Flannelmouth sucker Movement: Glen Canyon Dam to Lake Mead, Colorado River

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Objectives

Flannelmouth sucker:

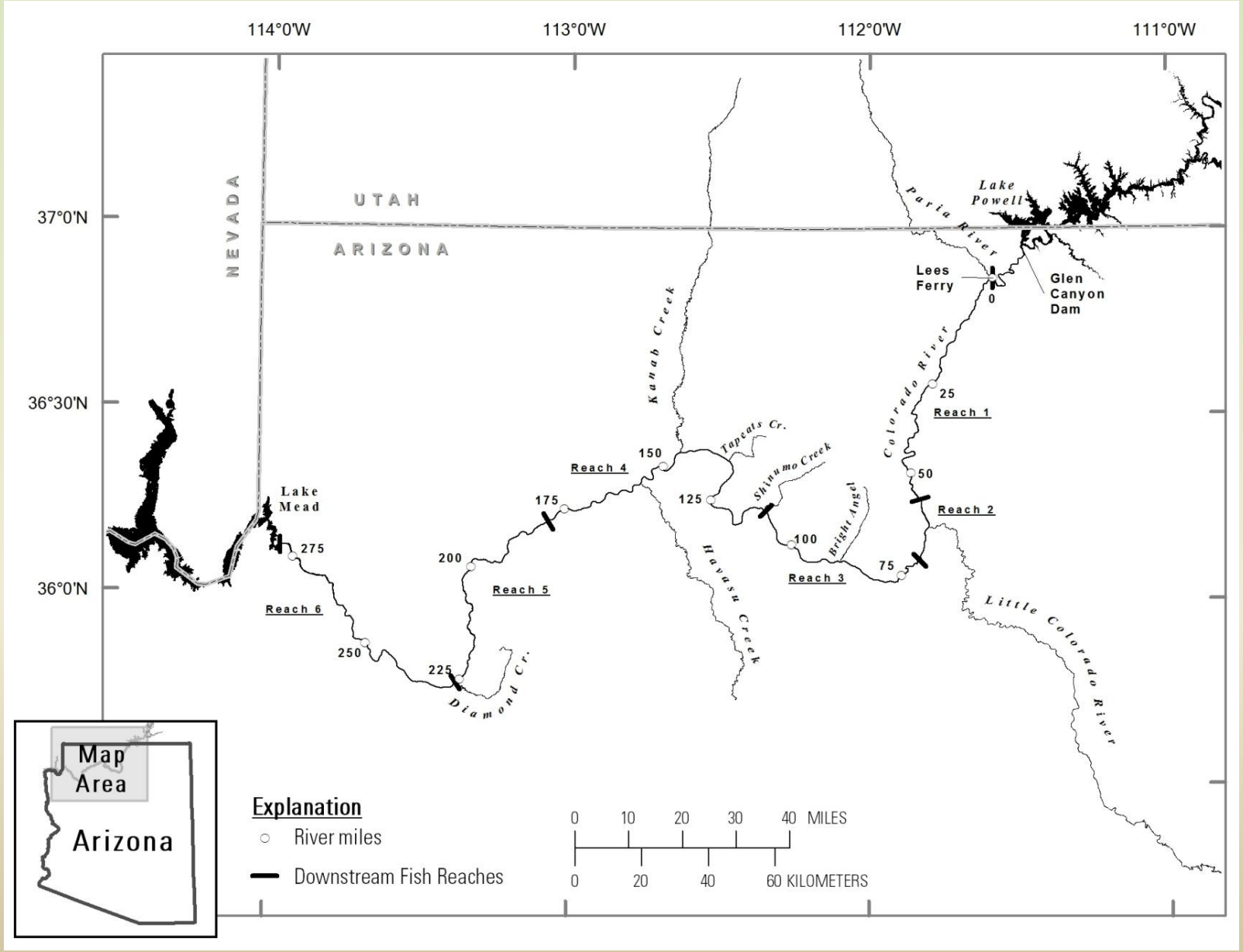
- Distribution
- Movement
- Growth
- Survival

Photo by Jeff Sorensen

Introduction

- Flannelmouth sucker (*Catostomus latipinnis)* is a native species endemic to the Colorado River basin
- Migration within tributaries occurs during spawning (Paria River, Little Colorado River, Havasu creek, others)
- Live >15 years, can exceed 600 mm total length
- Highly fecund (15,000 eggs/year) and may spawn for more than 2 decades

