

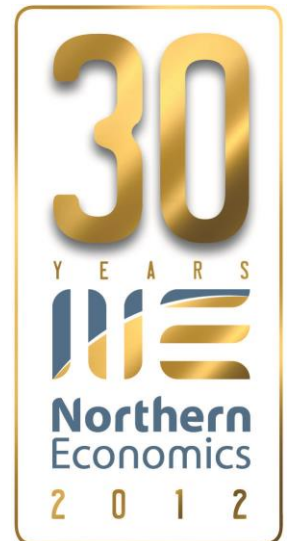
BSAI Halibut Mortality 2003 - 2012

Presentation to

North Pacific Fishery Management Council

Marcus L. Hartley

February 2014



Document Outline

■ Chapter 1 contains an introduction & defines terms.

■ Trawl Sectors

- ◆ BSAI Trawl Limited Access (BSAI TLA)
 - AFA-CPs, AFA-CVs, AFA-MCVs
 - TRW CVs TRW-MCVs
- ◆ A80-CPs

■ Non-Trawl Sectors

- ◆ LGL-CPs, LGL-CVs, LGL-MCVs
- ◆ Pot –CPs, Pot-CVs, Pot-MCVs

Variables Used

- **Halibut Mortality = MT of Halibut Mortality calculated using mortality rates specific to gear and targets**
- **Halibut Bycatch Rate = Halibut Mortality MT / Groundfish MT in target fishery**
- **Normalized Wholesale Value; uses the average value per ton of groundfish in the sector and target over all years.**
 - Normalizing the value reduces impacts of inflation, exchange rates, and recessions on wholesale values.

Document Outline

■ Chapter 2—Halibut Related Closures from 2000–2013

- Numbers of closures are greatly reduced since Amendment 80

■ Chapter 3—Summary of Historical Bycatch

- Provides PSC summaries by major apportionment groups.

■ Chapter 4—Bycatch Mortality by Target Fishery

- Target Fisheries with Multiple Sectors

- ◆ Pollock
- ◆ Pacific Cod
- ◆ Yellowfin Sole

- Amendment 80 Fisheries

■ Chapter 5—Potential Options for Reducing Bycatch

Directed Fishing Closures Resulting from Halibut PSC in the BSAI, 2000-2013

						2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gear	Sector	Area	FMP Sub-Area	Species Code	Closure Type	Number of Halibut Related Directed Fishing Closures													
HAL	CPs	BSAI	ALL	PCOD	PSC Limit		1												
	CVs < 60 ft	BSAI	ALL	PCOD	PSC Limit		1												
	CVs >= 60 ft	BSAI	ALL	PCOD	PSC Limit		1												
HAL Total							3												
Trawl	All	BSAI	ALL	AKPL	PSC Limit			1		1		1							
					Seasonal PSC			2			2	2	3						
				FSOL	PSC Limit					1	1	1							
					Seasonal PSC					1	2	2	3						
				OFLT	PSC Limit					1		1							
					Seasonal PSC					1	2	2	3						
				RSOL	PSC Limit	1	1	1	1	1		1							
					Seasonal PSC	2	2	2	1		2	2	3						
				YSOL	PSC Limit				1	1		1							
					Seasonal PSC			2	2	2		2	1						
	A80 LA	AI	ALL	TURB	PSC Limit										1				
					SABL										1				
		BS	ALL	TURB	PSC Limit										1				
					SABL										1				
		BSAI	ALL	ARTH	PSC Limit										1				
					FSOL									1		1			
				OFLT	PSC Limit									1		1			
					Seasonal PSC										1				
				RSOL	PSC Limit									1		1			
					PSC Limit									1					
				YSOL	PSC Limit									1					
					Seasonal PSC									1					
	CPs	BSAI	ALL	PCOD	PSC Limit			1	1		1	2							
	CVs	BSAI	ALL	PCOD	PSC Limit			1	1		1	2	1						
Trawl Total						3	5	11	7	6	12	18	15	5	6	3	0	0	0
Grand Total						3	8	11	7	6	12	18	15	5	6	3	0	0	0

Hook & Line Gear Closures Resulting from Halibut PSC in the BSAI, 2000-2013

- There have been three Hook & Line (HAL) closures due to halibut PSC, all in the PCOD Fishery in 2001.
- Since 2001 there have not been any HAL closures related to halibut PSC.

				2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gear	Sector	Species Code	Constraint Type	Number of Halibut Related Directed Fishing Closures													
HAL	CPs	PCOD	PSC Limit		1												
	CVs < 60 ft	PCOD	PSC Limit		1												
	CVs >= 60 ft	PCOD	PSC Limit		1												
HAL Total					3												

Trawl Closures in Flatfish Fisheries Resulting from Halibut PSC in BSAI, 2000-2013

- From 2000 – 2007 there were 66 seasonal or PSC limit closure in the Trawl fisheries for flatfish species.
- After A80, “Trawl” fisheries were no longer regular as a whole.

				2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gear	Sector	Species Code	Constraint Type	Number of Halibut Related Directed Fishing Closures													
Trawl	All	AKPL	PSC Limit			1		1		1							
			Seasonal			2			2	2	3						
		FSOL	PSC Limit					1	1	1							
			Seasonal					1	2	2	3						
		OFLT	PSC Limit					1		1							
			Seasonal					1	2	2	3						
		RSOL	PSC Limit	1	1	1	1	1		1							
			Seasonal	2	2	2	1		2	2	3						
		YSOL	PSC Limit			1	1		1		1						
			Seasonal		2	2	2			2	1						
Flatfish Trawl Total				3	5	9	5	6	10	14	14						

Trawl Closures in Pacific Cod Fisheries Resulting from Halibut PSC in BSAI, 2000-2013

- There were eleven closures in the Pacific cod trawl fisheries between 2002 and 2007

				2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gear	Sector	Species Code	Constraint Type	Number of Halibut Related Directed Fishing Closures													
Trawl	CPs	PCOD	PSC Limit			1	1		1	2							
	CVs	PCOD	PSC Limit			1	1		1	2	1						

A80 Limited Access Closures Related to Halibut PSC

- From 2008 – 2010 there were 14 closures in the A80 Limited Entry fisheries related to halibut PSC.
- In 2011 a second cooperative formed. There have been no halibut related closures issued by NMFS for A80 cooperatives.

					2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sector	Area	FMP \Sub-Area	Species Code	Constraint Type	Number of Halibut Related Directed Fishing Closures													
A80 LA	AI	ALL	TURB	PSC Limit										1				
			SABL	PSC Limit										1				
	BS	ALL	TURB	PSC Limit										1				
			SABL	PSC Limit										1				
	BSAI	ALL	ARTH	PSC Limit										1				
			FSOL	PSC Limit									1			1		
			OFLT	PSC Limit										1			1	
			PCOD	Seasonal											1			
			RSOL	PSC Limit										1			1	
			YSOL	PSC Limit											1			
				Seasonal											1			
Trawl A80 LA Total												5	6	3				

Directed Fishing Closures Resulting from Halibut PSC in BSAI, 2000-2013

						2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gear	Sector	Area	FMP Sub-Area	Species Code	Closure Type	Number of Halibut Related Directed Fishing Closures													
HAL	CPs	BSAI	ALL	PCOD	PSC Limit		1												
	CVs < 60 ft	BSAI	ALL	PCOD	PSC Limit		1												
	CVs >= 60 ft	BSAI	ALL	PCOD	PSC Limit		1												
	HAL Total						3												
Trawl	All	BSAI	ALL	AKPL	PSC Limit			1		1		1							
					Seasonal PSC			2			2	2	3						
				FSOL	PSC Limit					1	1	1							
					Seasonal PSC					1	2	2	3						
				OFLT	PSC Limit					1		1							
					Seasonal PSC					1	2	2	3						
				RSOL	PSC Limit	1	1	1	1	1		1							
					Seasonal PSC	2	2	2	1		2	2	3						
				YSOL	PSC Limit			1	1		1		1						
					Seasonal PSC		2	2	2			2	1						
	A80 LA	AI	ALL	TURB	PSC Limit										1				
					SABL										1				
		BS	ALL	TURB	PSC Limit										1				
					SABL										1				
		BSAI	ALL	ARTH	PSC Limit										1				
					FSOL									1		1			
				OFLT	PSC Limit									1		1			
					Seasonal PSC										1				
				RSOL	PSC Limit									1		1			
					PSC Limit									1					
				YSOL	PSC Limit									1					
					Seasonal PSC									1					
	CPs	BSAI	ALL	PCOD	PSC Limit			1	1		1	2							
	CVs	BSAI	ALL	PCOD	PSC Limit			1	1		1	2	1						
Trawl Total						3	5	11	7	6	12	18	15	5	6	3	0	0	0
Grand Total						3	8	11	7	6	12	18	15	5	6	3	0	0	0

Apportionment of Halibut in 2014 from NMFS Specification Table 8A

■ Non-Trawl Apportionments

Total Non-trawl PSC	Non-trawl CDQ PSQ ¹	Non-trawl PSC after CDQ
900 mt	67 mt	833 mt

■ Trawl CDQ and non-CDQ Apportionments

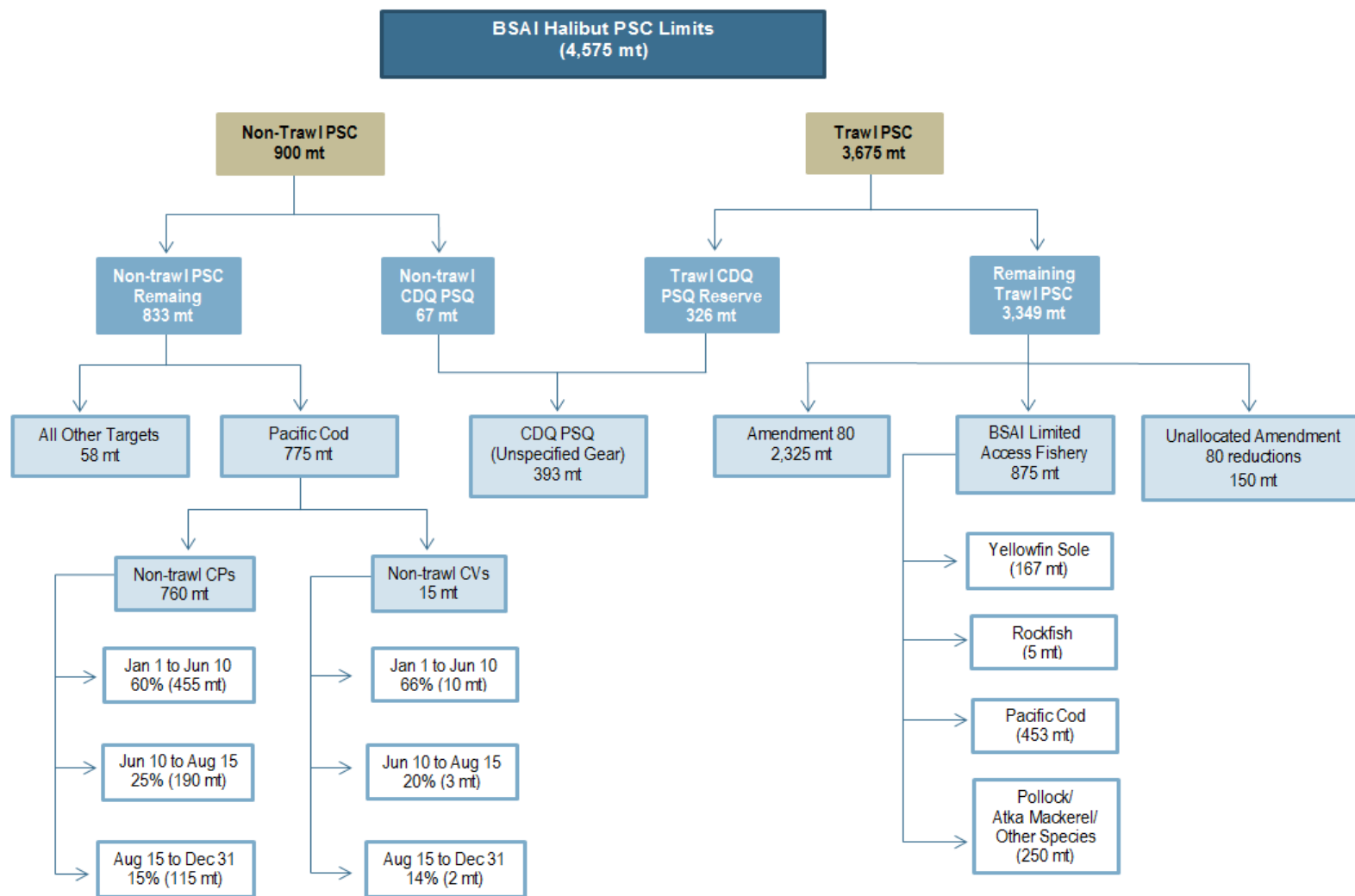
Total Trawl PSC	Trawl CDQ PSQ	Trawl PSC after CDQ
3,675 mt	326 mt	3,349 mt

■ A80 CPs & Trawl Limited Access Apportionments

A-80 CPs PSC	BSAI Trawl Limited Access	Unallocated PSC
2,325 mt	875 mt	150 mt

Note: CDQ Prohibited Species Quota (PSQ) from trawl and non-Trawl are combined into a single non-gear specific limit.

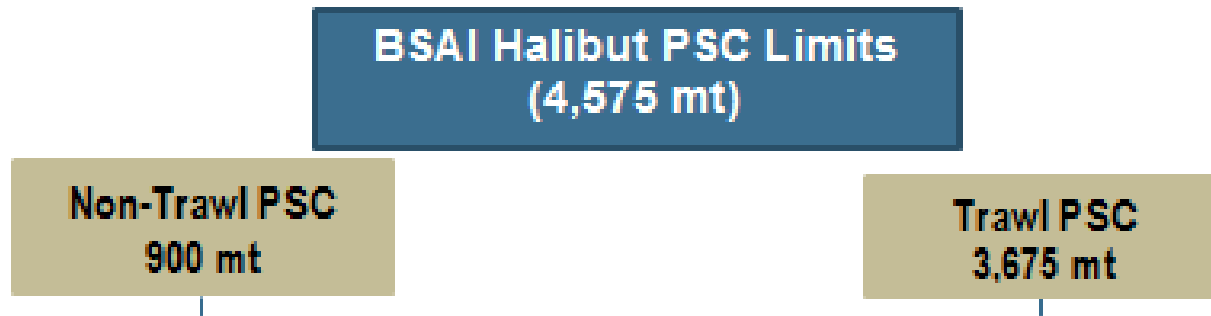
Flow Chart of BSAI Halibut PSC Limit for 2014



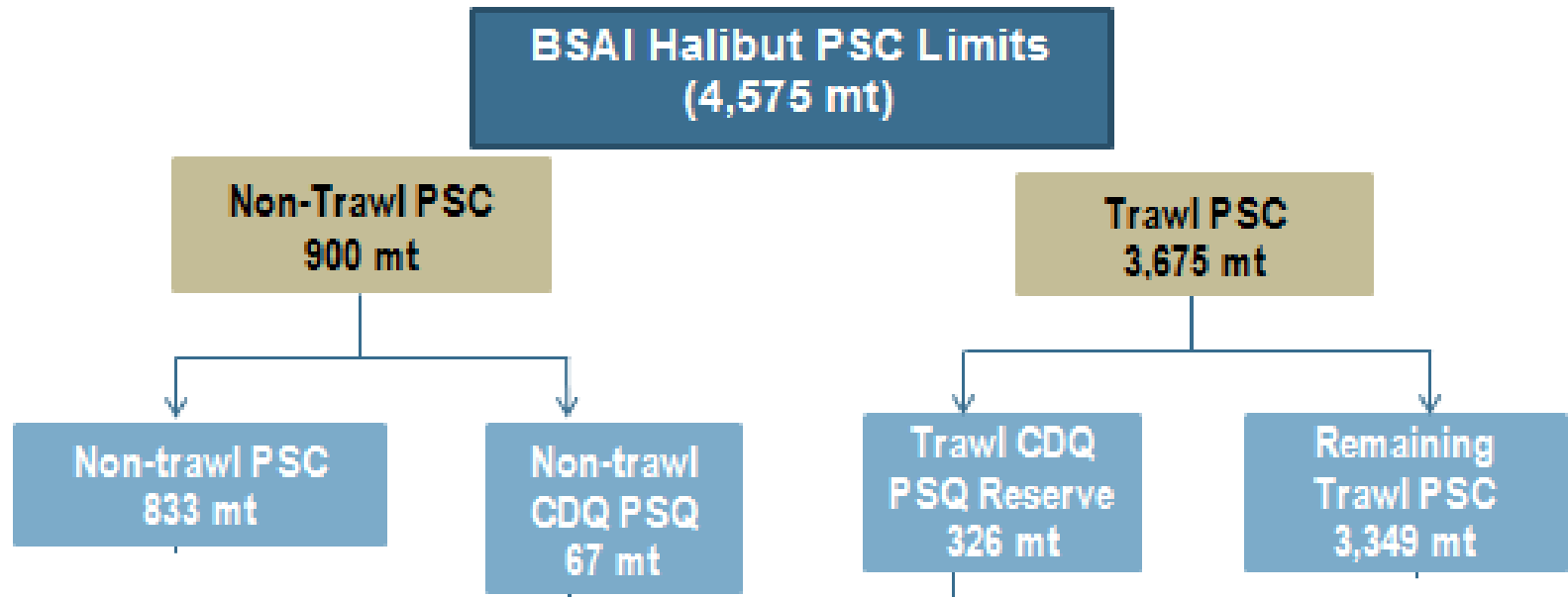
Apportionment of BSAI Halibut PSC to Trawl, Non-Trawl and CDQs

**BSAI Halibut PSC Limits
(4,575 mt)**

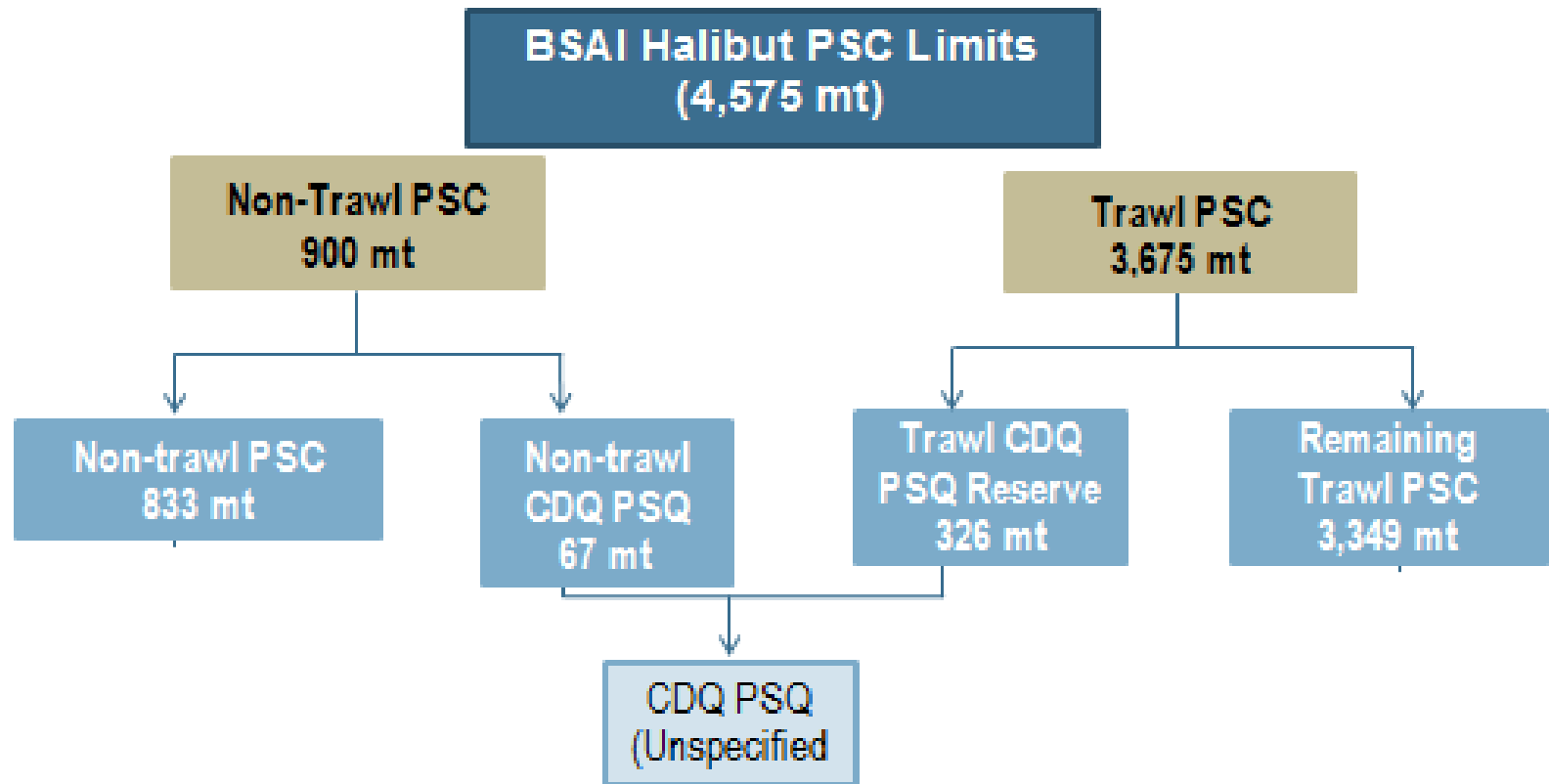
Apportionment of BSAI Halibut PSC to Trawl, Non-Trawl and CDQs



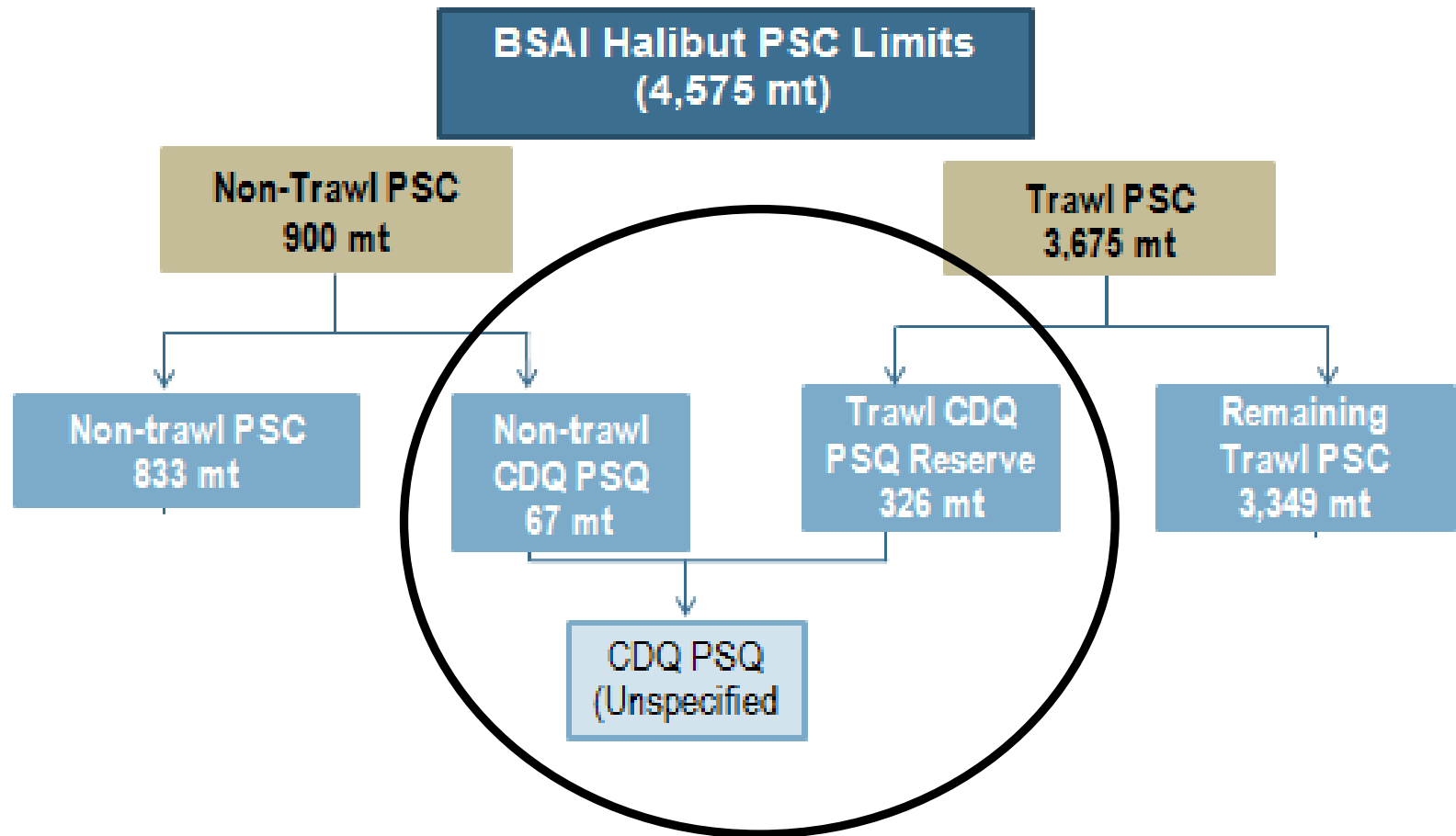
Apportionment of BSAI Halibut PSC to Trawl, Non-Trawl and CDQs



