Agenda Item F.2.a
PowerPoint: Presentation of the Catch Shares Review Analysts
June 2017

GROUNDFISH TRAWL CATCH SHARE PROGRAM

FIVE YEAR REVIEW

Executive Summary
Pacific Fisheries Management Council
June 2017

NOAA FISHERIES

QUESTIONS FROM THE SSC & COUNCIL

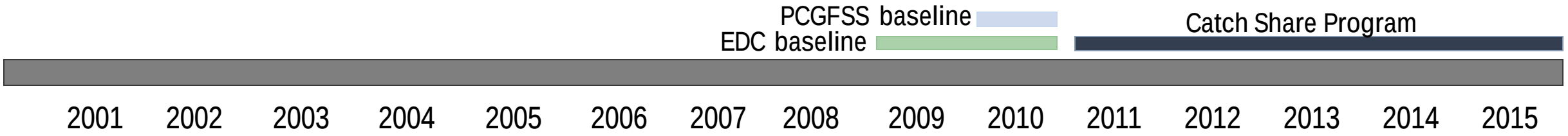
1. NET BENEFITS: How did net benefits to the nation derived from this fishery change?

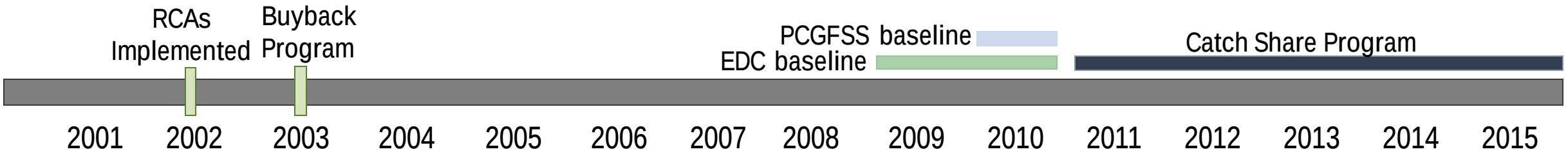
2. FINANCIAL OUTCOMES: How did financial outcomes for participants in the fishery change?

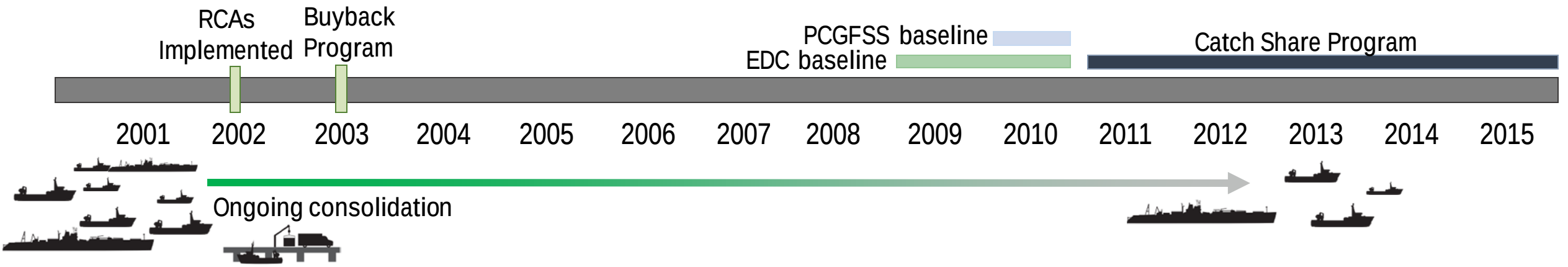
3. DISTRIBUTIONAL OUTCOMES: Did the distribution of cost, revenues, effort, and net benefits among fishery participants (including communities and user groups) change?

4. UTILIZATION: Did utilization rates for specific species change?

Primary data sources:
Fish Tickets
Pacific Coast Groundfish Social Survey
Economic Data Collection
West Coast Groundfish Observer Program
Pacific Coast Groundfish Permit System and IFQ Accounting System




RCAs Implemented
Buyback Program
PCGFSS baseline
EDC baseline
Catch Share Program
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015



Overfished (prior to 2000): Cowcod and canary rockfish (2000); lingcod, POP, and bocaccio (1999)

Overfished: Pacific whiting and yelloweye rockfish (2002)

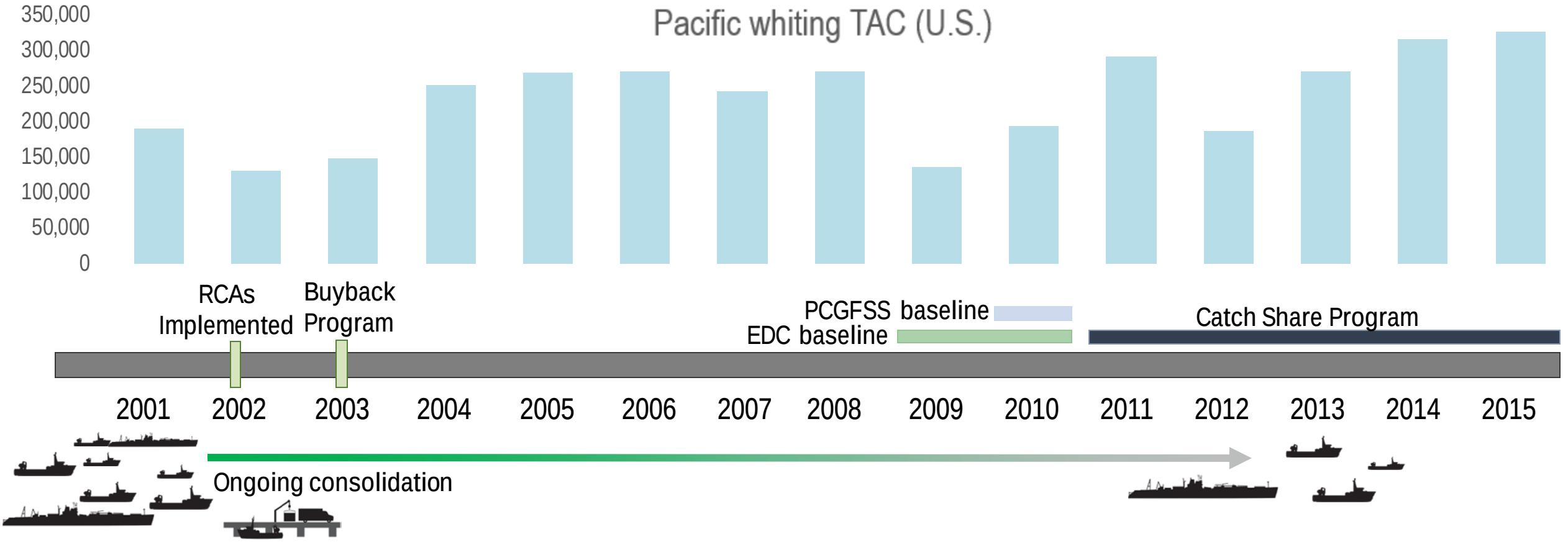
Rebuilt: Pacific whiting (2004)

Rebuilt: Lingcod (2005)

Overfished: Petrale sole (2010)

Rebuilt: Widow rockfish (2012)

Rebuilt: Canary rockfish and petrale sole (2015)



Overfished (prior to 2000): Cowcod and canary rockfish (2000); lingcod, POP, and bocaccio (1999)

Overfished: Pacific whiting and yelloweye rockfish (2002)

Rebuilt: Pacific whiting (2004)

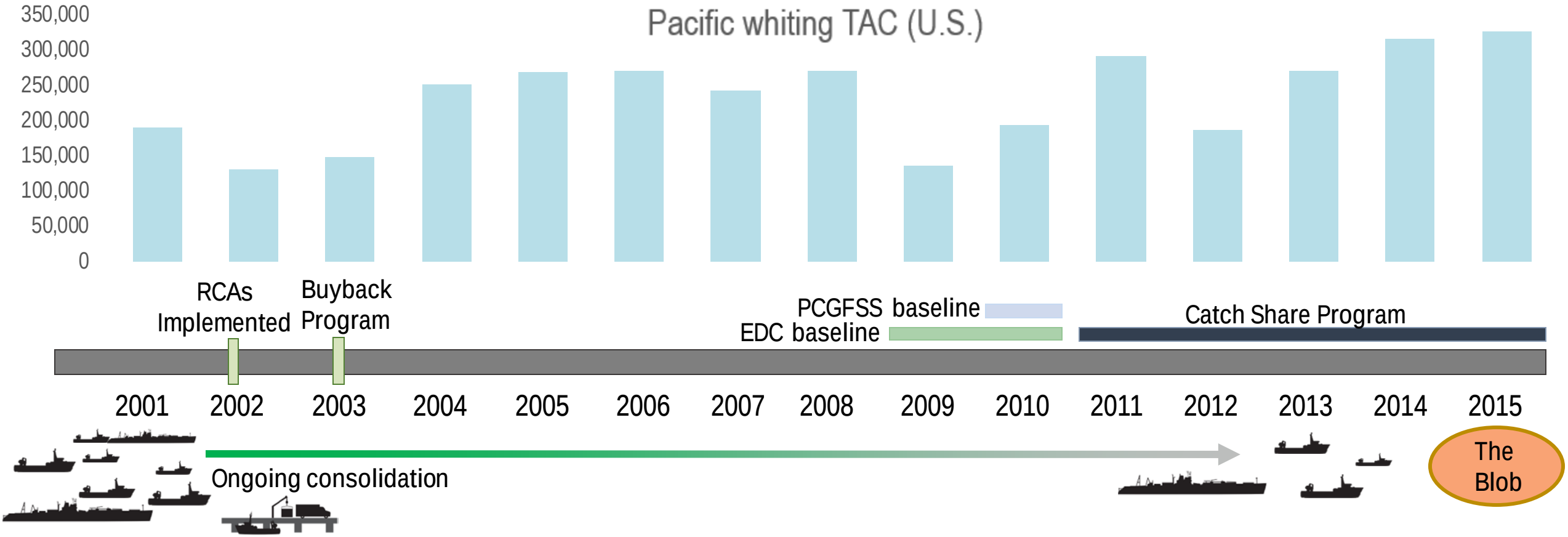
Rebuilt: Lingcod (2005)

Overfished: Petrale sole (2010)

Rebuilt: Widow rockfish (2012)

Rebuilt: Canary rockfish and petrale sole (2015)

Section 2.0
Page 2-3 to 2-6



Overfished (prior to 2000): Cowcod and canary rockfish (2000); lingcod, POP, and bocaccio (1999)

Overfished: Pacific whiting and yelloweye rockfish (2002)

Rebuilt: Pacific whiting (2004)

Rebuilt: Lingcod (2005)

Overfished: Petrale sole (2010)

Rebuilt: Widow rockfish (2012)

Rebuilt: Canary rockfish and petrale sole (2015)

Section 2.0
Page 2-3 to 2-6

NET BENEFITS

HOW DID NET BENEFITS TO THE NATION DERIVED FROM THIS FISHERY CHANGE AFTER IMPLEMENTATION OF THE CATCH SHARE PROGRAM?

NET ECONOMIC BENEFITS
TO THE NATION

Net economic benefits *are calculated by subtracting monetary costs from gross revenue for fishing activities, summed over participants in each sector.*

2009-2010 Average: $25 million
2011-2015 Average : $54 million

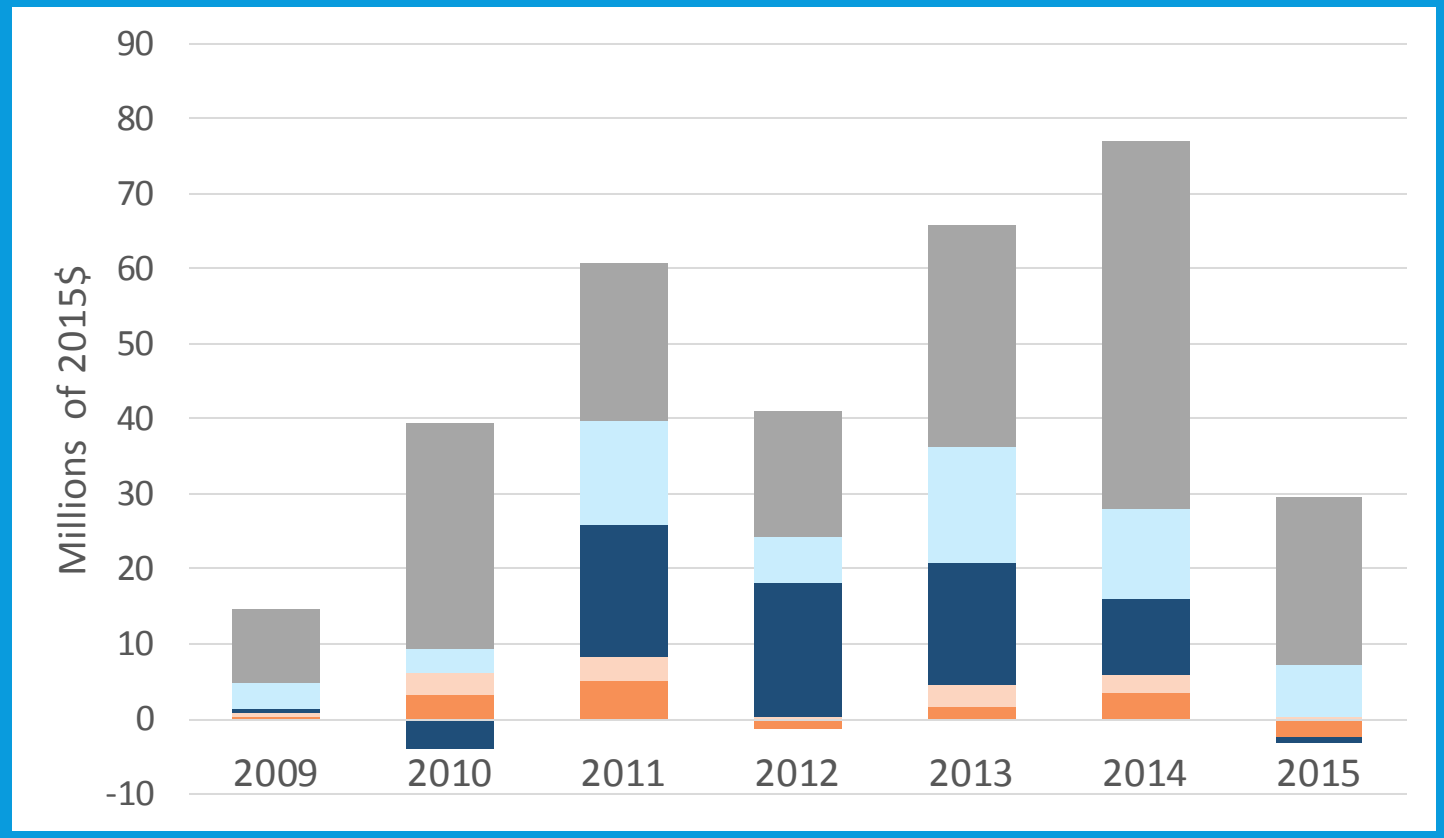
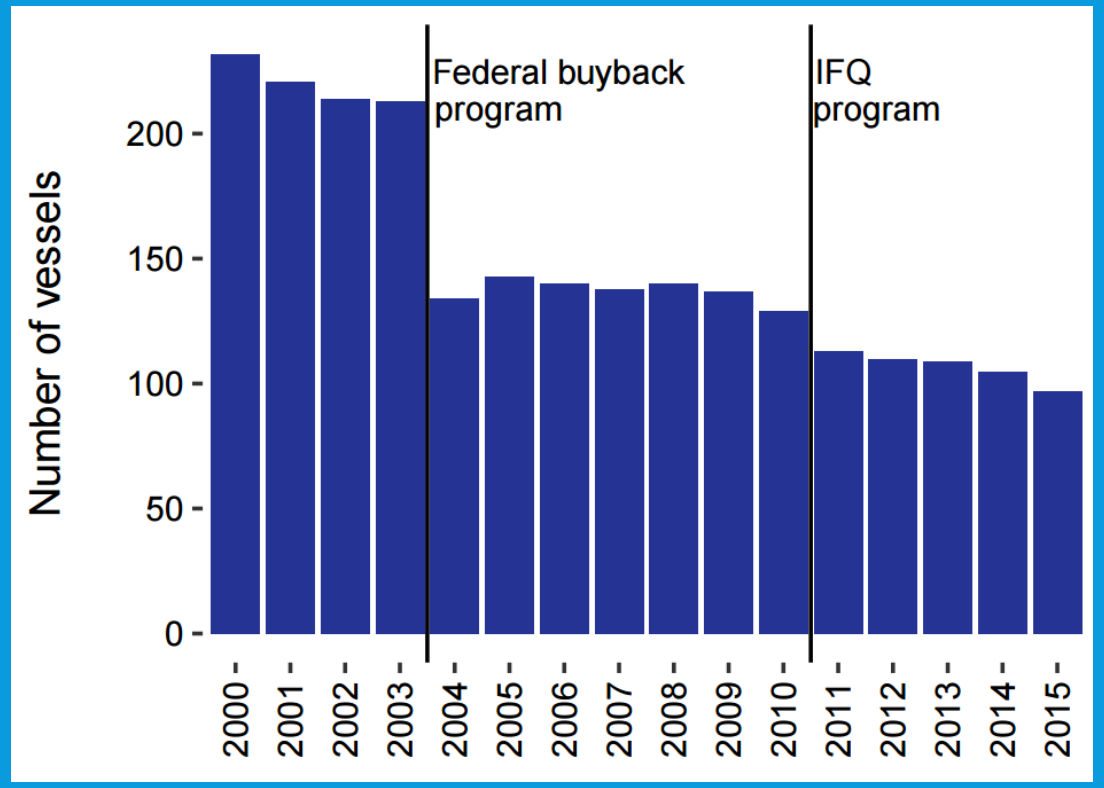


Table 3-1
Page 3-7

NET BENEFITS
CONSOLIDATION



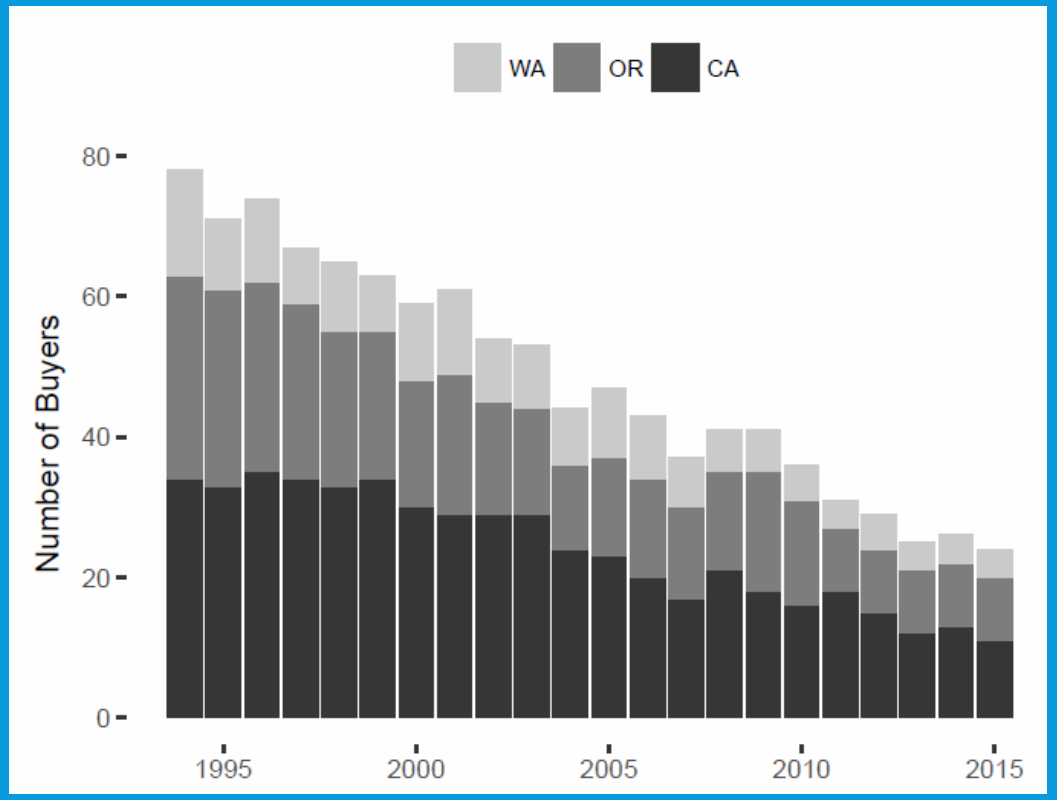


Figure 3-63, Page 3-216

NET BENEFITS
CONSOLIDATION

Catcher vessels: Greater consolidation in whiting fleet (29%) than non-whiting (24%)

