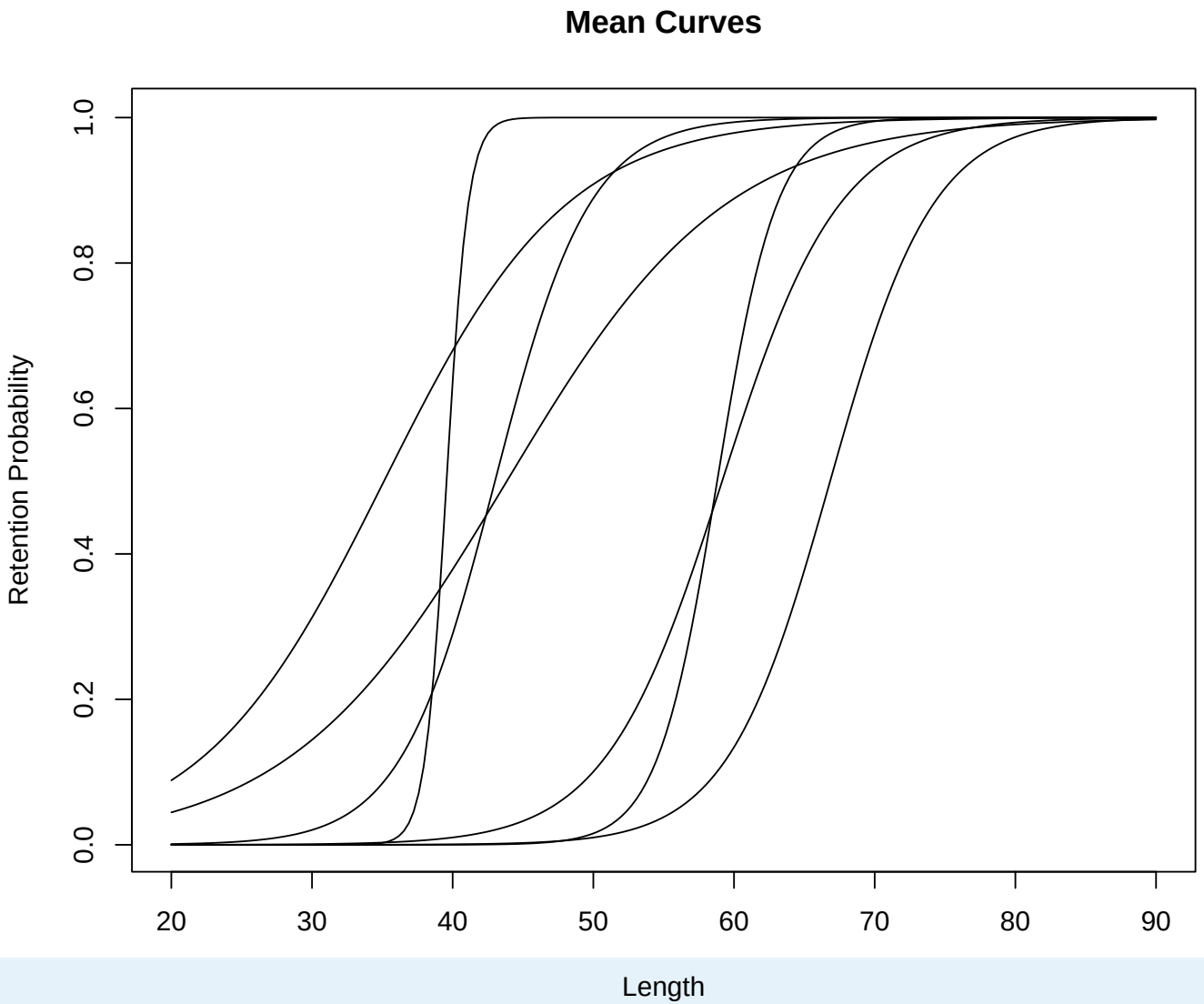

