

# The Snapper Saga: An Assessment of Sector Separation on the Gulf of Mexico Recreational Red Snapper Fishery

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## Angler Dissatisfaction

Red snapper (*Lutjanus campechanus*) is a billion dollar commercial and recreational fishery that has been historically overfished.



Photo: Capt. Scott Hickman



Photo: Sarah Willett

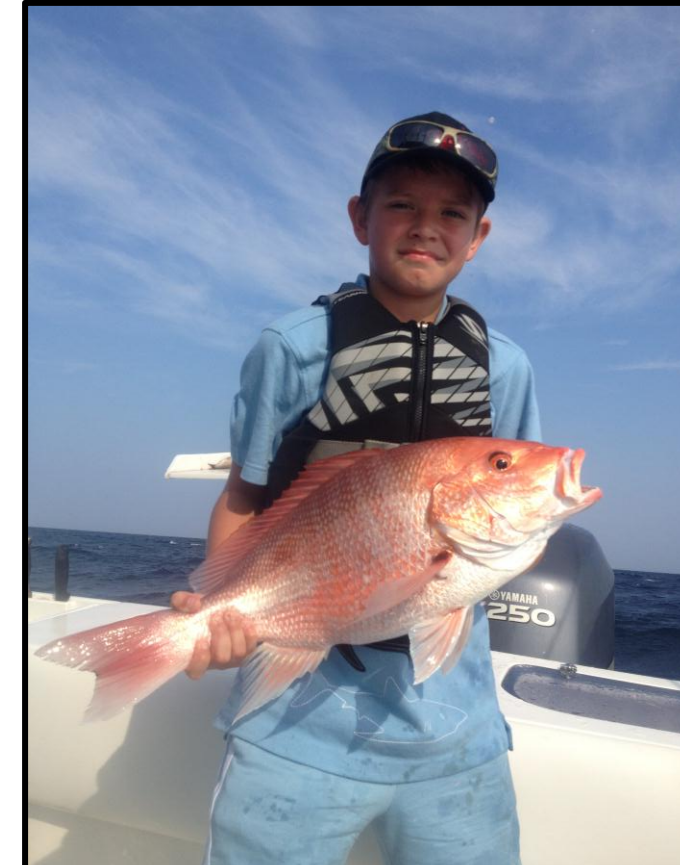
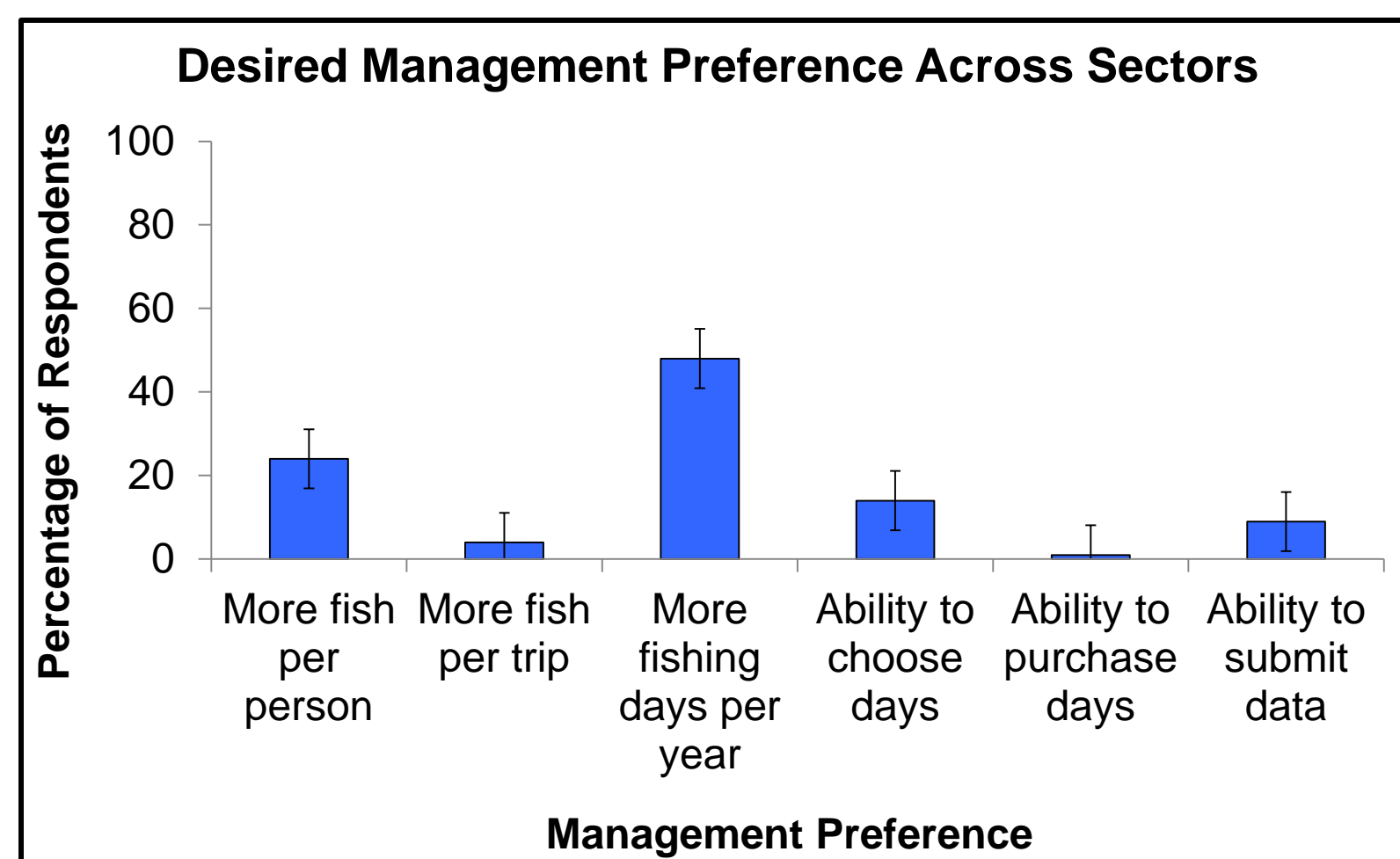
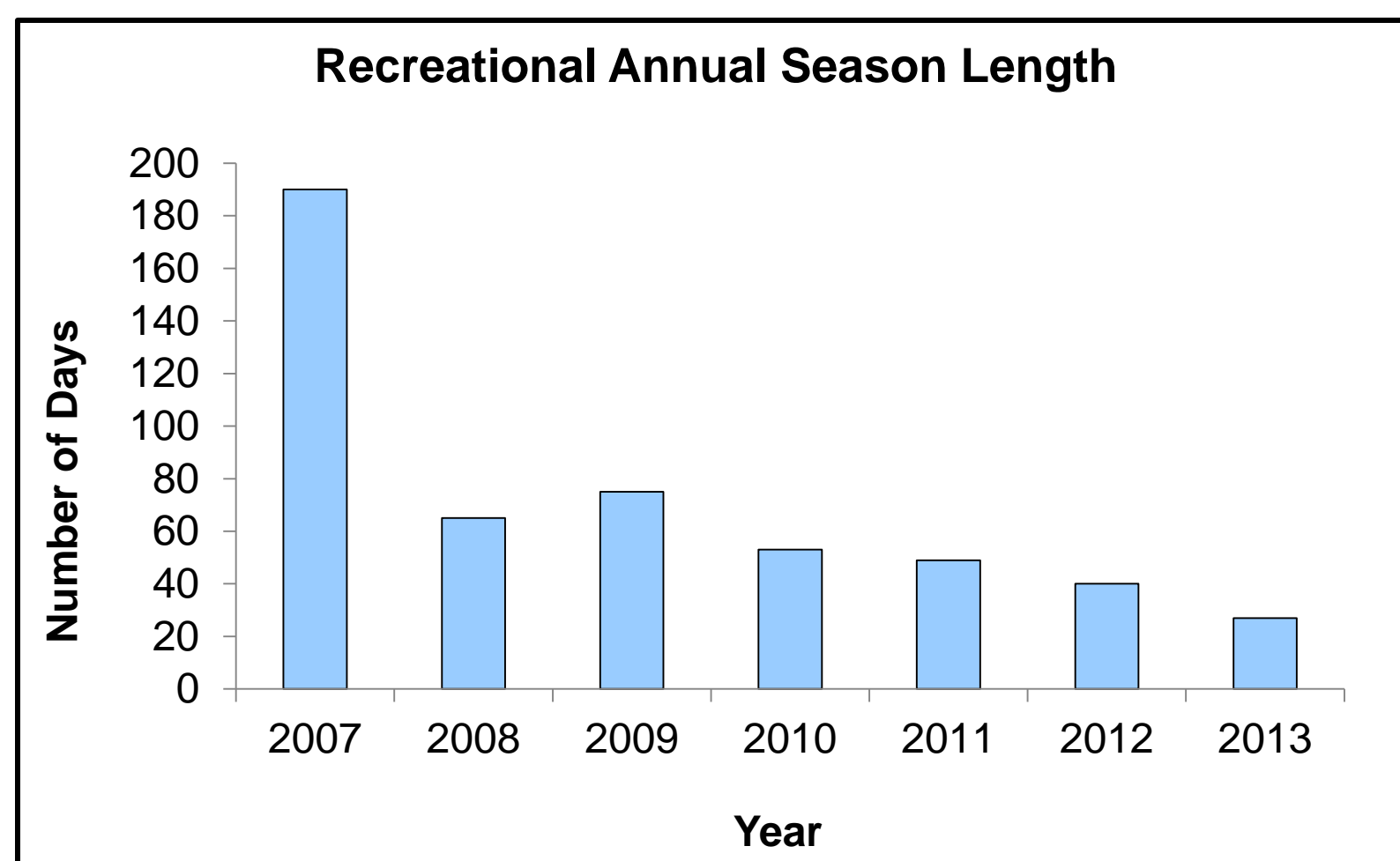