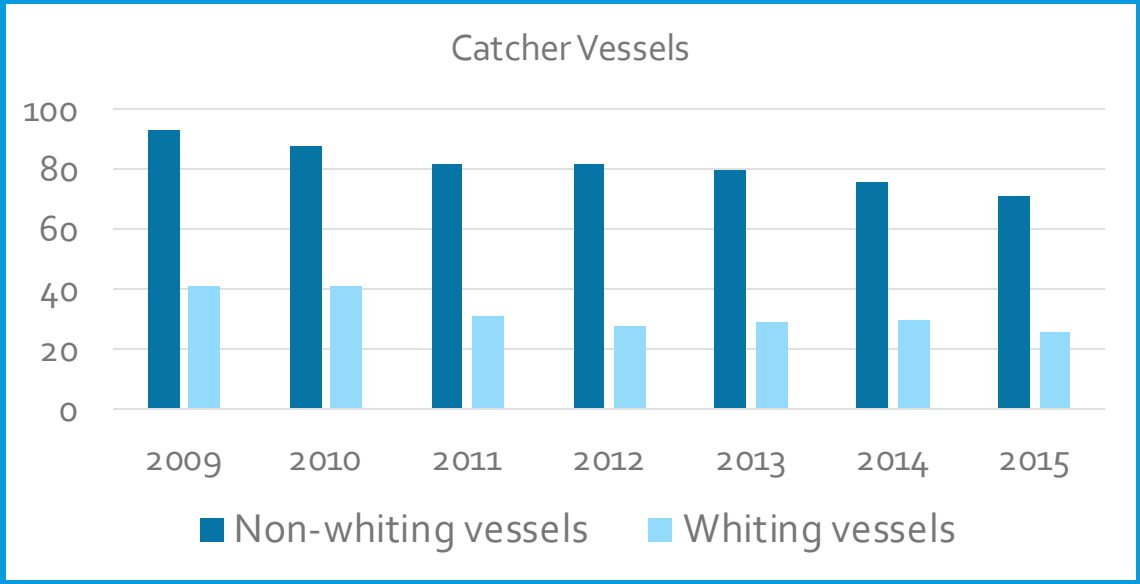
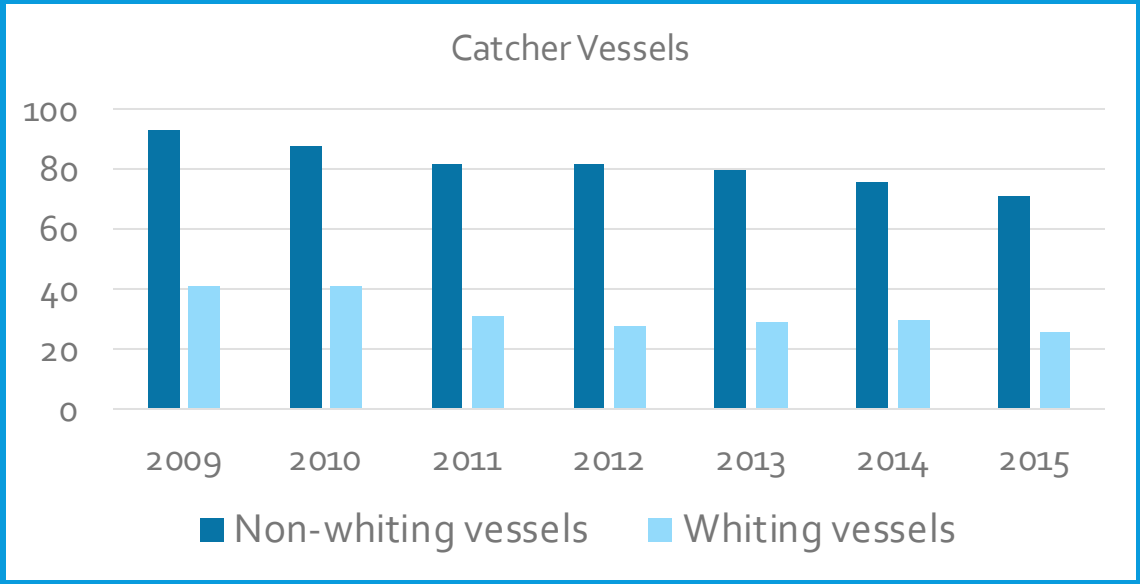


Table 3-3
Page 3-10

NET BENEFITS
CONSOLIDATION

Catcher vessels: Greater consolidation in whiting fleet (29%) than non-whiting (24%)



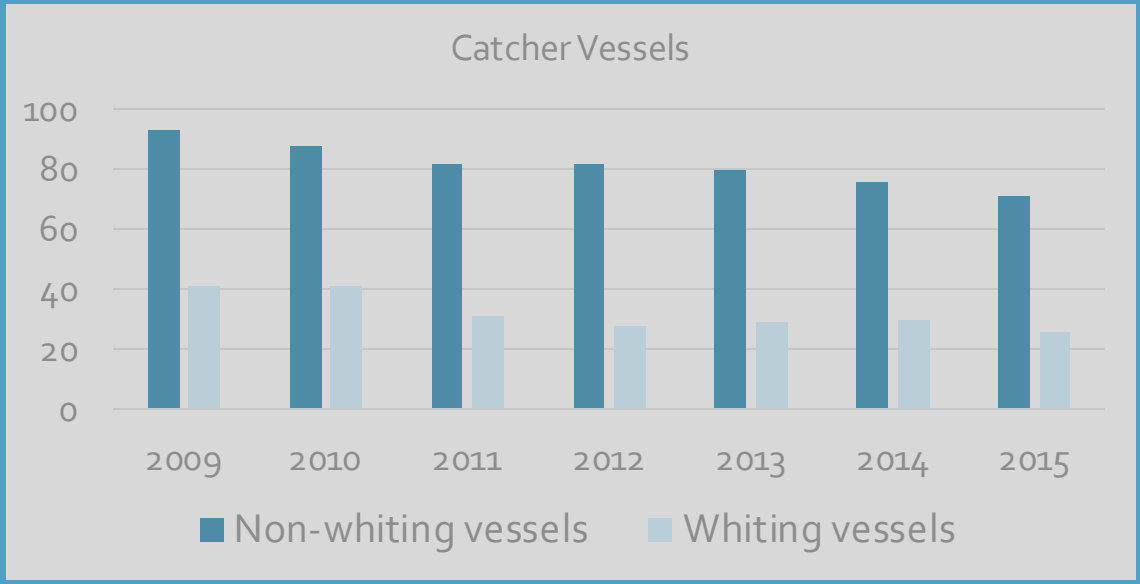
Motherships: 5-6 participating vessels 2009-2014

Catcher-processors: Increased from 6 to 9

Tables 3-3 & 3-5

NET BENEFITS
CONSOLIDATION

Catcher vessels: Greater consolidation in whiting fleet (29%) than non-whiting (24%)



Motherships: 5-6 participating vessels 2009-2014

Catcher-processors: Increased from 6 to 9

Shoreside processors who process both whiting and non-whiting: Decreased from 12 to 8

Shoreside processors who process exclusively non-whiting: No clear trend

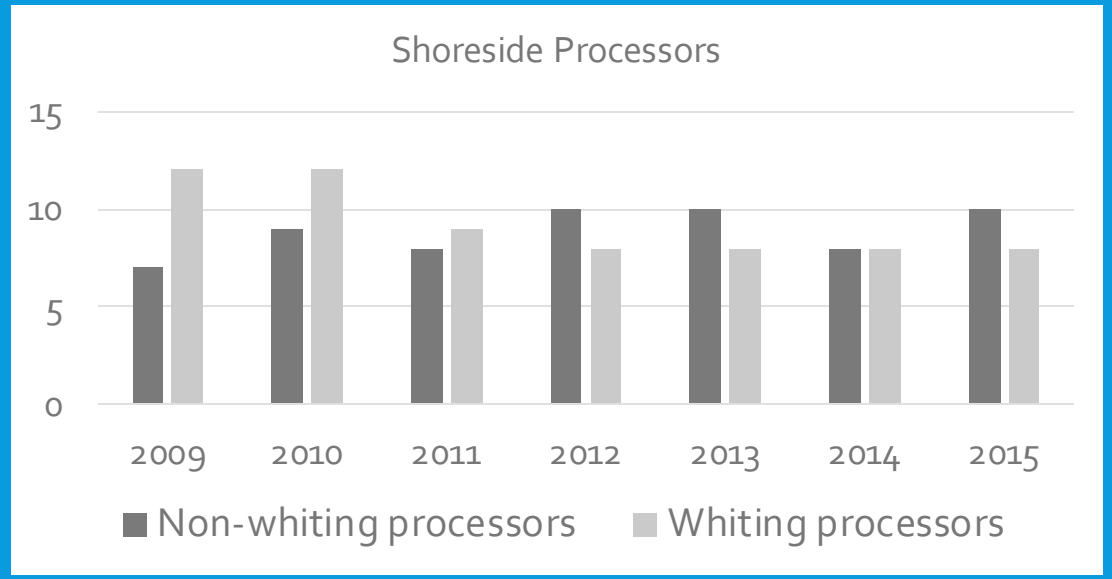


Table 3-6
Page 3-13

NET BENEFITS
PRODUCTIVITY AND EFFICIENCY

Efficiency (net revenue as a percentage of revenue)

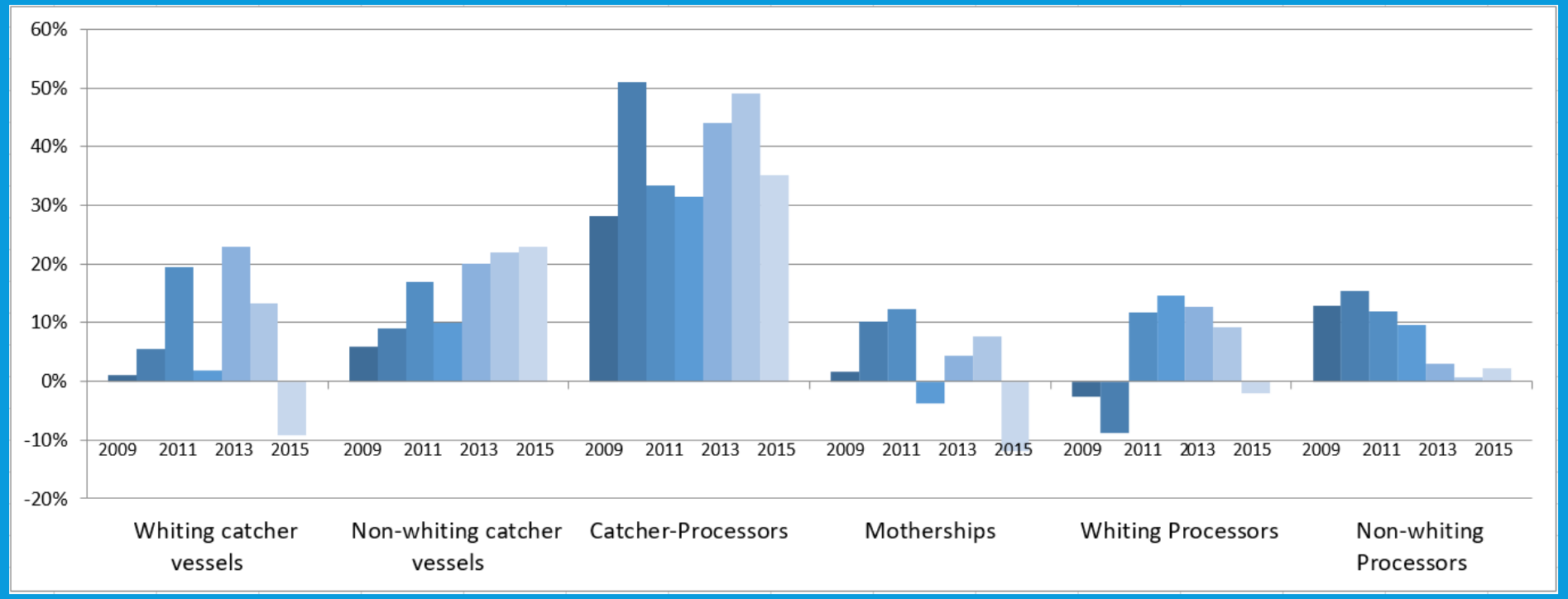


Table 3-14
Page 3-24

NET BENEFITS
PRODUCTIVITY AND EFFICIENCY

Efficiency (net revenue as a percentage of revenue)

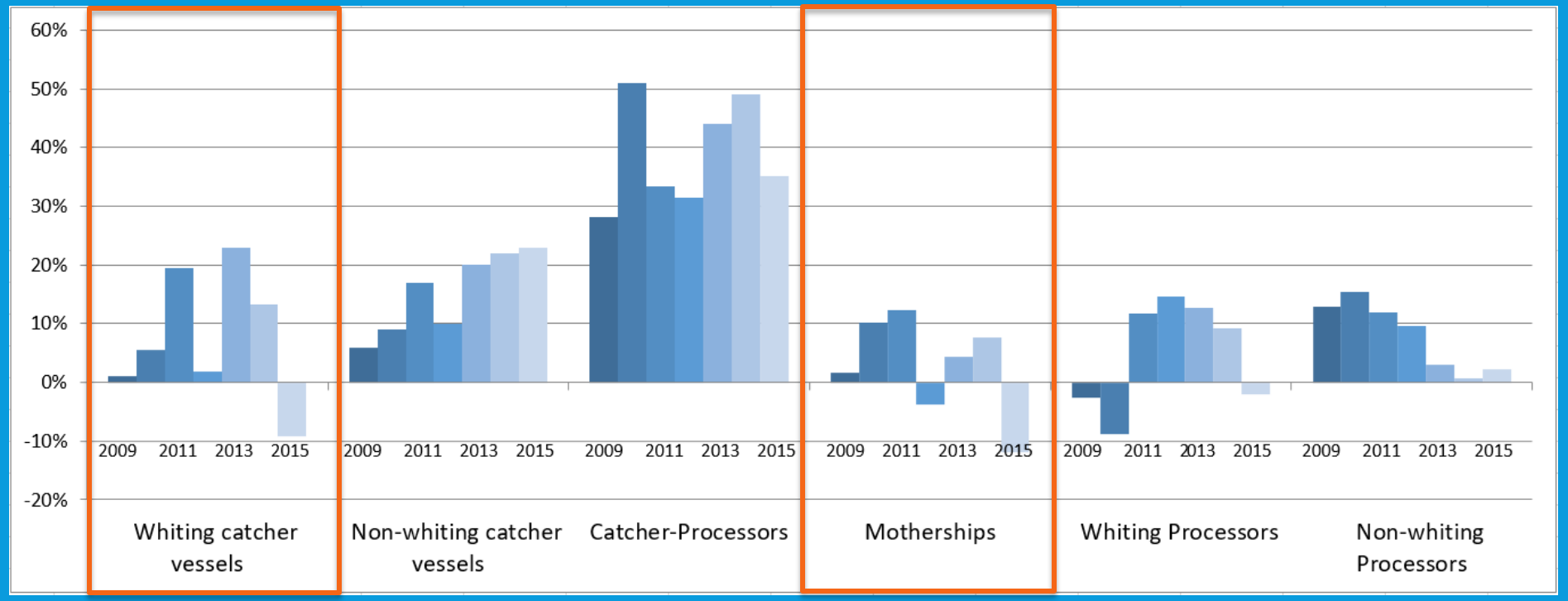


Table 3-14
Page 3-24

NET BENEFITS
PRODUCTIVITY AND EFFICIENCY

Efficiency (net revenue as a percentage of revenue)

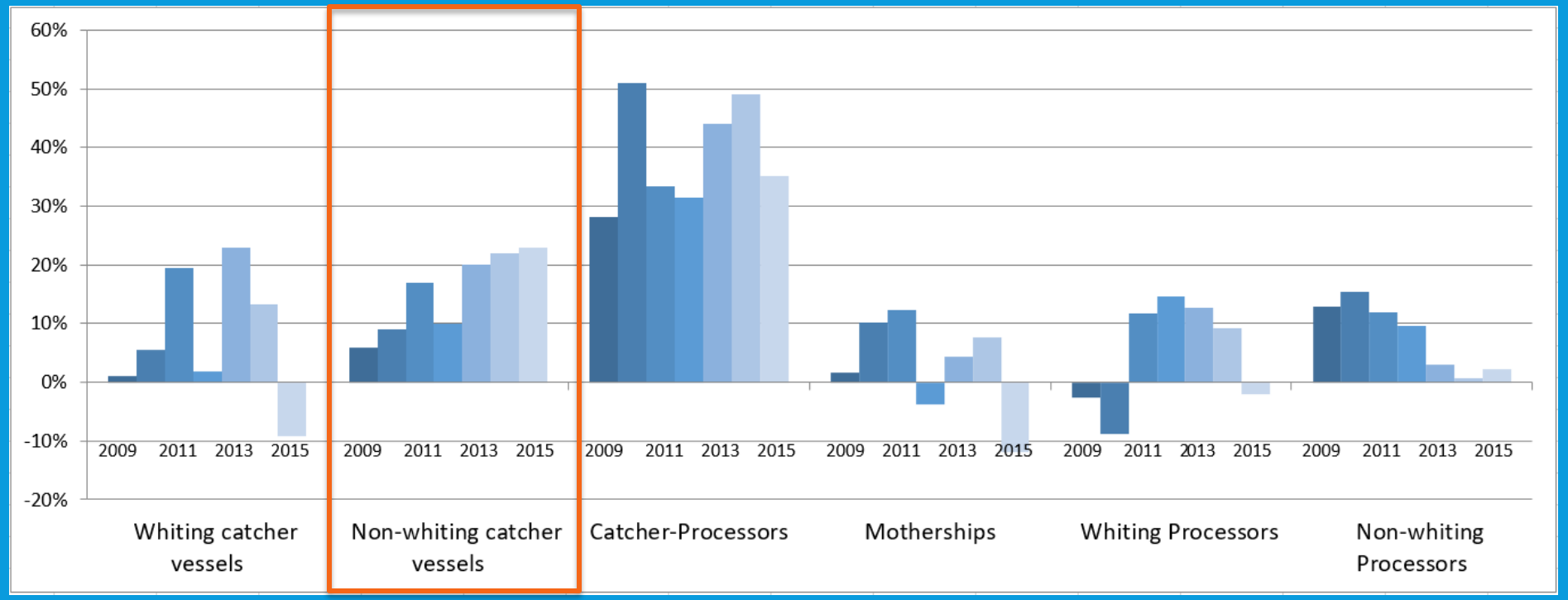
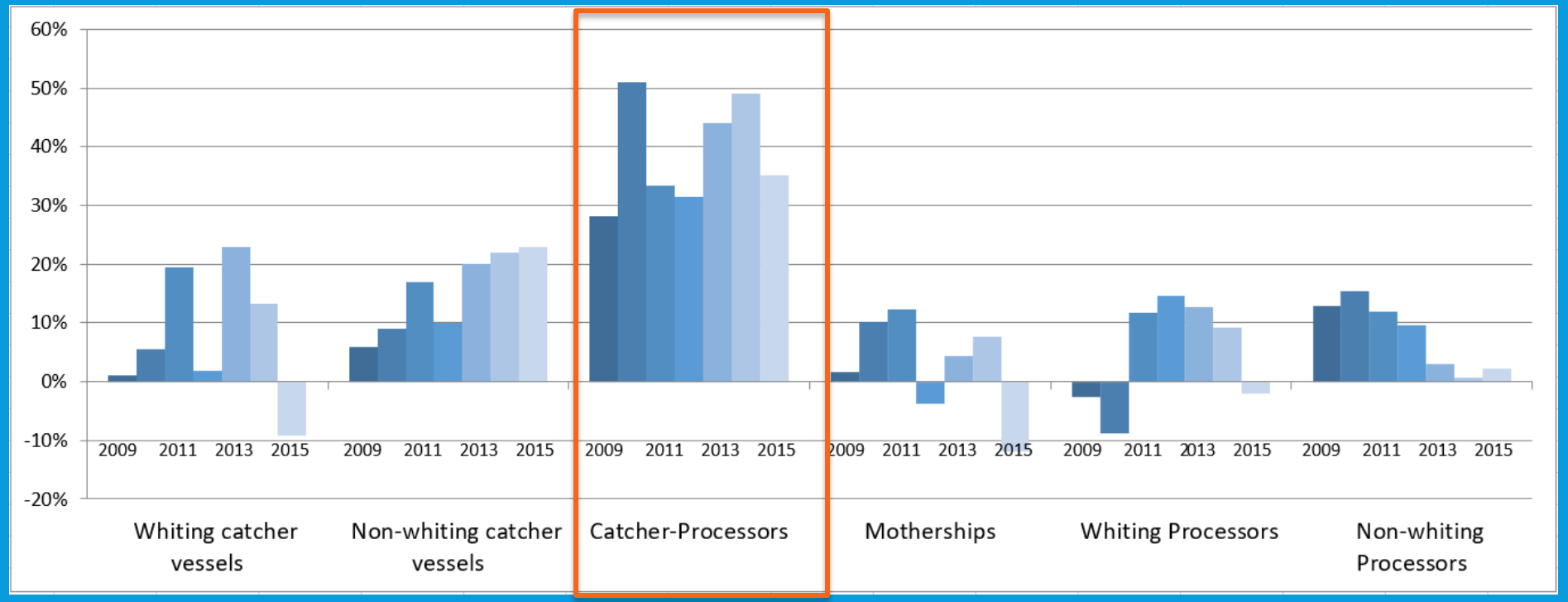