Apportionment of BSAI Halibut PSC to Trawl, Non-Trawl and CDQs



Apportionment of BSAI Halibut PSC to Trawl, Non-Trawl and CDQs

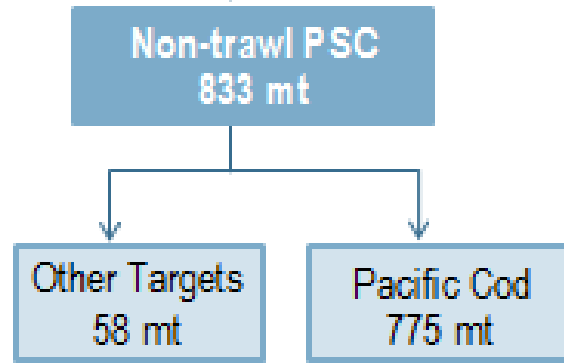


Apportionments of Non-Trawl Halibut PSC

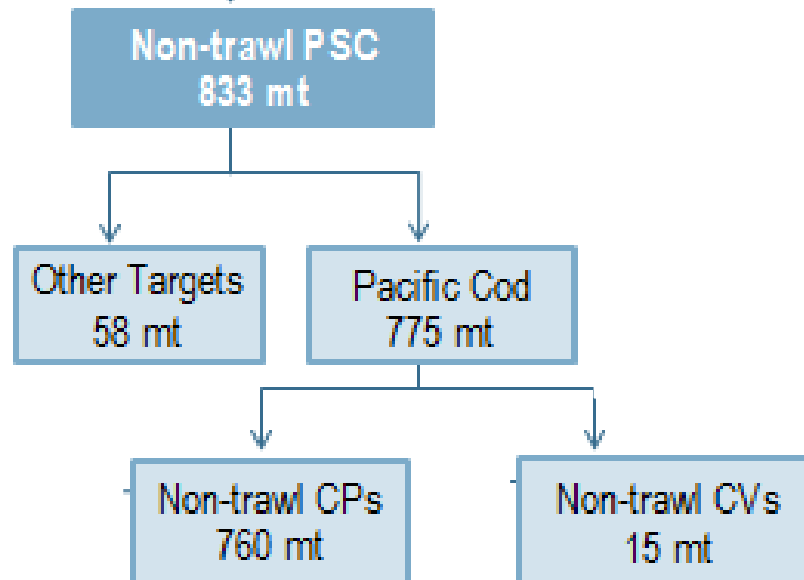
Apportionments of Non-Trawl Halibut PSC

Non-trawl PSC
833 mt

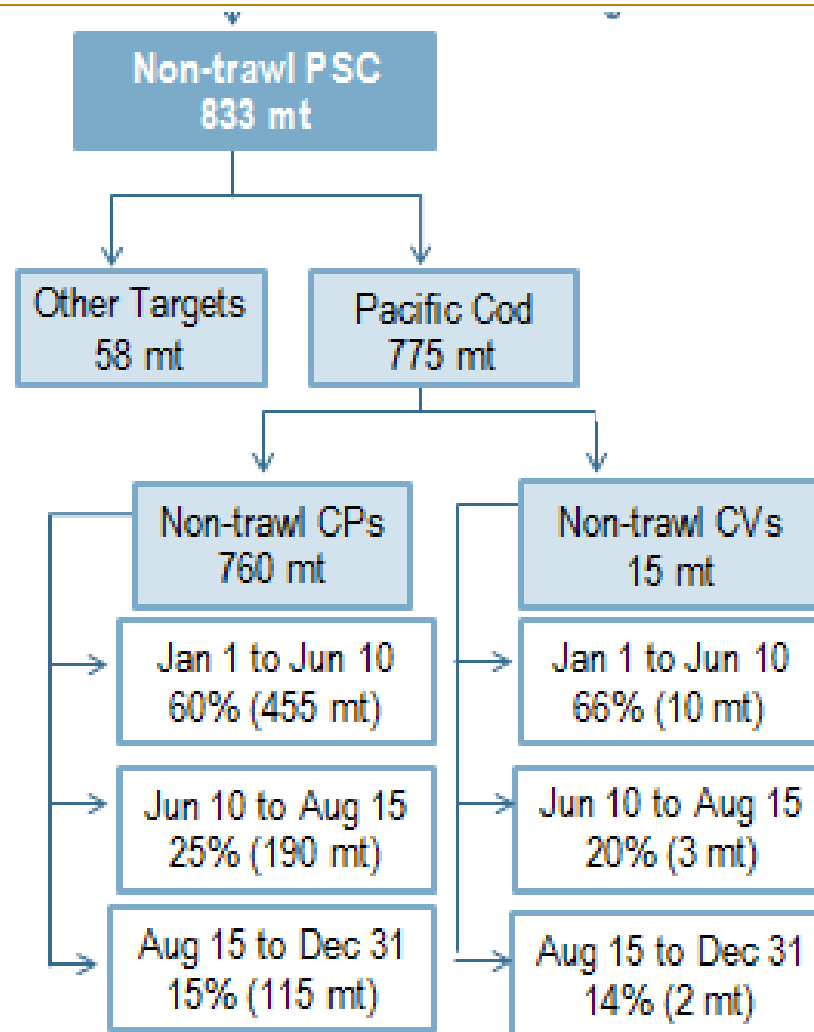
Apportionments of Non-Trawl Halibut PSC



Apportionments of Non-Trawl Halibut PSC



Apportionments of Non-Trawl Halibut PSC

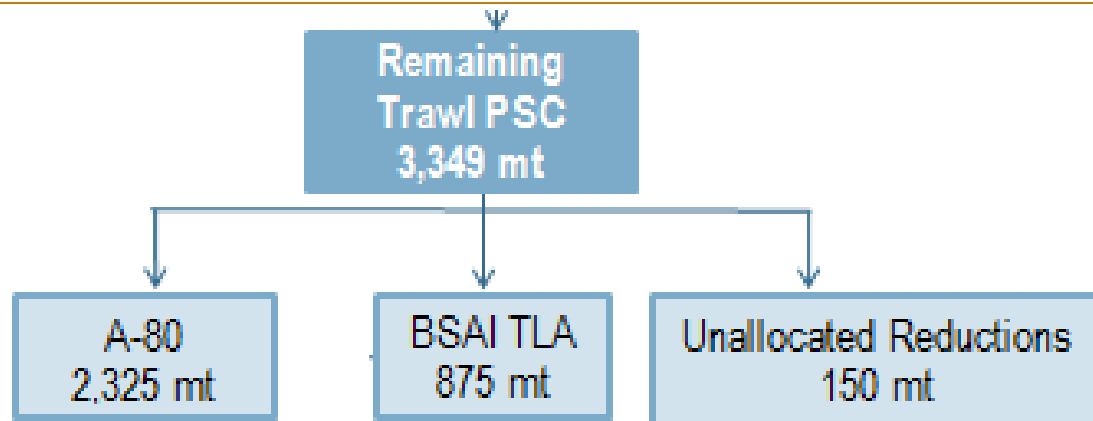


Apportionment of Trawl Halibut PSC

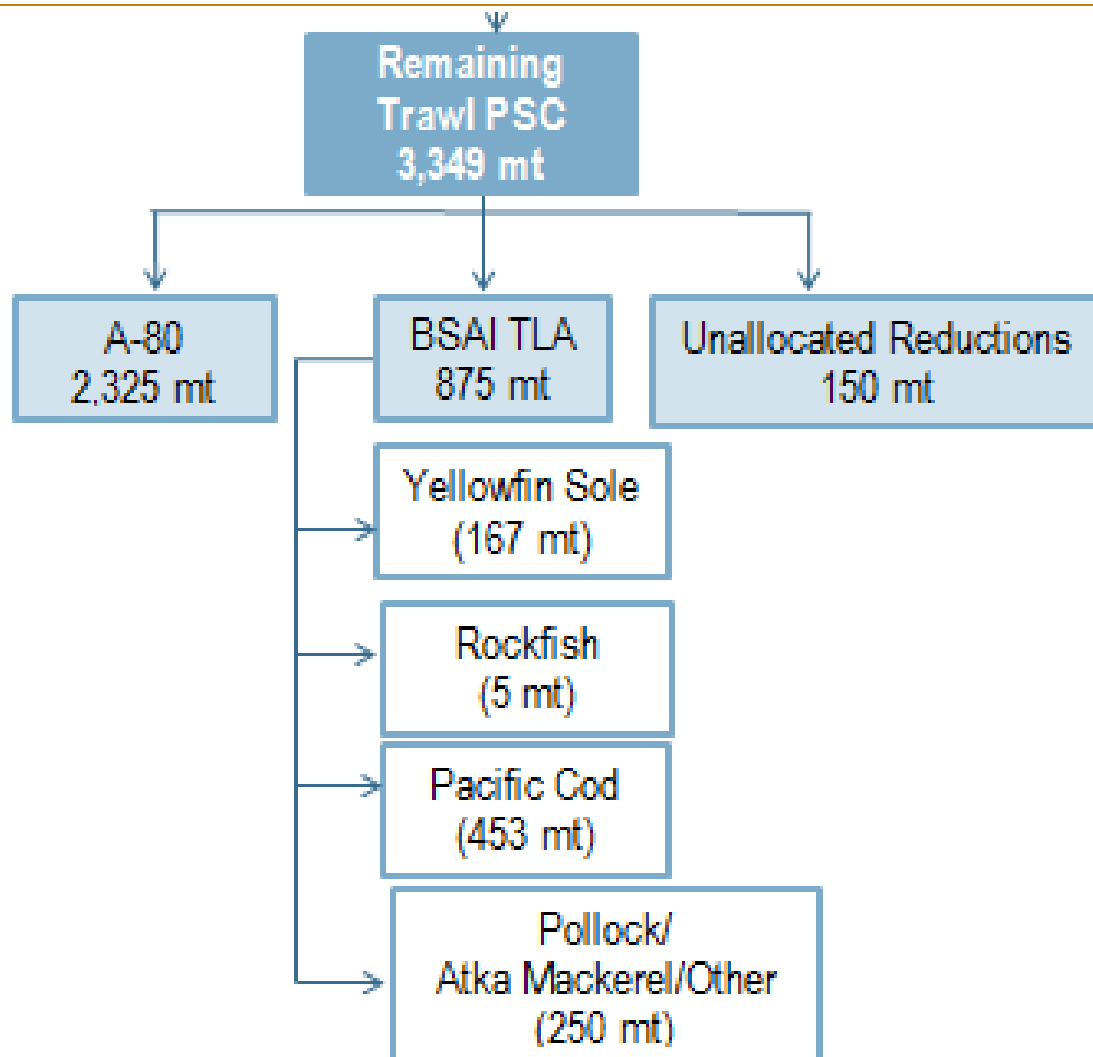
Apportionment of Trawl Halibut PSC

W
Remaining
Trawl PSC
3,349 mt

Apportionment of Trawl Halibut PSC



Apportionment of Trawl Halibut PSC



**BSAI Halibut PSC Limits
(4,575 mt)**

**Non-Trawl PSC
900 mt**

**Trawl PSC
3,675 mt**

**Non-trawl PSC
Remaining
833 mt**

**Non-trawl
CDQ PSQ
67 mt**

**Trawl CDQ
PSQ Reserve
326 mt**

**Remaining
Trawl PSC
3,349 mt**

**All Other Targets
58 mt**

**Pacific Cod
775 mt**

**CDQ PSQ
(Unspecified Gear)
393 mt**

**Amendment 80
2,325 mt**

**BSAI Limited
Access Fishery
875 mt**

**Unallocated Amendment
80 reductions
150 mt**

**Non-trawl CPs
760 mt**

**Non-trawl CVs
15 mt**

**Jan 1 to Jun 10
60% (455 mt)**

**Jan 1 to Jun 10
66% (10 mt)**

**Jun 10 to Aug 15
25% (190 mt)**

**Jun 10 to Aug 15
20% (3 mt)**

**Aug 15 to Dec 31
15% (115 mt)**

**Aug 15 to Dec 31
14% (2 mt)**

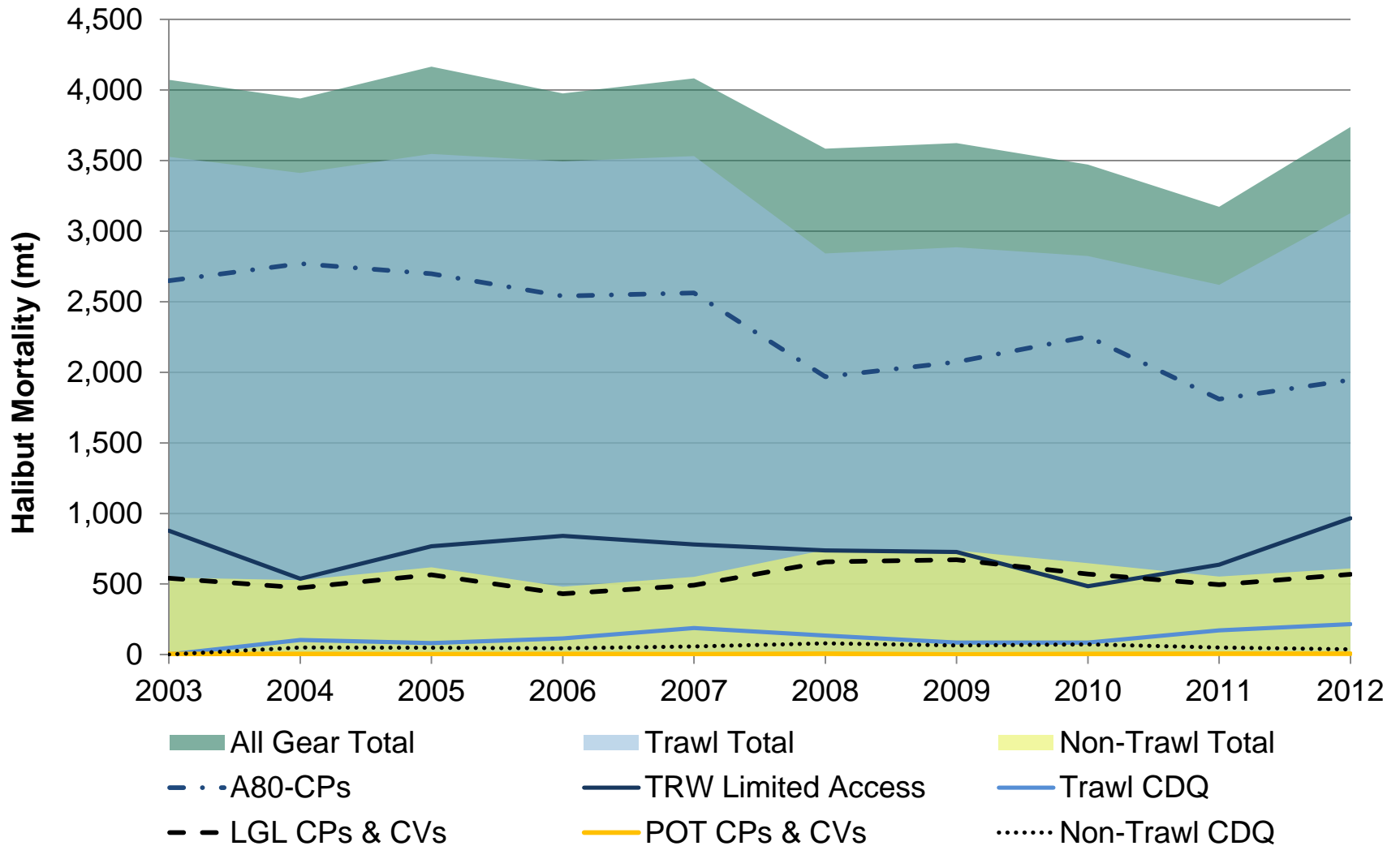
**Yellowfin Sole
(167 mt)**

**Rockfish
(5 mt)**

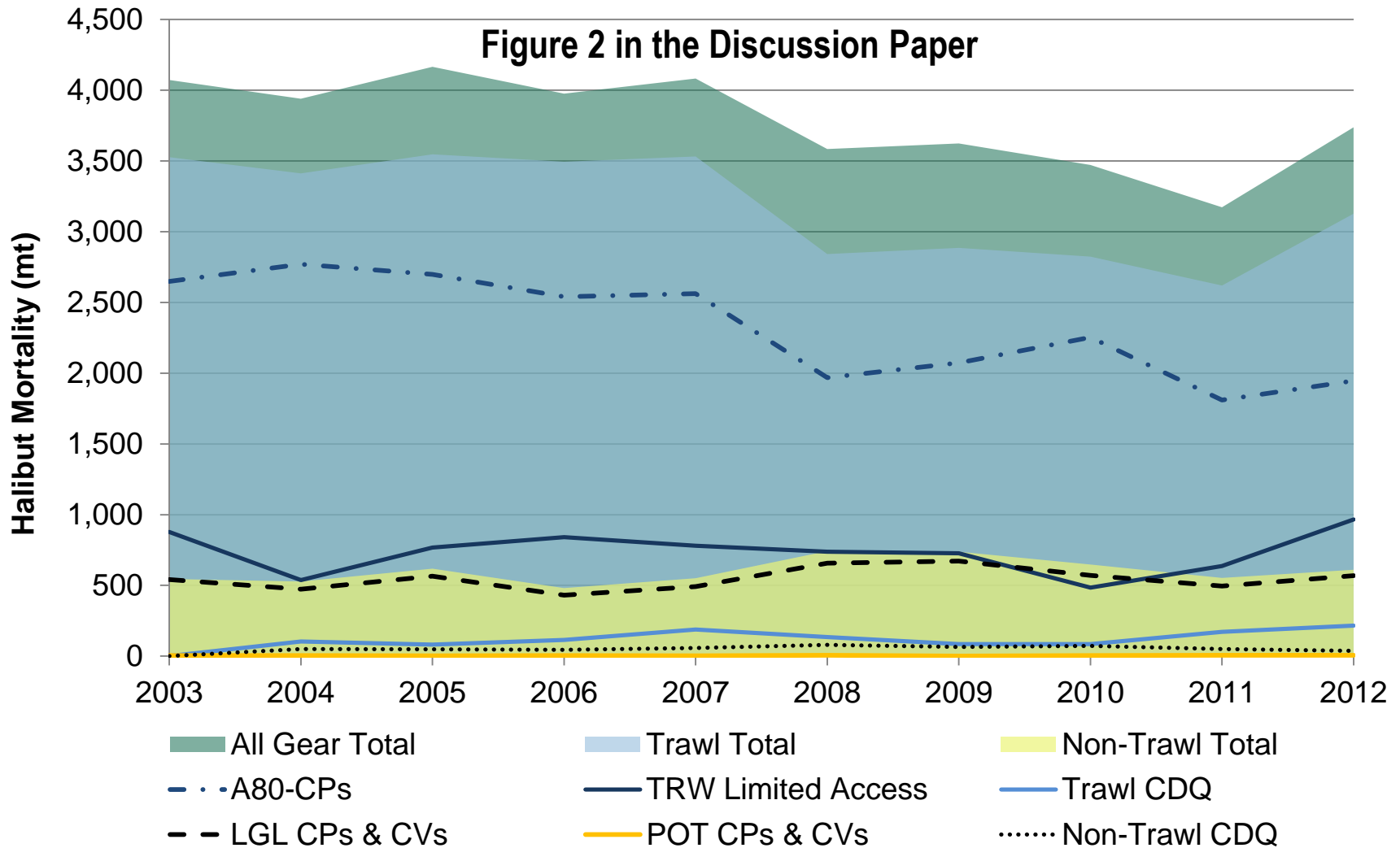
**Pacific Cod
(453 mt)**

**Pollock/
Atka Mackerel/
Other Species
(250 mt)**

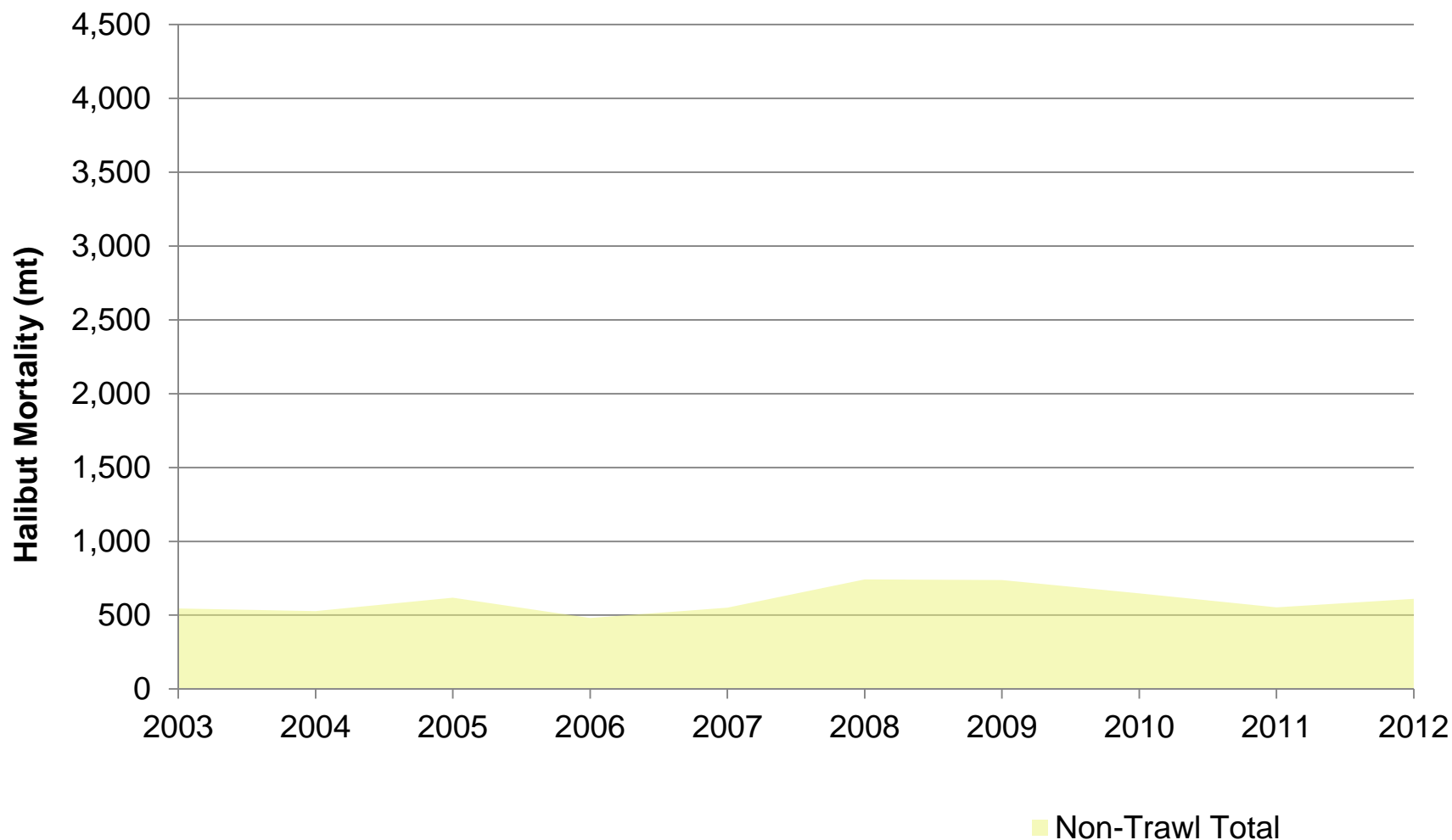
Halibut Mortality by Major Apportionment Group