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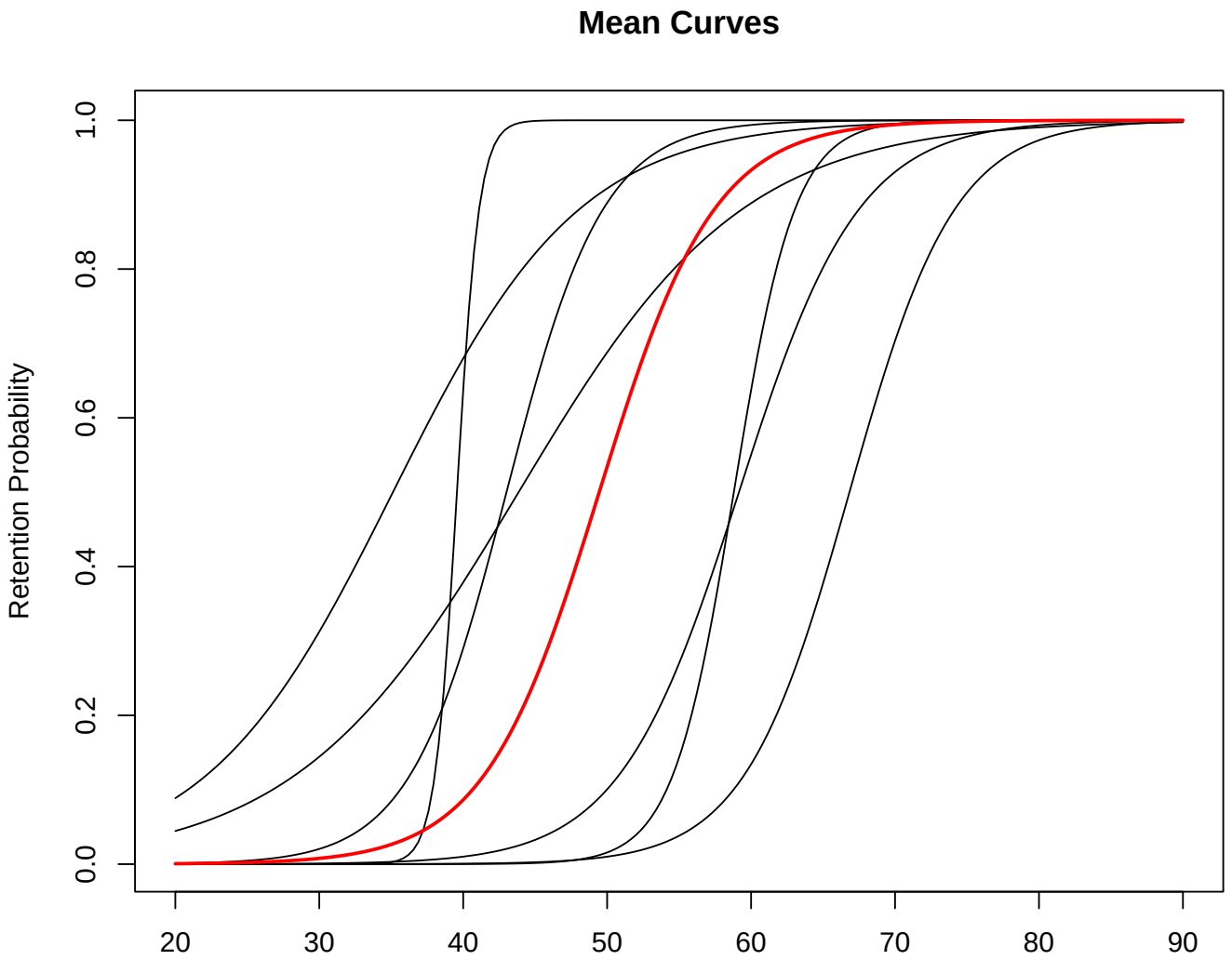

