Economic evaluation of Rhode Island Fluke Sector Pilot Program (RIFSPP)

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Main Questions

- Did sector members benefit from RIFSPP?
- Were non-sector members made worse off?

- Analyzed years:
  - 2009 season (complete) and 2011 season (~11/22).
  - 2010 not included due to late start of RIFSPP.

Results (preview)

- Did sector members benefit from RIFSPP? … Yes
  - Sector members substantially changed fishing behavior.
- Were non-members of the sector made worse off?
  - In aggregate: **NO** (both 2009 and 2011 seasons).
  - BUT, benefits were not equally shared and some vessels were slightly worse off in 2009 → no longer so in 2011 season.
- Predicted revenue gains in 2011 >> 2009
  - Especially federally permitted non-members of RIFSPP.

Market effects of RIFSPP on non-members

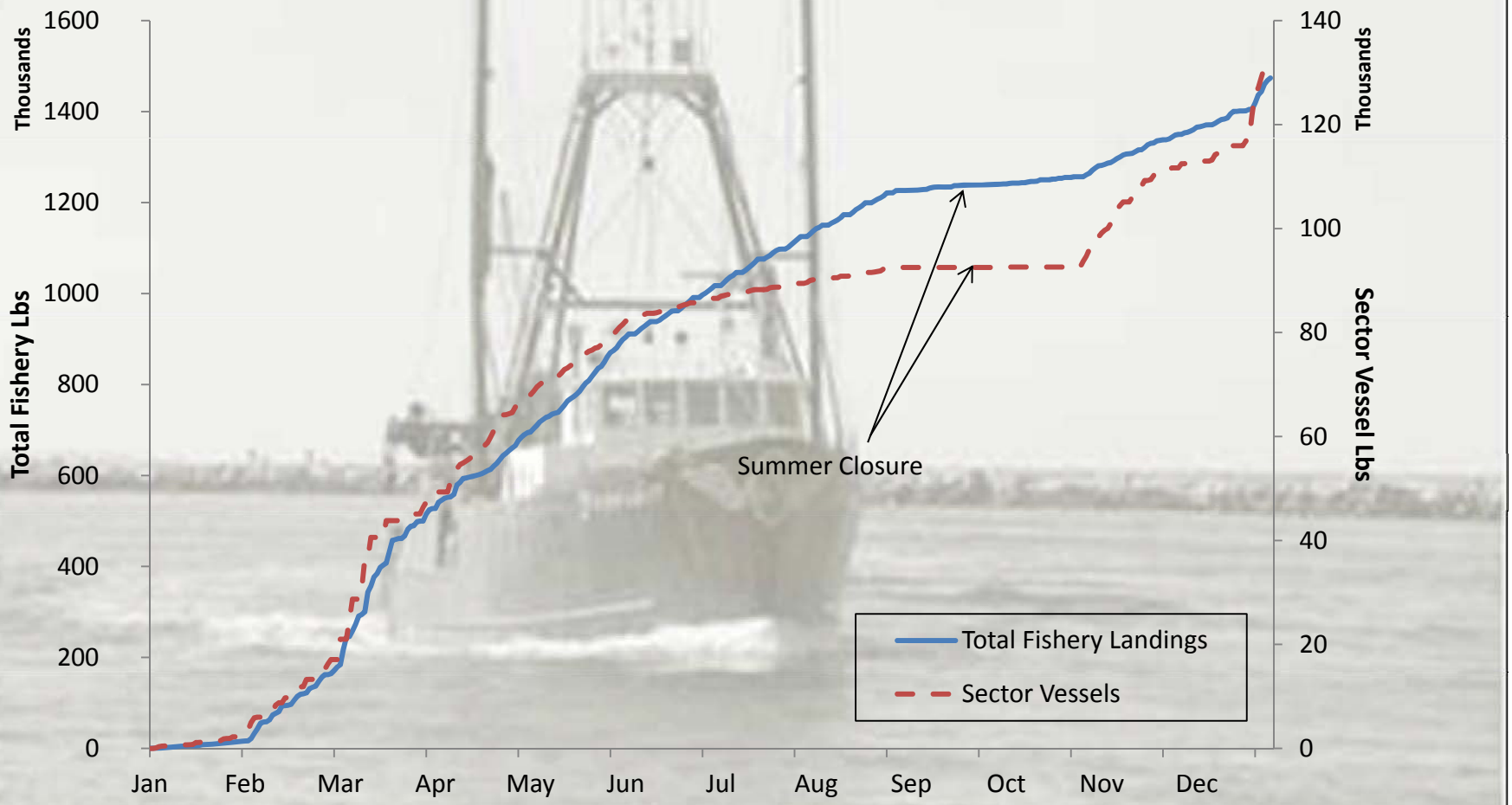
- In the fluke fishery
  - Sector members shift the timing of their fluke landings
  - Non-sector vessels receive higher prices in times sector reduces landings, lower prices when sector lands more
- In other species (19 others)
  - Sector members catch other species when not landing fluke
  - Shift in timing of landing other species has similar effects as in fluke
- How big is each of these effects?
- Total effect when added up across species?