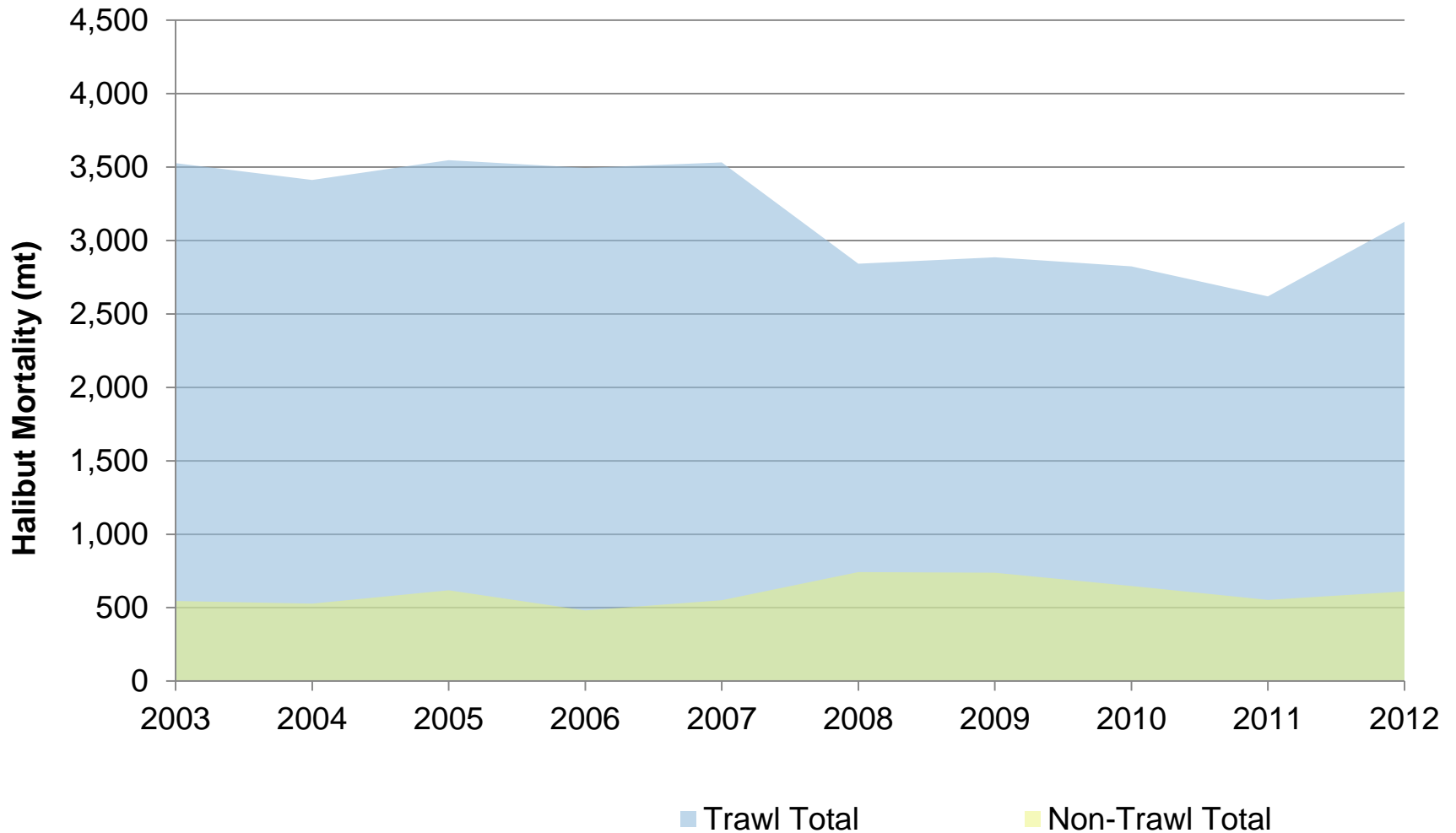
Halibut Mortality by Major Apportionment Group



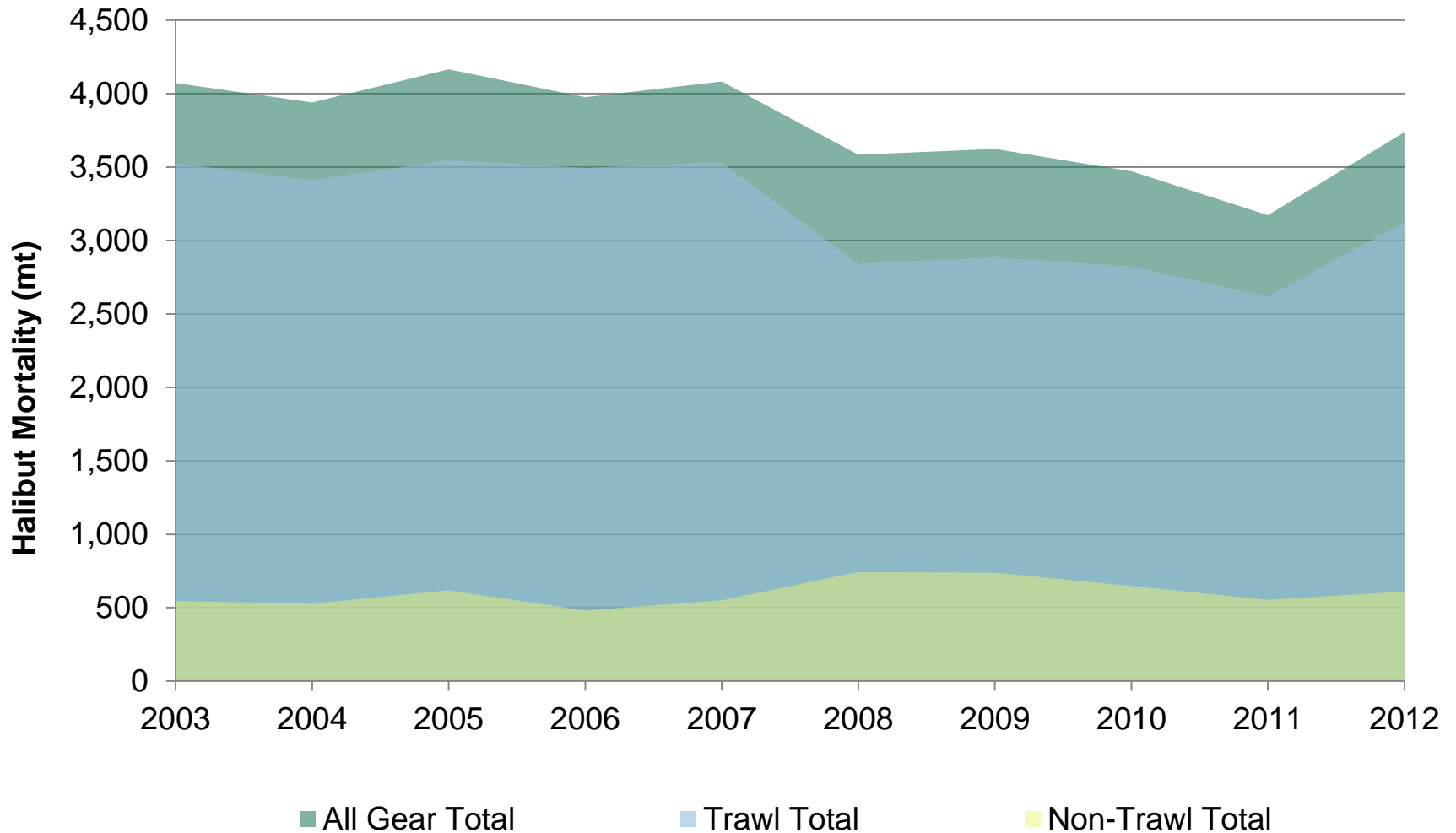
Halibut Mortality by Major Apportionment Group



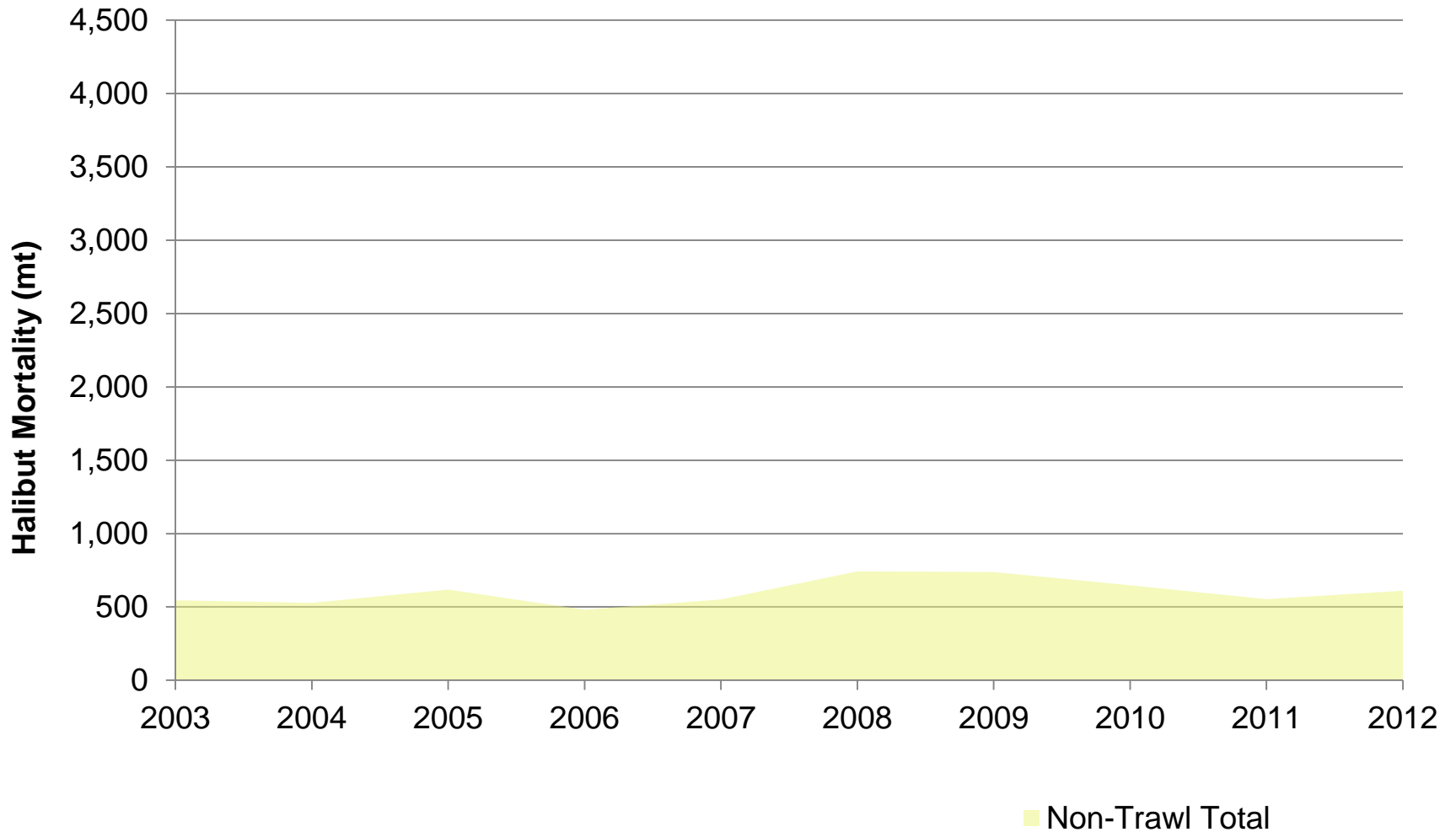
Halibut Mortality by Major Apportionment Group



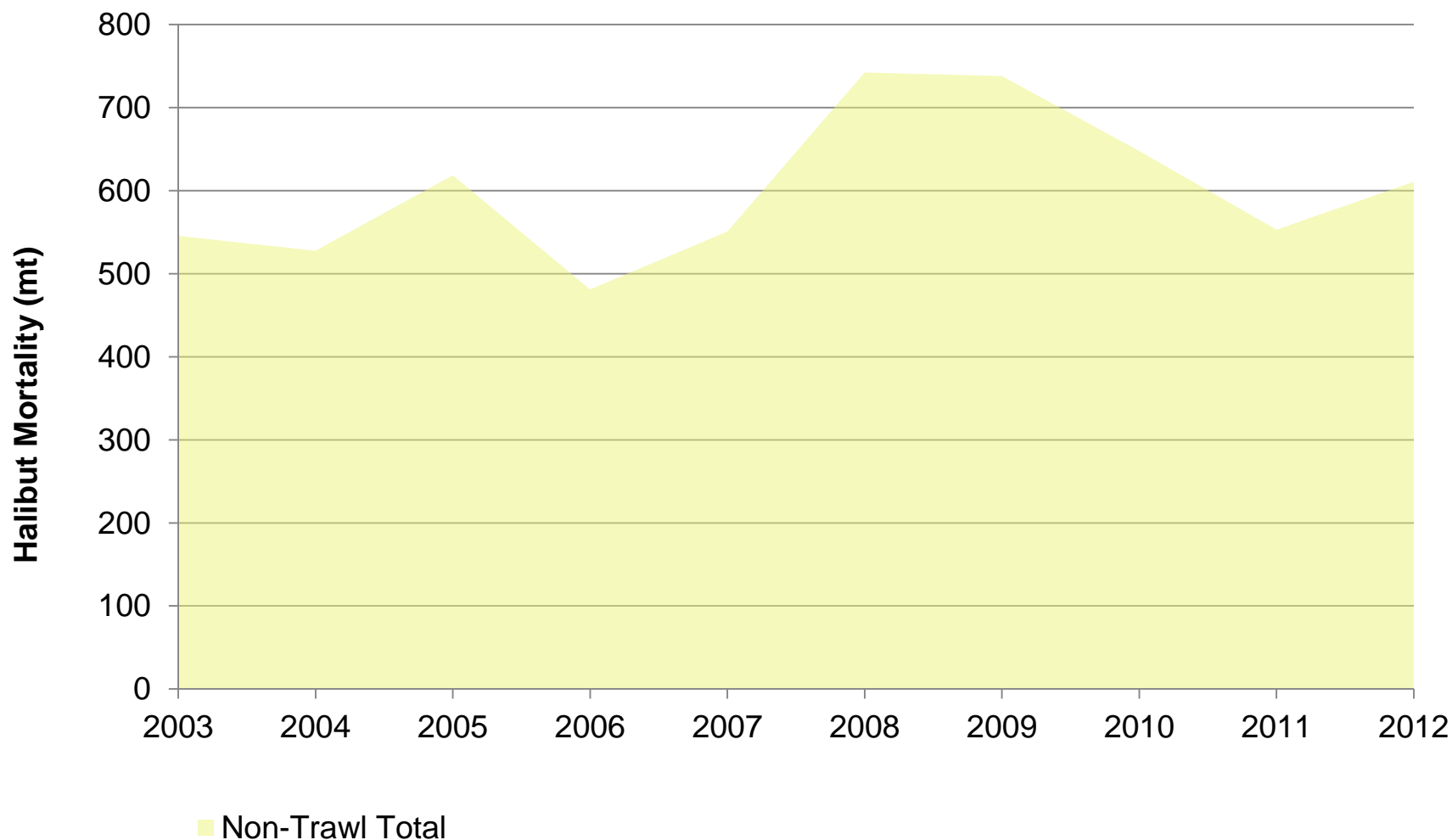
Halibut Mortality by Major Apportionment Group