Photo: Capt. Mike Jennings



Recent changes in management have led to the rebuilding of the stock with increasing weights and ease of catch yet fishing season lengths continue to decline. A survey of anglers showed that more fishing days per year was the most desired outcome of a management change.

## Possible Solution: Sector Separation

The Gulf of Mexico Fisheries Management Council proposed sector separation as a way to control the Total Allowable Catch (TAC) overages of the recreational sector by giving each group their own quota.

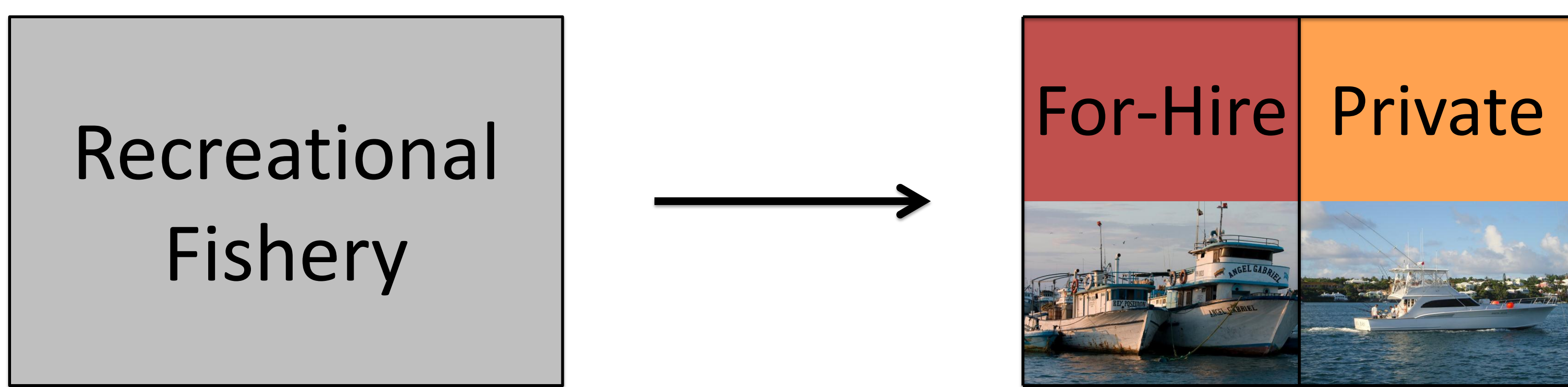


Photo: Fotomedia     Photo: Wikimedia

An important assumption made within the analysis was that the for-hire vessels would no longer exceed their TAC because they are federally permitted and could be held accountable for their landings.

## Management Issues

The impacts of sector separation depend on TAC allocation and overage responsibility. Since the effects of sector separation on the fishery are unknown, four allocation scenarios based on landings and four overage responsibilities were evaluated. This poster focuses on an allocation where 42% is allocated to for-hire and 58% to private (FH 42) and the overage is attributed proportionally to 2013 predicted landings.

### Allocation Scenarios

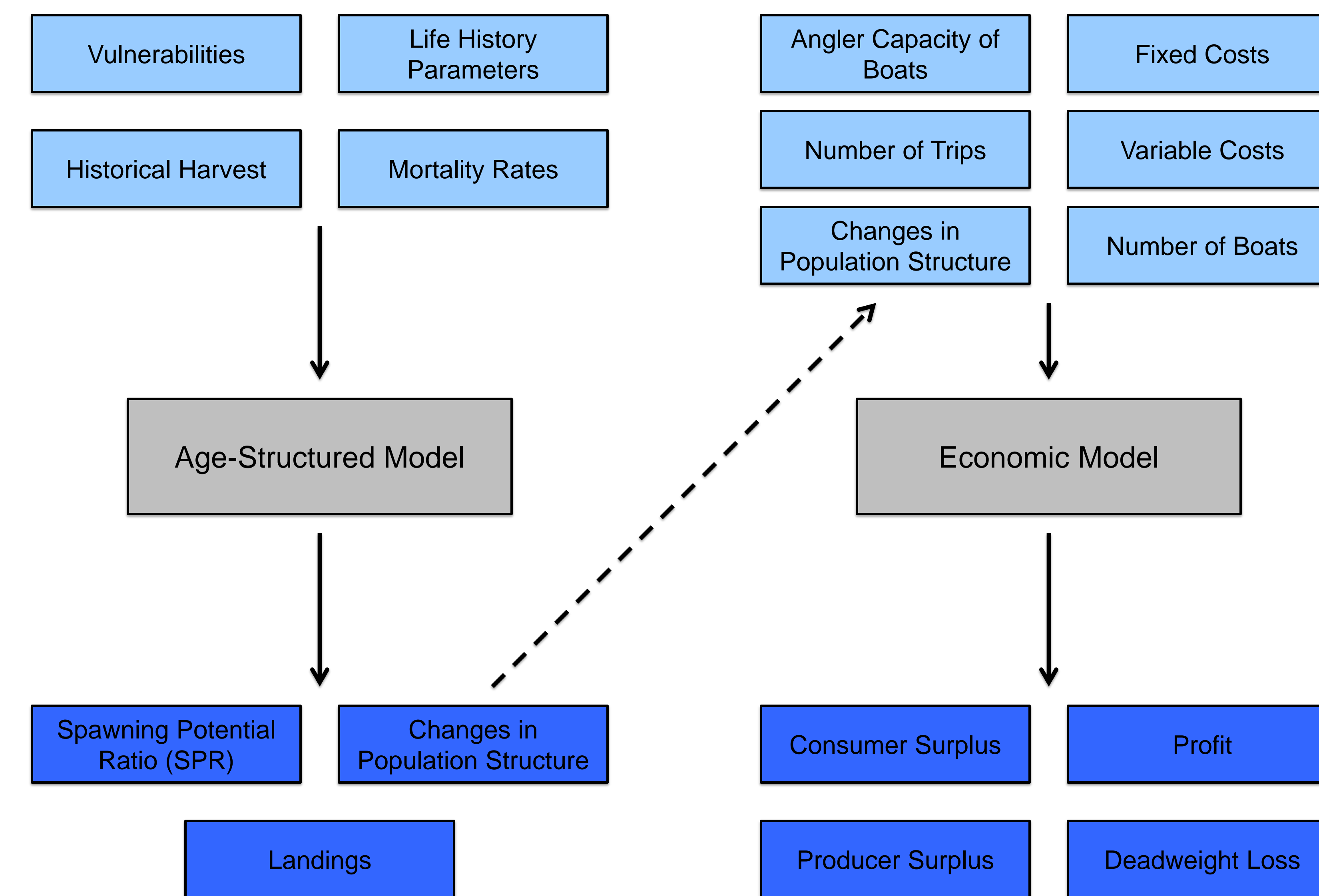
Allocation	Landings Interval	For-Hire	Private
FH 28	Predicted 2013 Landings	28%	72%
FH 34	2011 Landings	34%	66%
<b>FH 42</b>	<b>2007-2011 Landings</b>	<b>42%</b>	<b>58%</b>
FH 56	Historical Landings(1986-2011)	56%	44%