Need for proper comparison

- Incorrect to directly compare prices and revenues 2008 (pre-RIFSPP) and 2009/2011 (post-RIFSPP)
  - Multiple factors influencing price are not constant
    - TAC increase, weather, and state of the economy.
- Proper comparison is against "counterfactual"
  - What the outcomes *would have been*, *if there were no RIFSPP* in 2009/2011.
    - Estimate how prices respond to daily landings levels
    - Construct daily landings levels models based on rates sector and non-sector vessels have historically landed each species

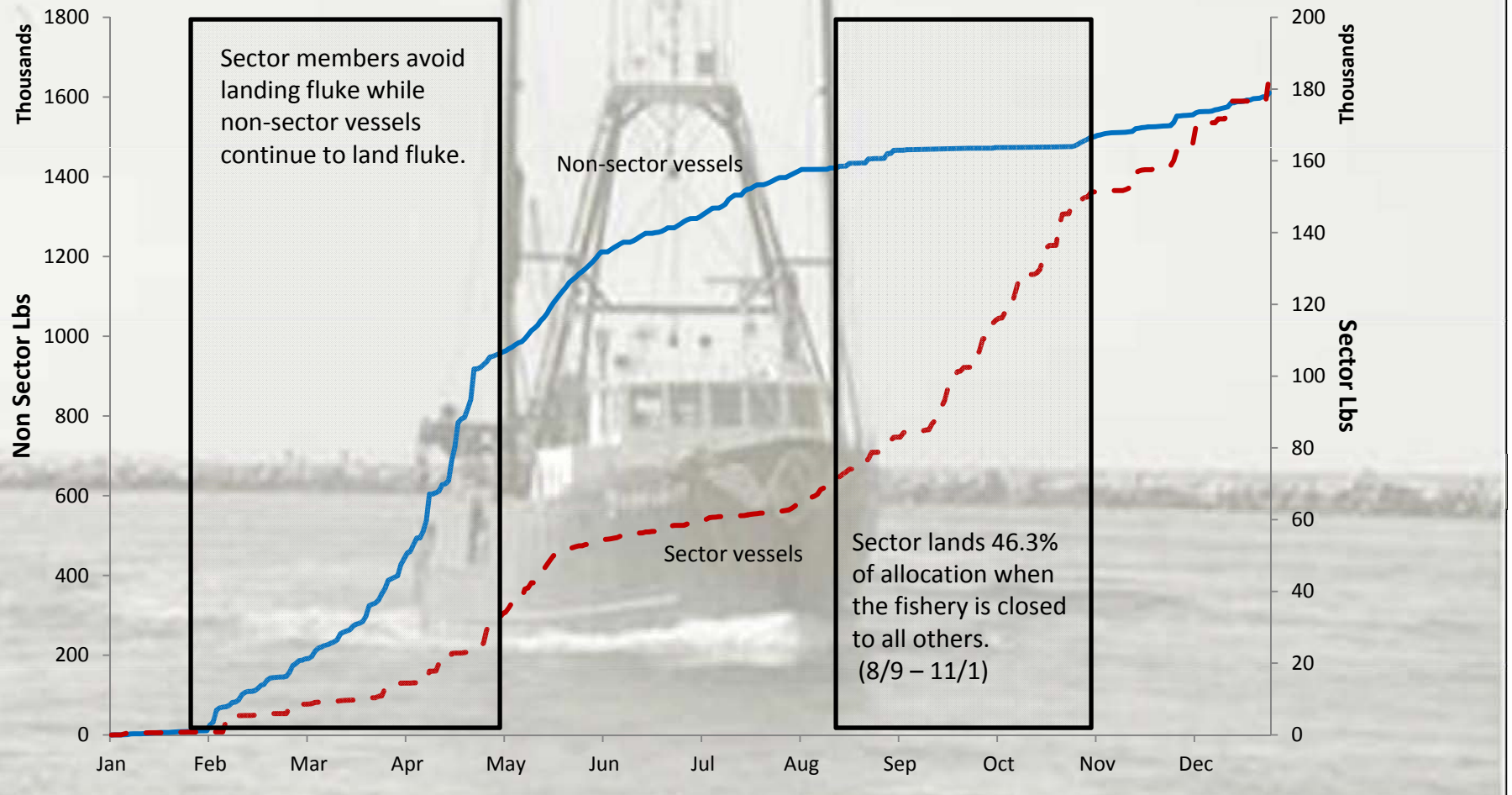
Sector Members' Fluke Landing: 2008

(Pre-RIFSPP)