Table 3-14
Page 3-24

NET BENEFITS
PRODUCTIVITY AND EFFICIENCY

Efficiency (net revenue as a percentage of revenue)



NET BENEFITS
PRODUCTIVITY AND EFFICIENCY

Efficiency (net revenue as a percentage of revenue)

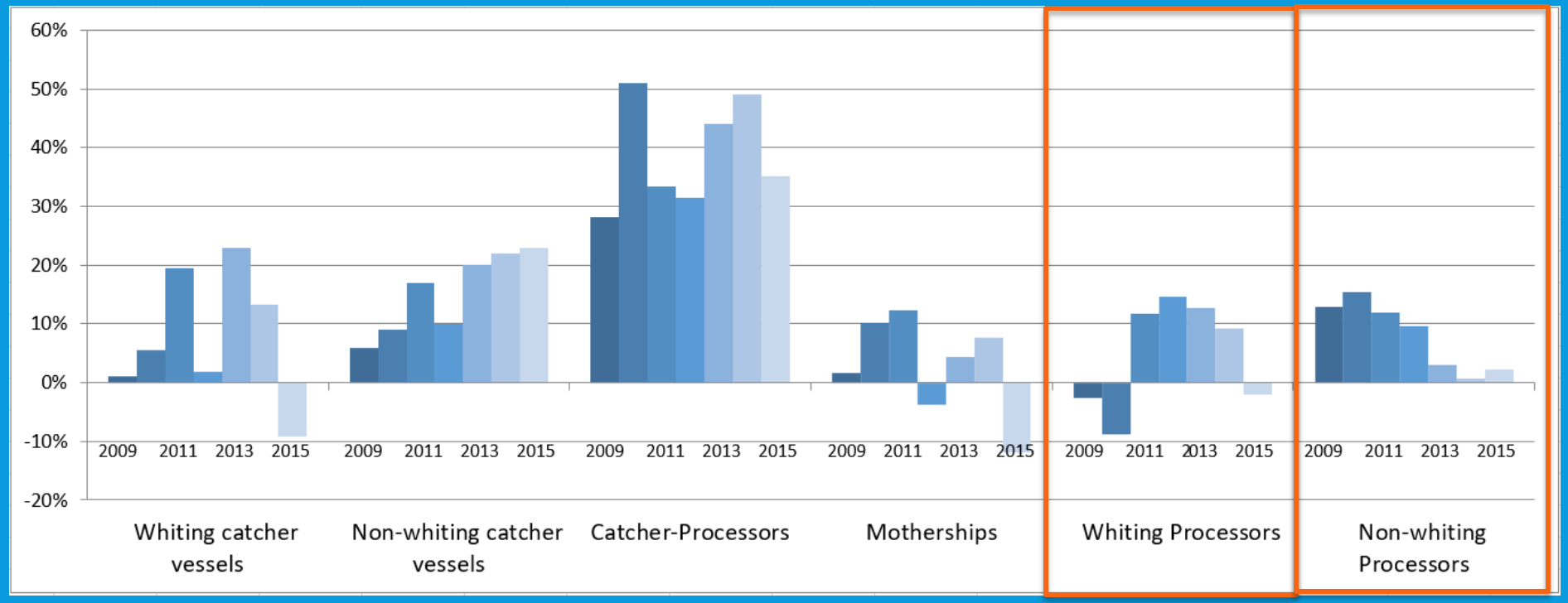


Table 3-14
Page 3-24

NET BENEFITS
FLEXIBILITY

- Participation in non catch-share fisheries
- Participation in cooperatives and risk pools
- Days at sea
- Timing of landings
- Number and size of fishing trips
- Location of landings
- Carrying over, leasing, and selling quota

NET BENEFITS
PRODUCT VALUE

Observations:

- Whiting production value (all sectors) has decreased 8-15%; influenced by many factors.
- Other groundfish species have seen increases in product value since baseline, notably frozen sablefish, fresh petrale sole, and fresh Dover sole; also influenced by many factors

Other Factors:

- Industry has indicated that the catch share program has contributed to MSC-certification of the groundfish fishery in 2014 and the green-listing of many species by the Monterey Bay Aquarium's Seafood Watch (2014)

Tables 3-17-19
Pages 3-28-29

NET BENEFITS
CONSERVATION

Benefits:

- Excluding widow rockfish, discards of the historically overfished rockfish species decreased dramatically
- Discards of Pacific halibut decreased from an annual mean of 319 to 76 mt
- Catches of all species within sector allocations
- Too early to assess effects on rebuilding status

Concerns:

- Catch of chinook in whiting sectors has increased from an average of 5,727 Chinook (2002 to 2010) to 6,958 (2011 to 2016); there may be a tradeoff between rockfish avoidance and bycatch of Chinook (Page 3-359)

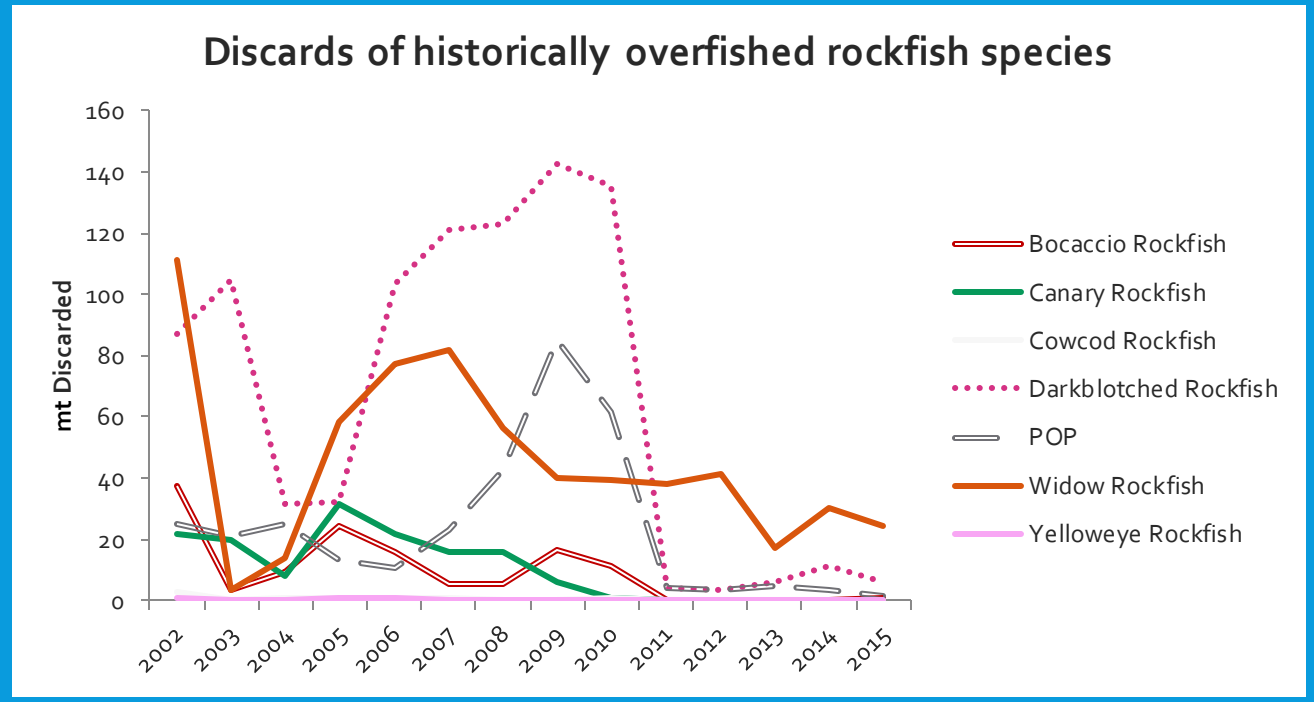
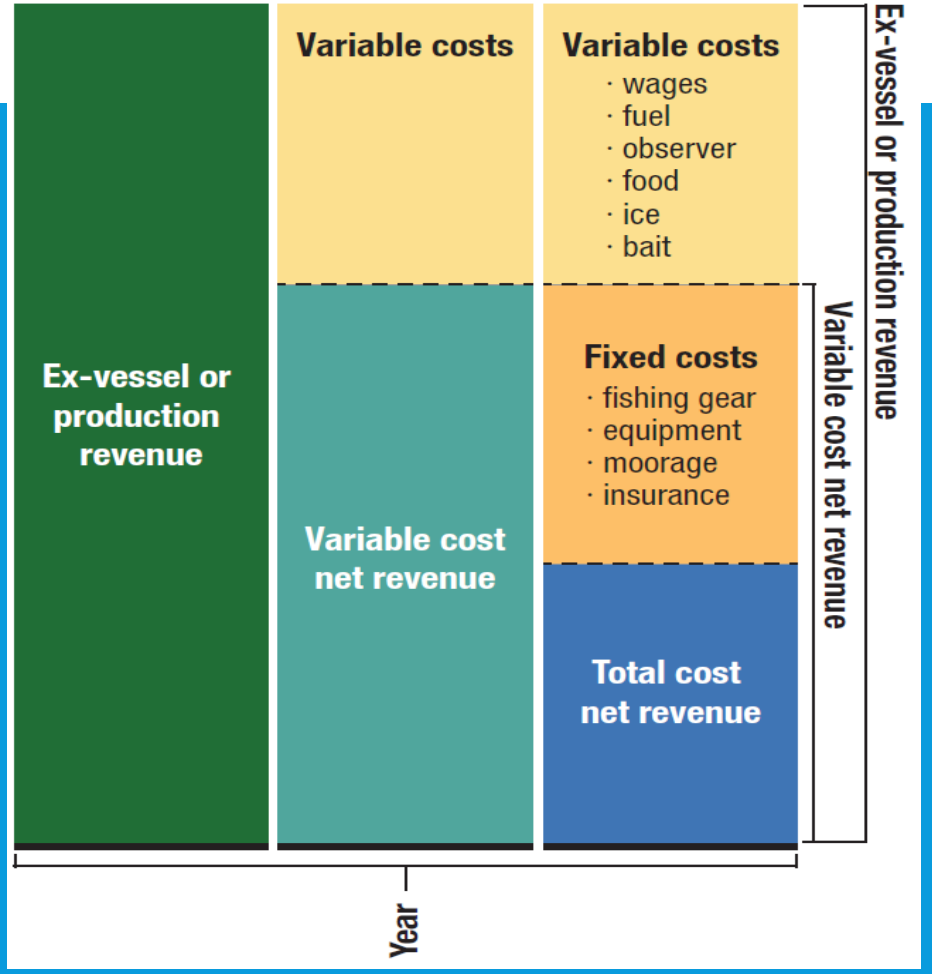


Figure 3-82
Page 3-335

FINANCIAL OUTCOMES

HOW DID FINANCIAL OUTCOMES FOR PARTICIPANTS IN THE FISHERY CHANGE FOLLOWING IMPLEMENTATION OF THE CATCH SHARE PROGRAM?

Financial outcomes



SSC: "Upper bound" individual-level measures of net revenue

Catcher vessels

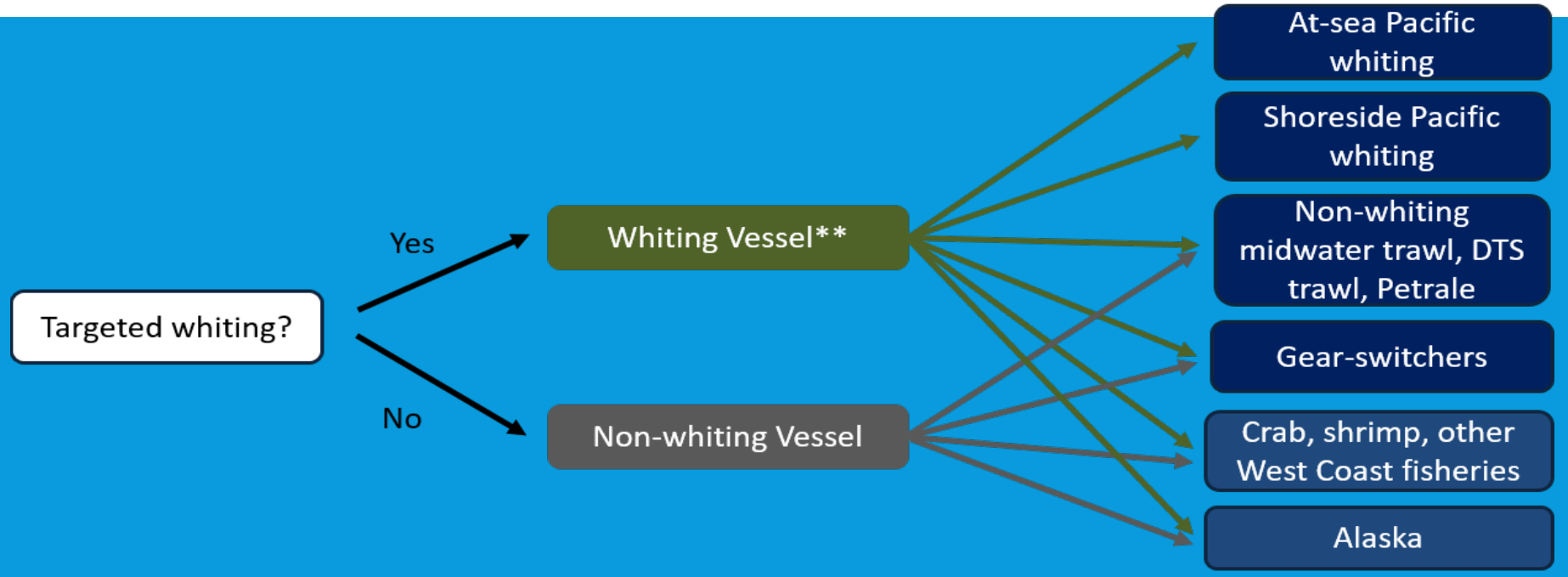


Figure 3-1. Economic performance section classification of catch share catcher vessels. **Does not include vessels that only caught whiting as bycatch.

Shore-based processors and first receivers

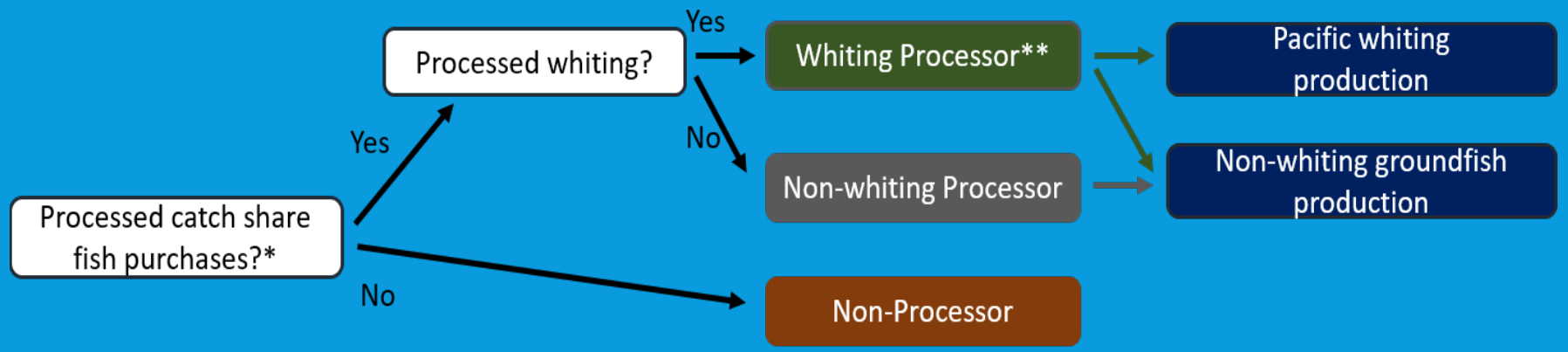


Figure 3-2. Economic performance section classification of CS first receivers and shorebased processors. **Does not include processors that only receive whiting as bycatch.

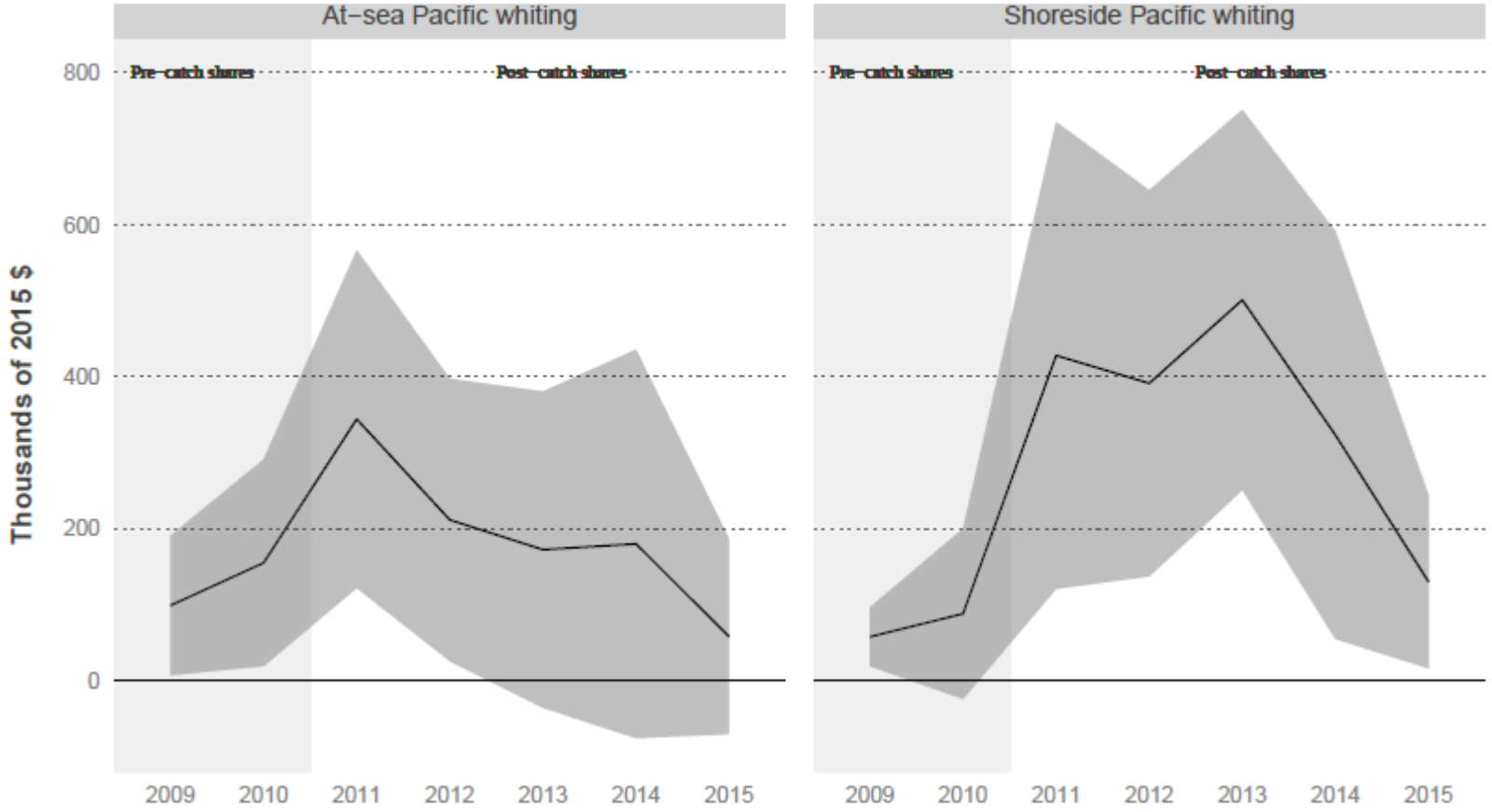
https://dataexplorer.northwestscience.fisheries.noaa.gov/fisheye/PerformanceMetrics/

Table 3-25. Fleet-wide revenue, average revenue, and expenses as a percentage of revenue (2015 $) for **shoreside whiting operations** of catcher vessels, 2009-2015. Source: EDC data.