### Overage Scenarios

Scenario	For-Hire	Private
100% Attributed to Private	0%	100%
<b>Proportional to Landings</b>	<b>28%</b>	<b>72%</b>
50:50	50%	50%
100% Attributed to For-Hire	100%	0%

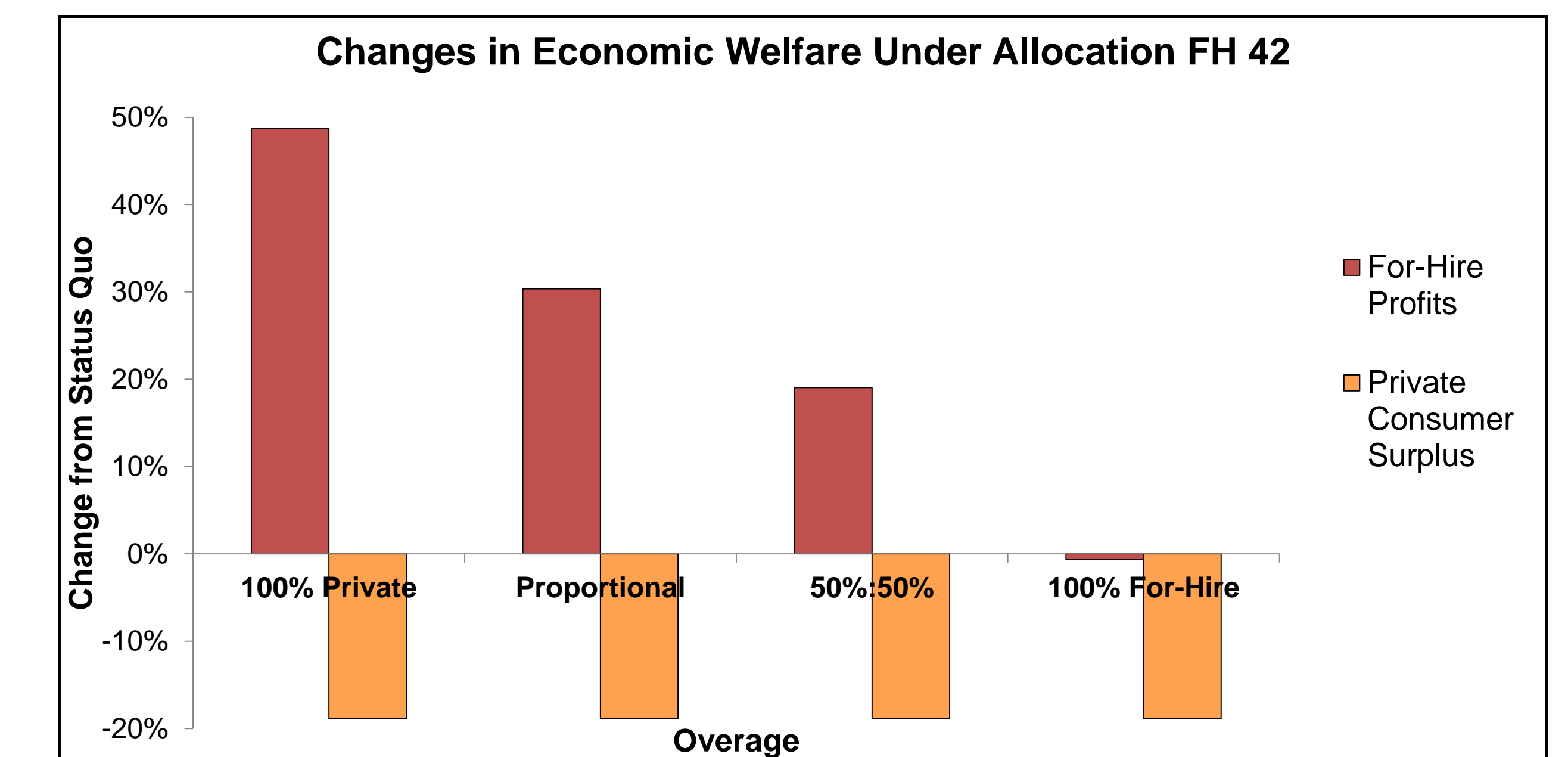
## Methods

Each allocation and overage scenario was evaluated using a bio-economic model.