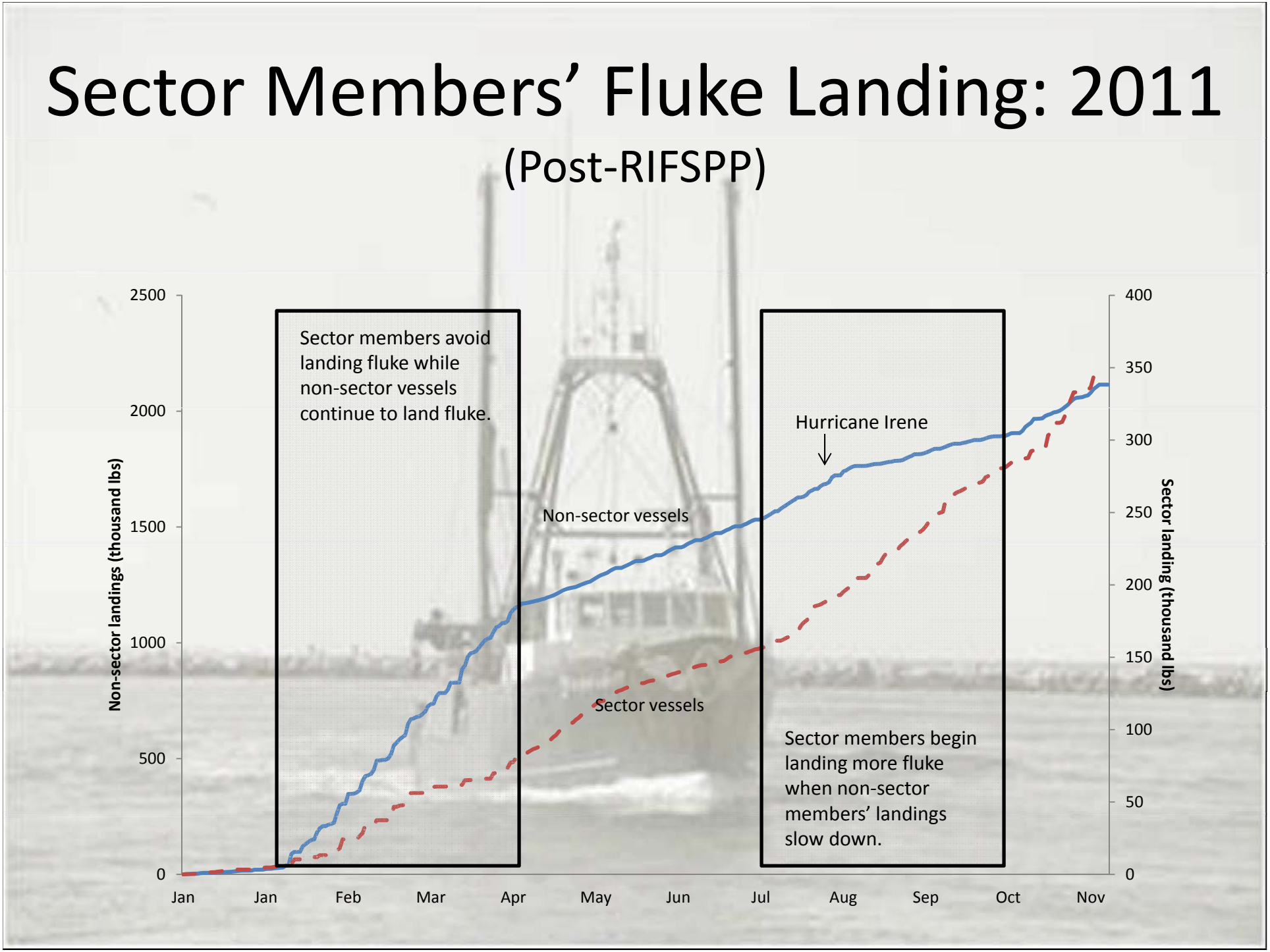
Sector Members' Fluke Landing: 2009

(Post-RIFSPP)



Sector Members' Fluke Landing: 2011

(Post-RIFSPP)



Average Fluke Ex-Vessel Prices

($ / lb)

Year	Sector Boats	Federally Permitted	Non Fed. Permitted