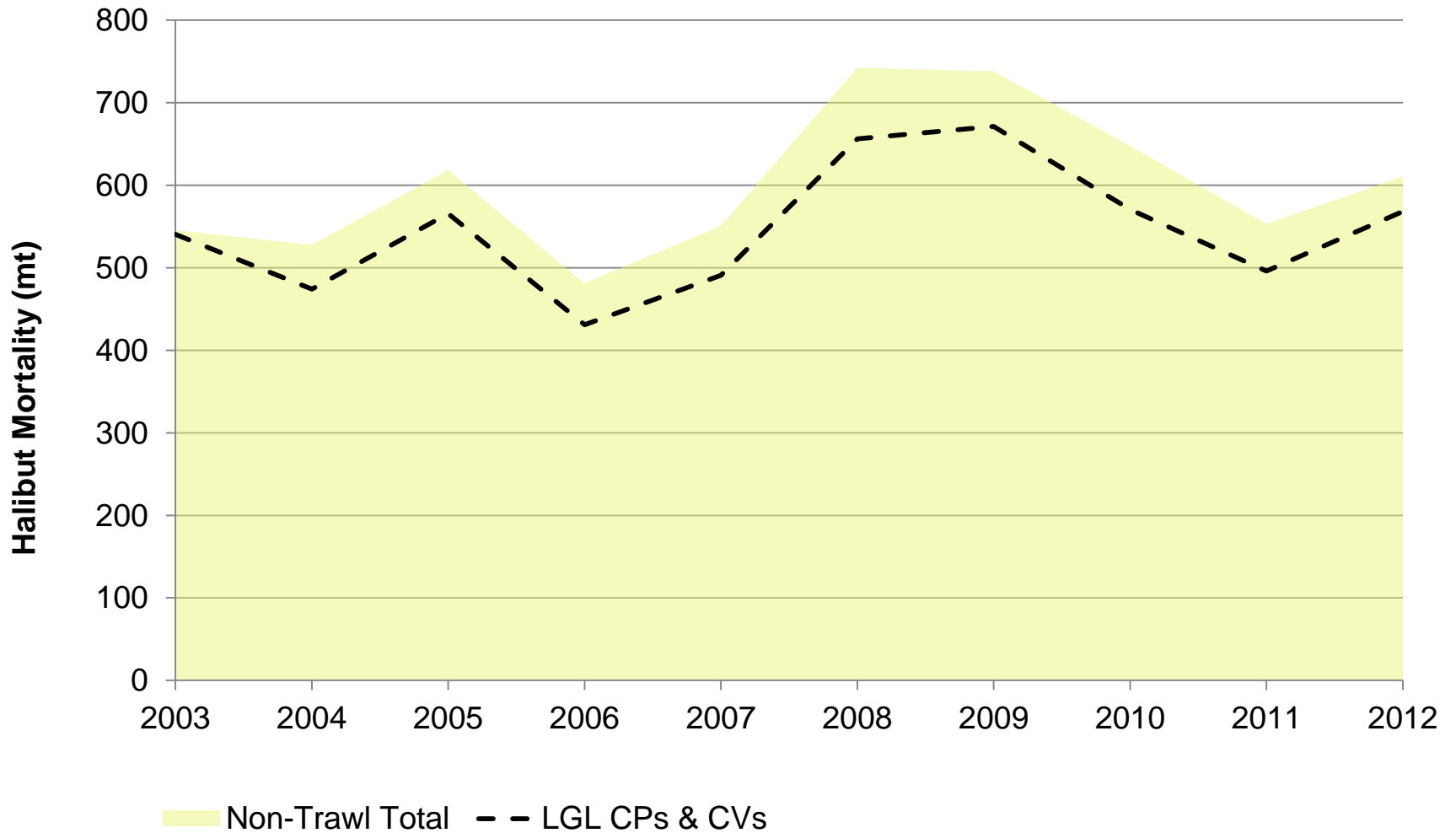
Non-Trawl Halibut Mortality



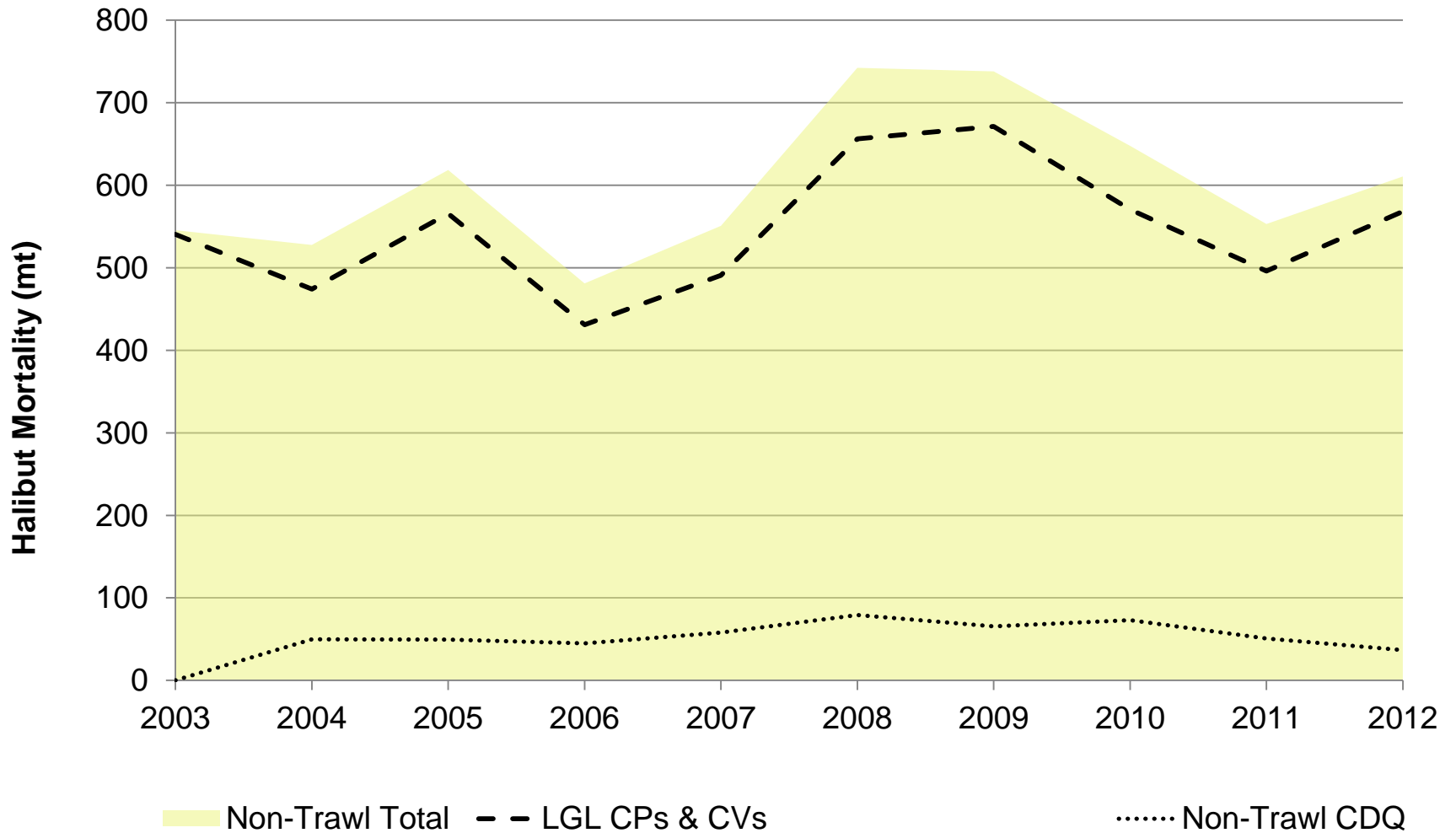
Non-Trawl Halibut Mortality



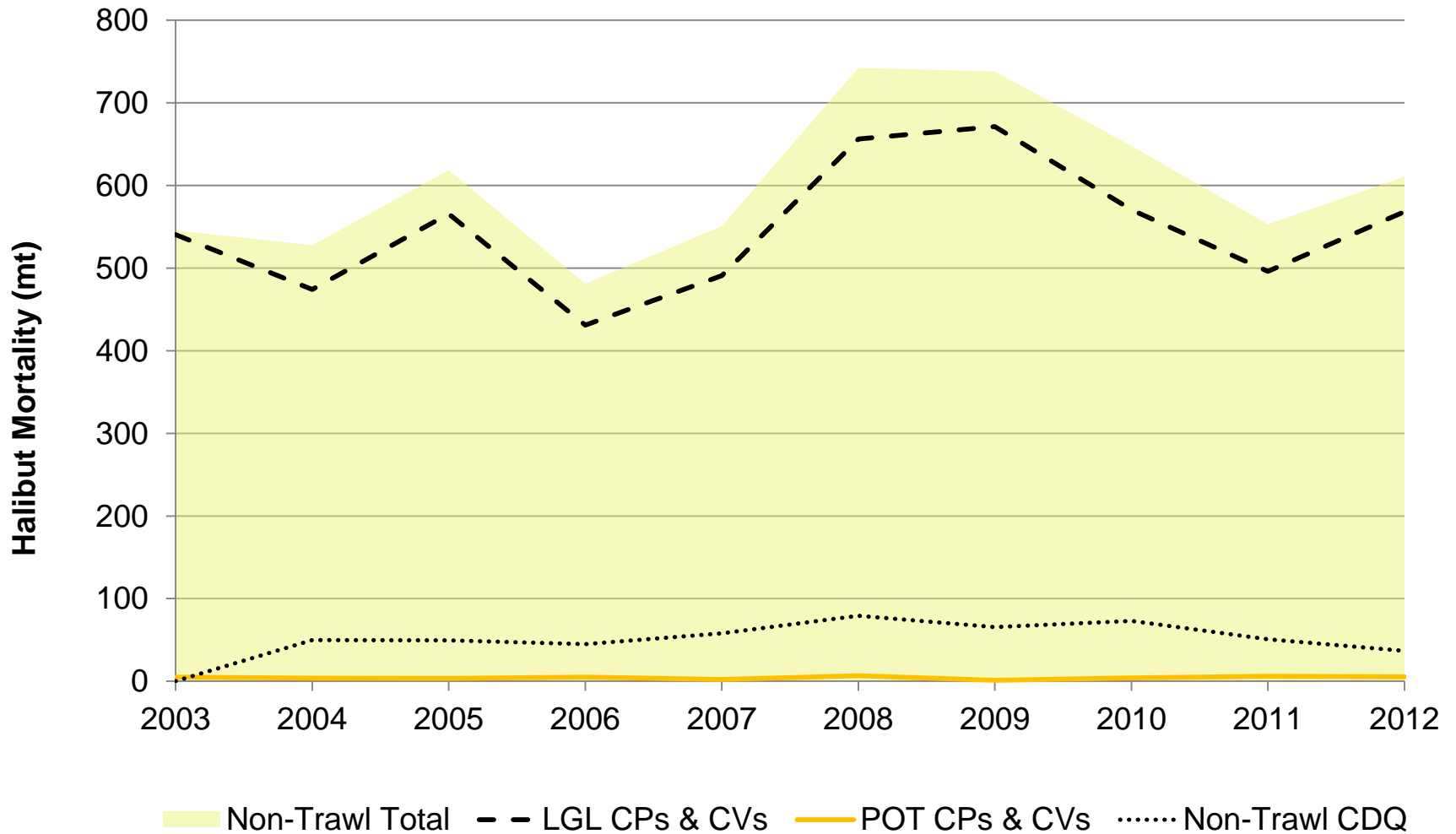
Non-Trawl Halibut Mortality



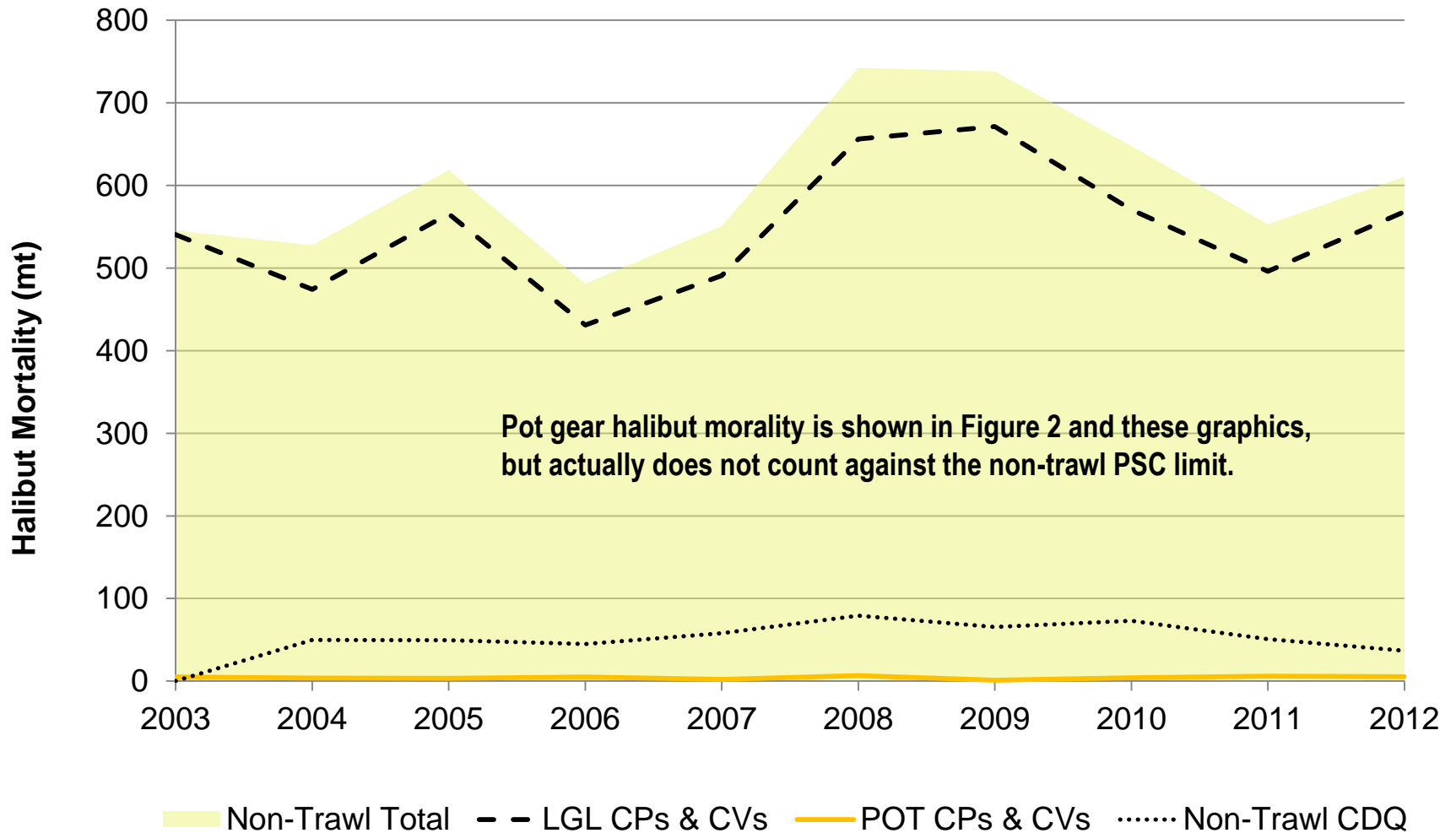
Non-Trawl Halibut Mortality



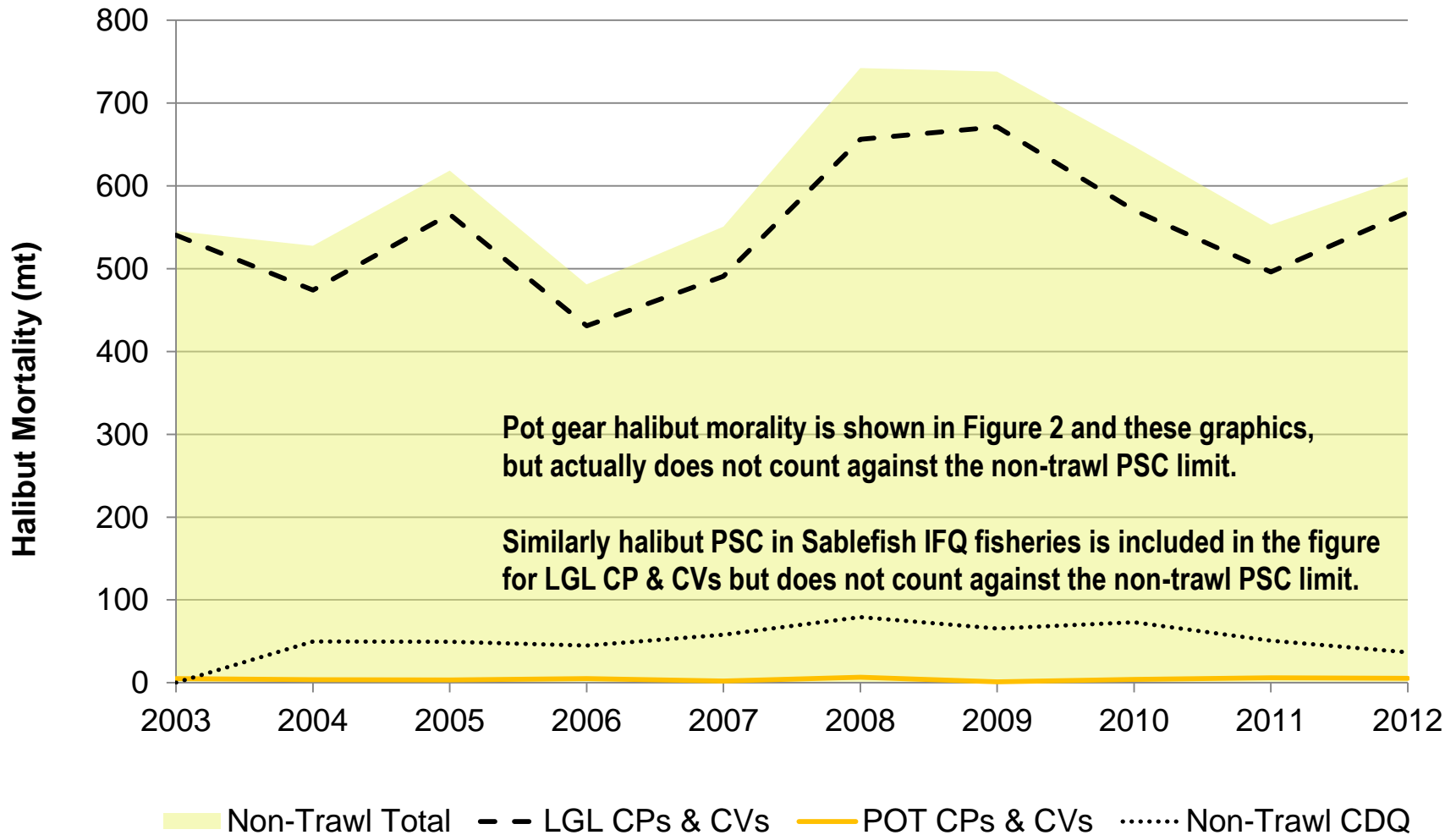
Non-Trawl Halibut Mortality



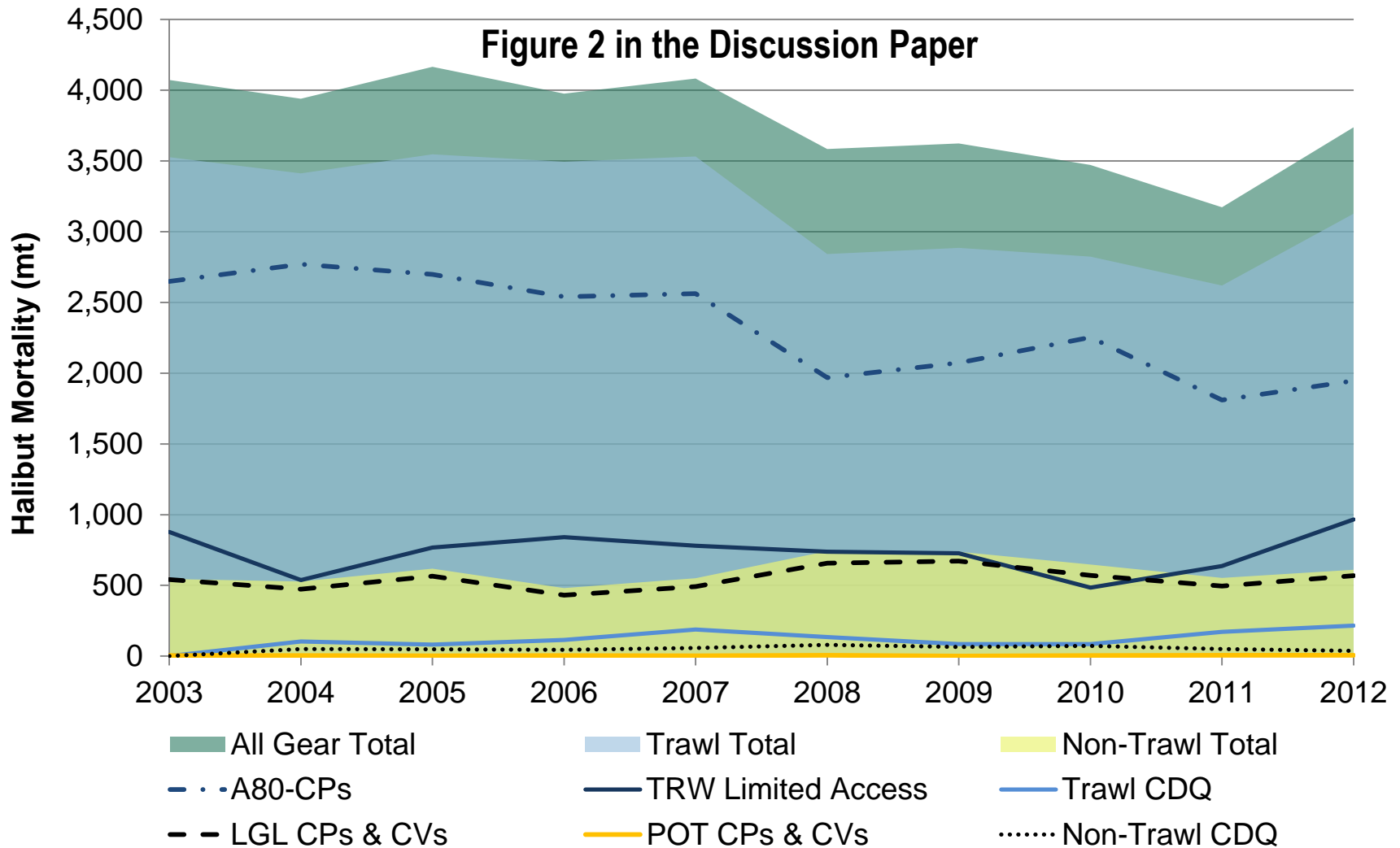
Non-Trawl Halibut Mortality



Non-Trawl Halibut Mortality



Halibut Mortality by Major Apportionment Group



Trawl Halibut Mortality

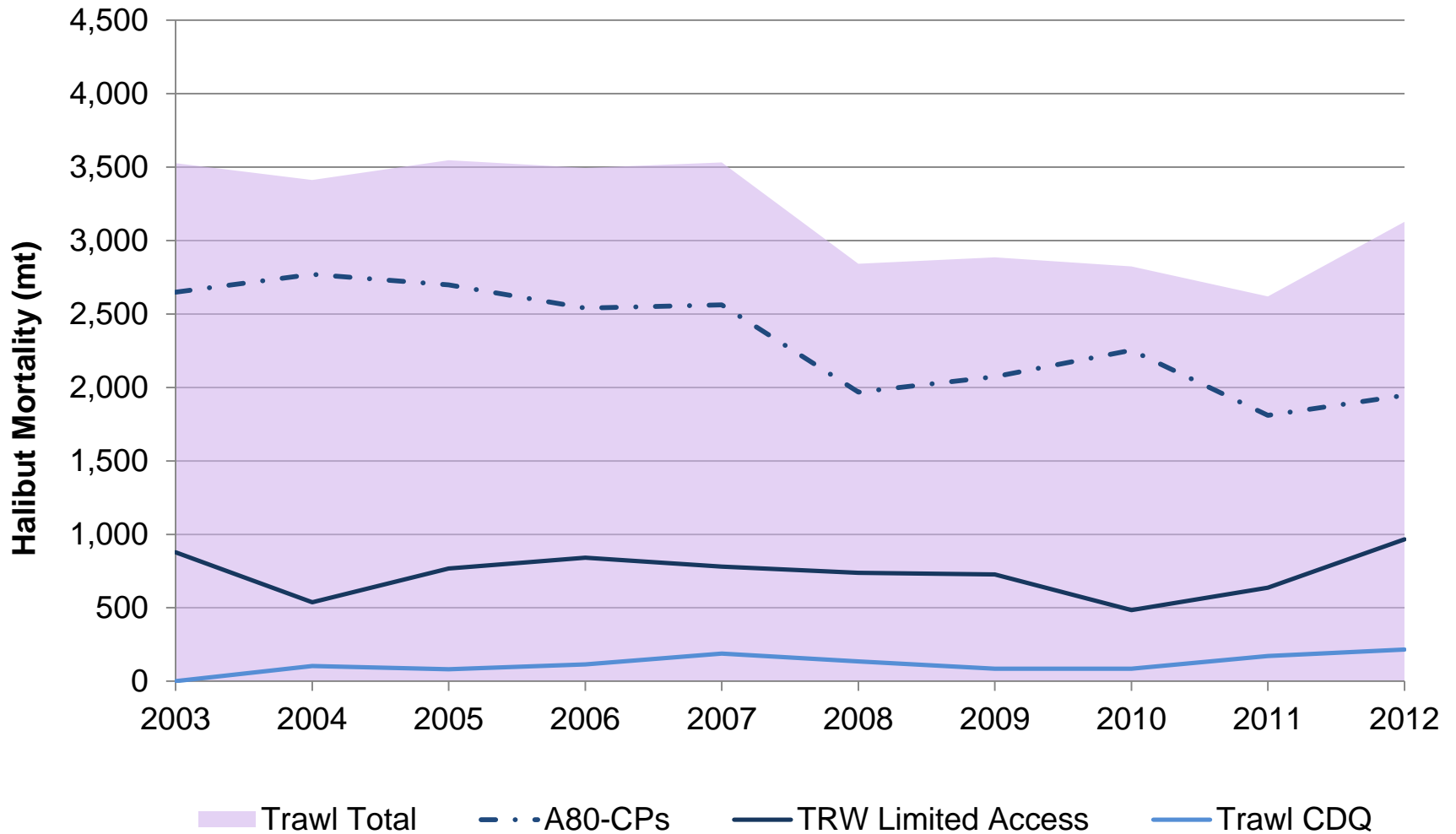


Table 7. Halibut PSC Mortality in the Non-CDQ BSAI Trawl Limited Access Fisheries, 2003 - 2011

- BSAI TLA is Apportioned 875 mt of halibut PSC
- 453 mt to Pacific cod, 167 mt to yellowfin sole, 5 mt to rockfish
- 250 mt to Pollock and Atka Mackerel, but limit is non-binding; NMFS could impose a closure in the use of non-pelagic gear
- 2012 PSC in PCOD, Yellowfin sole and Pollock all increased.
- In 2012 the BSAI TLA Sector halibut PSC exceeded their 875 limit and experienced a year-over-year increase of 52 percent.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Target Fishery / Apportionment Group	Halibut PSC Mortality (mt) in BSAI Trawl Limited Access Fisheries									
Pollock/Atka Mackerel	74	82	101	109	265	276	396	198	292	370
Pacific Cod	801	452	650	616	449	292	183	258	241	436
Yellowfin Sole	2	4	16	93	58	157	99	27	81	143
All Other Flatfish & Rockfish	NA	NA	NA	23	8	14	49	2	23	17
All Targets	NA	NA	NA	841	781	738	727	485	637	967

Note: NA indicates that the data has not available for disclosure to protect data confidentiality.

Source: Developed by Northern Economics based on CAS data from AKFIN.

Table 8. Halibut PSC Mortality in the Non-CDQ A80 Fisheries, 2003 - 2012

- Halibut PSC of A80 CPs has trended downward from peak in 2004
- Since 2011 all PSC has been allocated to cooperatives
- Within co-ops vessels determine how maximize benefits from PSC
- Since 2011 PSC in the Rock sole fishery has fallen by 56%
- Since 2011 PSC in Arrowtooth fisheries has more than doubled
- In 2012 the A80 fleet had a 7% year-over-year increase in PSC.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Target Fishery / Apportionment Group	Halibut PSC Mortality (mt) in the BSAI by A80 CPs									
Rock sole, flathead sole, OFLT	1,178	1,025	1,072	1,122	1,277	867	742	1,050	528	464
Arrowtooth/Kamchatka/Turbots	61	93	202	123	17	127	229	181	259	504
Yellowfin Sole	701	391	552	345	446	802	894	814	758	711
Pacific Cod	577	1,160	782	833	612	42	75	35	17	37
Pollock/Atka Mackerel/Other	83	50	77	88	195	97	105	119	157	162
Rockfish & Sablefish	48	51	13	29	17	33	30	55	92	67
All Targets	2,649	2,770	2,698	2,540	2,563	1,969	2,073	2,254	1,810	1,945

Table 9. Halibut PSC Mortality by the Longline CPs and CVs, 2003 - 2012

- **Almost all of the non-trawl halibut PSC is taken by the LGL CPs**
 - In 2012 the LGL-CP had a 15% year-over-year increase of PSC in PCOD
- **There is very little LGL-CV activity in the Pacific Cod fishery**
- **Analysis of halibut PSC in sablefish IFQ fisheries is not included**
 - Halibut PSC in Sablefish IFQ is not constrained by PSC Limits.
 - Low levels of observer coverage limit the accuracy of estimates prior to 2013
 - Beginning in 2013 increased observer coverage will improve estimates

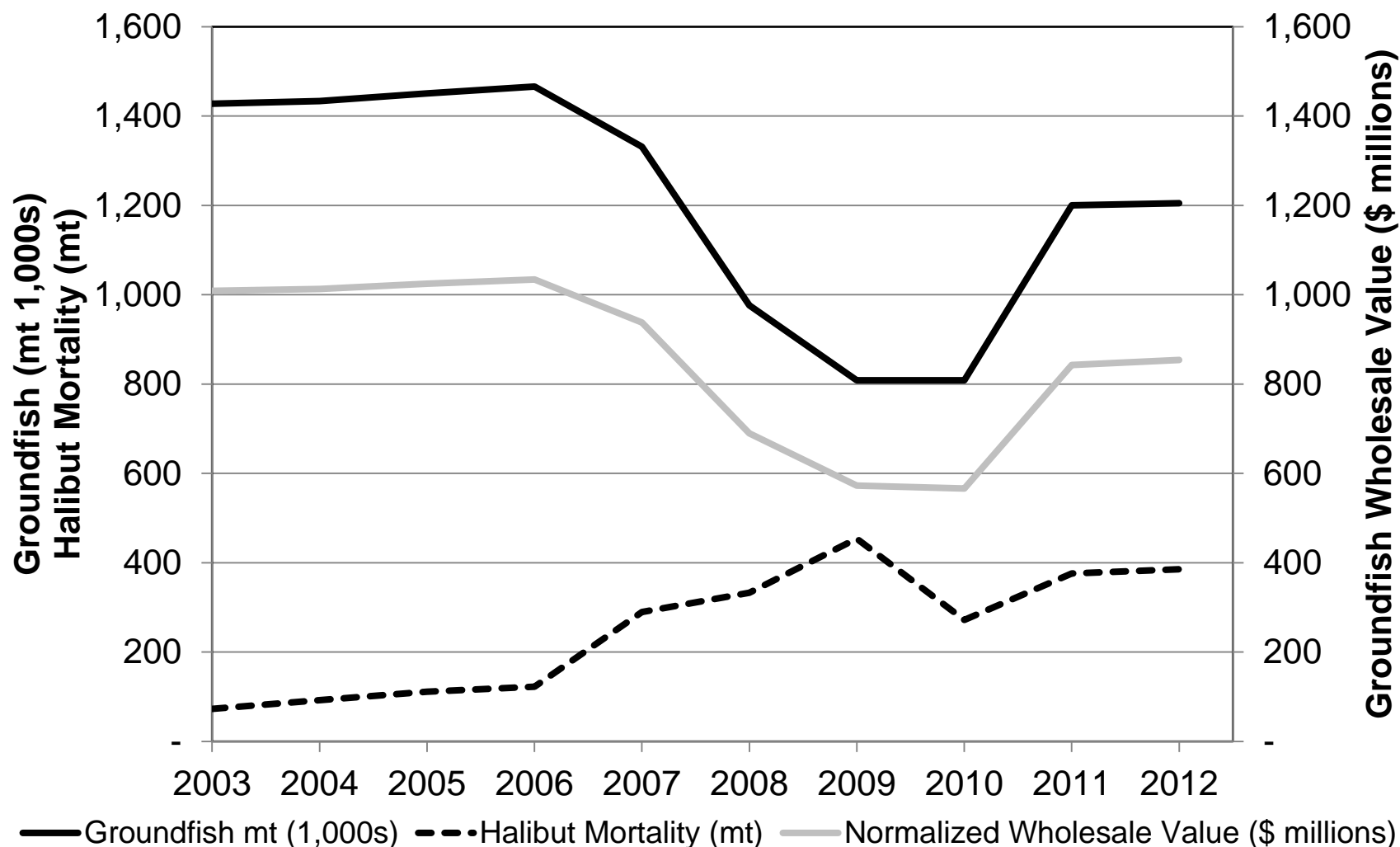
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Target Fishery / Apportionment Group	Halibut PSC Mortality (mt) in the BSAI by Hook & Line CVs and CPs									
Pacific Cod (LGL-CPs)	495	440	541	392	468	625	648	542	476	549
Pacific Cod (LGL-CVs)	2	5	6	3	6	12	3	2	1	2
Other non-IFQ Longline Target Fisheries	22	22	12	17	7	3	8	11	4	6
All Targets	520	467	559	412	481	640	658	555	482	556

Note: NA indicates that the data has not available for disclosure to protect data confidentiality.

Source: Developed by Northern Economics based on CAS data from AKFIN.