Shoreside whiting	2009	2010	Pre-catch shares	2011	2012	2013	2014	2015	Catch shares
Fleet-wide Fishing Revenue	5,969,108	10,884,420	8,426,764	24,291,580	21,918,060	27,610,230	24,575,220	9,983,392	21,675,696
Average revenue	**175,562**	**310,983**	**243,273**	**934,292**	**913,253**	**1,150,426**	**983,009**	**453,791**	**886,954**
Expenses (% of revenue)									
Crew and captain	32%	31%	31%	31%	35%	34%	36%	34%	34%
Equipment and fishing gear	52%	47%	49%	28%	36%	22%	21%	51%	32%
Fuel and lubrication	18%	21%	20%	11%	15%	10%	13%	18%	14%
Buyback fees	5%	5%	5%	5%	5%	5%	5%	5%	5%
Observers	0%	1%	1%	0%	1%	1%	1%	2%	1%
Cost recovery fees				0%	0%	0%	3%	3%	1%
Ice, food, bait, supplies	4%	3%	3%	1%	1%	1%	1%	2%	1%
Other	10%	8%	9%	4%	5%	5%	6%	11%	6%
Total Expenses	**121%**	**115%**	**118%**	**81%**	**96%**	**77%**	**86%**	**127%**	**93%**
Number of vessels	34	35		26	24	24	25	22	