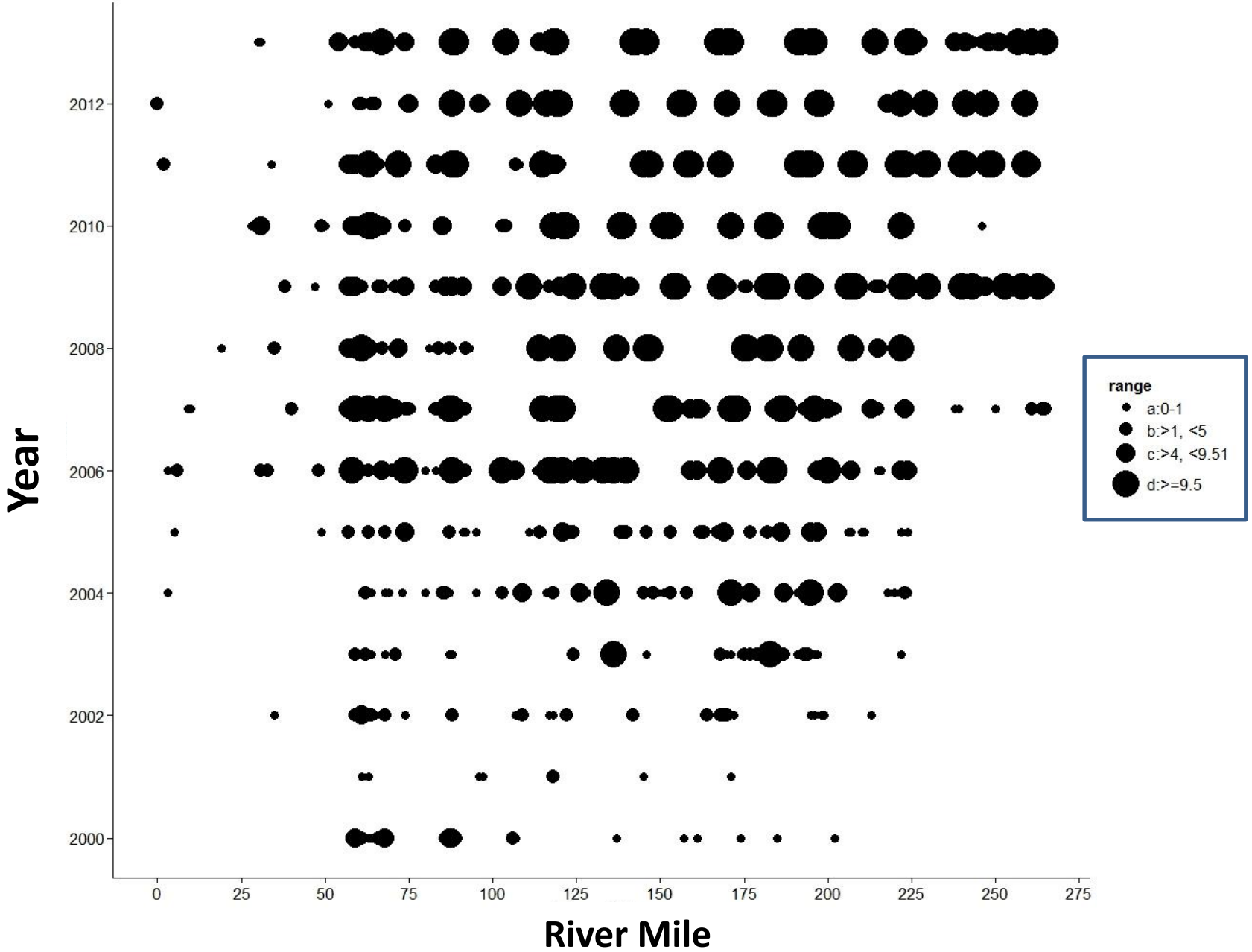
Study Area


114°0'W
113°0'W
112°0'W
111°0'W
37°0'N
36°30'N
36°0'N
NEVADA
UTAH
ARIZONA
Lake Powell
Paria River
Lees Ferry
0
Glen Canyon Dam
Kanab Creek
Colorado River
25
Reach 1
Tapeats Cr.
150
Reach 4
Shinumo Creek
125
50
Reach 2
Bright Angel
100
Reach 3
75
Lake Mead
275
175
200
Reach 5
Reach 6
250
225
Diamond Cr.
Havasu Creek
Little Colorado River
Map Area
Arizona
Explanation
River miles
Downstream Fish Reaches
0 10 20 30 40 MILES
0 20 40 60 KILOMETERS