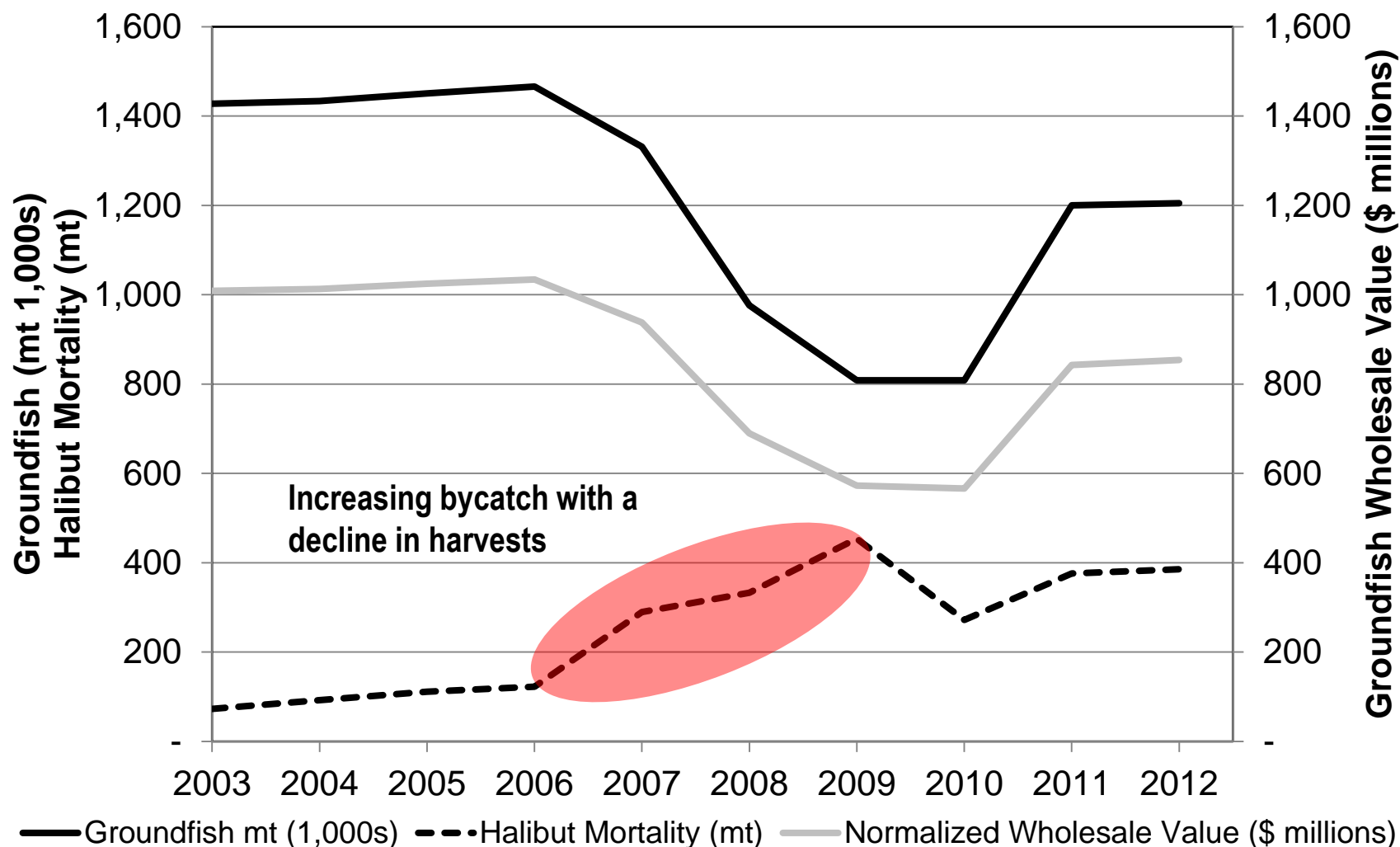


Figure 4. Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in Pollock Target Fisheries, 2003 - 2012



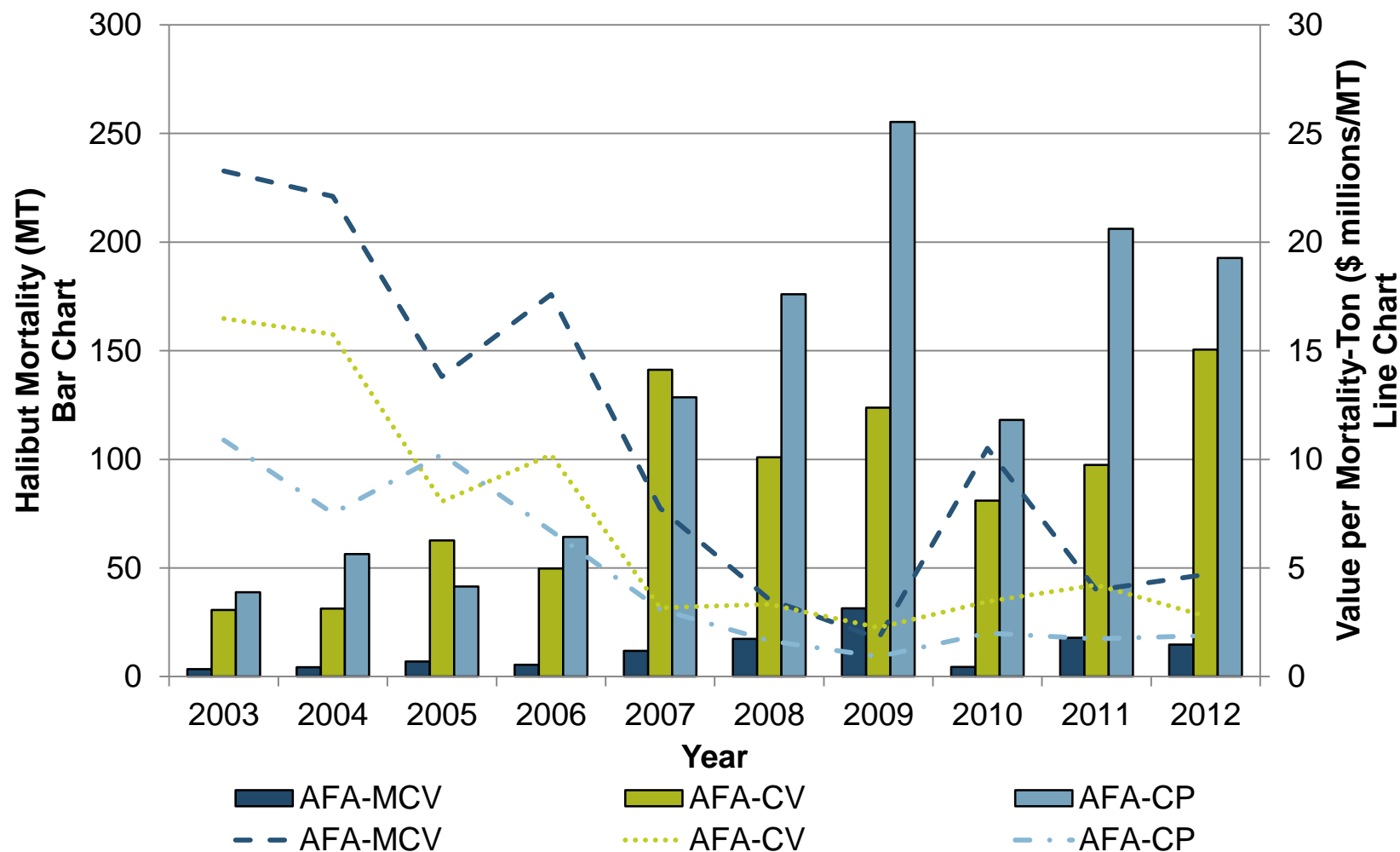
Note: Includes only harvests and values of sectors included in Table 12. Axes values are scaled so that the changes in the different variables are relative.

Figure 4. Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in Pollock Target Fisheries, 2003 - 2012



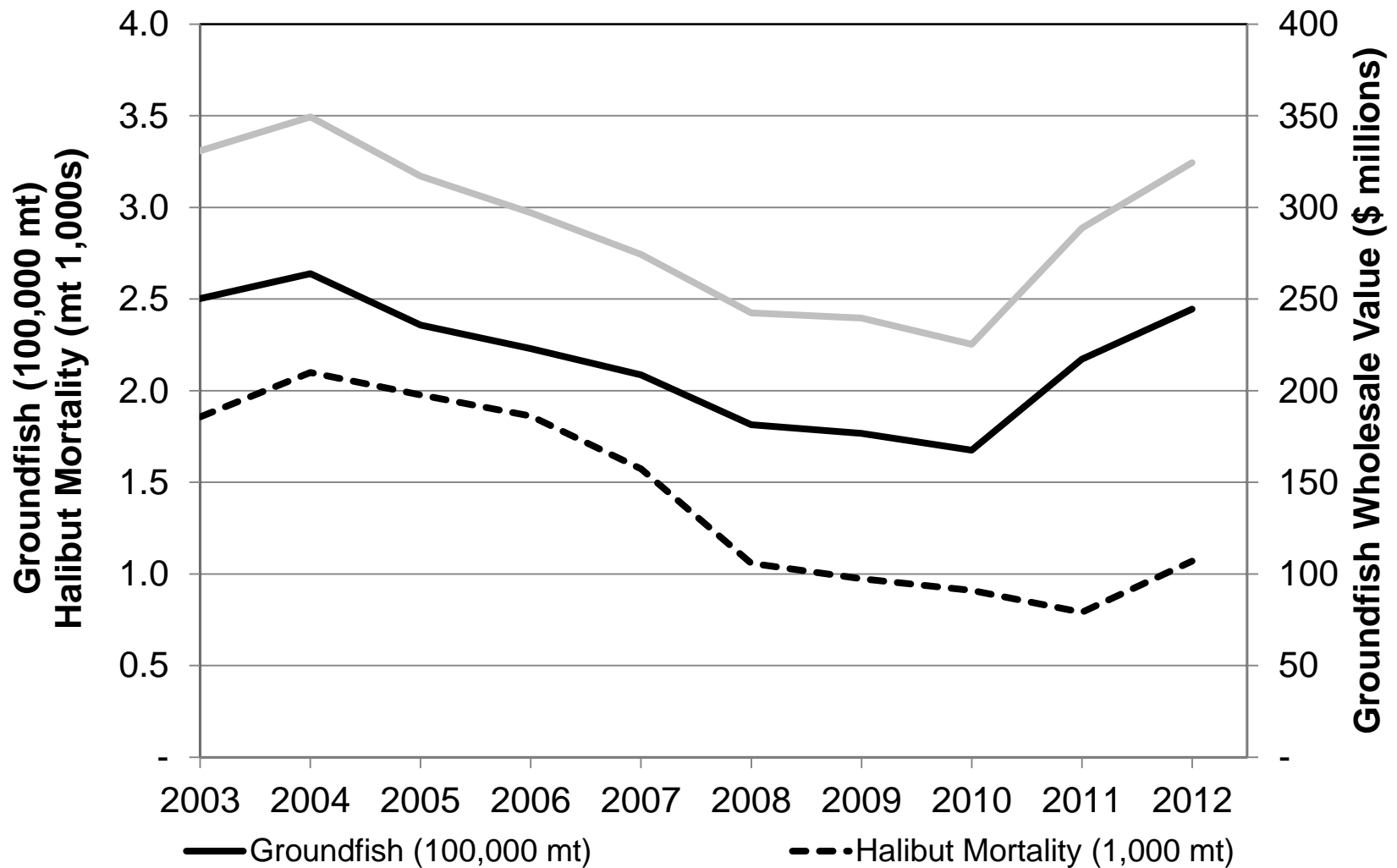
Note: Includes only harvests and values of sectors included in Table 12. Axes values are scaled so that the changes in the different variables are relative.

Figure 5. Annual Halibut Mortality and Groundfish Wholesale Value per MT of Halibut in AFA Pollock Target Fisheries, 2003-2012



Note: Wholesale values per ton of groundfish harvested in the pollock fishery have been normalized to reduce the effects of due to inflation, exchange rates and other changes in market prices.

Figure 6. Harvest, Halibut Bycatch and Normalized Wholesale Value of Ground- fish in Pacific Cod Target Fisheries of Included Sectors, 2003 - 2012



Note: Includes only harvests and values of sectors included in Table 14—i.e. AFA-CPs are not included. Axes values are scaled so that the changes in the different variables are relative.

Figure 8. Annual Halibut Mortality and Groundfish Wholesale Value per MT Halibut in Pacific Cod Trawl Fisheries, 2003-2012

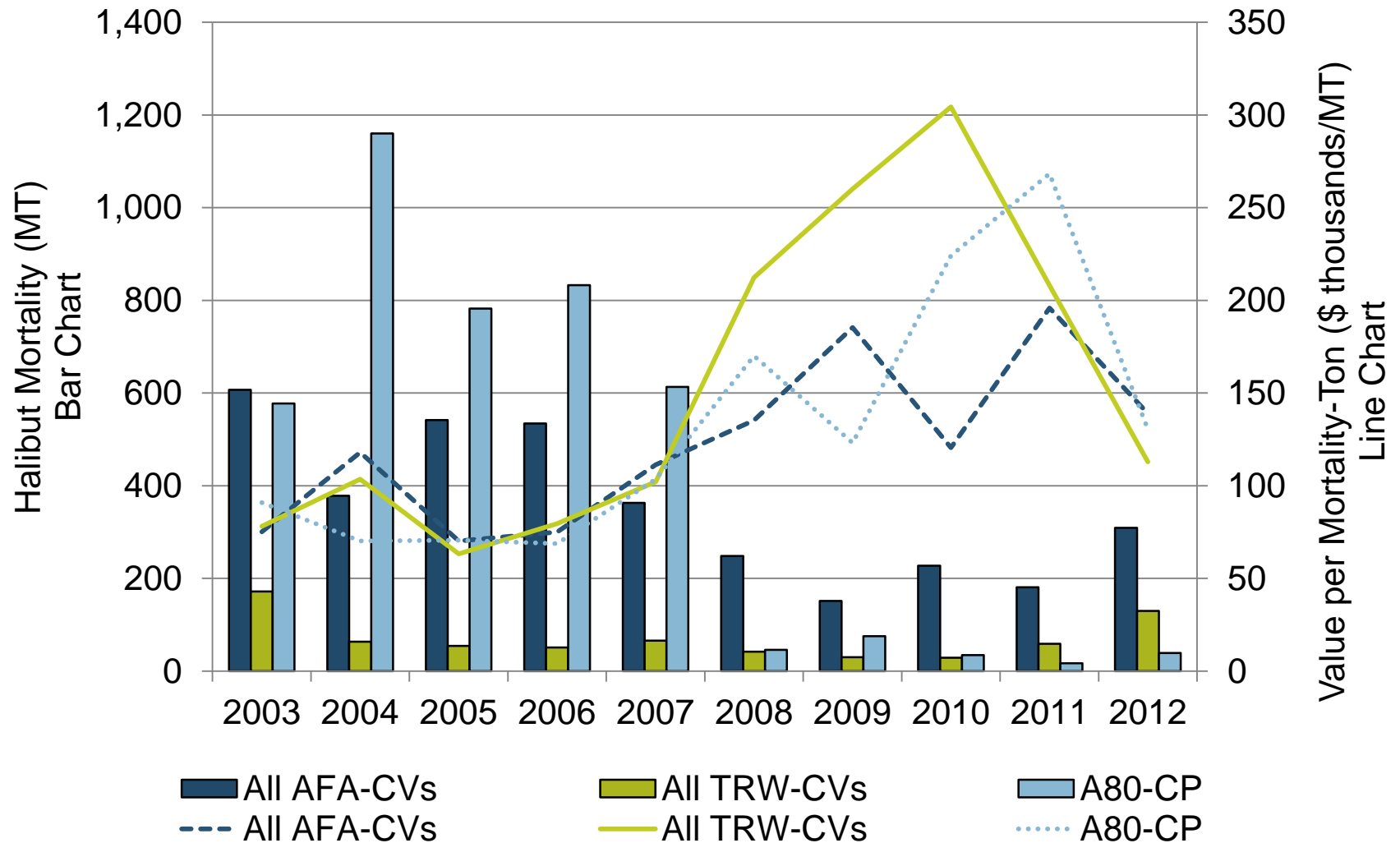


Figure 10. Annual Halibut Mortality and Groundfish Wholesale Value per MT Halibut in Pacific Cod Longline Fisheries, 2003-2012

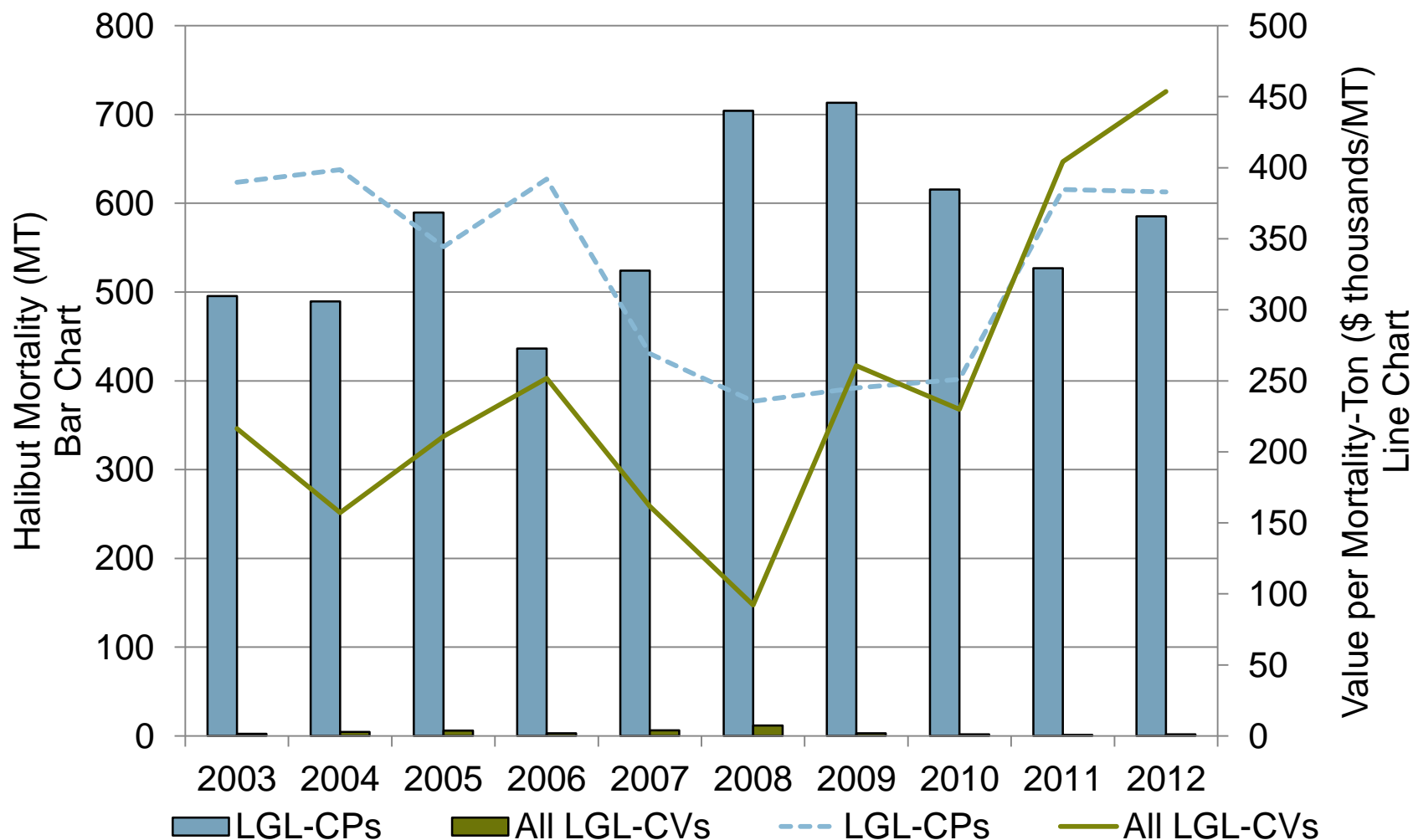


Figure 12. Annual Halibut Mortality and Groundfish Wholesale Value per MT Halibut in Pacific Cod Pot Fisheries, 2003-2012

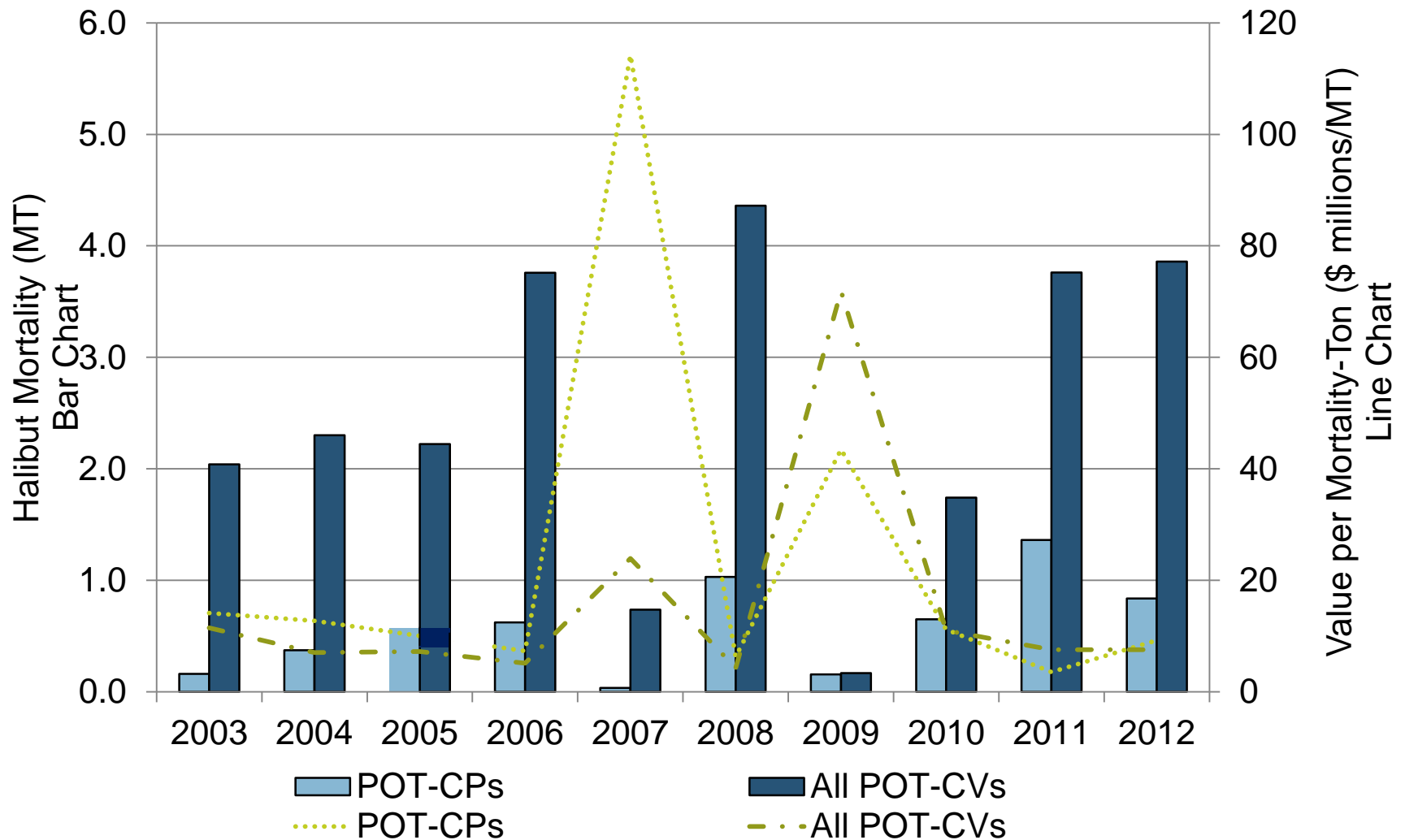


Figure 14. Groundfish Harvest, Halibut Bycatch & Normalized Wholesale Value of Groundfish in Yellowfin Sole Target Fisheries of Included Sectors

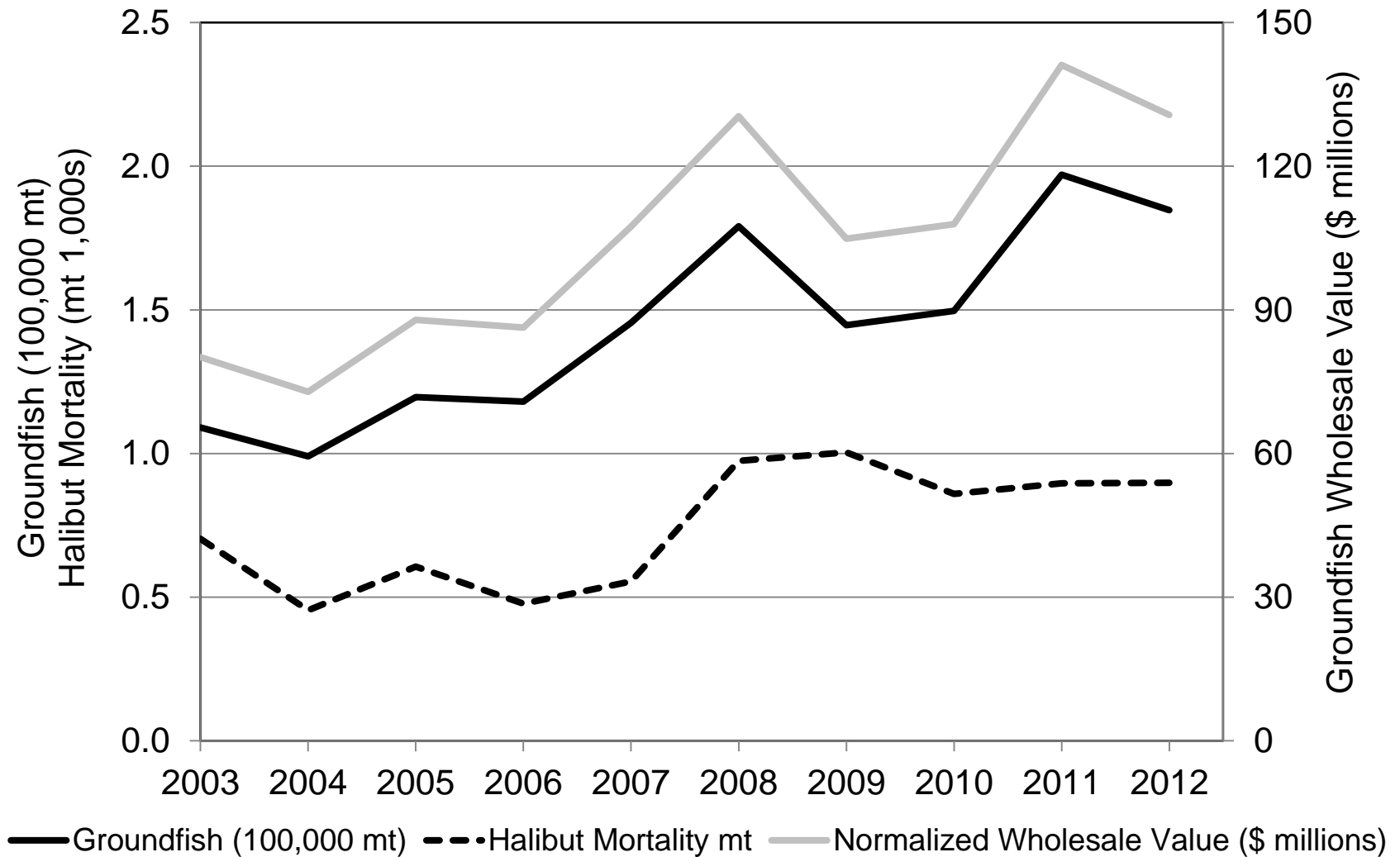


Figure 15. Halibut Bycatch Rates in Yellowfin Sole Targeted Fisheries by Sector, 2003-2012