At-Sea and Shoreside Whiting Activities

Median **variable cost net revenue** per vessel

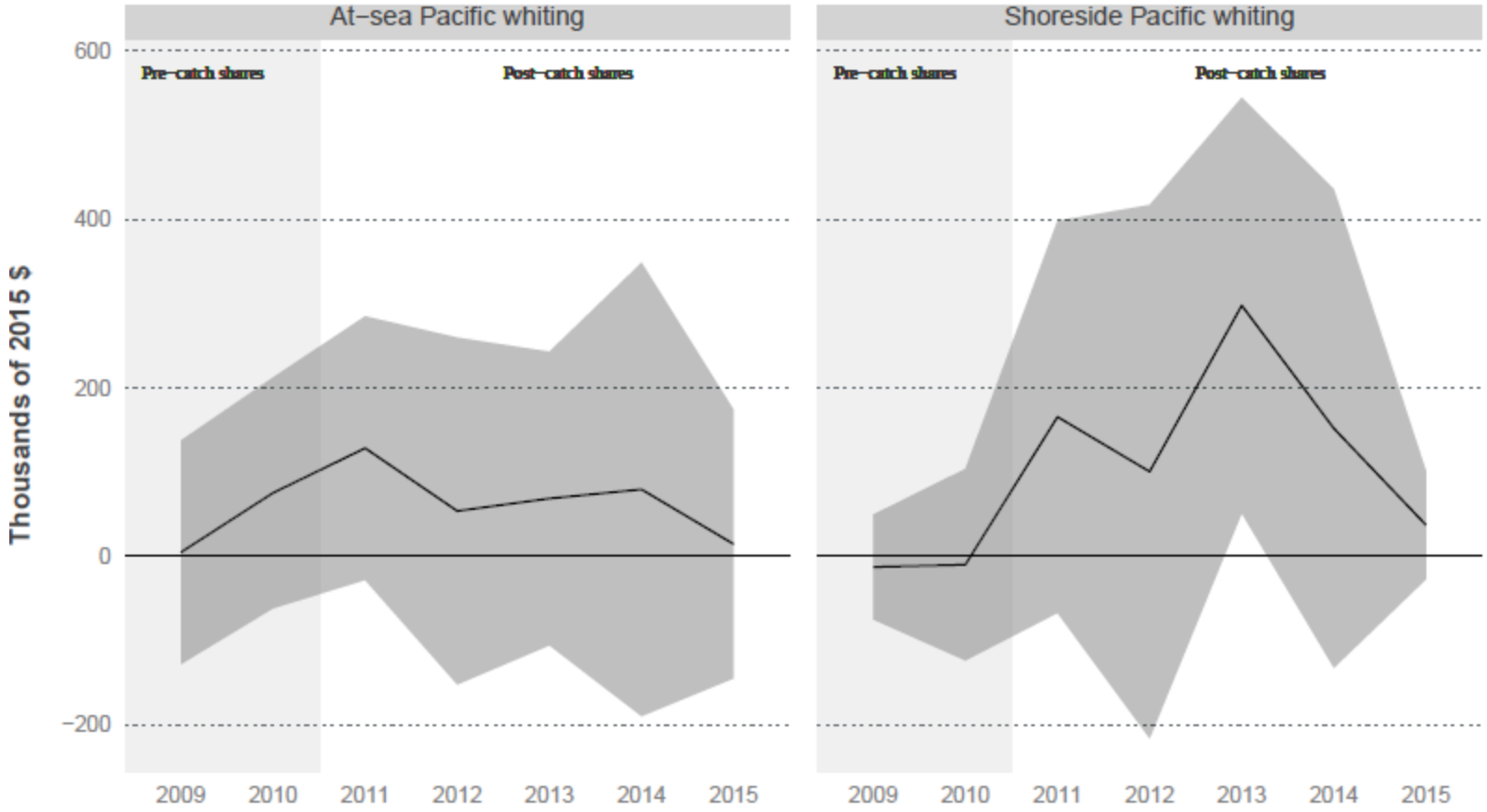


Shoreside:
Figure 3-12,
Table 3-26
Page 3-46, 3-52

At_sea:
Table 3-28
Page 3-54

At-Sea and Shoreside Whiting Activities

Median **total cost net revenue** per vessel

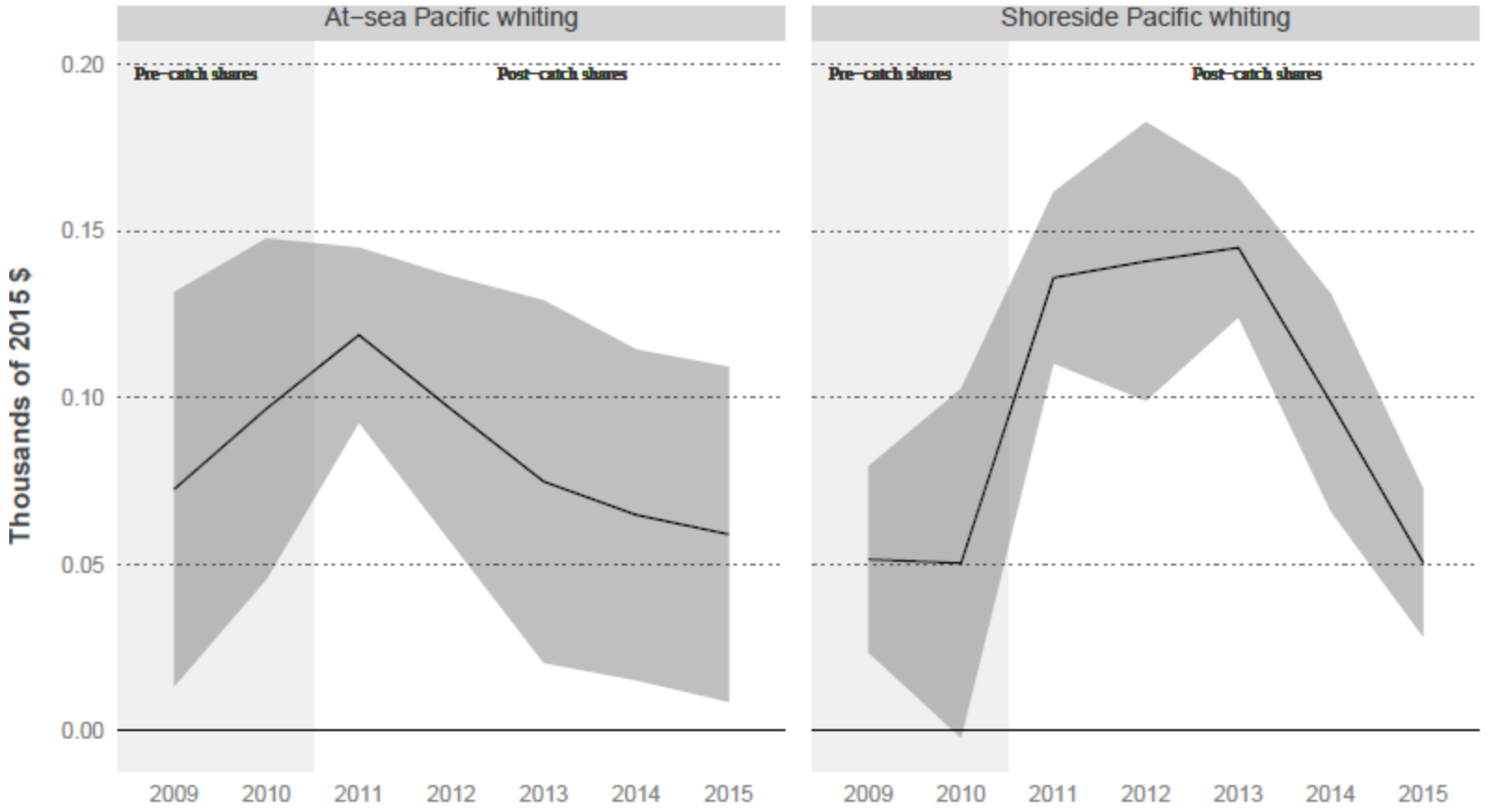


Shoreside:
Figure 3-12,
Table 3-26
Page 3-46, 3-52

At_sea:
Table 3-28
Page 3-54

At-Sea and Shoreside Whiting Activities

Median **variable cost net revenue**
per vessel,
per metric ton

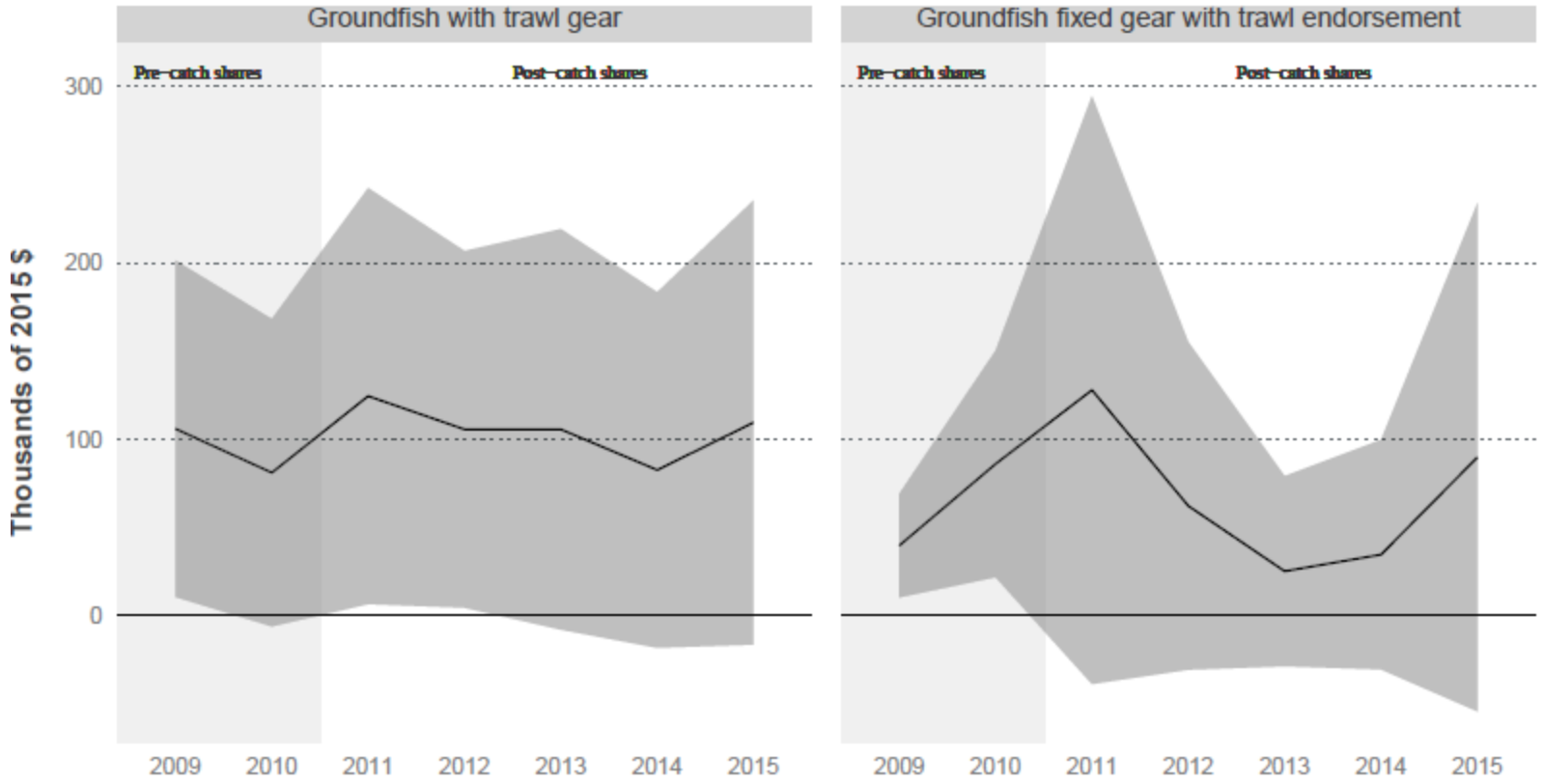


Shoreside:
Figure 3-12,
Table 3-26
Page 3-46, 3-52

At_sea:
Table 3-28
Page 3-54

Non-Whiting Trawl and Fixed Gear Activities

Median **variable cost net revenue** per vessel

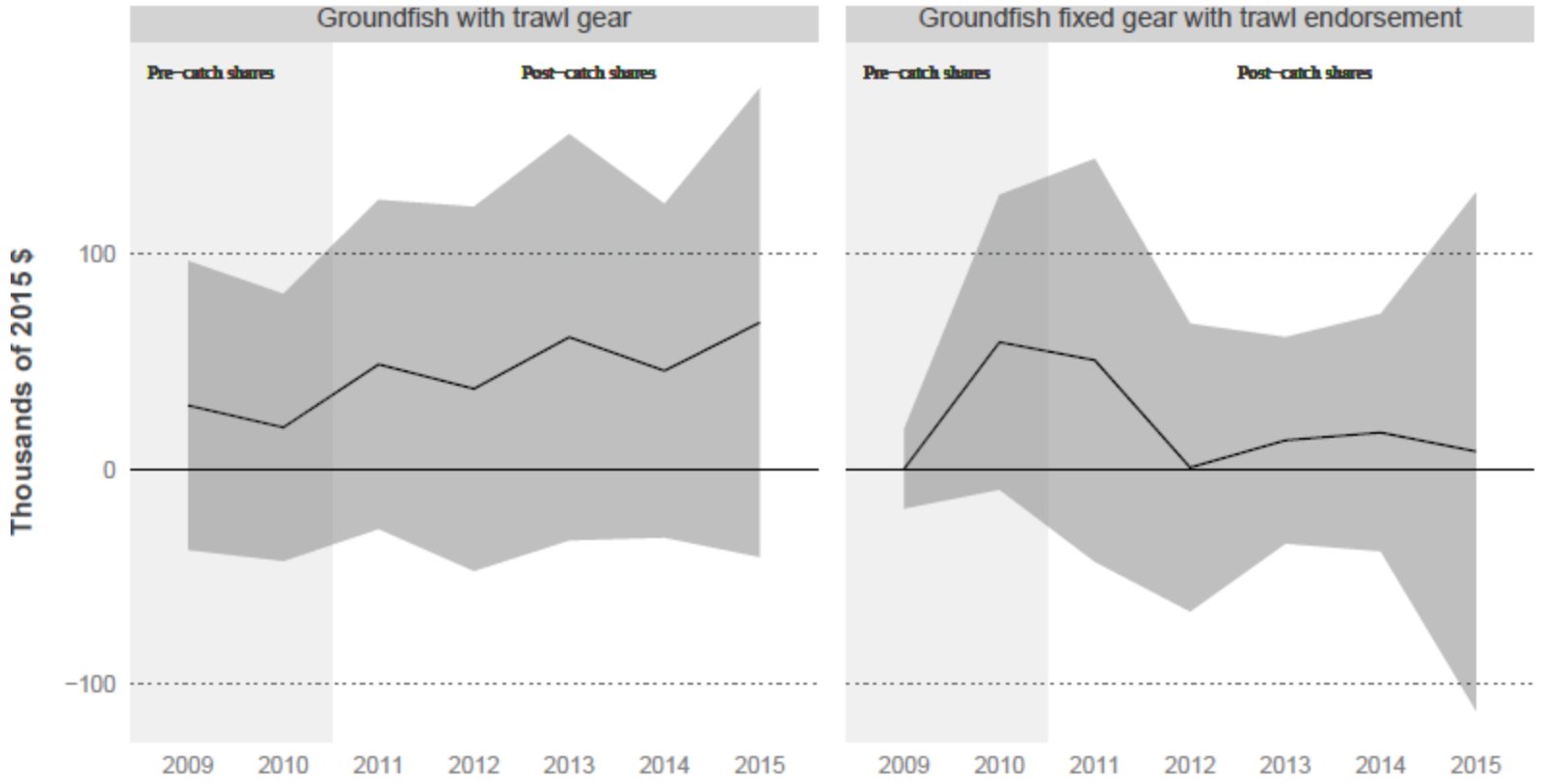


Trawl:
Table 3-30
Page 3-56

Fixed Gear:
Table 3-32
Page 3-58

Non-Whiting Trawl and Fixed Gear Activities

Median **total cost net revenue** per vessel

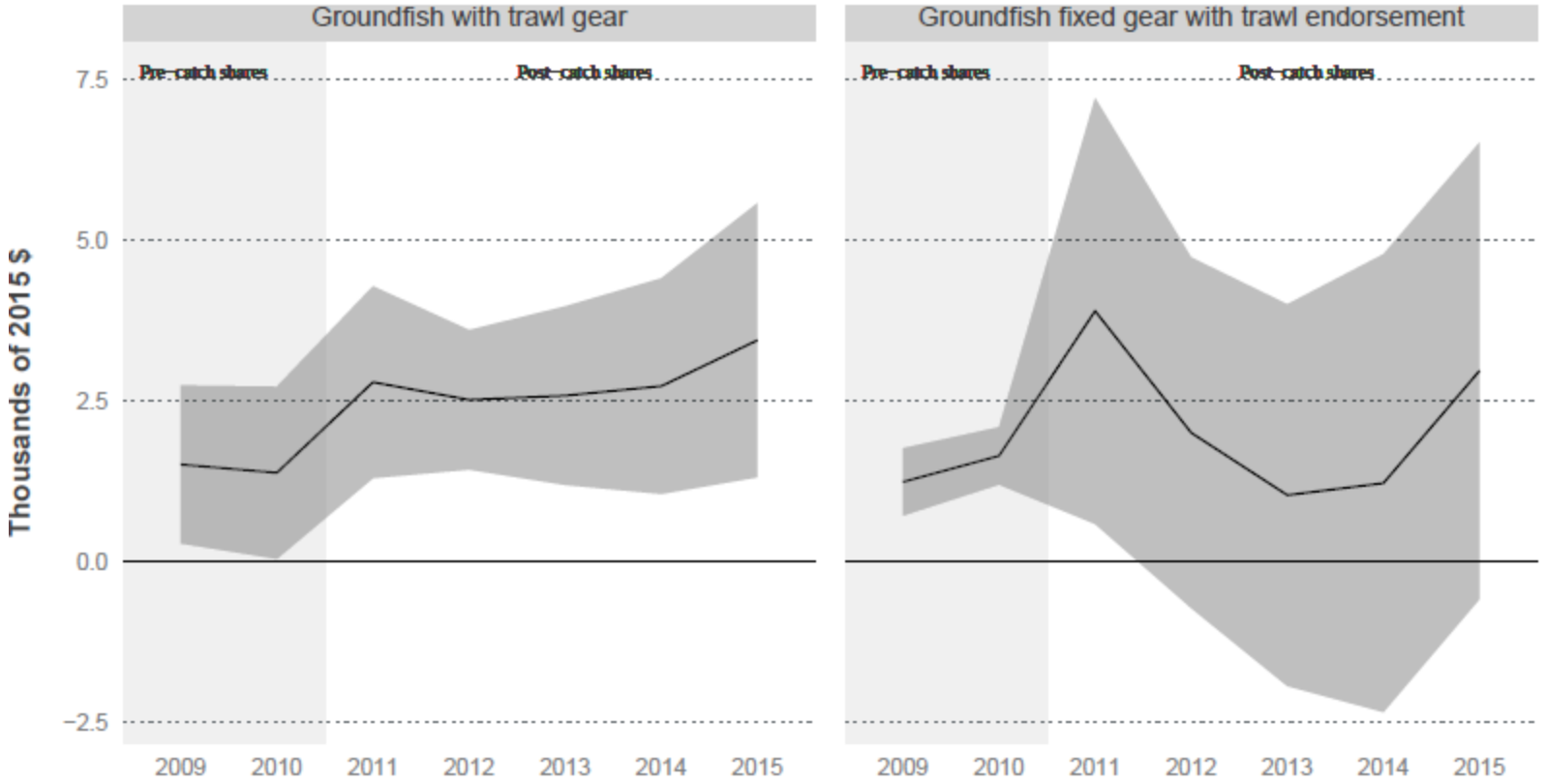


Trawl:
Table 3-30
Page 3-56

Fixed Gear:
Table 3-32
Page 3-58

Non-Whiting Trawl and Fixed Gear Activities

Median **variable cost net revenue** per vessel, per day



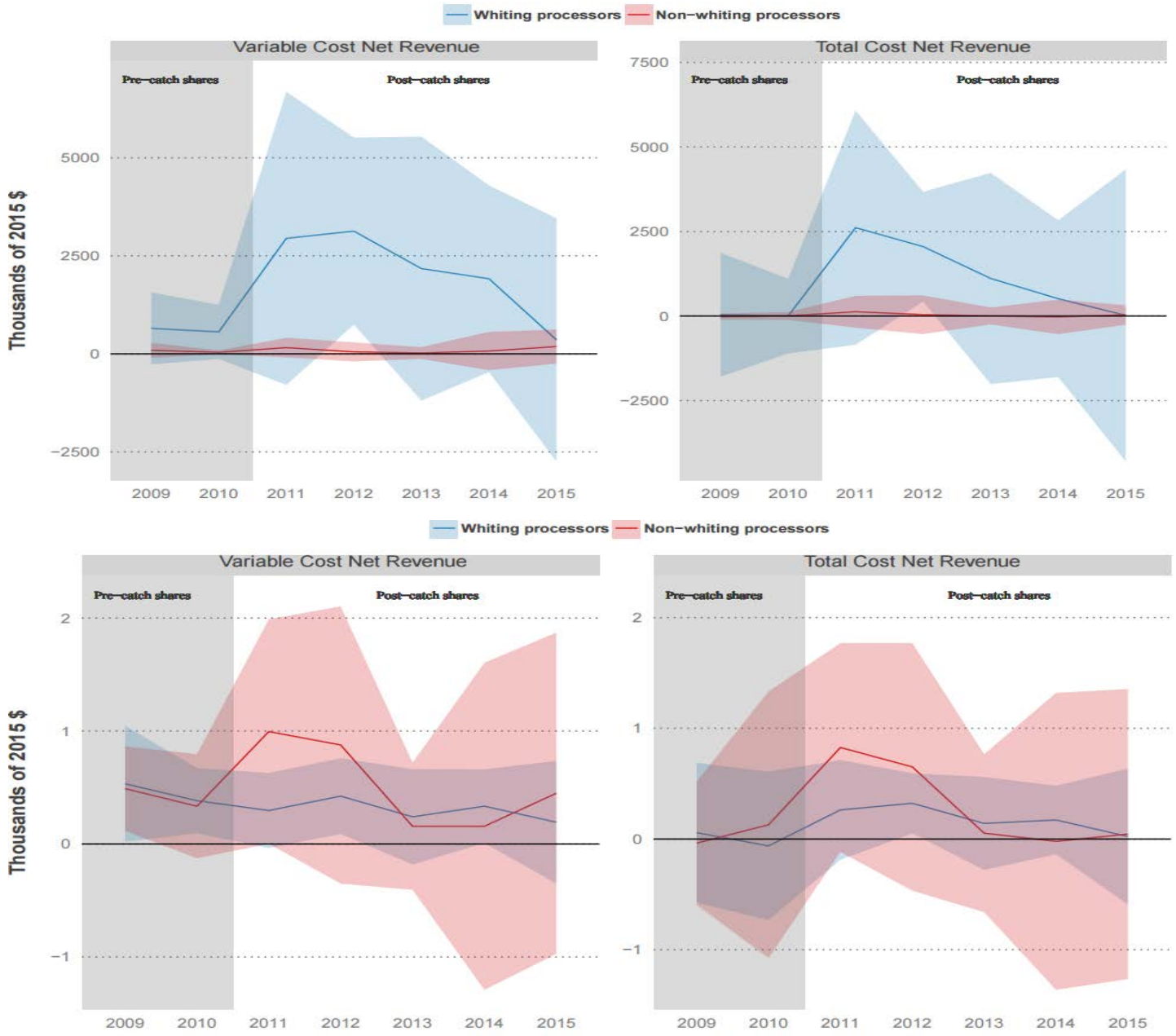
Trawl:
Table 3-30
Page 3-56

Fixed Gear:
Table 3-32
Page 3-58

Shorebased Processors

Median per Processor

Median per vessel per metric ton produced

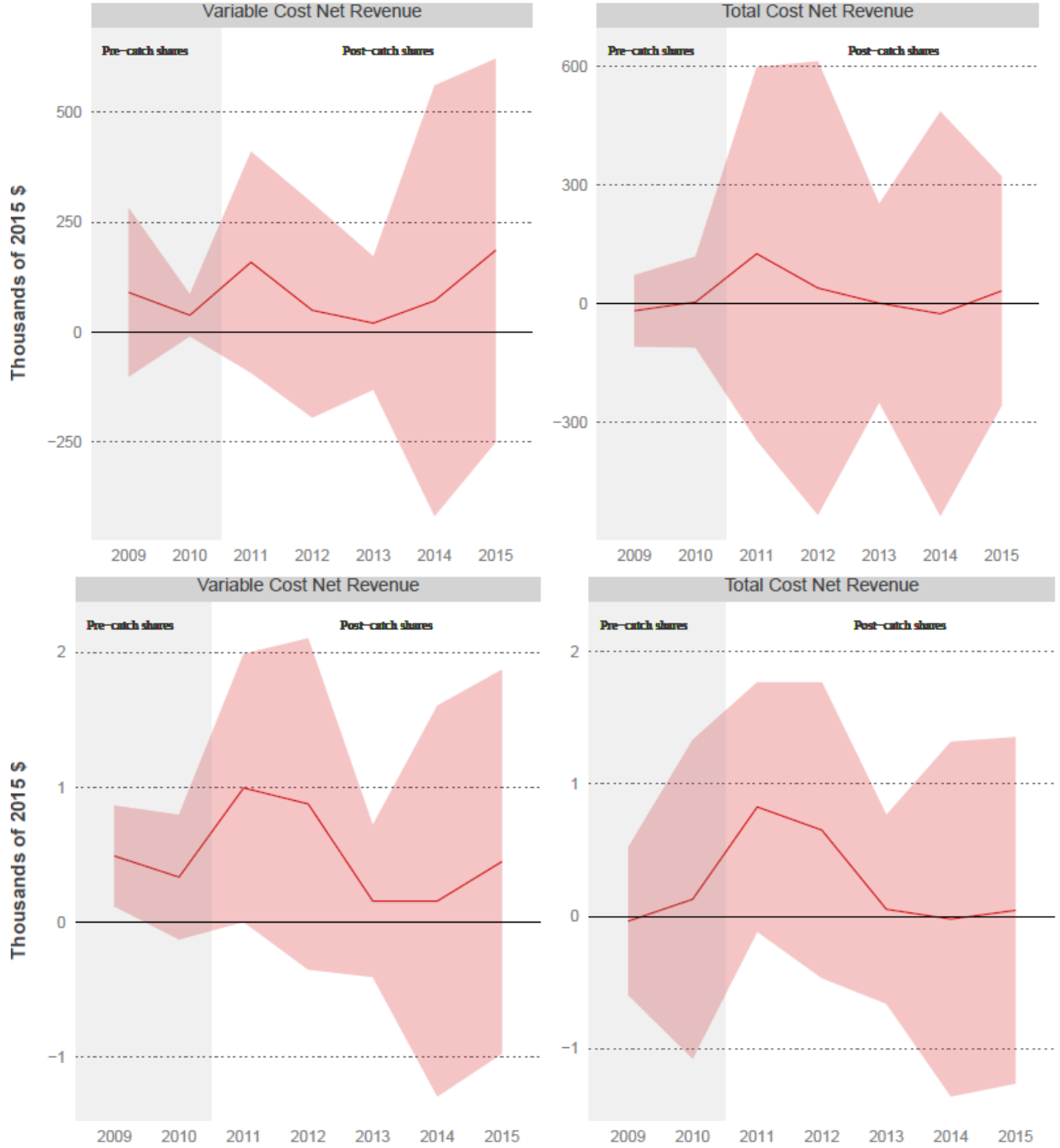


Tables 3-40, 42
Figure 3-18
Pages 3-78,80, 81

Shorebased Processors

Median per Processor

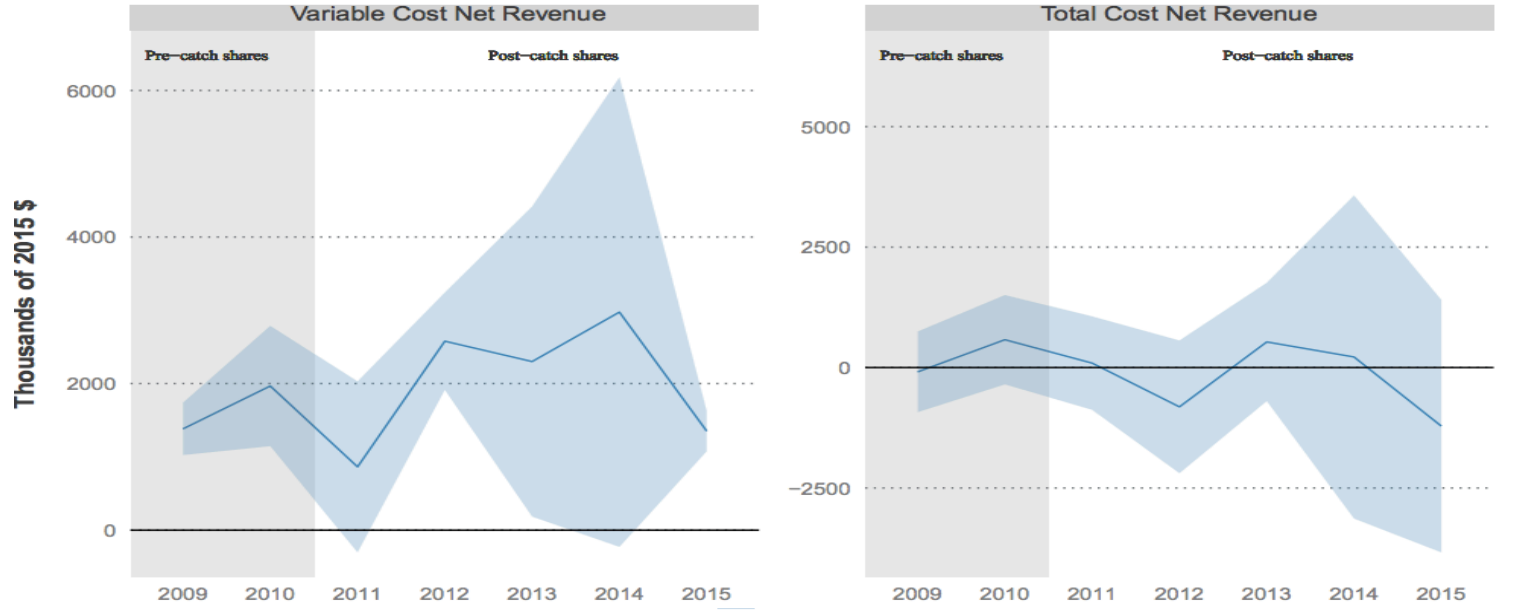
Median per vessel per metric ton produced



Tables 3-40, 42
Figure 3-18
Pages 3-78,80, 81

Motherships

Median per vessel



Median per vessel per metric ton produced

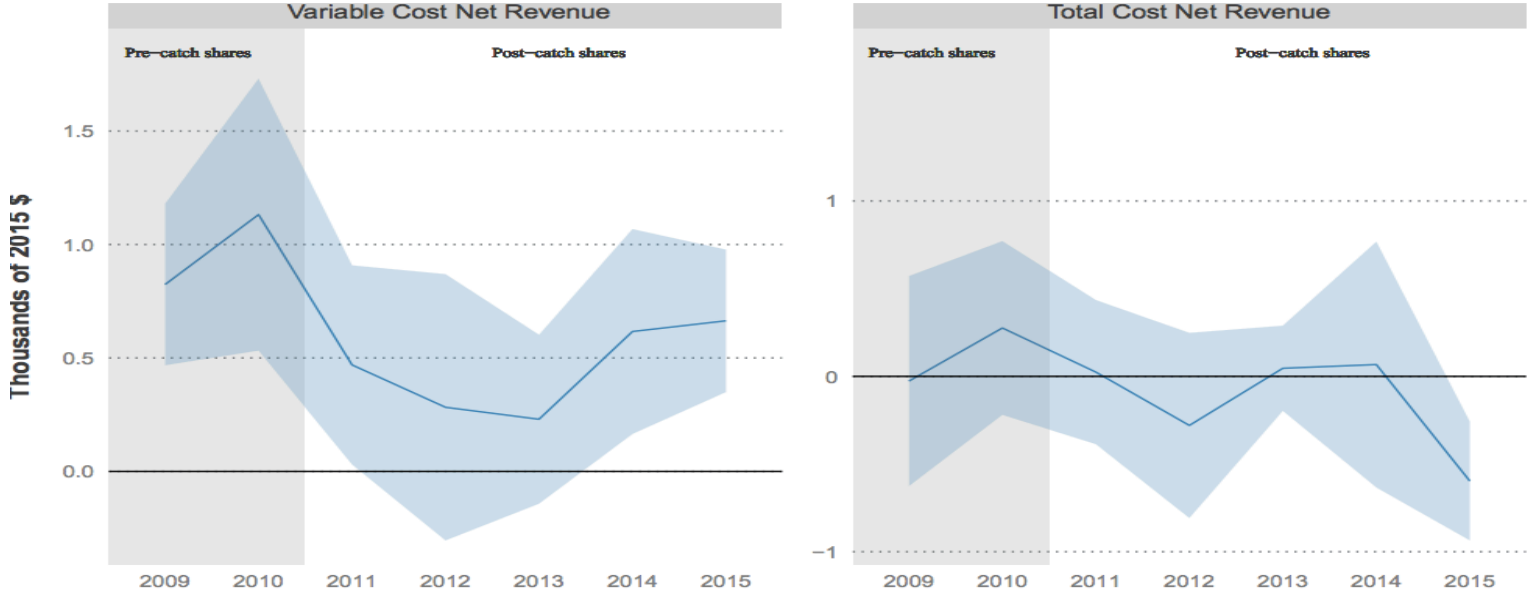
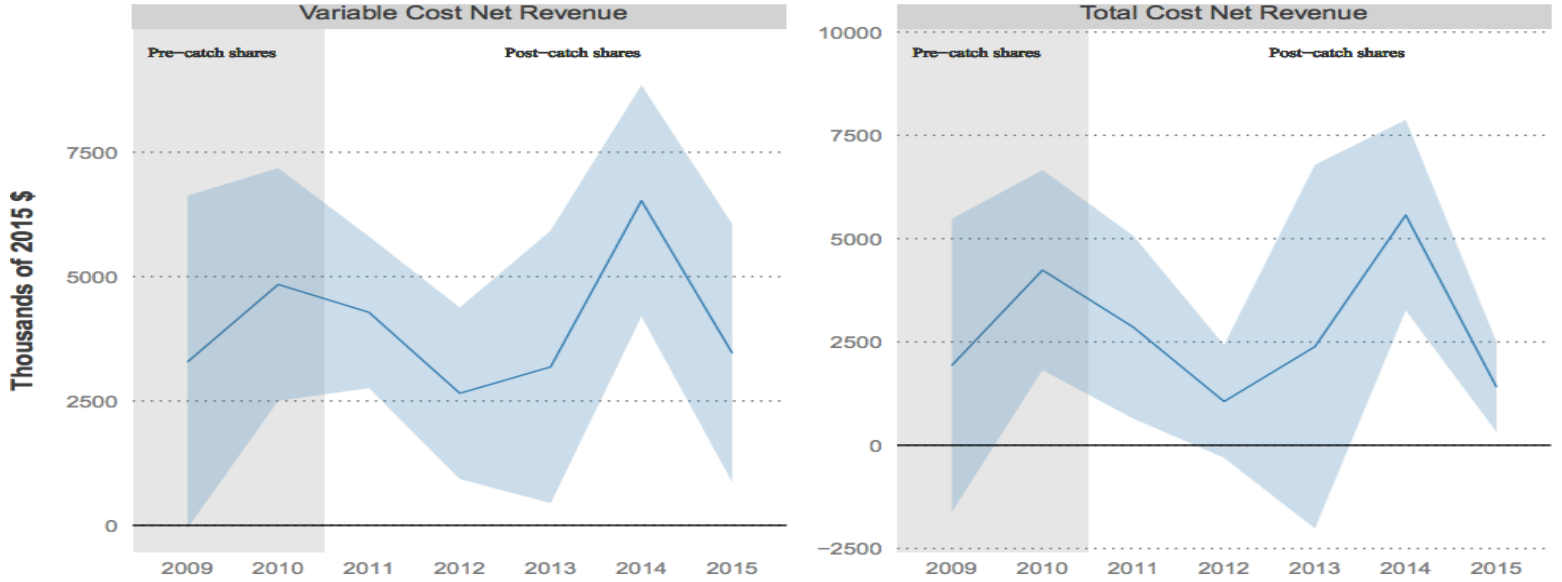


Table 3-36,
Figure 3-16
Pages 3-69-70

Catcher-Processors

Median per vessel



Median per vessel per metric ton

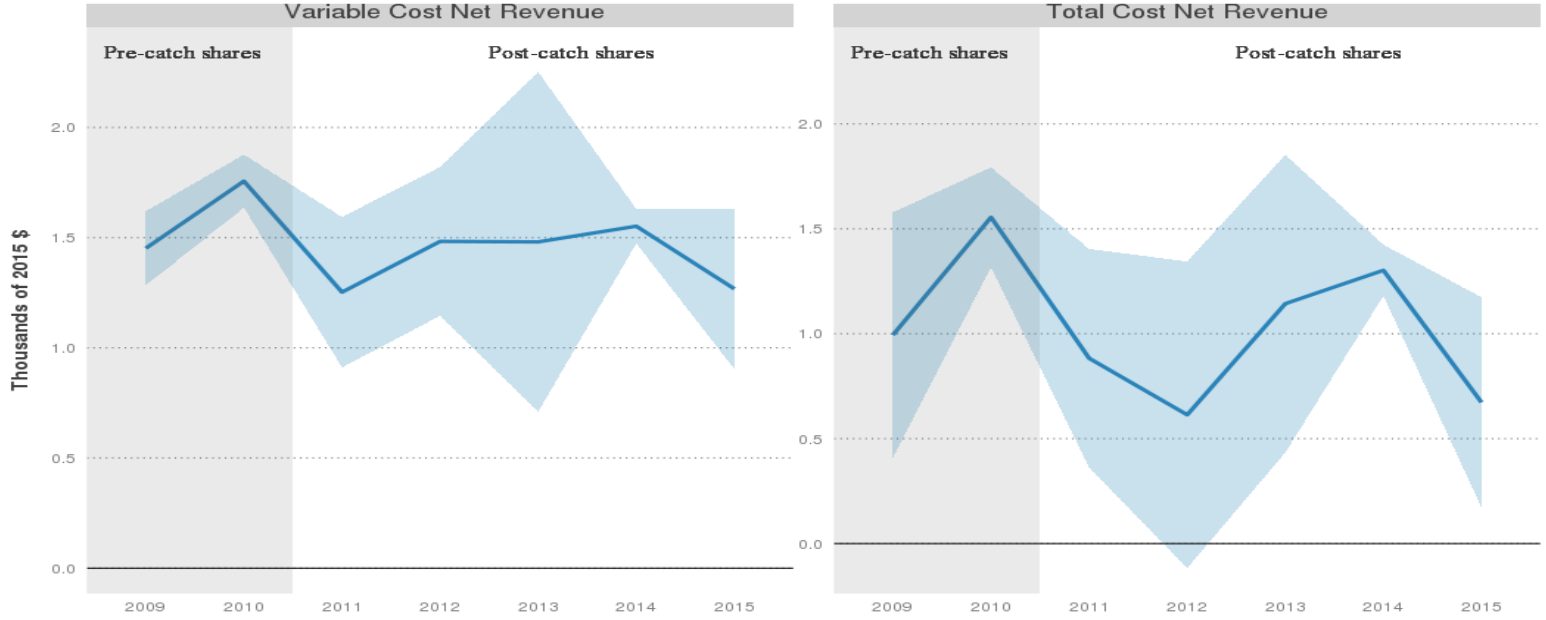


Table 3-38,
Figure 3-17
Pages 3-73-4

Distribution of costs

- Table 3-34

https://dataexplorer.northwestscience.fisheries.noaa.gov/fisheye/Costs/

FINANCIAL OUTCOMES
CREW AND PRODUCTION WORKERS

Daily and Annual Wages for Crew

- **Whiting vessels:** Increased 83% and 118% (excl. 2015)
- **Non-whiting vessels:** Increased by 63% and 24%
- **Motherships:** Only annual wages increased for processing and non-processing crew
- **Catcher-Processors:** Processing crew decreased 23 and 20%
- PCGFSS results on compensation satisfaction agrees with results; In 2010, 64% of crew interviewed rated compensation as "excellent" or "good", in 2015 this increased to 76%

Shorebased processor employees

- **Non-production employees: hourly** wages have increased
- **Production employees: hourly** wages have stayed the same
- Mean number of processing employees per facility has increased in most months

Tables 3-49-53
Pages 3-92-97

DISTRIBUTIONAL OUTCOMES

DID THE DISTRIBUTION OF COST, REVENUES, EFFORT, AND NET BENEFITS AMONG FISHERY PARTICIPANTS (INCLUDING COMMUNITIES AND USER GROUPS) CHANGE?