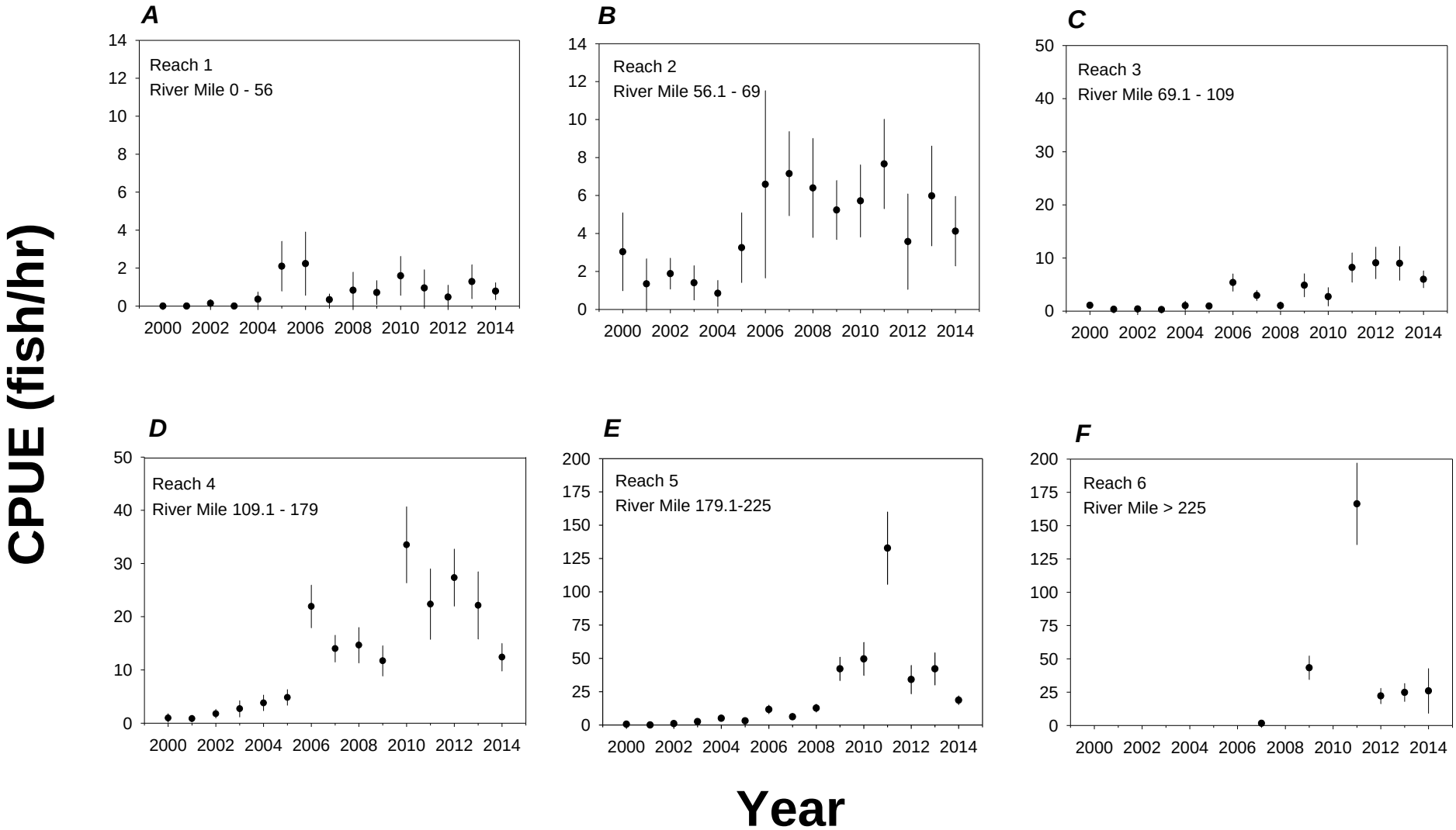
Methods

- Electrofishing, hoop nets, trammel nets, seining throughout Colorado River by various agencies (AGFD, USFWS, GCMRC, NPS)
- PIT tag flannelmouth sucker (FMS) ≥ 150 mm total length (TL)
- Filtered data for FMS ≥ 150 mm TL that have been recaptured at least once (4,087 records)
- Randomized PIT tag numbers, sub-sampled 212 unique FMS
- Measures:
  - Average distance moved (miles) between encounters over time (1 week)
  - Growth (mm)/year for 168 fish (adjusted for errors)
  - Apparent yearly survival between years using program Mark