2006	2.25	2.33	2.30
2007	2.73	2.93	2.75
2008	2.97	3.15	2.93
2009	2.64	2.44	2.44
2010	2.59	2.32	2.65
2011	2.45	2.04	2.79

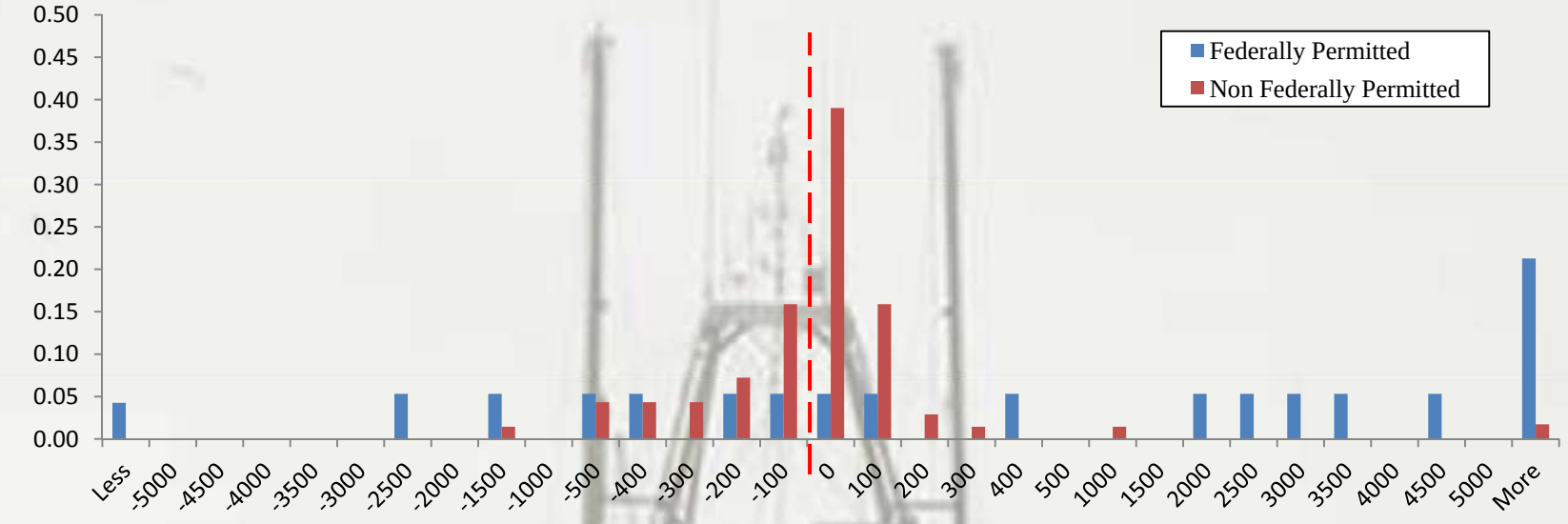
	Fishery Open	Fishery Closed
Avg. Price Sector Boats 2009	2.59	2.97