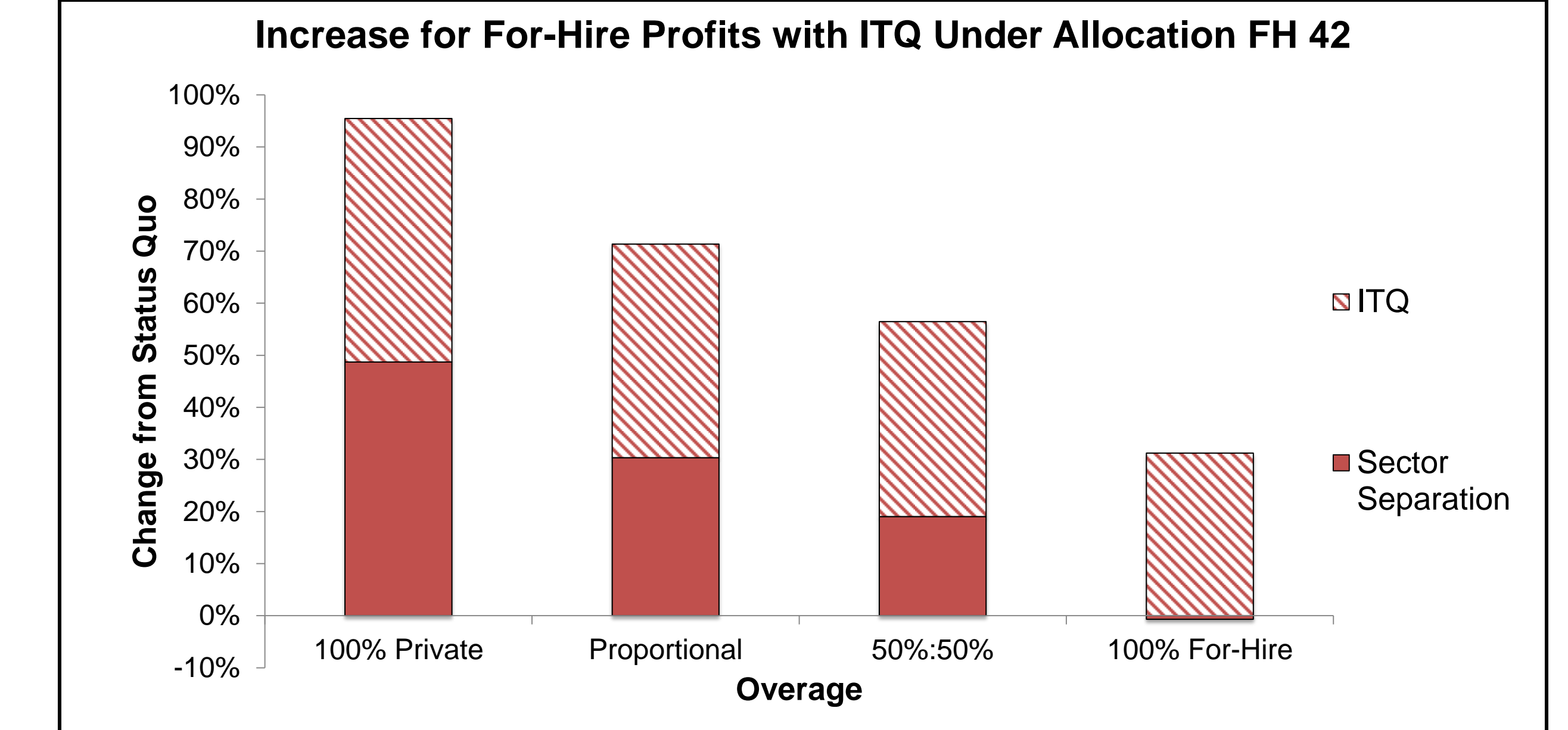
## Economic Tradeoffs

For-hire and private anglers could experience changes in economic welfare. The figure below shows the effect of sector separation on for-hire profits and private consumer surplus. For example, when the sectors are proportionally responsible for the overage, for-hire profits increase by 30% and private consumer surplus decreases by 19%.



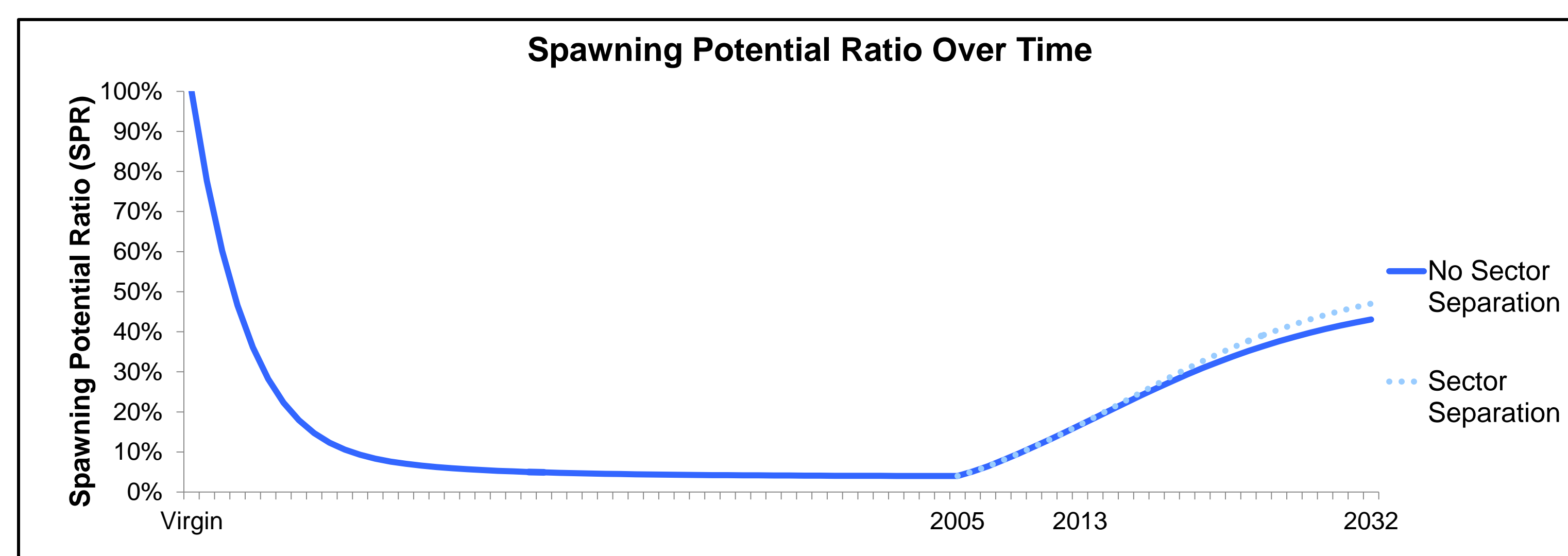
## ITQs: Improving the For-Hire Market

The implementation of an ITQ system may increase the profits compared to sector separation alone and gives anglers flexibility in fishing days (except for Allocation FH 28 when for-hire is 100% responsible for the overage). For example, profits increase by 41% when the overage is attributed proportionally to each sector.