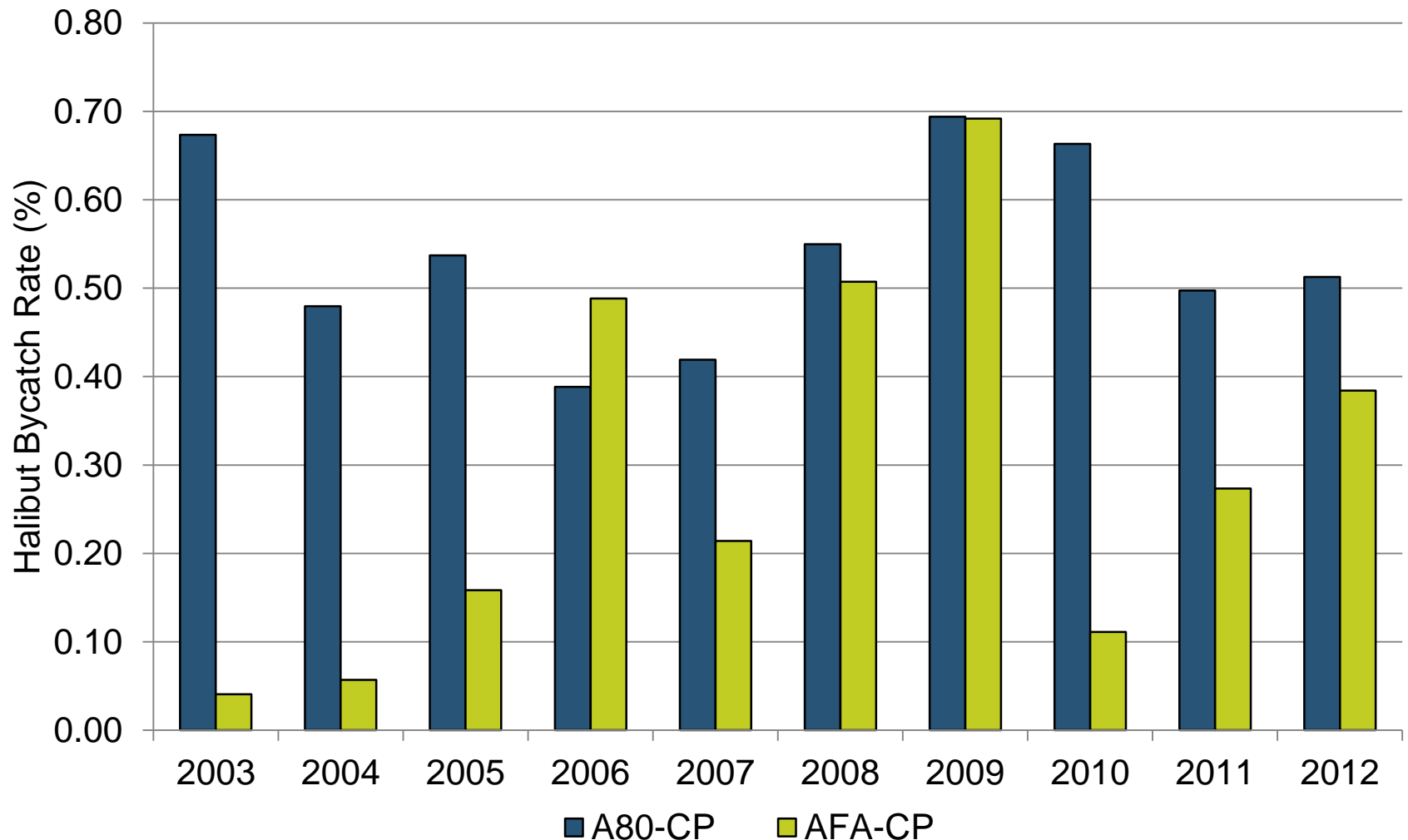
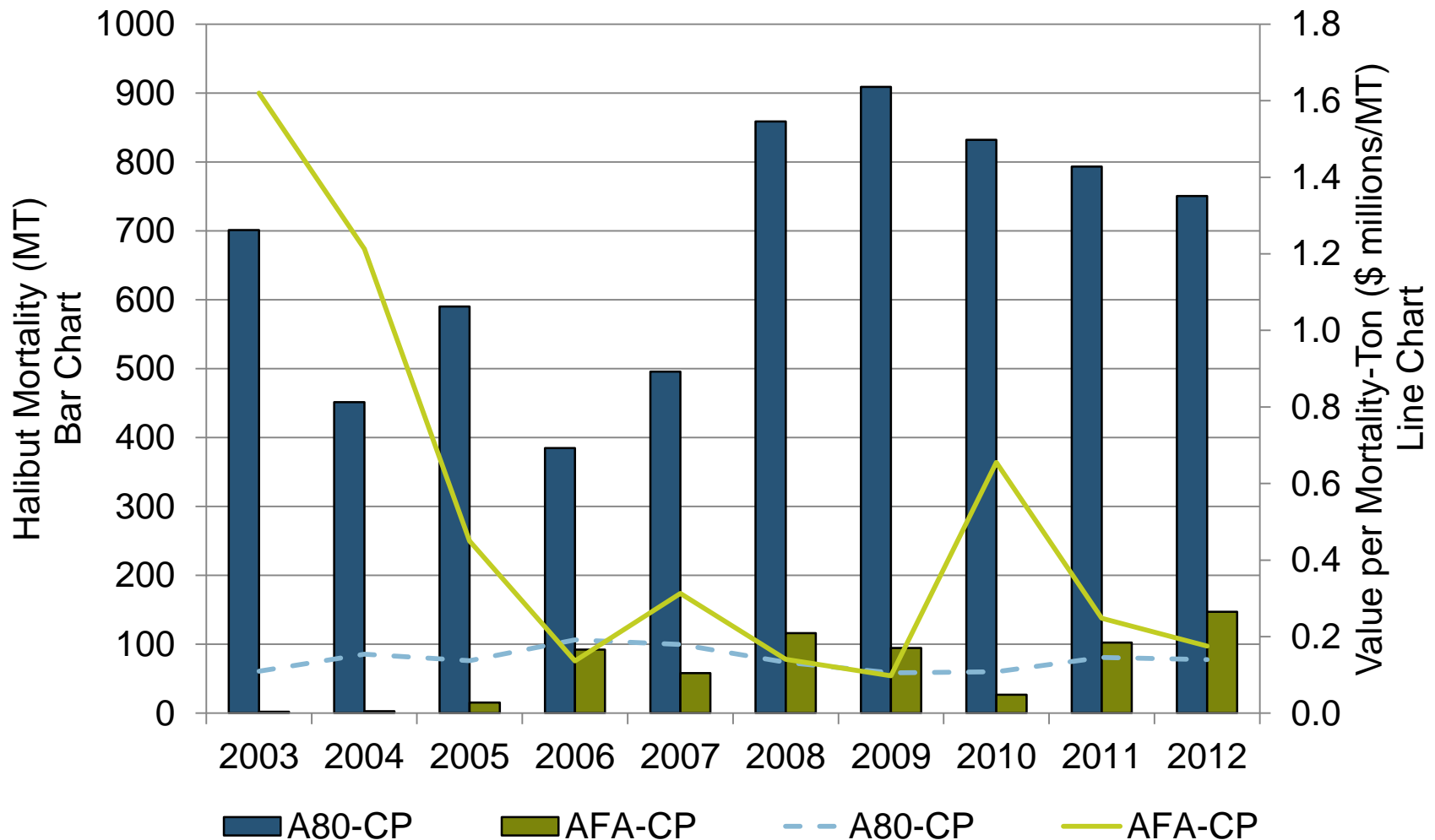


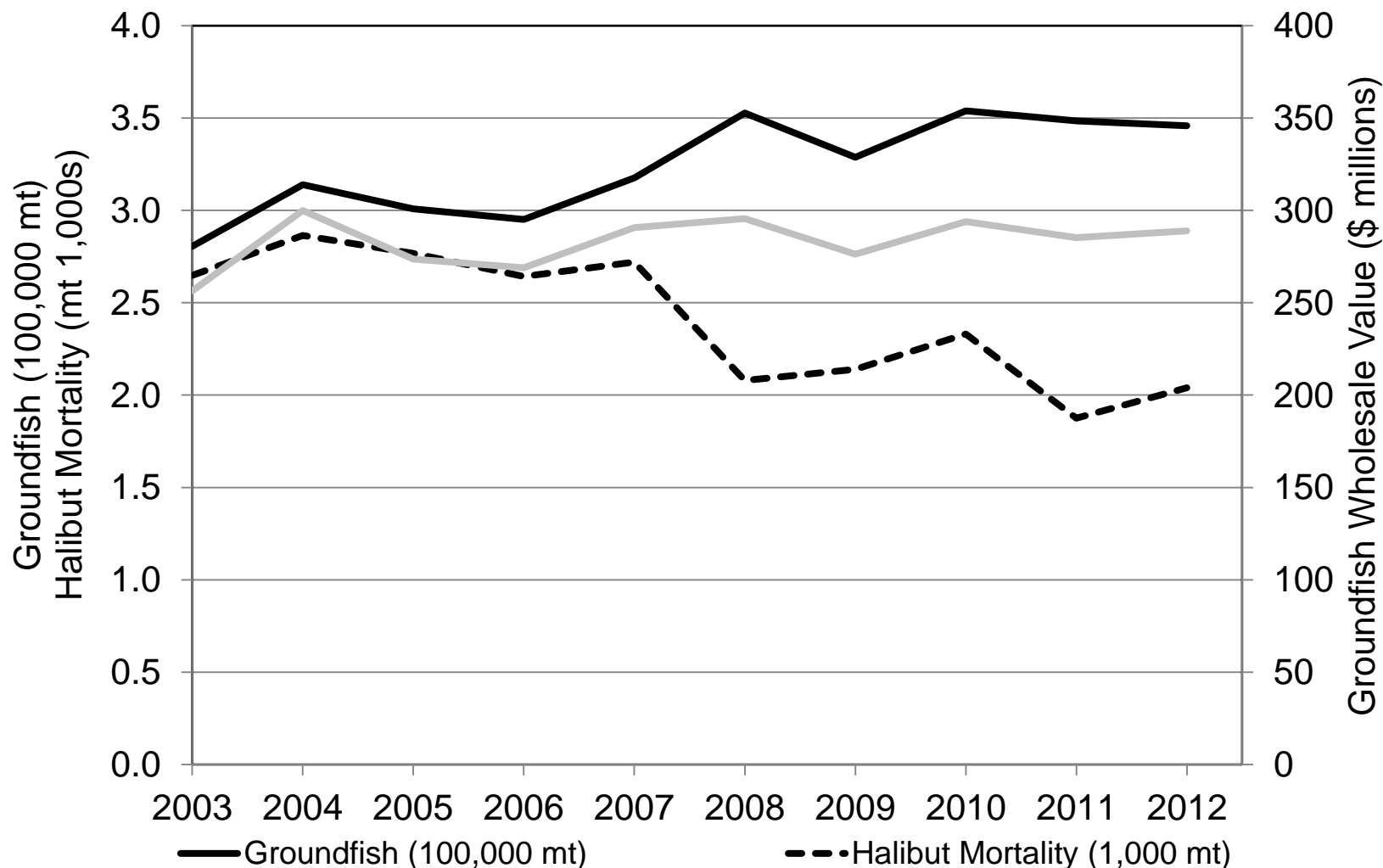
Figure 16. Annual Halibut Mortality and Groundfish Wholesale Value per MT Halibut in Yellowfin Sole Target Fisheries



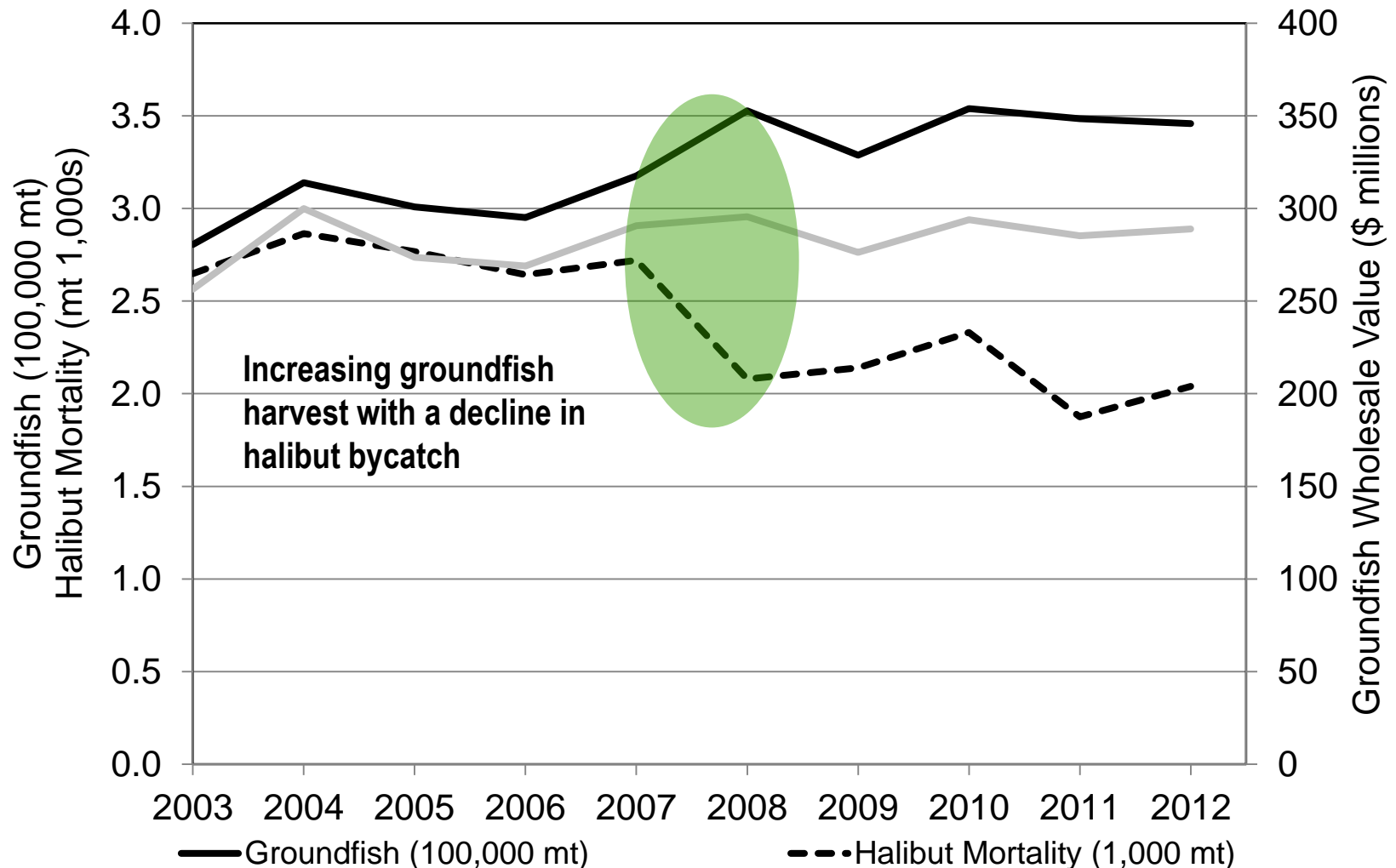
Halibut Bycatch of Amendment 80 CPs

- **Amendment 80 implemented in 2008**
- **Exclusive allocations of yellowfin sole, rock sole, Atka mackerel, flathead sole, and Pacific cod.**
 - Pacific cod apportionment to all trawl CPs was reduced under Amendment 85.
- **Since Amendment 80, the sector has increased total groundfish harvest while reducing halibut bycatch**

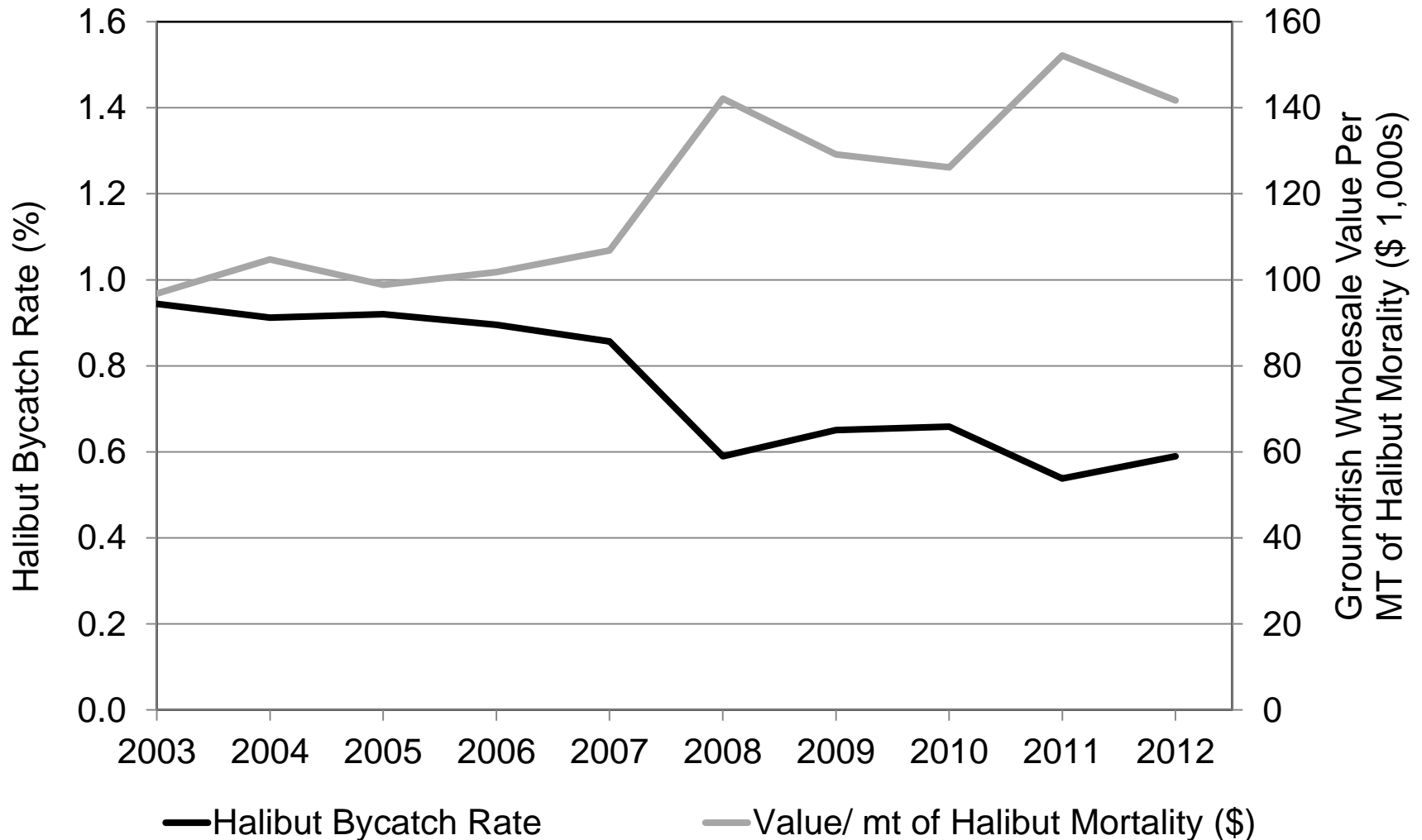
Figure Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in All A80-CP Target Fisheries, 2003 - 2012



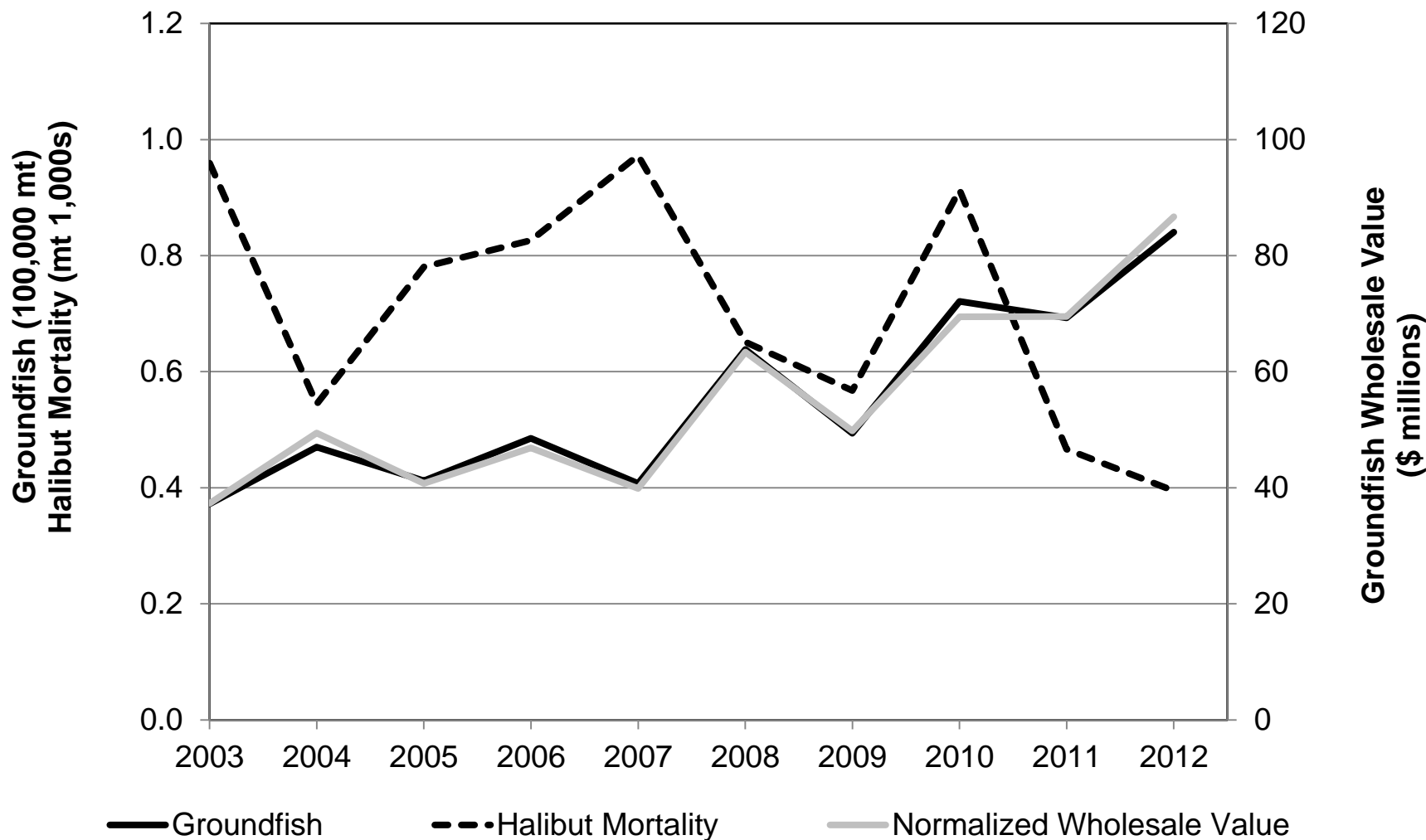
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in All A80-CP Target Fisheries, 2003 - 2012