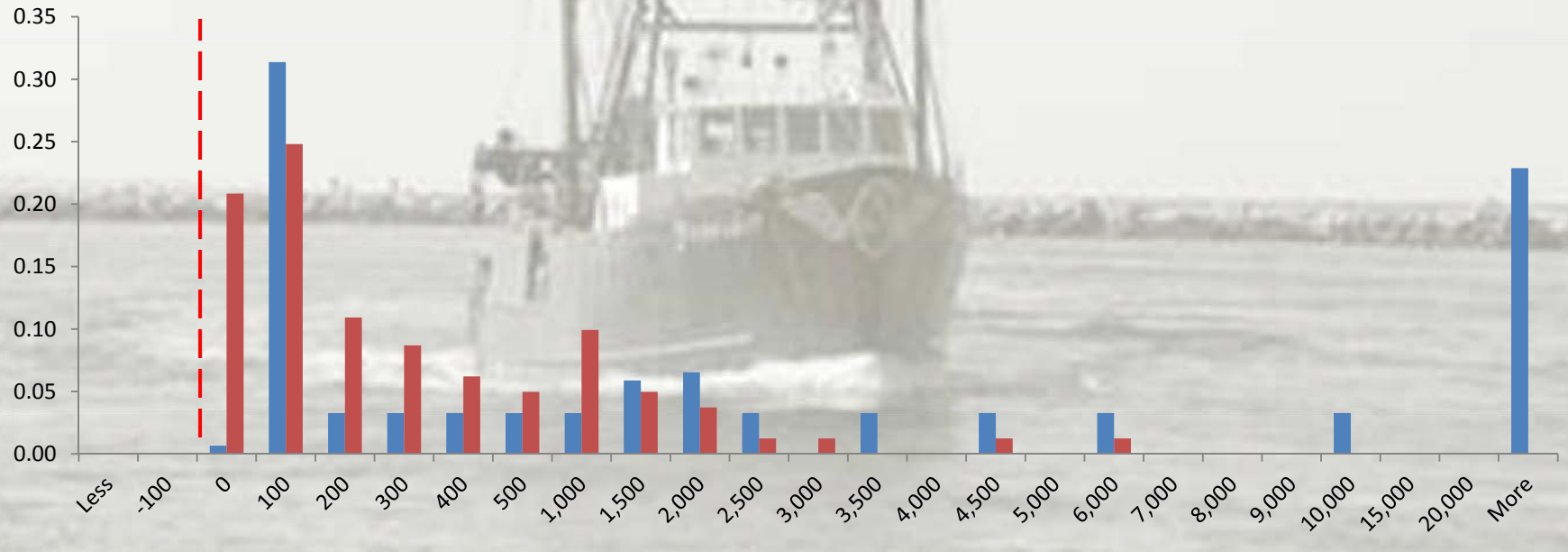
Total Revenue Effects (All Species)

Group	2009 ($000)	2011 ($000)
Industry total	$808	$2,085 ~ $2,572
Sector	$520	$294 ~ $369
Non-sector (federally permitted)	$277	$1,633 ~ $1,993
Non-sector (non-federally permitted)	$12	$157 ~ $213

- 2009 season
  - Much of the benefit went to sector members.
- 2011
  - All segments benefited from fluke sector.
  - Federally permitted non-members dominated from shift in sector effort away from Spring

Distribution of Total Effects among Non-Members





Conclusion

- Significant gains from RIFSPP in fishery revenue
  - Sector member vessels:
    - Adjust the landing timing → land during less supply of fluke.
    - Ability to target other (and more profitable) species while saving on fluke quota.
  - Non-members of the sector:
    - Higher fluke price when sector vessels shifted away their fluke landings
    - Not offset by lower prices for species the sector was landing instead

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Revenue effects

- Average revenue per vessel

	Sector Vessels		Federally Permitted		Non Federally Permitted	
	Fluke	Other	Fluke	Other	Fluke	Other
2009	$21,960 (266.7)	$52,288 (2,234.1)	$163 (19.8)	$2,781 (423.5)	-$11 (1.5)	$45 (27.3)
2011	$25,612 (1,503)	0*	$11,914 (631)	0*	$462 (41)	0*