DISTRIBUTIONAL OUTCOMES
CATCHER VESSELS

- 53% experienced an increase in annual variable cost net revenue
- Average vessel experienced a 60% increase in variable cost net revenue

DISTRIBUTIONAL OUTCOMES
CATCHER VESSELS

- 53% experienced an increase in annual variable cost net revenue
- Average vessel experienced a 60% increase in variable cost net revenue
- BUT proportion of vessels with negative variable cost net revenue increased:
  - Non-whiting vessels (red): From 7% to 11%
  - Whiting vessels (blue): From 2% to 5%

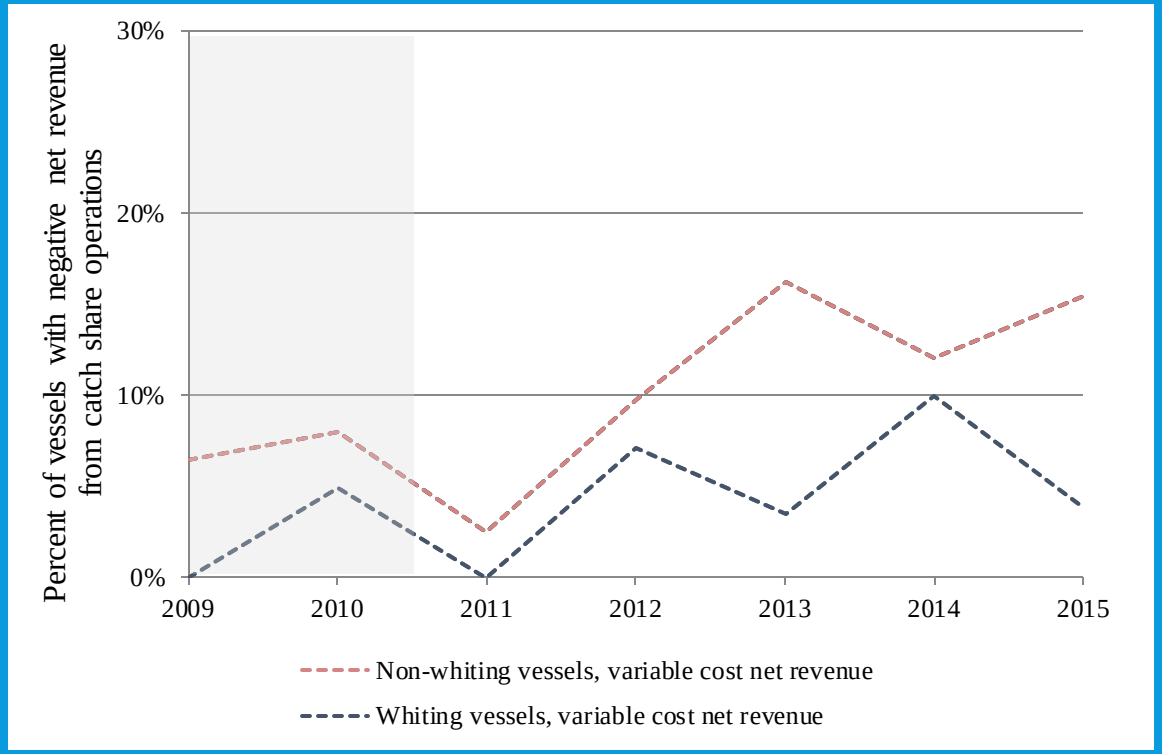


Figure 3-13
Page 3-47

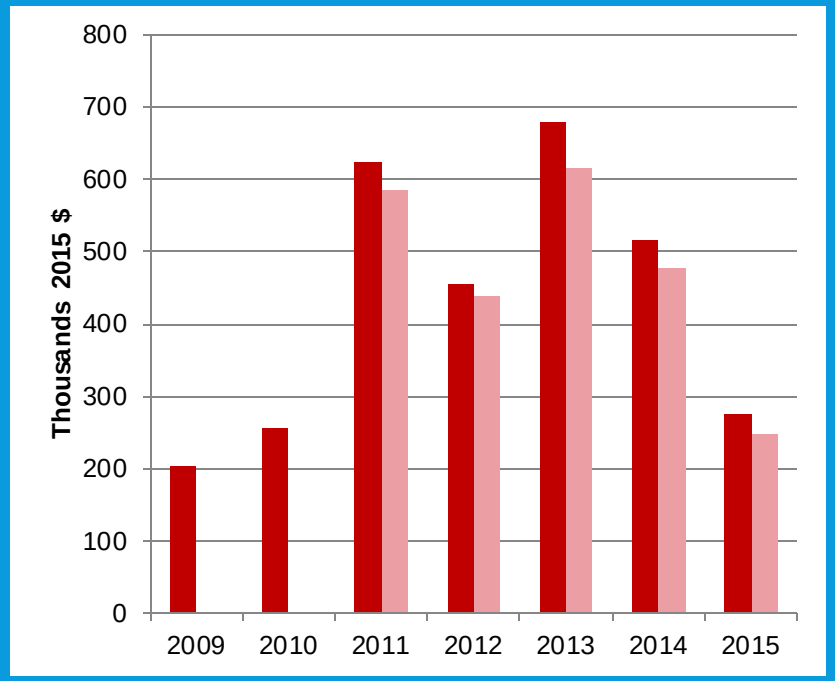
DISTRIBUTIONAL OUTCOMES
QUOTA LEASING ACTIVITY AND NET REVENUE

- SSC advised use of net revenue including quota costs and revenue as "lower bound"
- Quota revenues are under-reported because the EDC survey is not designed to collect data from quota share owners that are not directly involved with an actively participating vessel (meaning they consider themselves the same business)

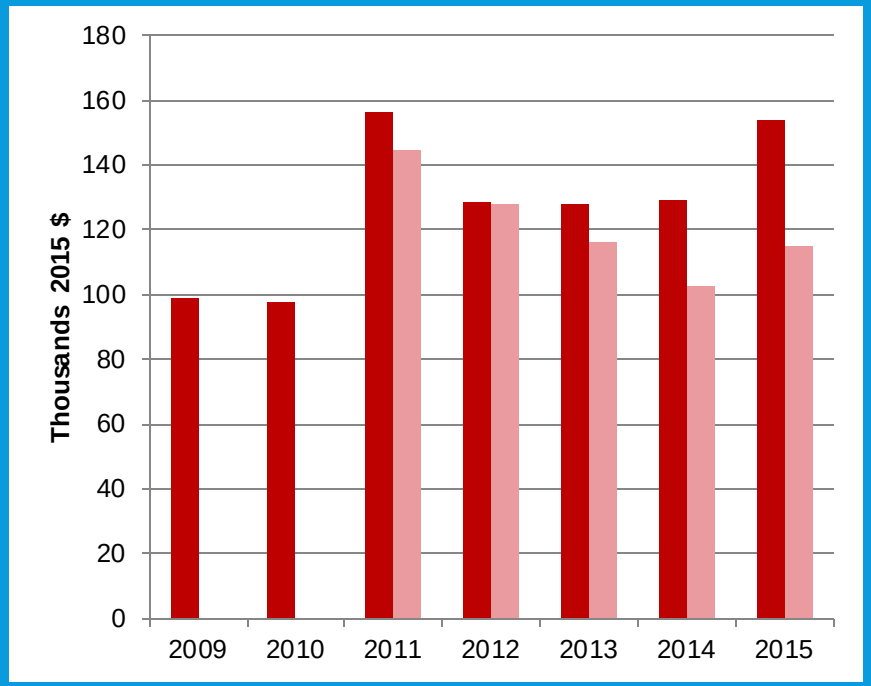
DISTRIBUTIONAL OUTCOMES
QUOTA USE- CATCHER VESSELS

Variable Cost Net Revenue With and Without Quota (2011-2015):

Whiting catcher vessels: 4% to 10% percent lower



Non-whiting catcher vessels: 0.5% to 25% lower



Tables 3-44,45
Page 3-85

DISTRIBUTIONAL OUTCOMES
QUOTA USE- SHOREBASED PROCESSORS

- 20% percent of the initial shoreside Pacific whiting quota allocation was given to eligible shorebased processors.
- Whiting processors quota share ownership has increased from 20% to 23% in 2016.
- There is evidence that shorebased processors use their quota to support bargaining relationships with vessels to secure deliveries

Table 3-47
Page 3-88

DISTRIBUTIONAL OUTCOMES

COMMUNITIES- Port Areas

Number of Buyers- Shoreside whiting

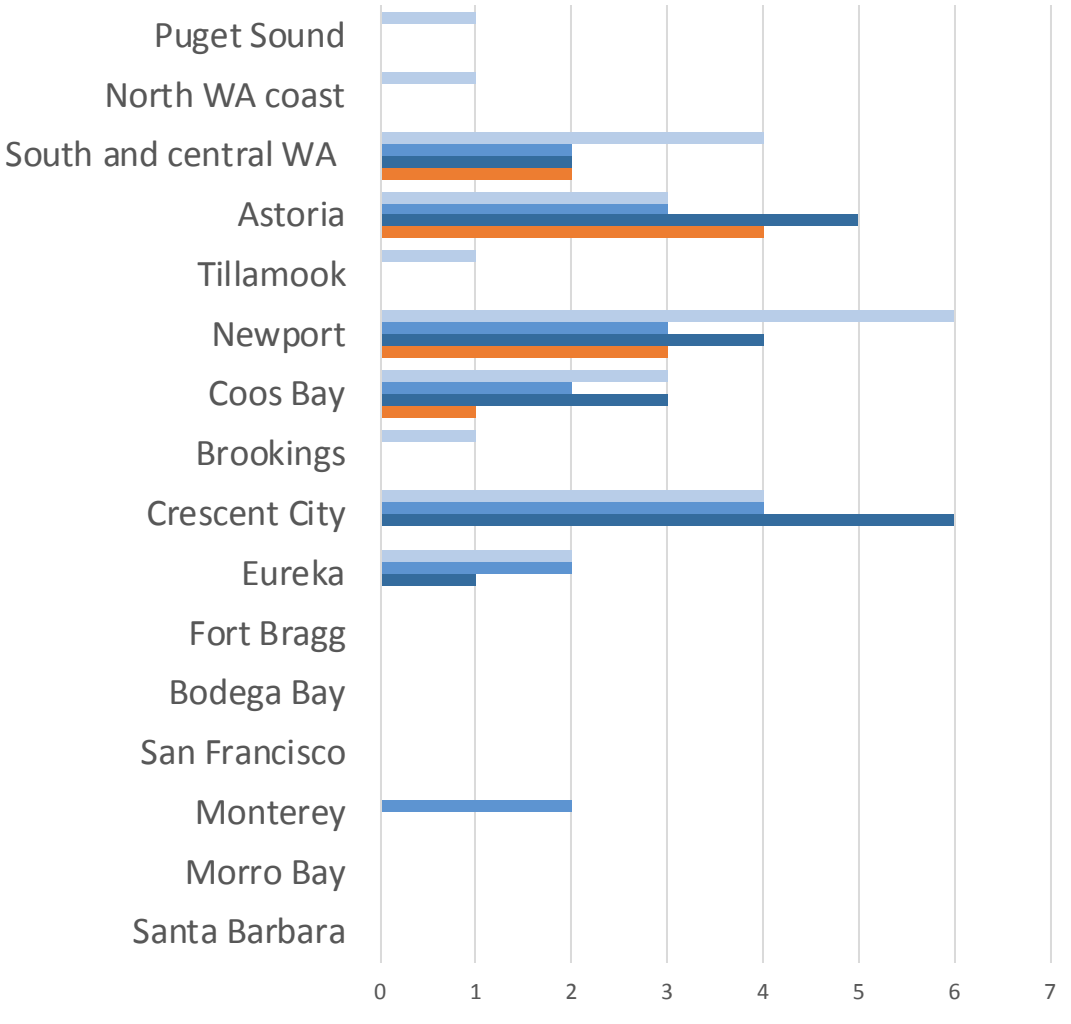
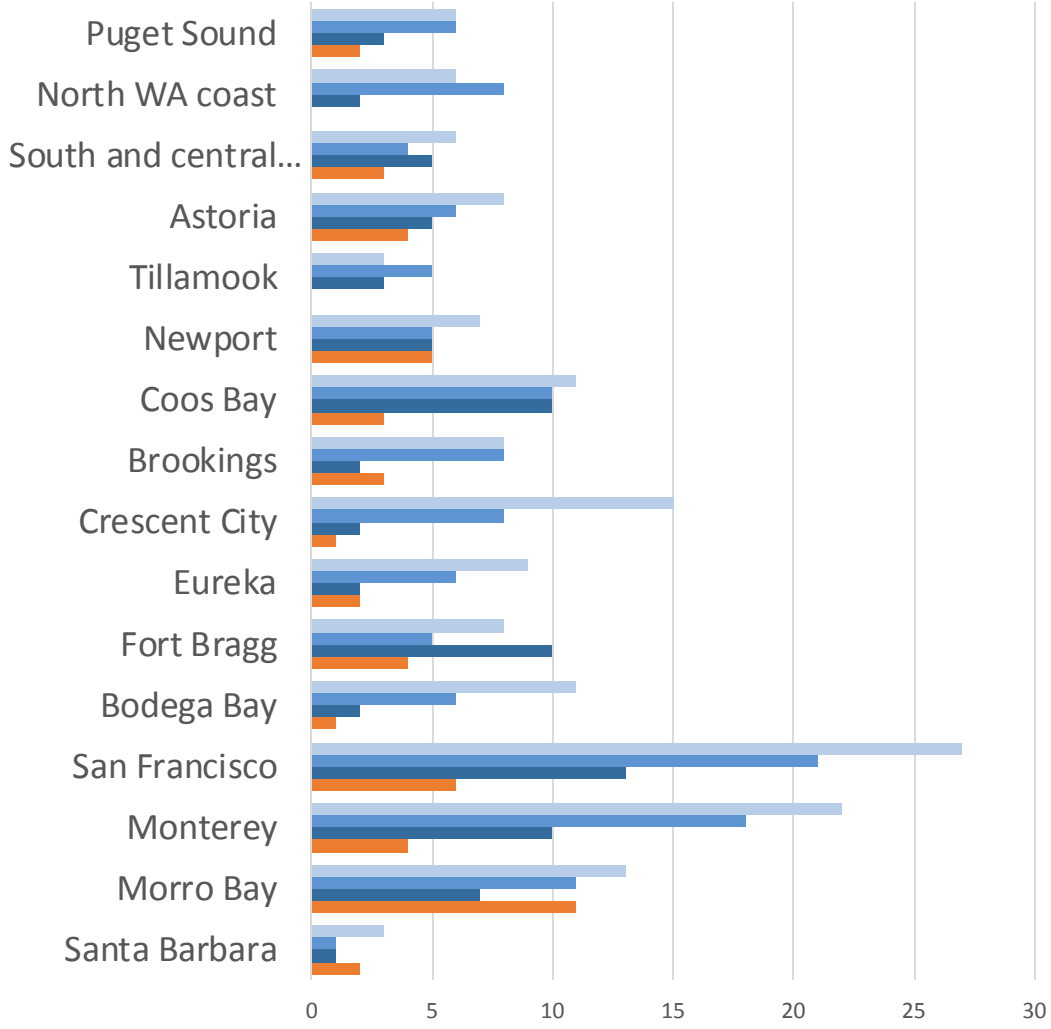