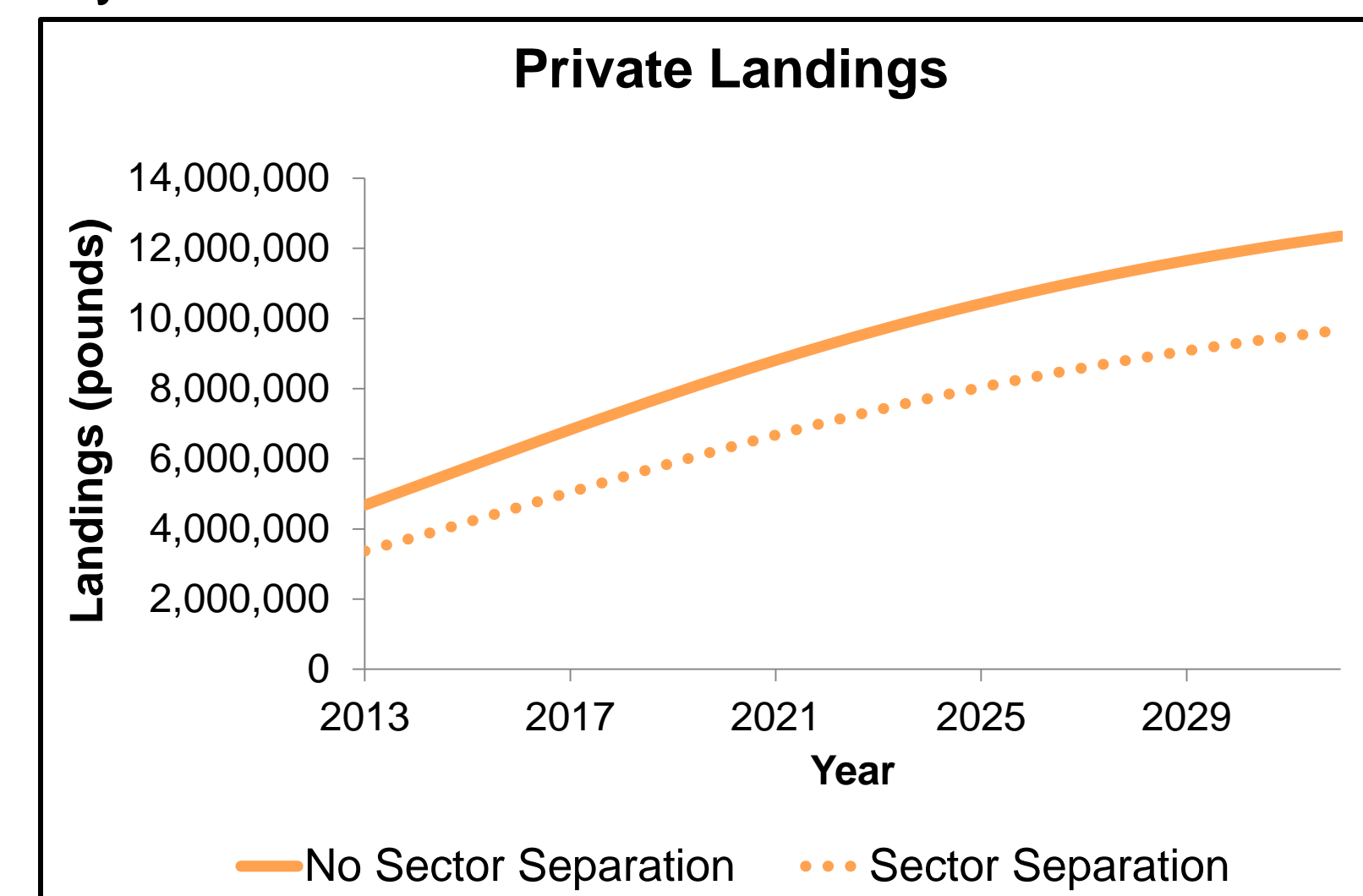
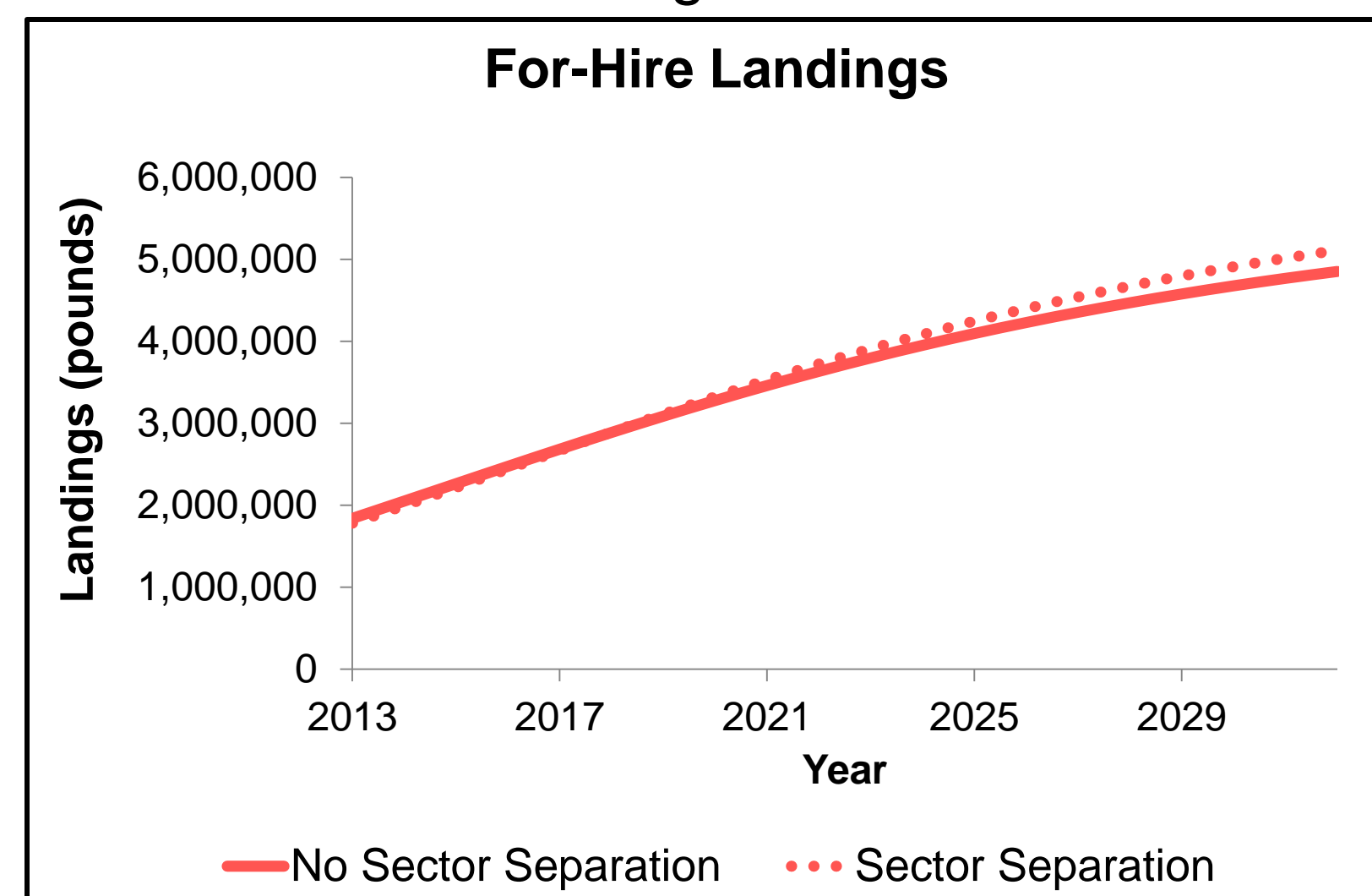