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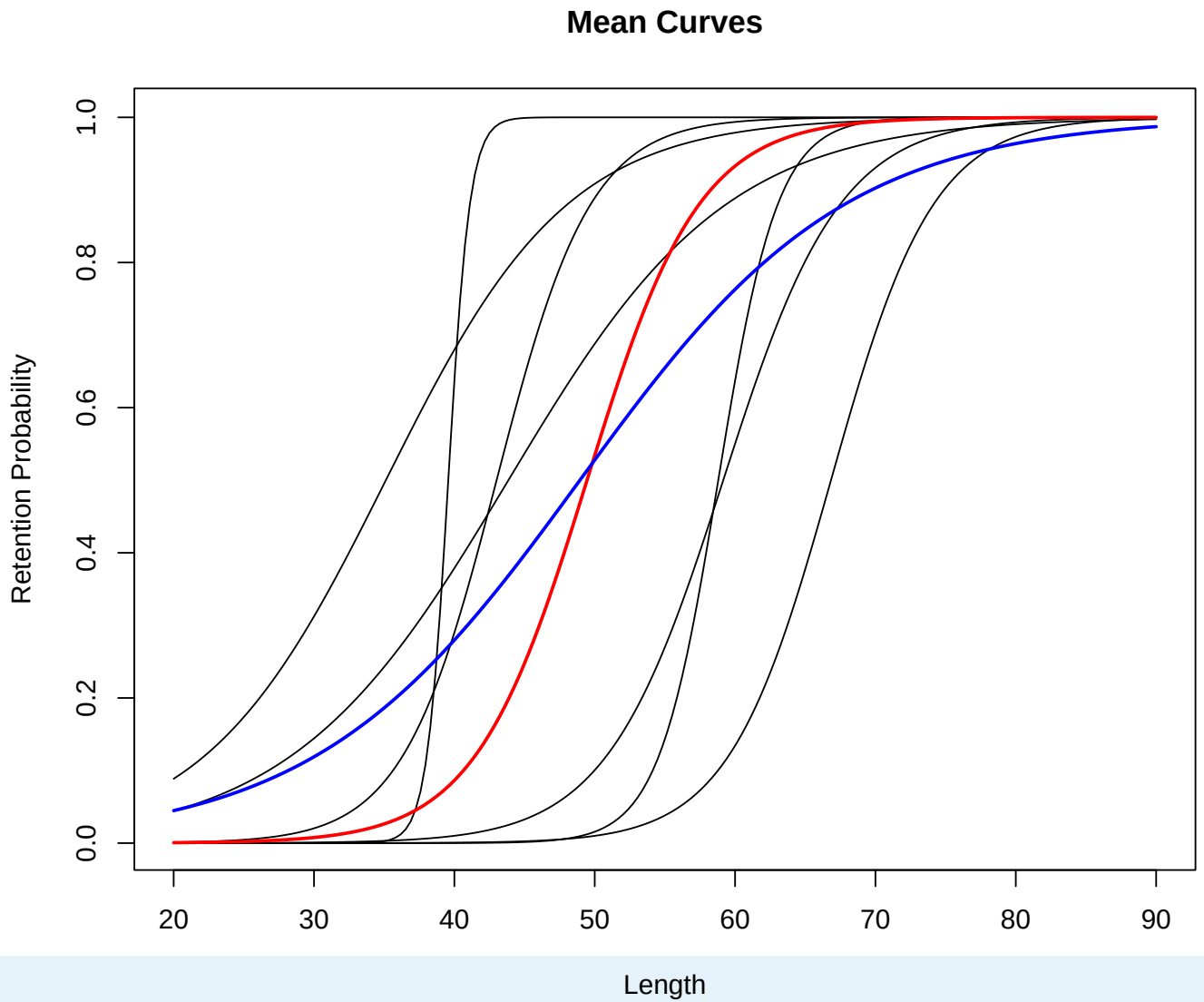

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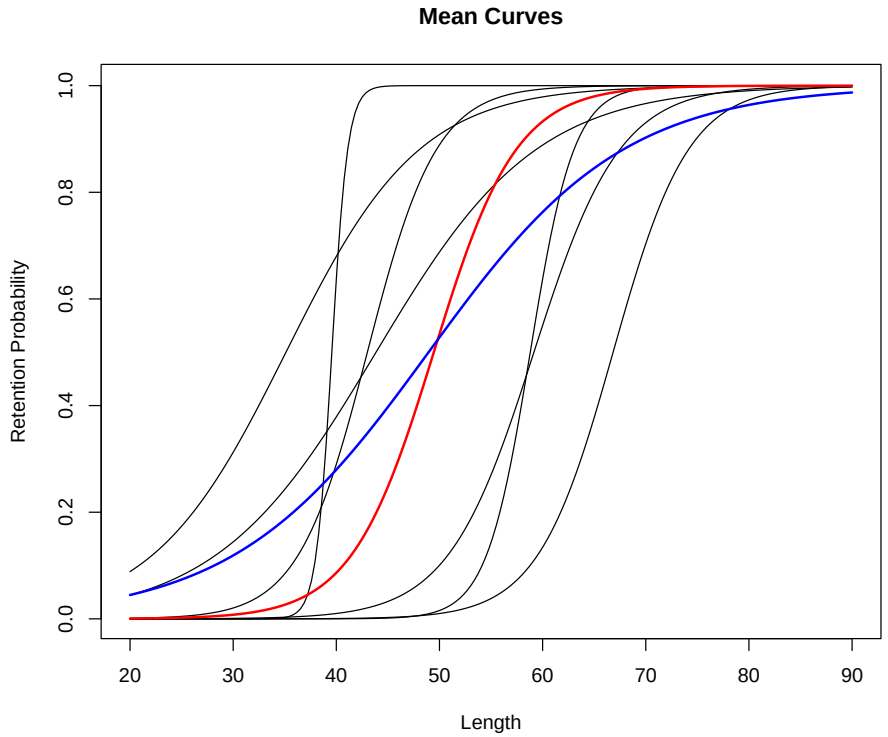

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- Marginal Mean - **Population Average** - GEE

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- PRAGMATIC APPROACH TO DATA!