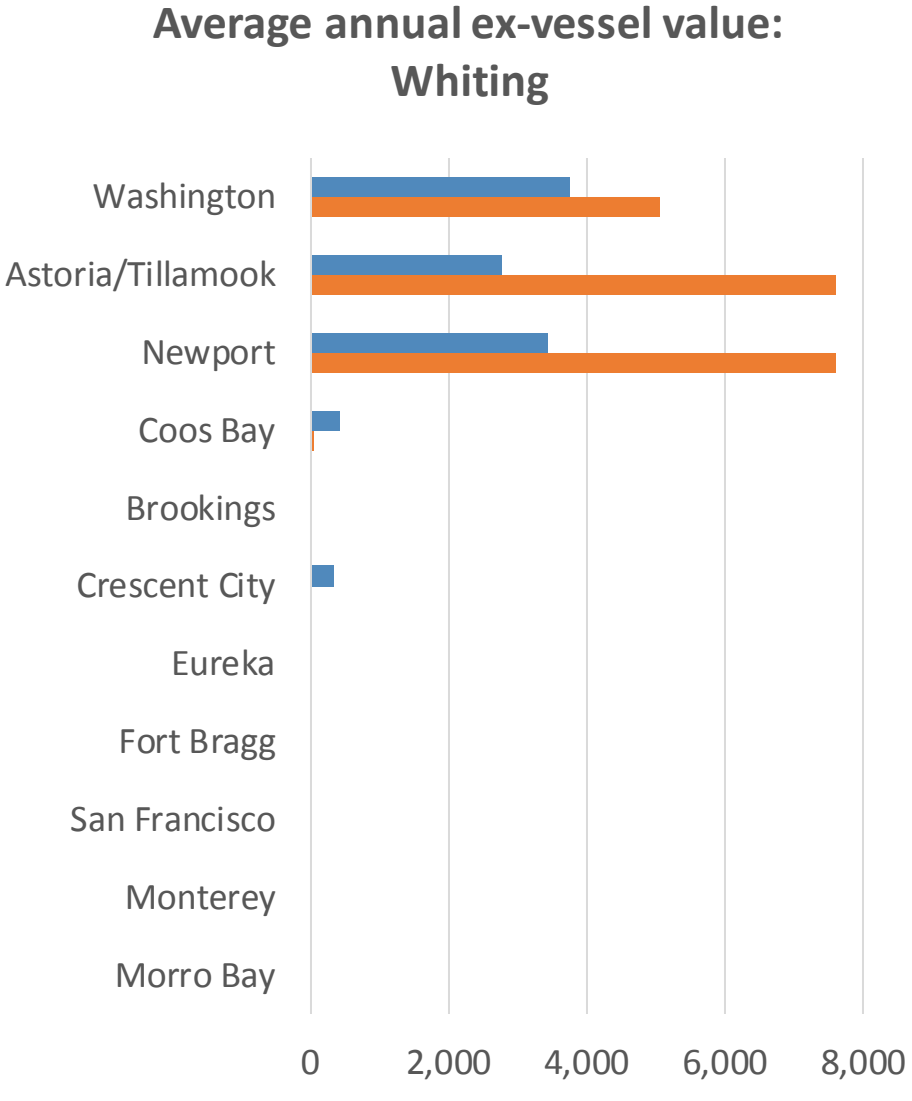
Table 3-103, Page 3-217

Number of Buyers- Non-whiting Trawl



DISTRIBUTIONAL OUTCOMES

COMMUNITIES- Port Areas



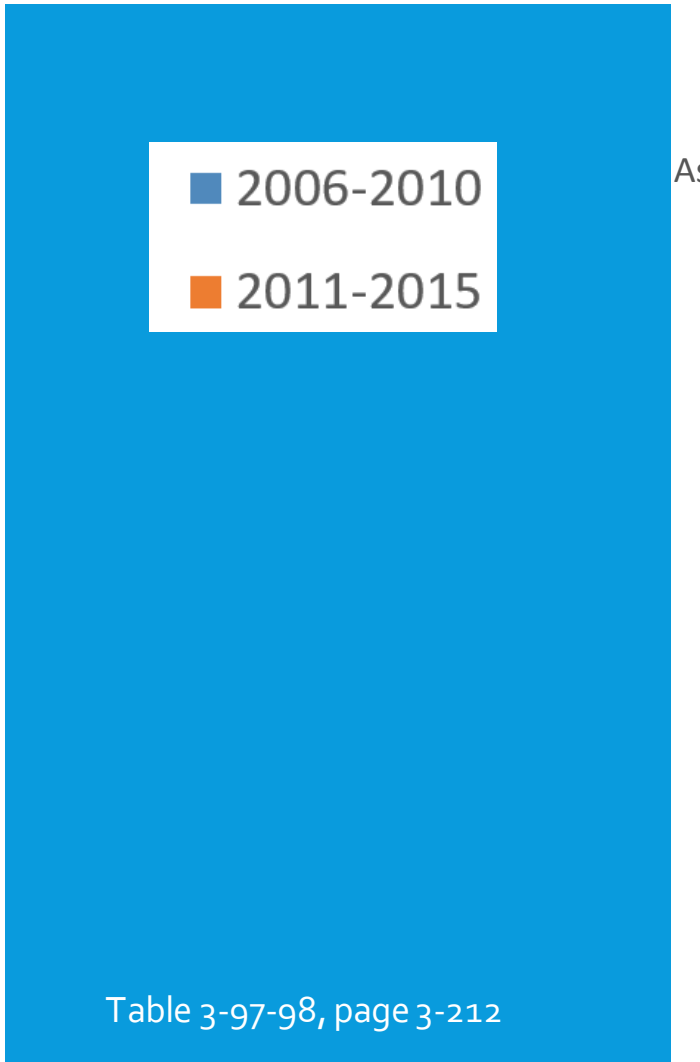
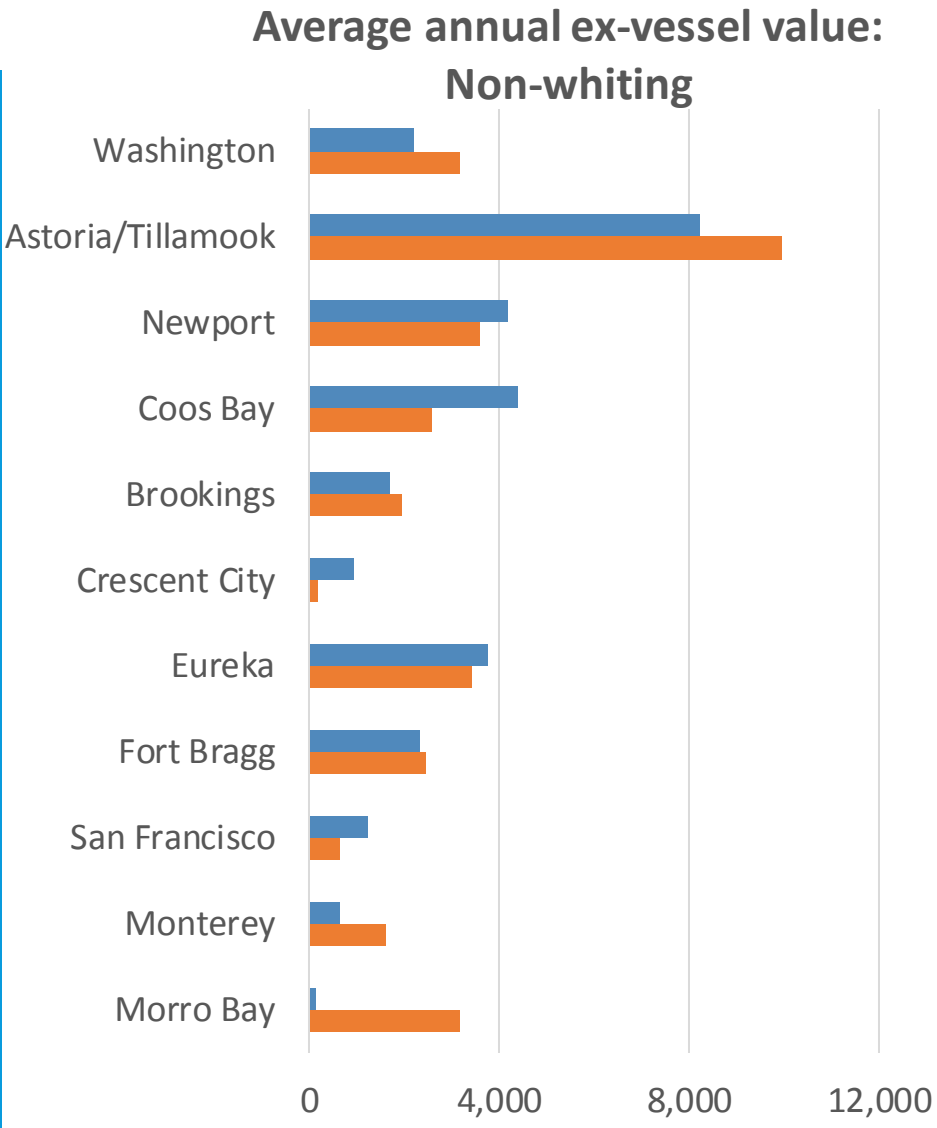


Table 3-97-98, page 3-212



DISTRIBUTIONAL OUTCOMES
COMMUNITIES

Fishing Engagement:

- Decrease in Coos Bay and Crescent City
- Increase in Ilwaco

Fishing Infrastructure:

- 46% of interviews contained some discussion of infrastructure

- Percentage discussing infrastructure losses:
  - Washington: 15%
  - Oregon: 20%
  - California: 27%

- 21% of Newport respondents spoke about increases or no change in infrastructure.

Engagement: Table 3-118, Page 3-242-4
Infrastructure: Page 3-257-8

DISTRIBUTIONAL OUTCOMES
MANAGEMENT COSTS AND CONCERNS

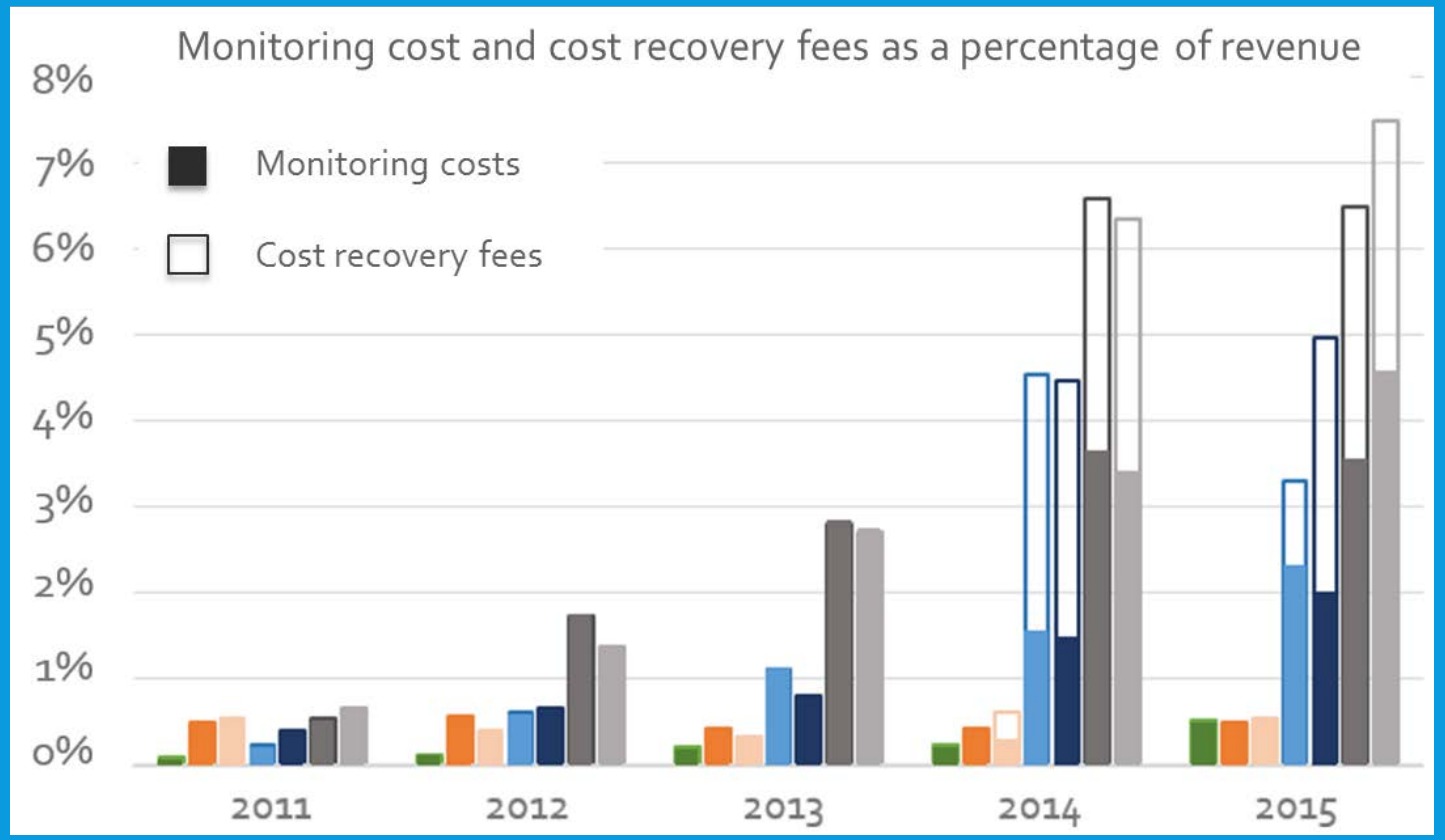
Monitoring costs:

Federal subsidy for observers and catch monitors in 2011-2015 ($328-$108 per day) ended in 2016.

Cost recovery:

Varies by fleet and began being collected in 2014.

- First receivers and shorebased processors
- Motherships
- Catcher-processors
- At-sea whiting
- Shoreside whiting
- Non-whiting fixed gear
- Non-whiting trawl



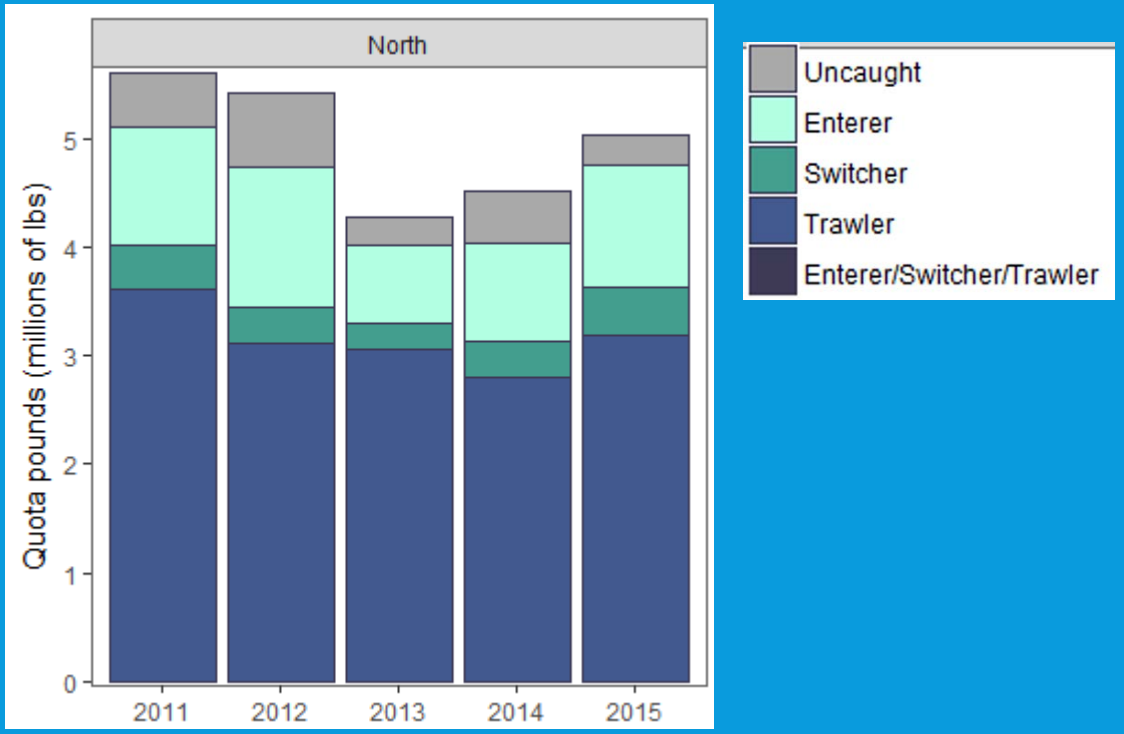
Tables 3-25, 27, 29, 31, 35, 37
Pages 3-51 - 3-72

DISTRIBUTIONAL OUTCOMES
GEAR SWITCHING

- Gear-switching provision: Allow more flexibility, fewer habitat impacts, and have minimal bycatch
- Higher ex-vessel sablefish price when caught with fixed gear

Section 3.1.2(d)(6)
Page 3-130

DISTRIBUTIONAL OUTCOMES
GEAR SWITCHING

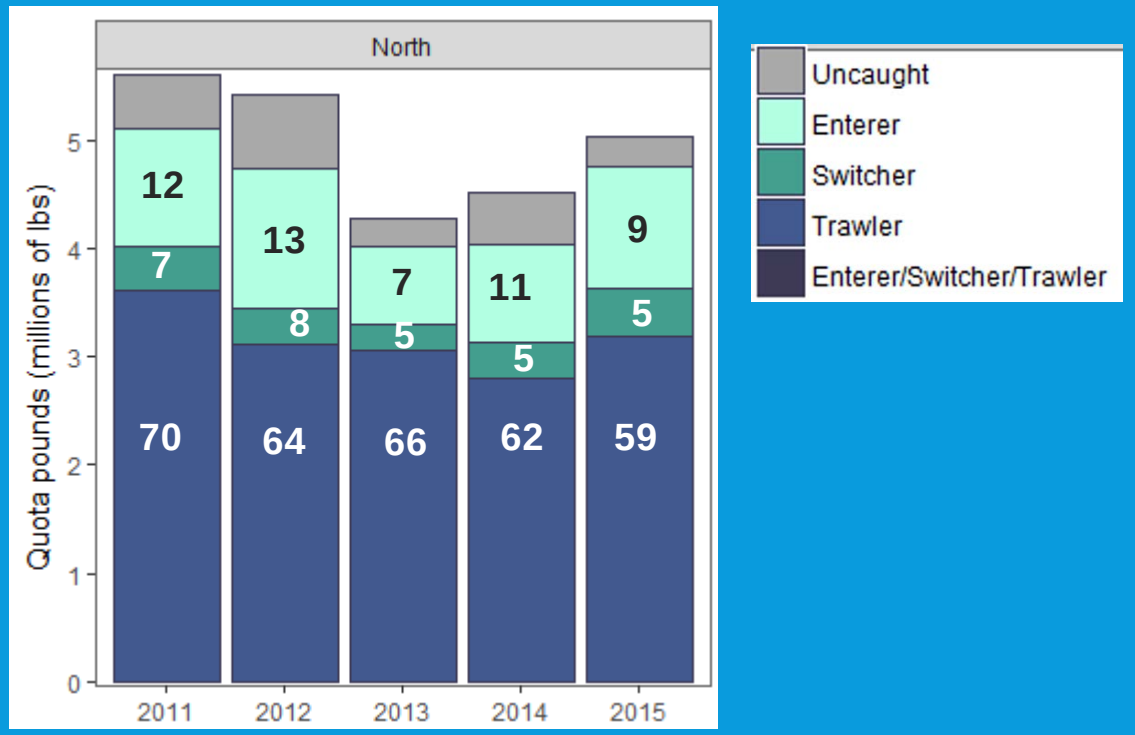


Utilization of Northern Sablefish Quota, on average (91%)

- Gear switchers: 7%
- Enterers: 21%
- Trawl gear: 64%

Figure 3-37
Page 3-134

DISTRIBUTIONAL OUTCOMES
GEAR SWITCHING

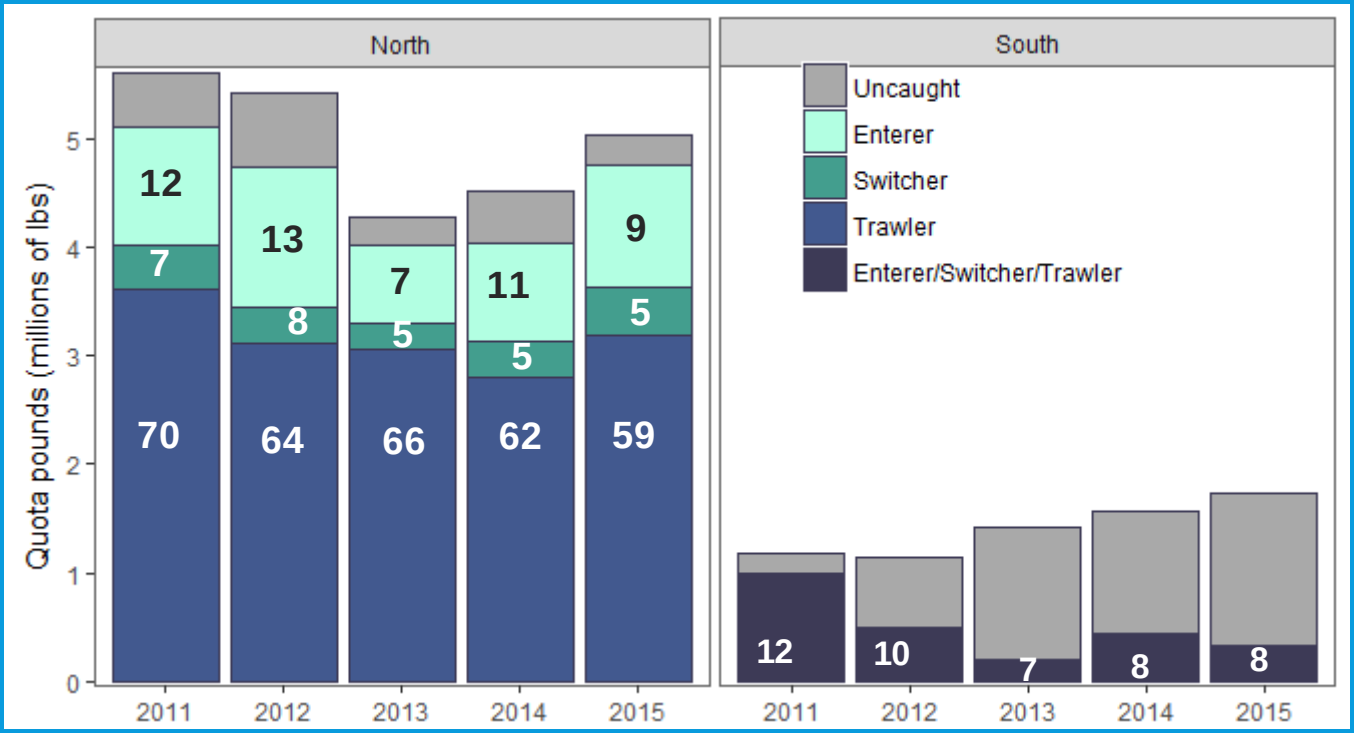


Gear switching

- Average of 16 gear-switching vessels each year.
- Six "switched" from trawl, on average (including EFP vessels)

Figure 3-37
Table 3-69
Page 3-133-4

DISTRIBUTIONAL OUTCOMES
GEAR SWITCHING



Quota shares were allocated separately for northern and southern sablefish.