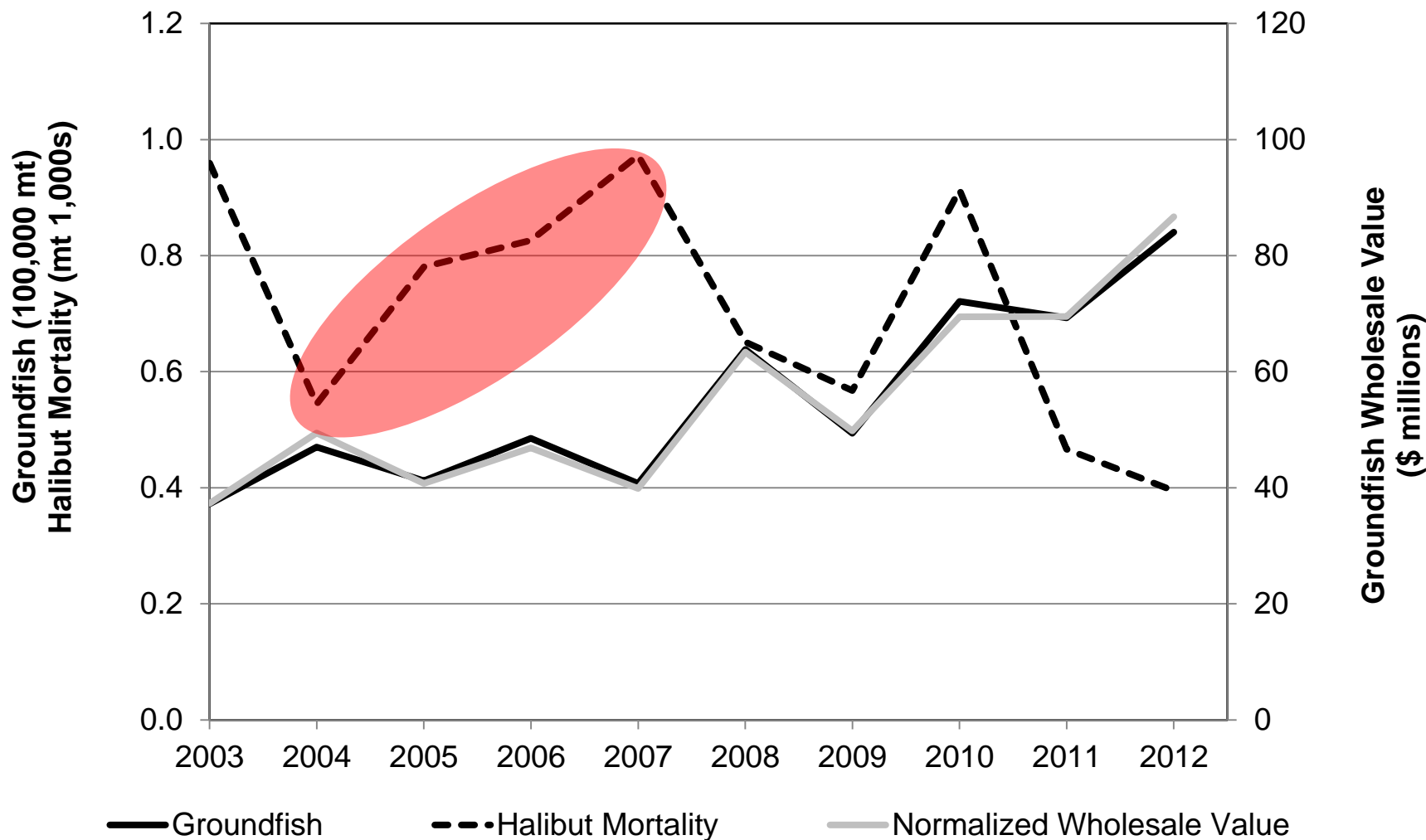
Halibut Bycatch Rates and Groundfish Value per MT of Halibut Mortality for A80-CPs across All Target Fisheries, 2003–2012



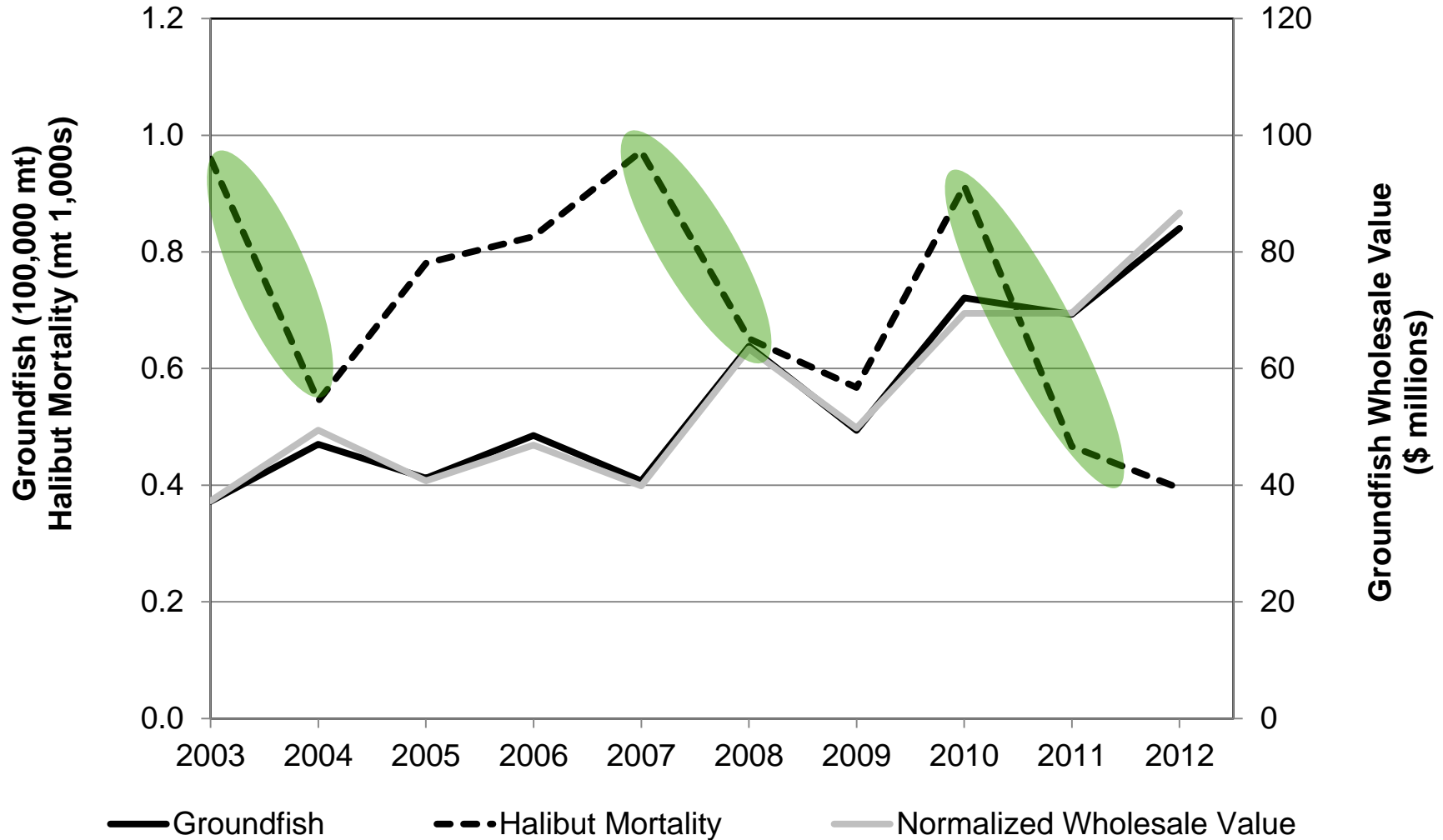
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Rock Sole, 2003 - 2012



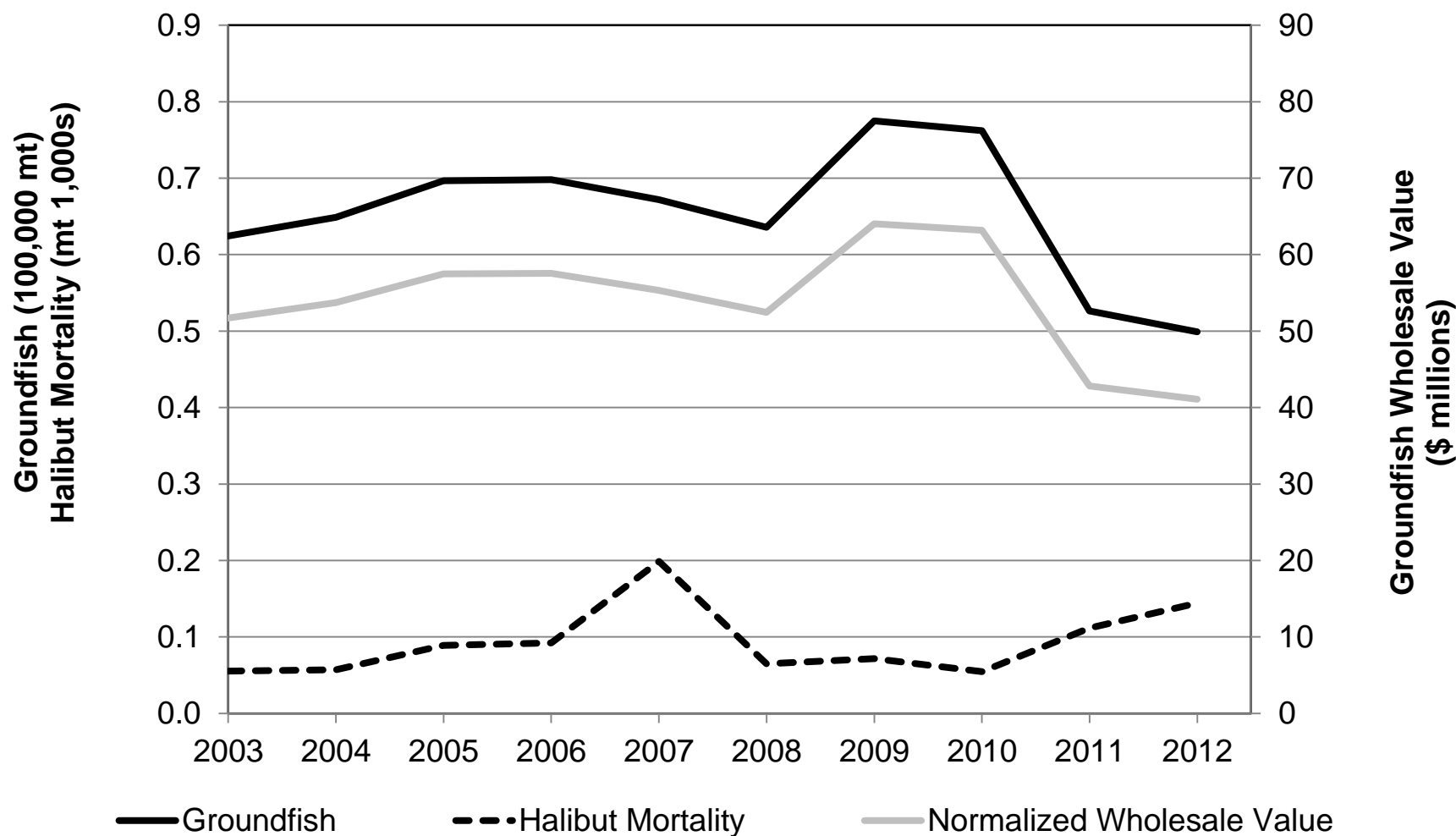
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Rock Sole, 2003 - 2012



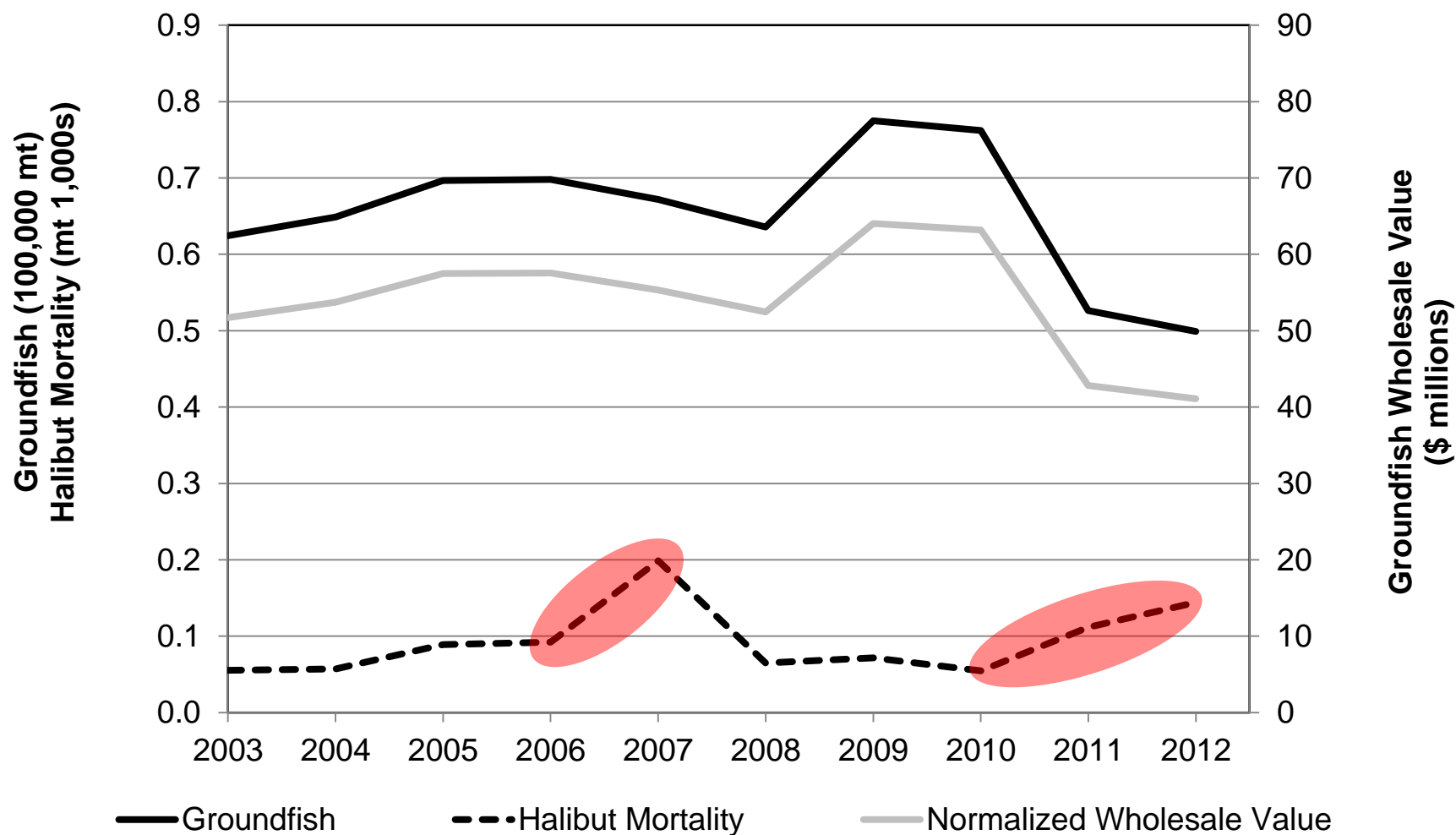
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Rock Sole, 2003 - 2012



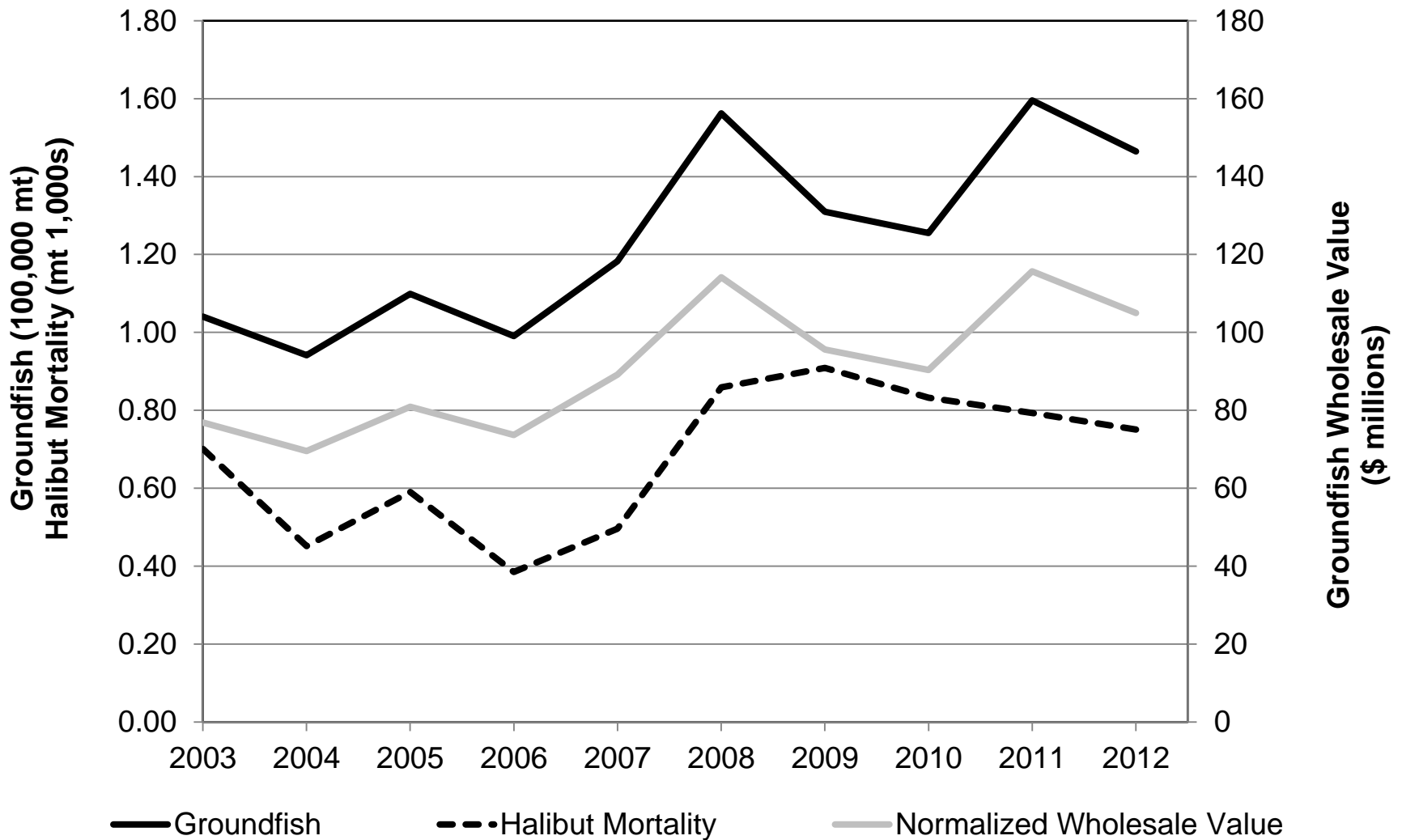
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Atka Mackerel, 2003 - 2012



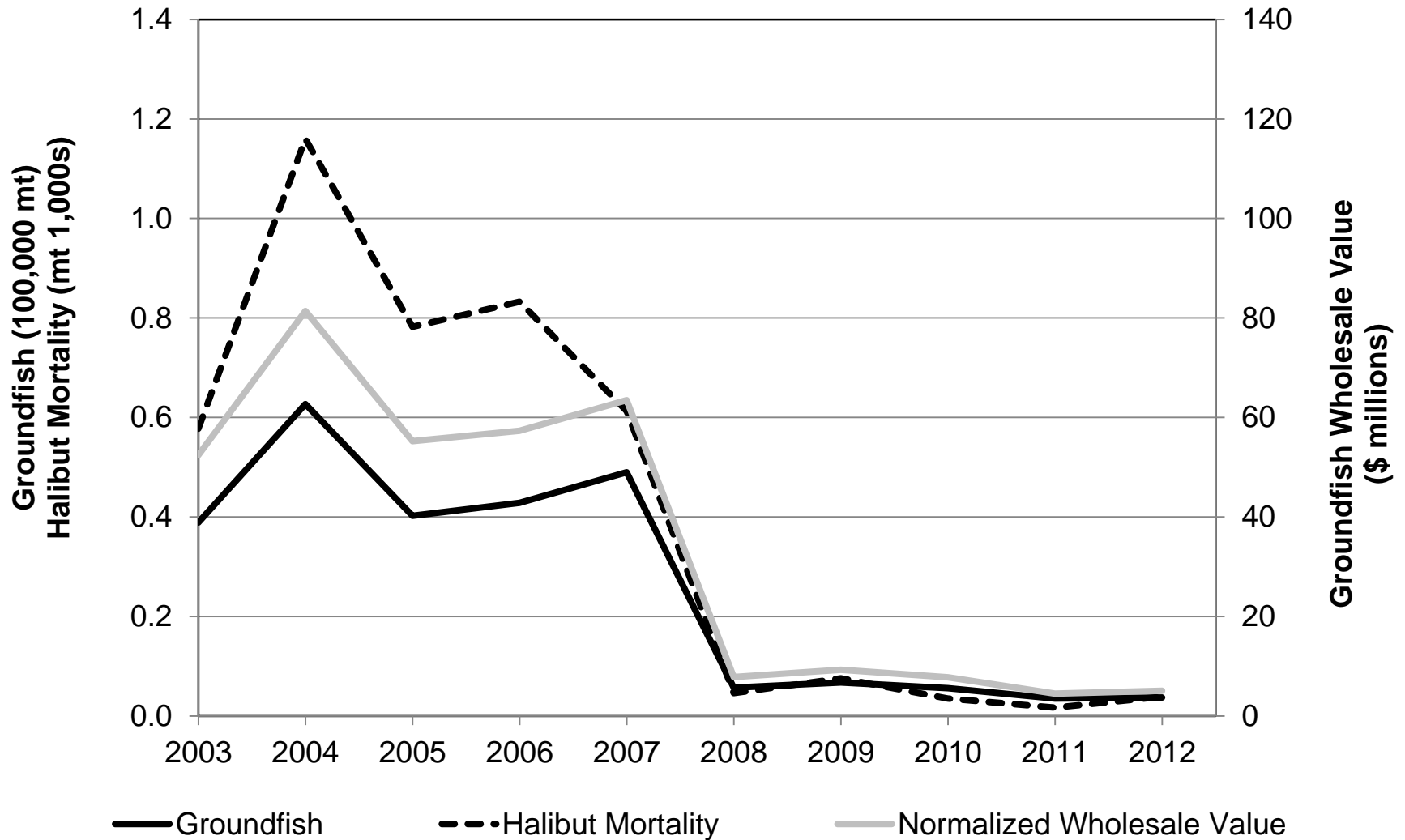
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Atka Mackerel, 2003 - 2012



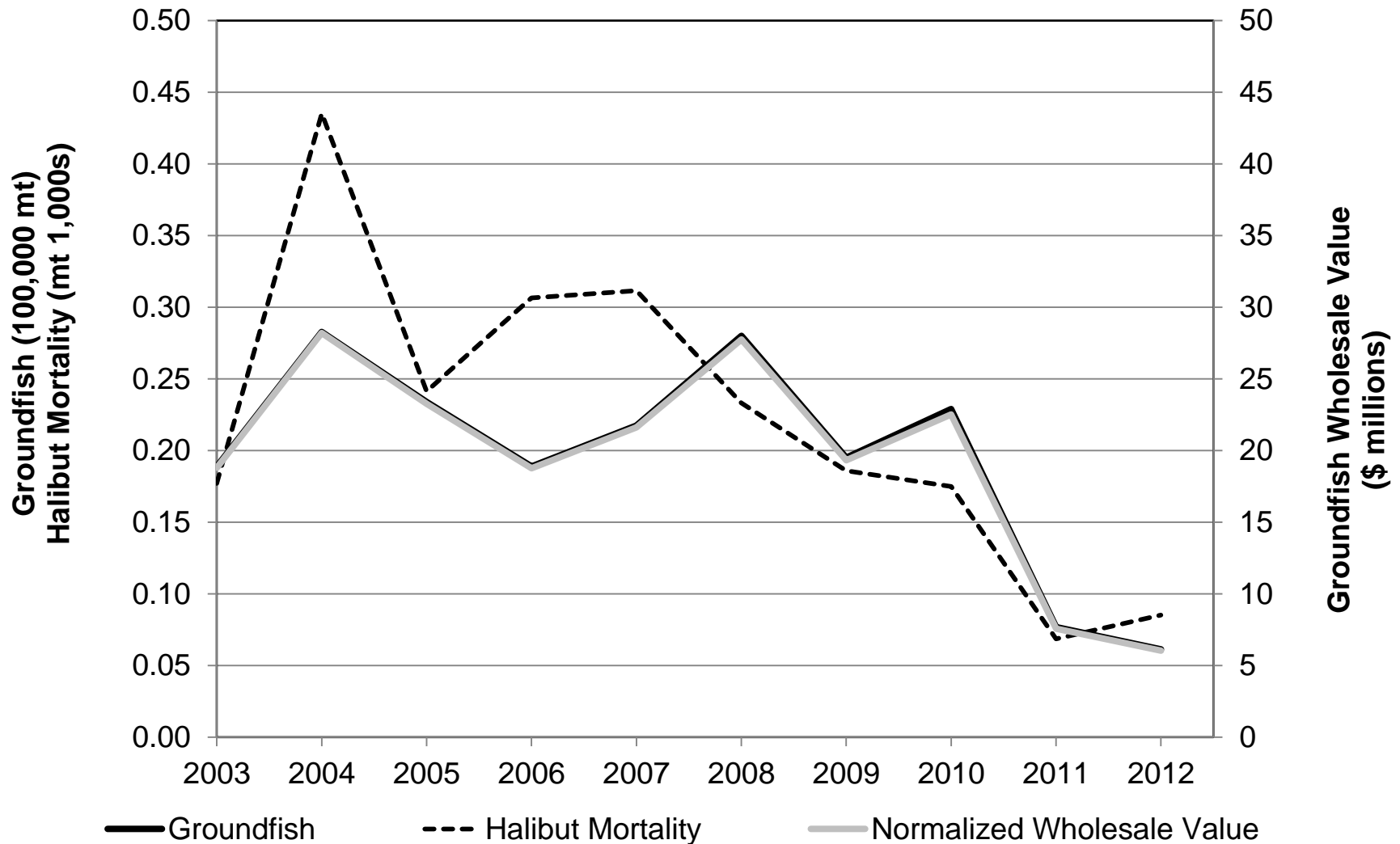
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Yellowfin Sole, 2003 - 2012