Application

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- Meta Analysis based on all available and relevant data

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  - Other variables

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Conditional Model:

- $L_{50} \sim 0.3534 * MeshSize$
- $SR \sim 0.05242 * MeshSize + 3.107 * I_{CommercialVessel}$

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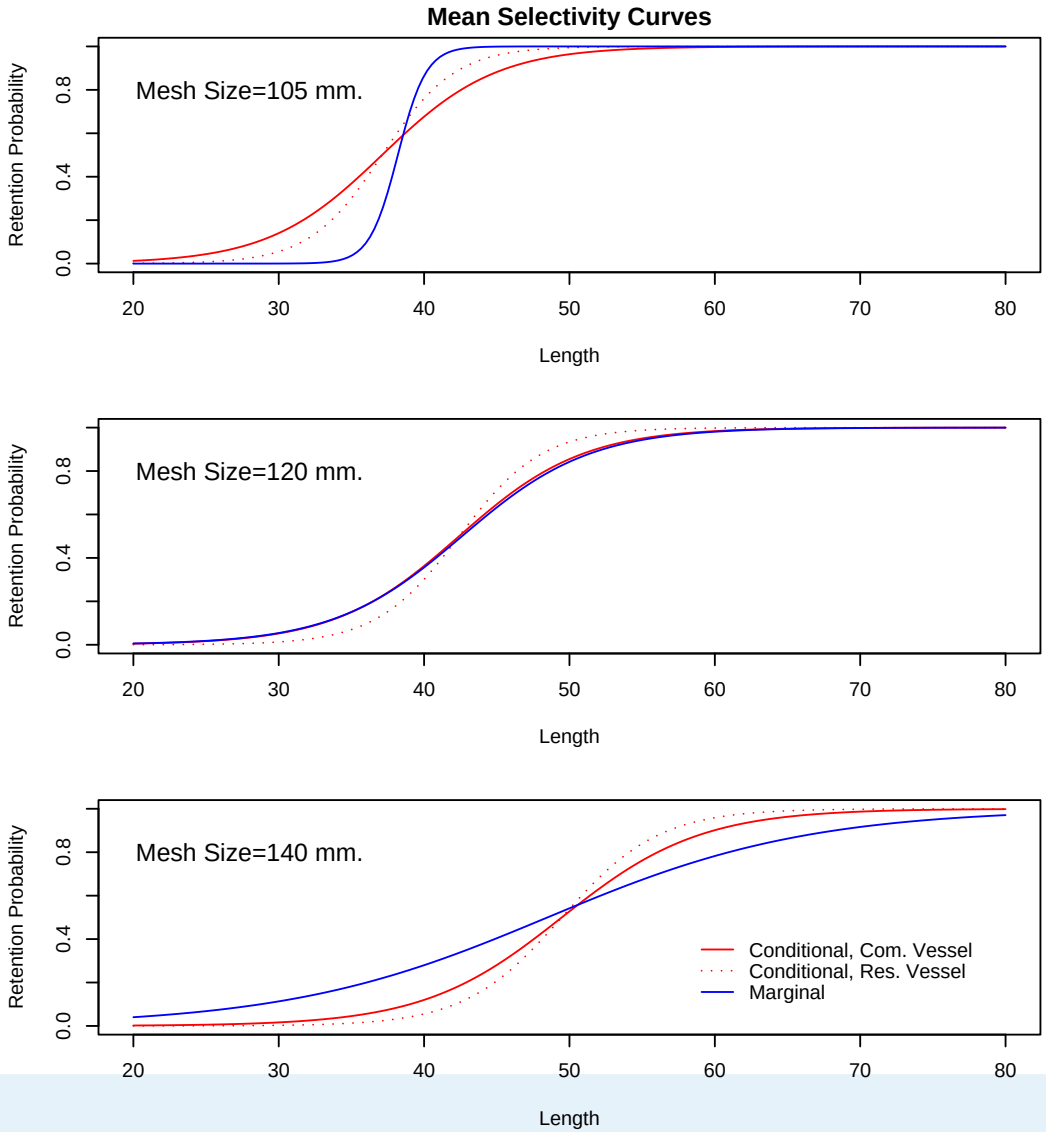
Marginal Model:

- $L_{50} \sim 7.2815 + 0.2944 * MeshSize$
- $SR \sim -50.6758 + 0.503 * MeshSize$

Mean Curves - varying mesh sizes



Discussion

- Room and need for further development
- Integrate over catch weight
- How can we improve the quality of data?
- Bayesian Approach

In the end

”I was so much older then,

I’m younger than that now . . .”

Bob Dylan