On Average 2011-2015

- Northern sablefish utilization- 91% on average
- Southern sablefish utilization- 19% in 2015 (37% overall)

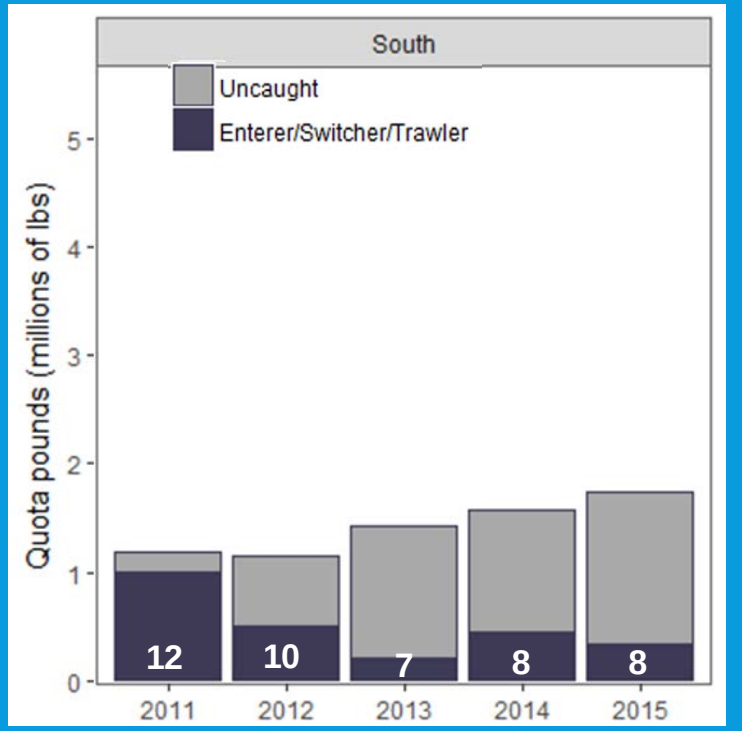
Figure 3-37
Table 3-69
Page 3-133-4

DISTRIBUTIONAL OUTCOMES
GEAR SWITCHING

Conflicts reported between gear switchers and the hook and line/pot fisheries

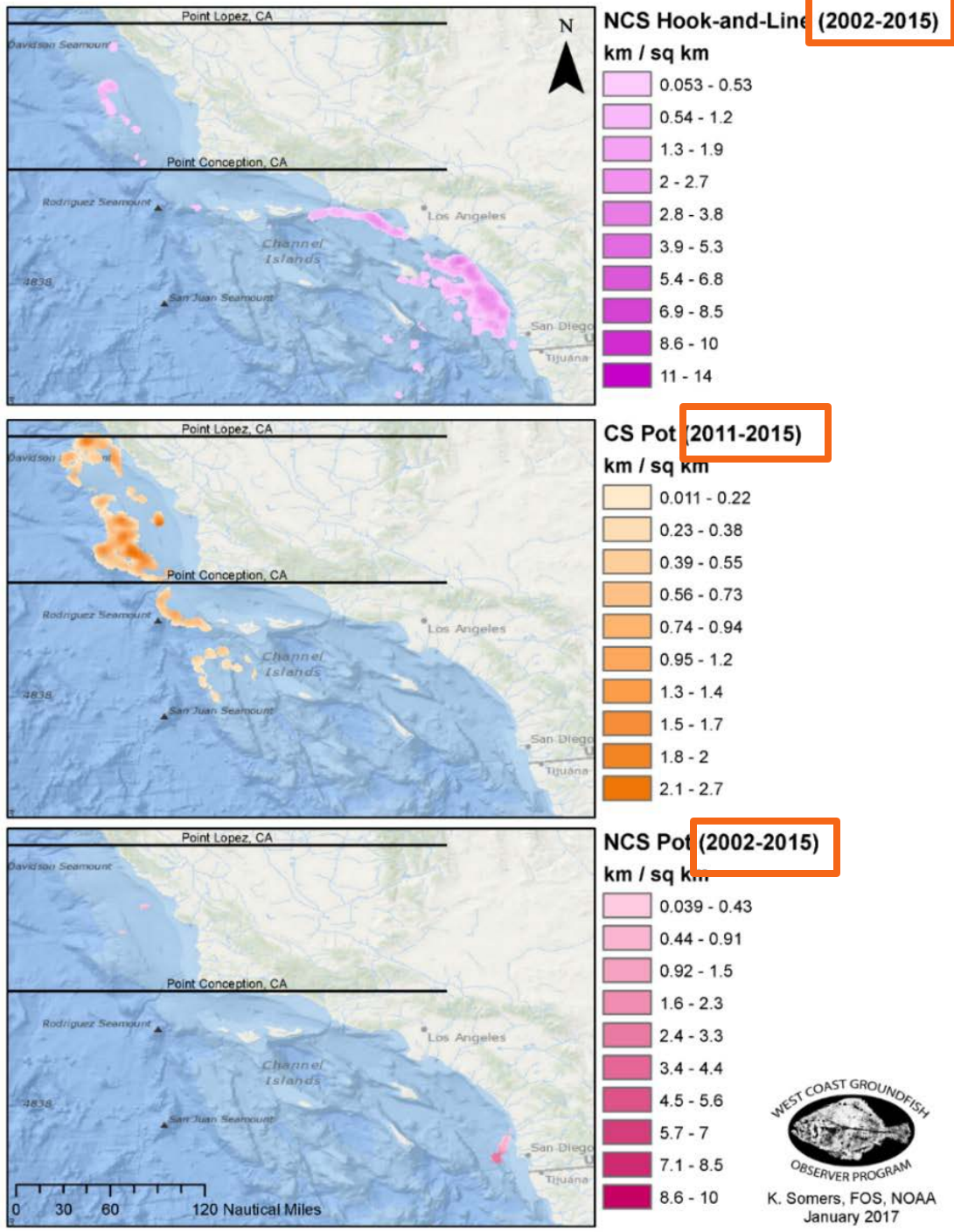
Potential Spatial Overlap:

- North of 34°27’ N: 65% overlap with non-IFQ hook and line observations
- South of 34°27’ N: Less than 1% of observed non-IFQ hauls overlapped with IFQ haul locations



- **Important caveat is low observer coverage in the non-IFQ fisheries**

Left: Figure 3-37 , Table 3-69, Page 3-134
Right: Figure 3-103, Page 3-357



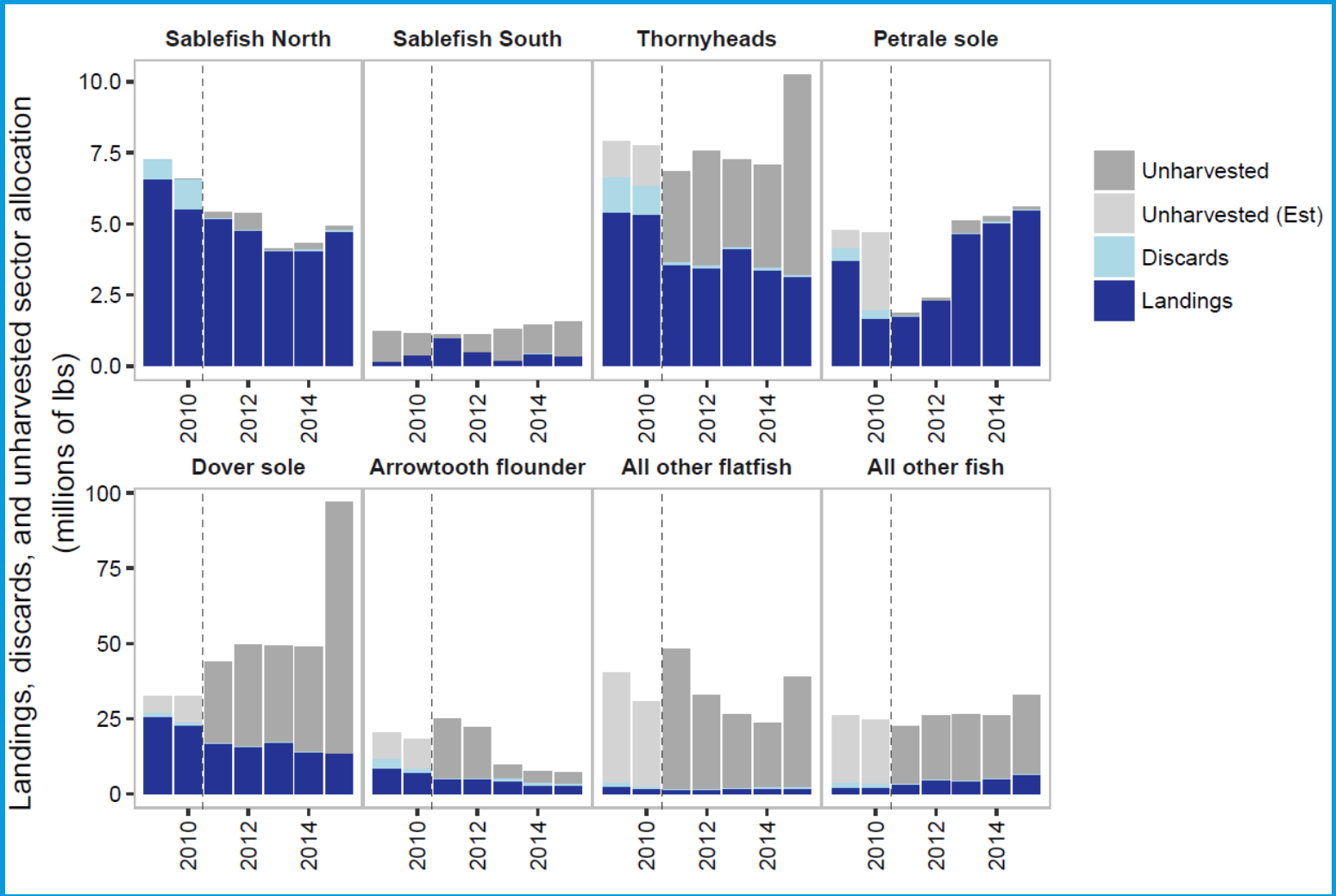
WEST COAST GROUNDFISH OBSERVER PROGRAM

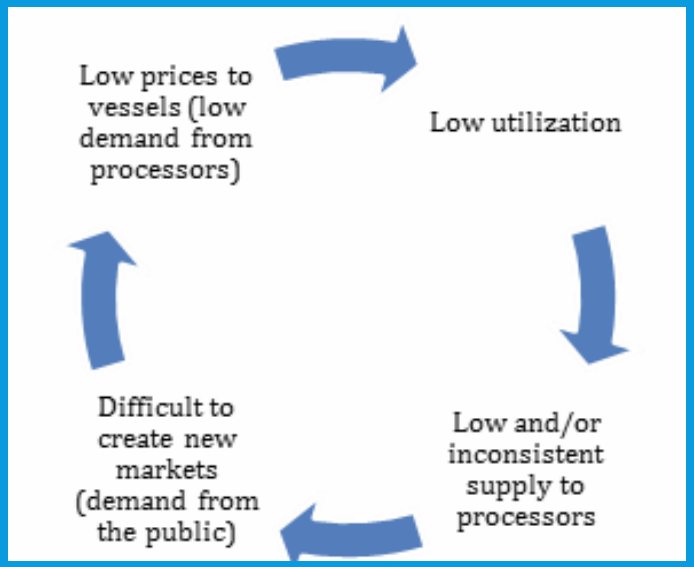
K. Somers, FOS, NOAA
January 2017

UTILIZATION

DID UTILIZATION RATES FOR SPECIFIC SPECIES CHANGE FOLLOWING CATCH SHARE PROGRAM IMPLEMENTATION?

UTILIZATION
NON-WHITING





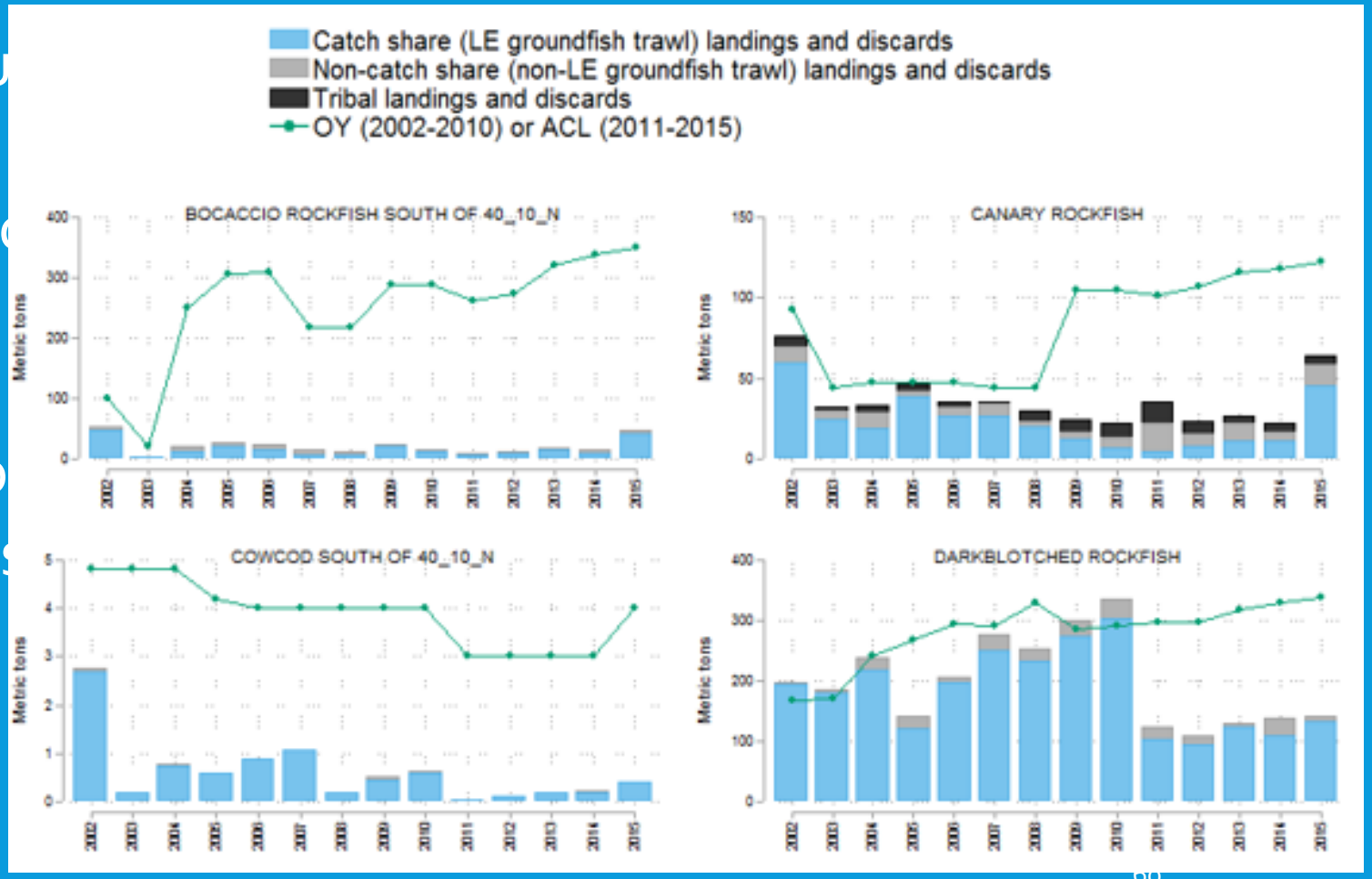
Left: Figure 3-38 , Page 3-138 see also Appendix B
Right: Figure 3-39, Page 3-141

UTILIZATION
NON-WHITING

- Trawling uses relatively unselective gear in a multispecies fishery
- Allocations for many species are higher than historical catch ever was (see Appendix B)
- QP needs for individual operators can be difficult to predict, especially for overfished species
- Gear switching provision

UTILIZATION
NON-WHITING

- Trawling uses relatively u
- Allocations for many spe
  was (see Appendix B)
- QP needs for individual o
  especially for overfished s
- Gear switching provision



UTILIZATION
NON-WHITING

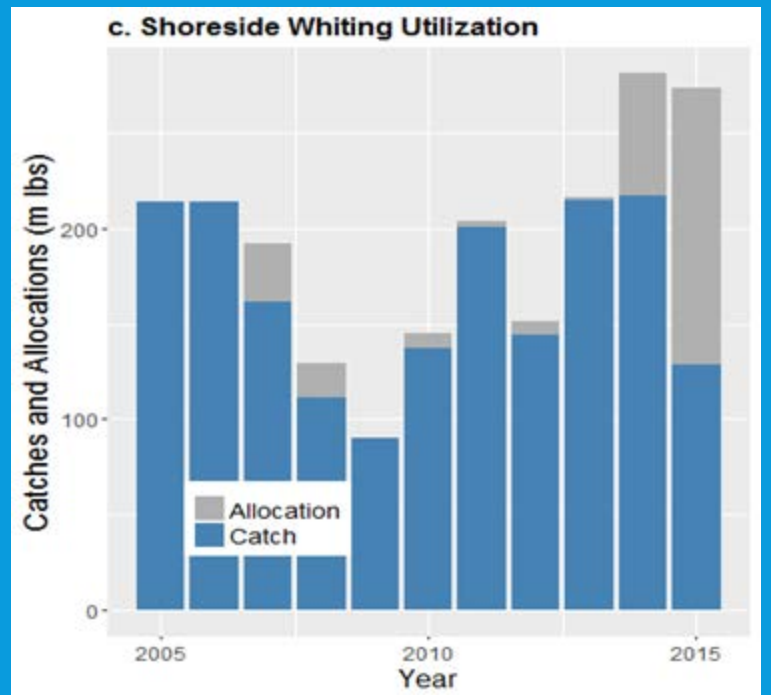
- Trawling uses relatively unselective gear in a multispecies fishery
- Allocations for many species are higher than historical catch ever was (see Appendix B)
- QP needs for individual operators can be difficult to predict, especially for overfished species
- Gear switching provision (Section 3.1.3(a)(1); Page 3-145)

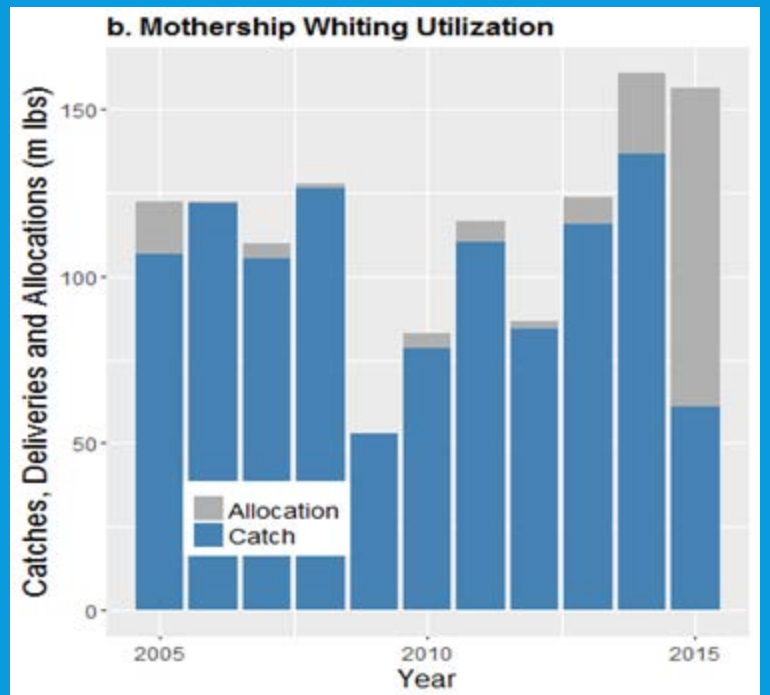
UTILIZATION
WHITING

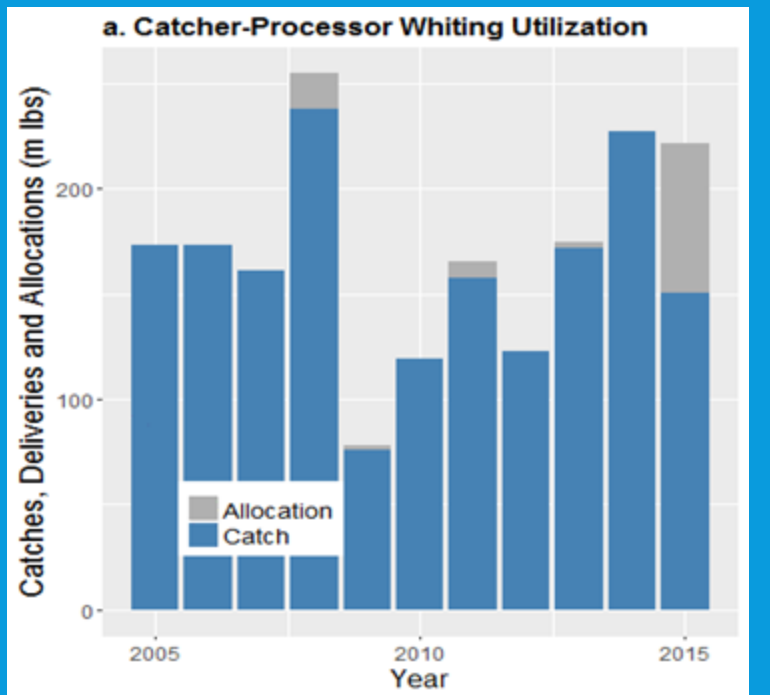
Failure to reach full attainment in 2014-2015:

- Availability of quota for constraining species
- The Blob
- Russian Embargo
- Flexibility and effort between West Coast and Alaska

Figure 3-48 , Page 3-167







UTILIZATION
MANAGEMENT CONCERNS

- Stakeholders expressed concerns about the lag between the Council's final action on modifications to the catch share program and subsequent implementation into regulations.
- New, non-routine rules for the groundfish trawl program have taken, on average, slightly more than two years from final Council action to implementation, (ten non-routine program rules from 2011 to 2017)
- Participants expect utilization to increase in particular from:
  - Increased flexibility in gear use and configuration
  - Increased accessibility to fishing grounds through changes to the RCA

Section 3.4.3(a)
Page 3-414

QUESTIONS?

NOAA FISHERIES