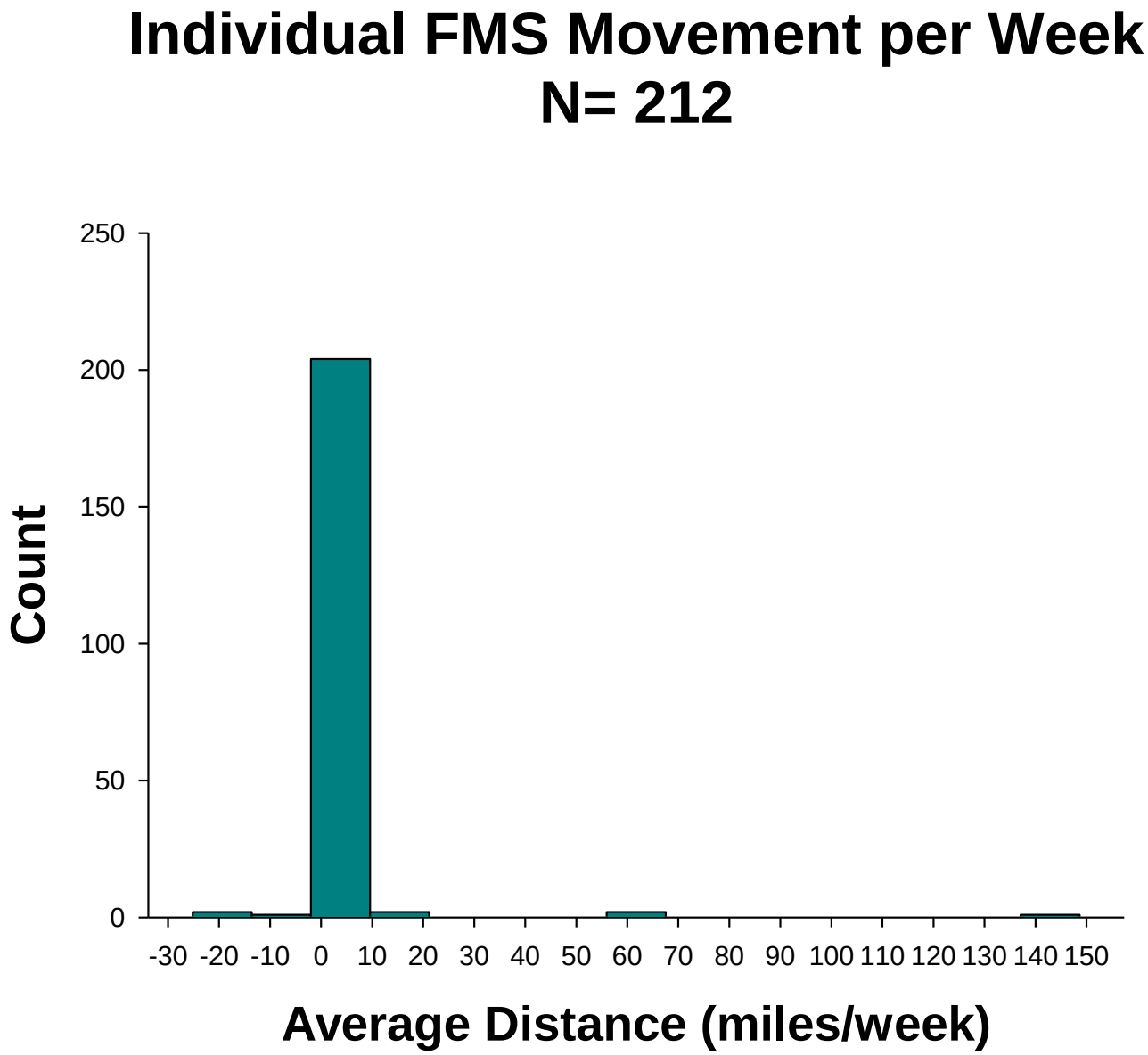
FMS Distribution (Preliminary data)