## Biological Improvements

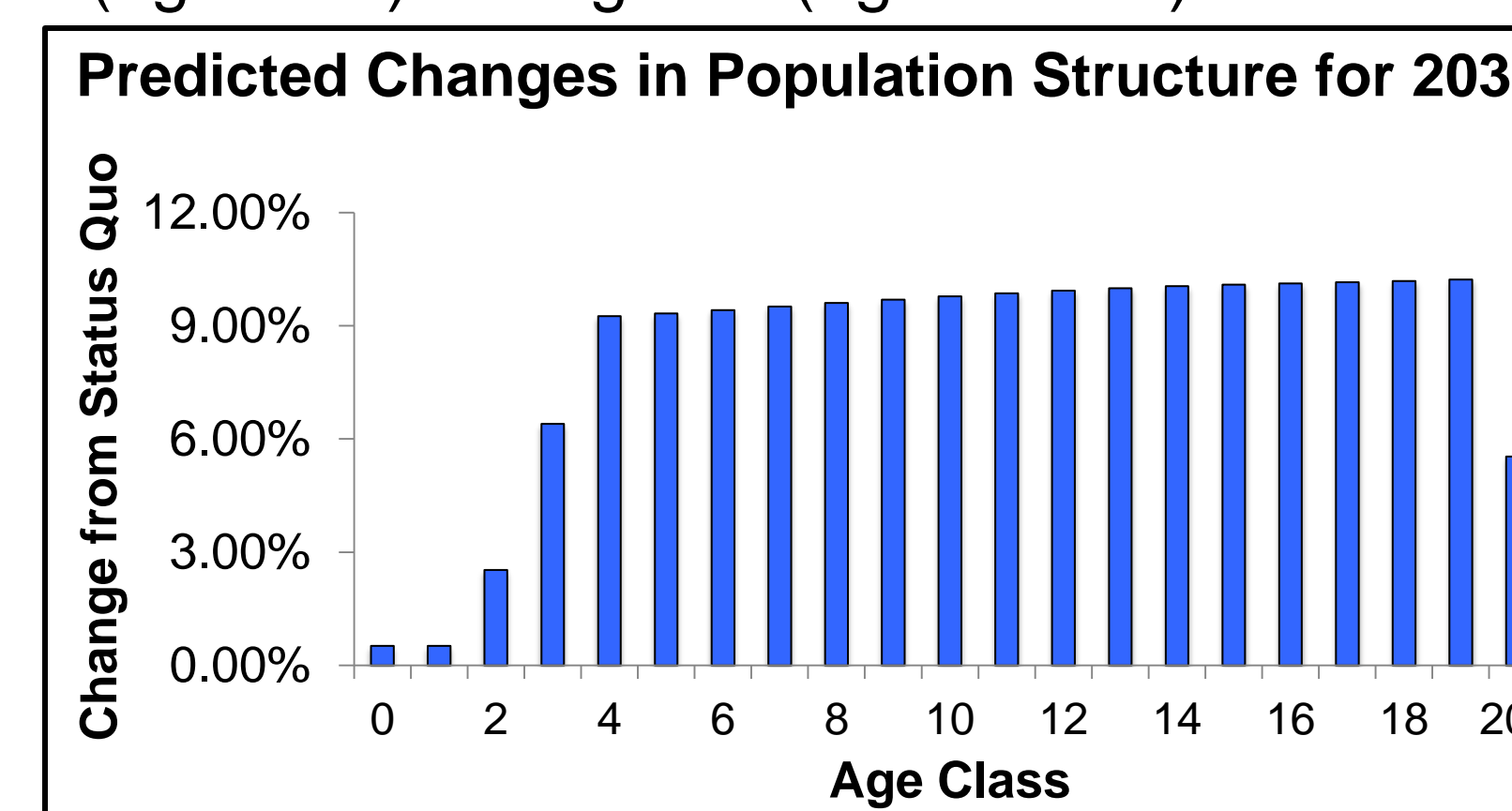
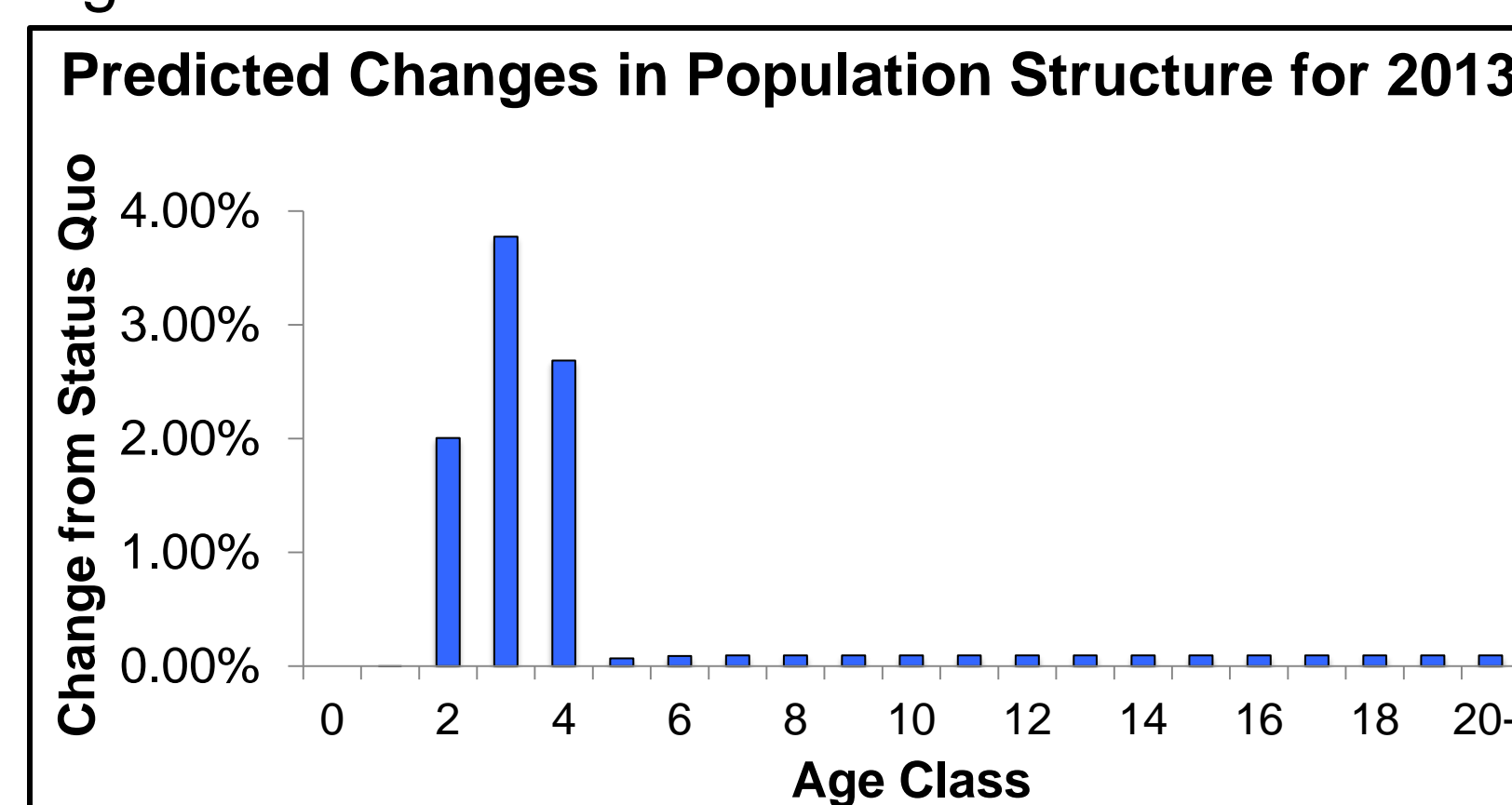
The age-structured model suggests that, with sector separation, the stock will improve over time compared to no sector separation.



Under Allocation FH 42, the for-hire sector lands slightly more fish than the status quo when they are proportionally responsible for the overage. However, landings are variable depending on the responsibility of overage and whether the additional allocation can compensate anglers for being held to their TAC. Private anglers will land less because they receive a lower allocation.



Sector separation increases the population across all age classes, which improves the ability for anglers to catch and release fish due to minimum size (ages 2-3) or bag limit (ages 4-20+).



## Recommendations

1. The Gulf of Mexico Fisheries Management Council should introduce sector separation, as it improves biology and can have positive economic effects.
2. Allocation decisions should incorporate stakeholder input.
3. Better reporting practices should be implemented to assign responsibility for overages.
4. An ITQ system should be implemented with sector separation, as it can give for-hire fishermen flexibility in fishing days and increased profits.

## Acknowledgements

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## References

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