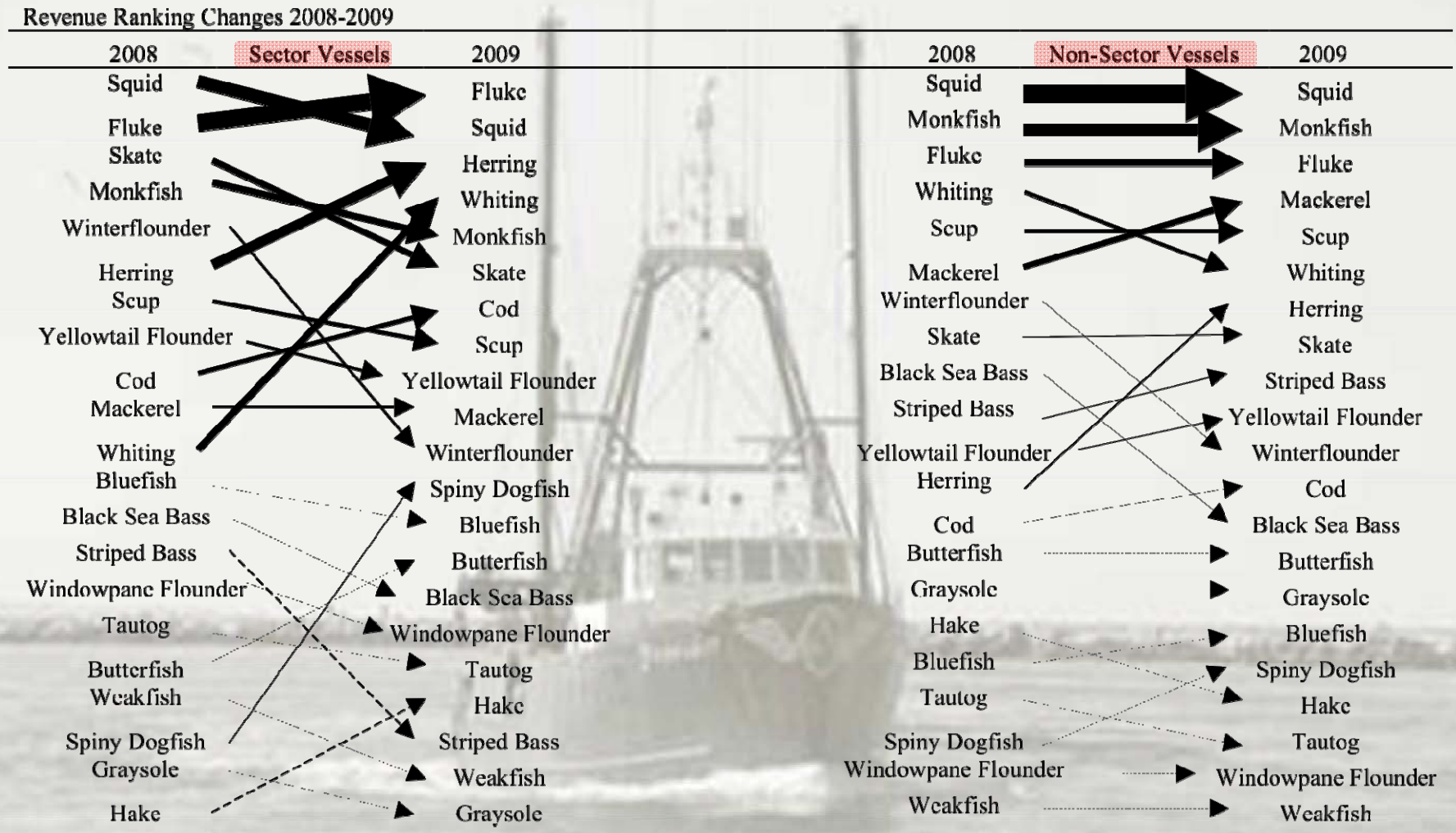
- Industry-wide revenue

	Sector Vessels		Federally Permitted		Non Federally Permitted	
	Fluke	Other	Fluke	Other	Fluke	Other
2009	$153,718 (1,867)	$366,013 (2,234.1)	$15,303 (1,857)	$261,407 (39,809)	-$3,817 (516)	*$15,722* (9,439)
2011	$332,950 (19,291)	0*	$1,822,884 (92,242)	0*	$186,047 (14,431)	0*

All average revenue impacts (excepted in italic) are statistically different from 0 at the 95 % confidence level.

Those totals labeled 0* are not statistically different from zero at the 95% confidence level based on 1000 draws of $\beta \sim N(\beta,\sigma^2)$

Changes in targeted species



- Sector members shifted their targeted species due to RIFSPP.
- Non-sector members did not (for top-ranking species).