FMS Catch-per-unit-effort (CPUE; fish/hr.) by Reach 2000-2014 (Preliminary data)



Results (Preliminary data)



Results (Preliminary data)

Results
(Preliminary data)

Size class (mm; TL)	N	Average growth mm/year	95% CI
All FMS	168	47	[41.84, 52.23]
150-350	111	59.7	[53.41, 66.00]
>350	57	22.4	[17.64, 27.09]

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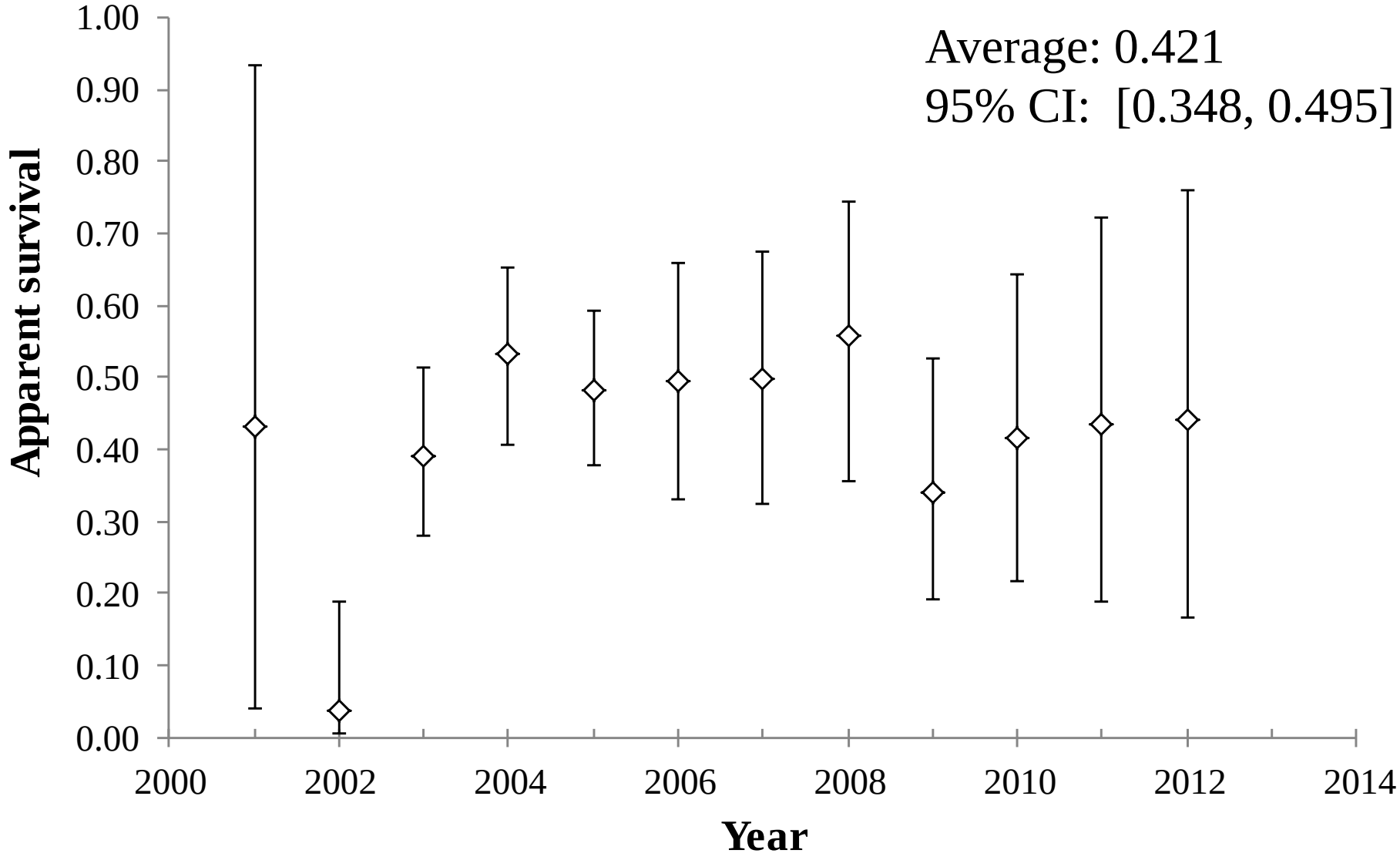
FMS Apparent Yearly Survival (Preliminary data)



Conclusions

Flannelmouth sucker

- Movement:
  - Have high site fidelity, moving very little between recaptures (~10 miles/week)
  - Can move great distances (140+ miles/week)
  - Frequently found within the LCR (43%)
- Growth:
  - Overall average 47 mm/year
  - Younger fish (150-350 mm TL) grow more than fish >350 mm TL (59 mm/year vs. 22 mm/year)
- Survival:
  - 42% over 12 years with some variation

Future Work

- Evaluate more tagged fish
- How does FMS movement relate to environmental factors (flow and water temperature)?

Acknowledgements

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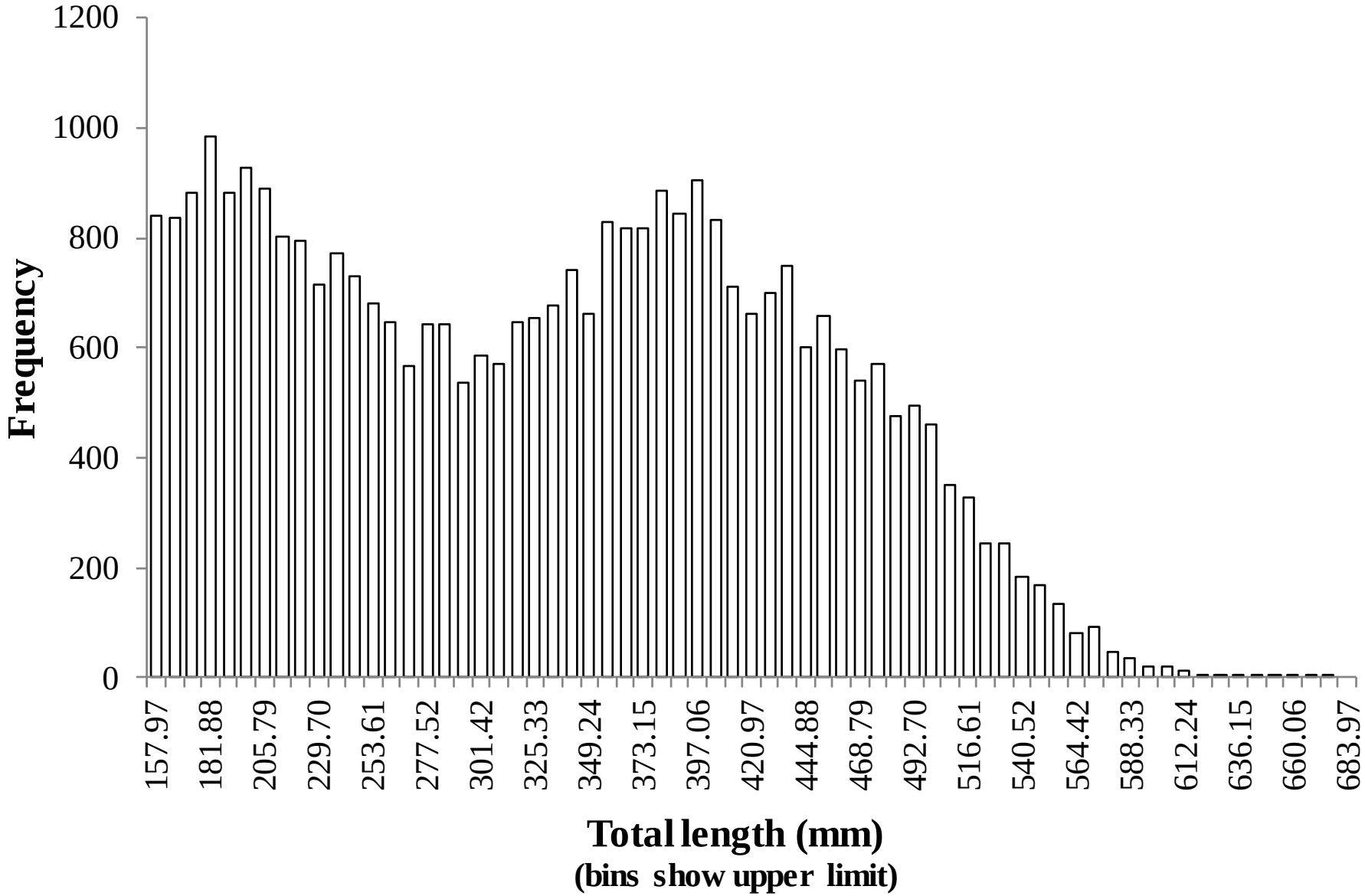
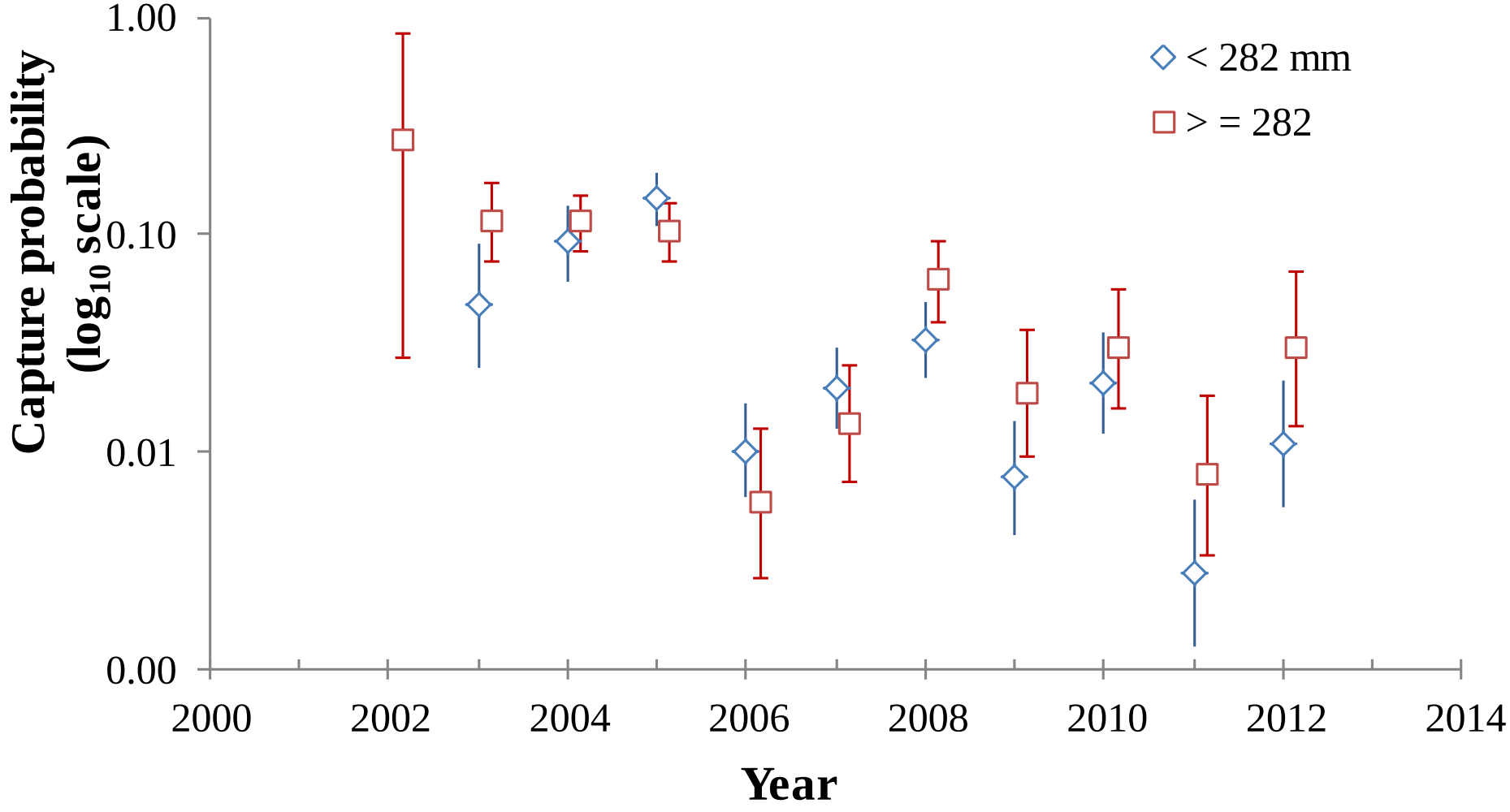
FMS Length Frequency of Captured Fish
(Preliminary data)



FMS Yearly Capture Probability
(Preliminary data)