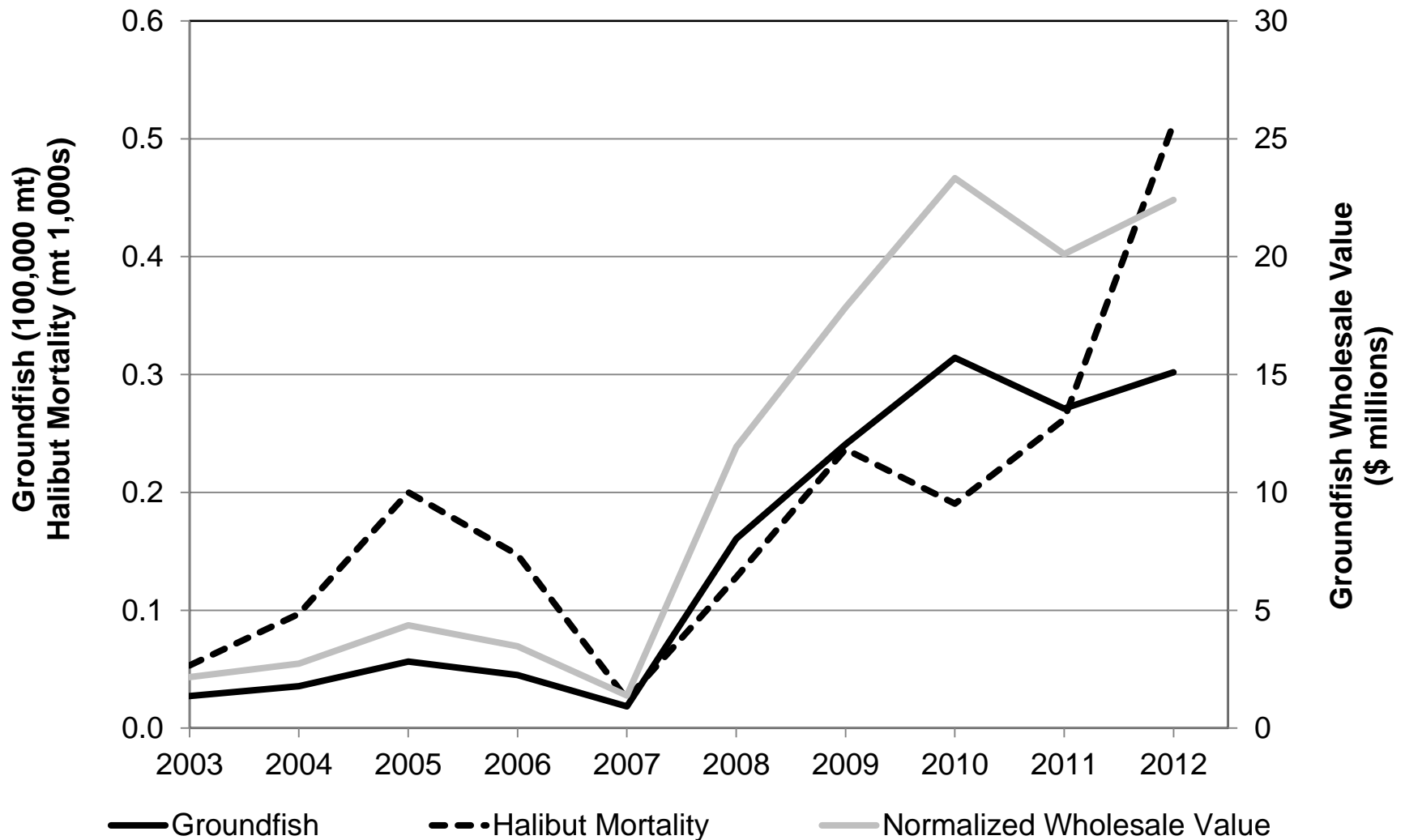
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Pacific Cod, 2003 - 2012



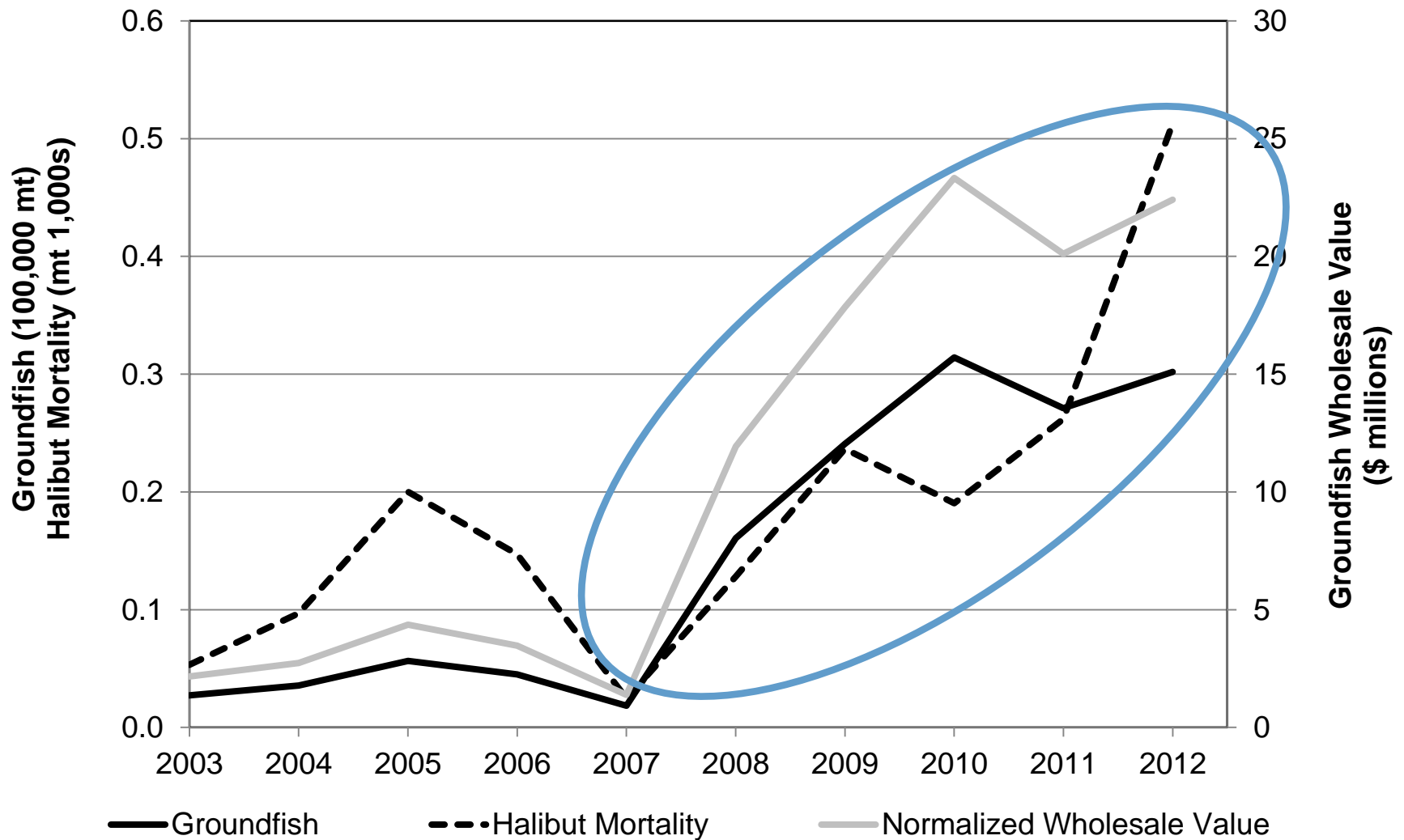
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Flathead Sole, 2003 - 2012



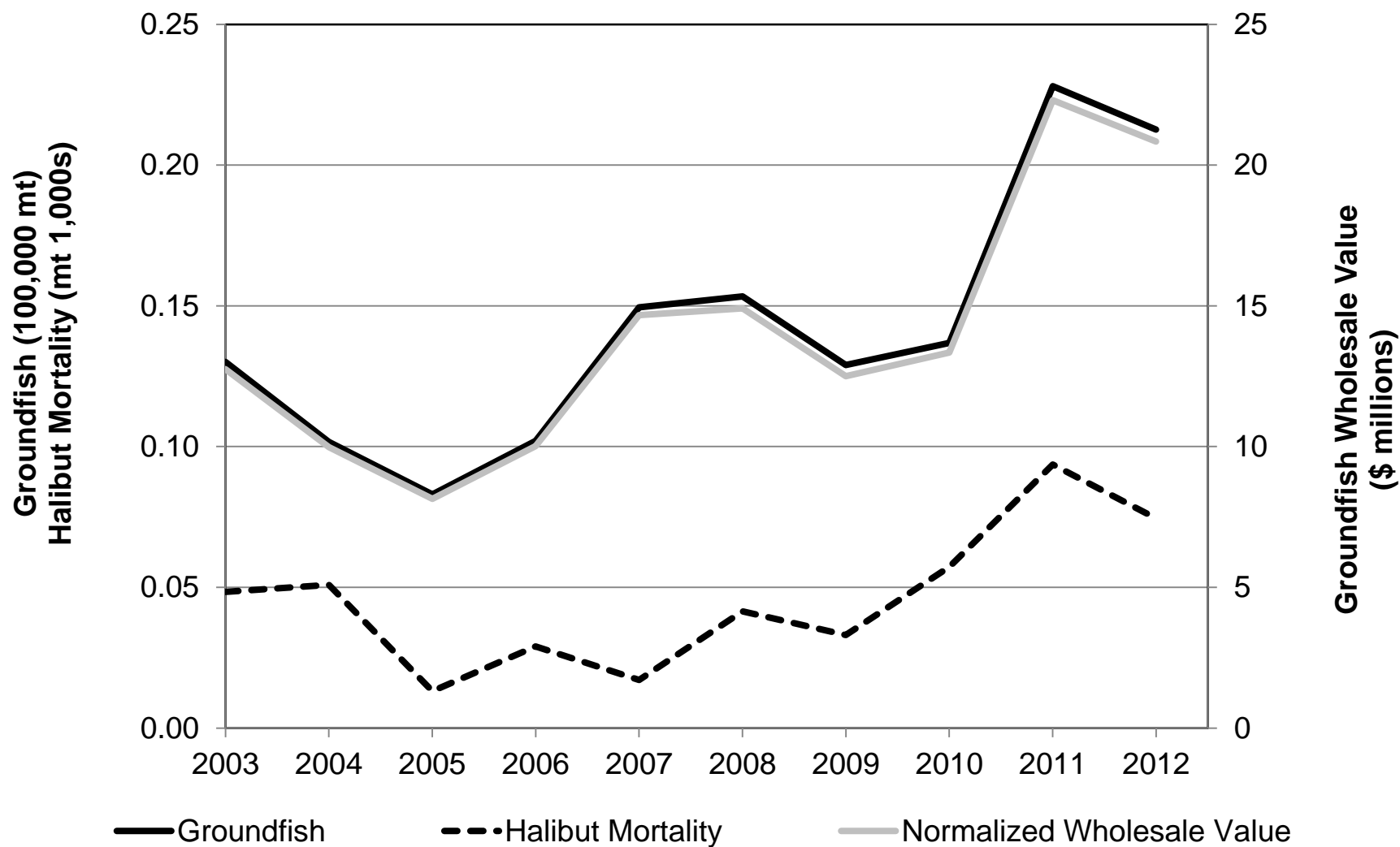
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Arrowtooth, 2003 - 2012



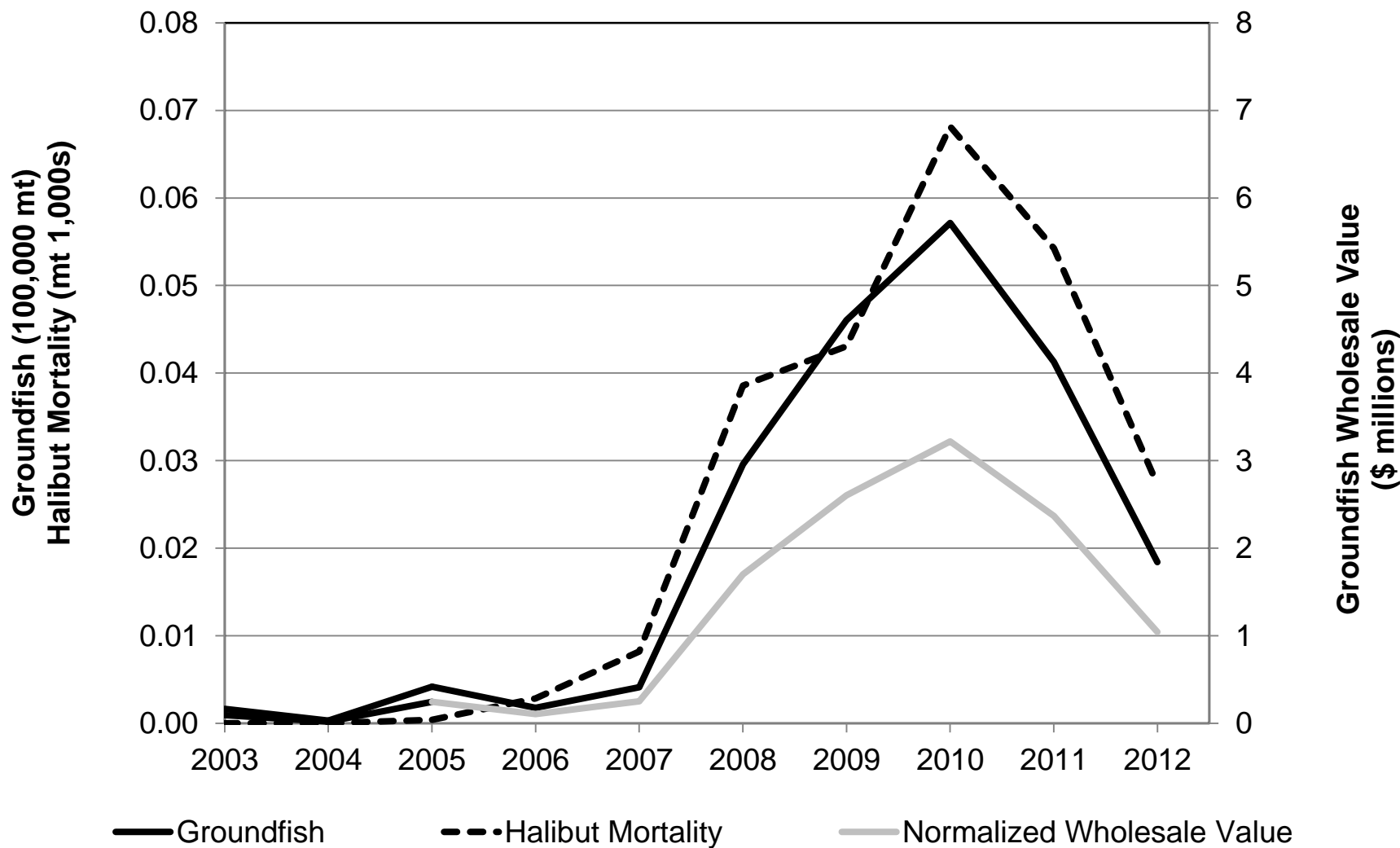
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Arrowtooth, 2003 - 2012



Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Rockfish, 2003 - 2012



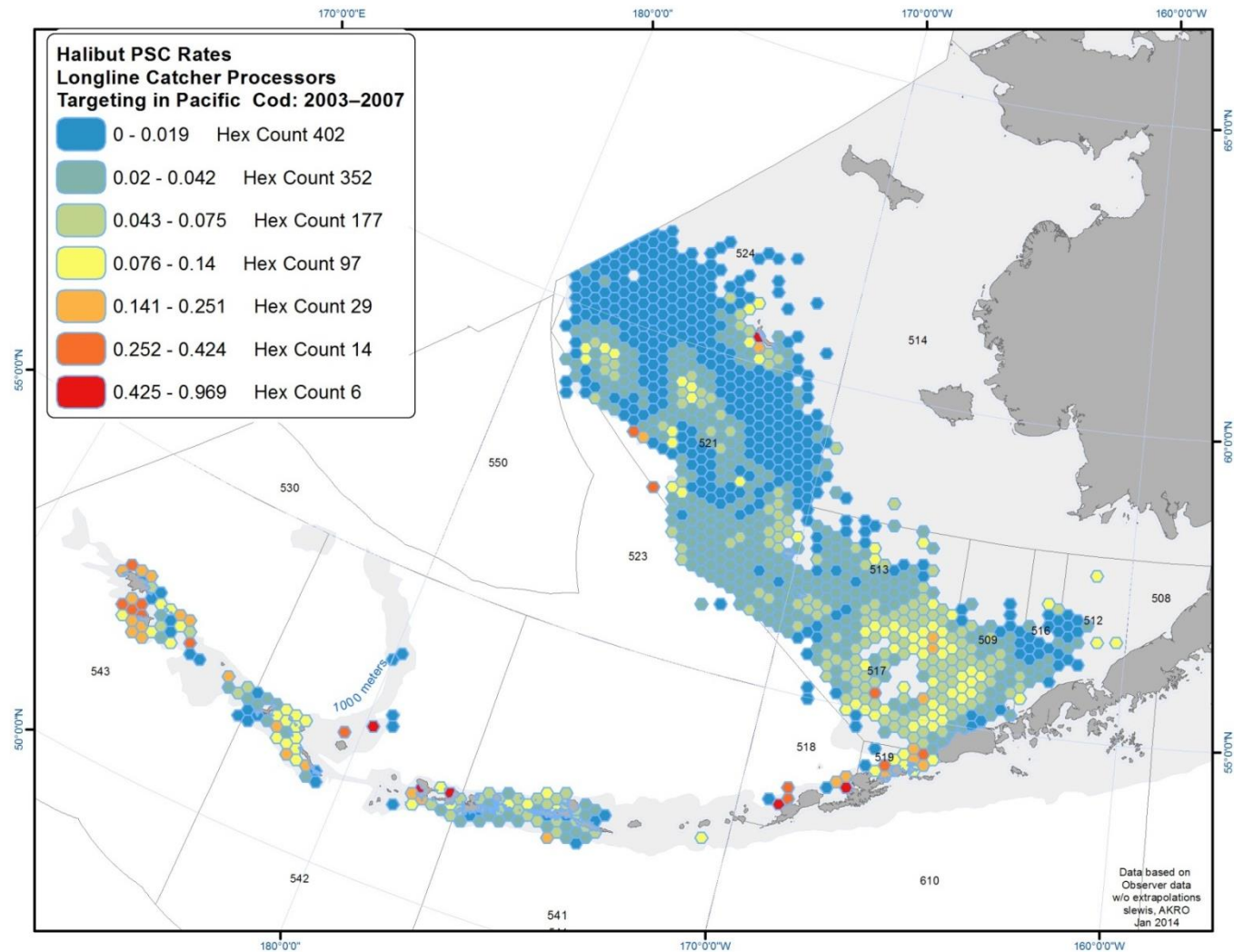
Groundfish Harvest, Halibut Bycatch and Normalized Wholesale Value of Groundfish in A80-CP Target Fisheries for Pollock, 2003 - 2012



GIS Maps of Halibut Bycatch by Fishery

- **Pairs of maps compare bycatch from 2003 – 2007 to post Amendment 80 (2008 – 2012)**
- **Maps for ...**
 - Pacific cod LGL-CPs
 - Trawl CPs & MS (BSAI TLA + A80) in Pacific cod targets
 - Trawl CPs & MS (BSAI TLA + A80) in yellowfin sole targets
 - Trawl CPs & MS (BSAI TLA + A80) in rock sole targets

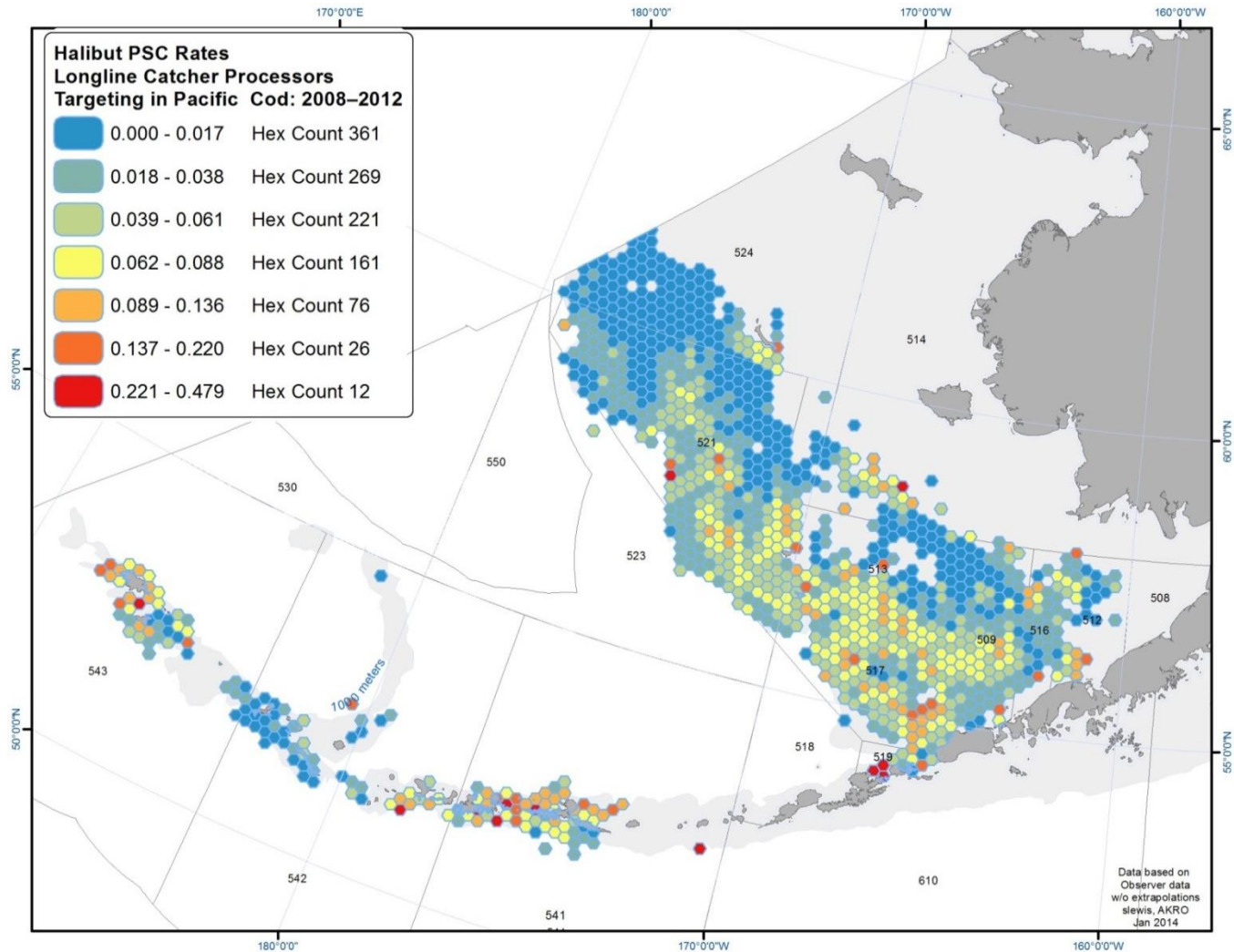
Halibut PSC Rates from 2003–2007 in the Pacific Cod Fishery of Longline Catcher Processors



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.



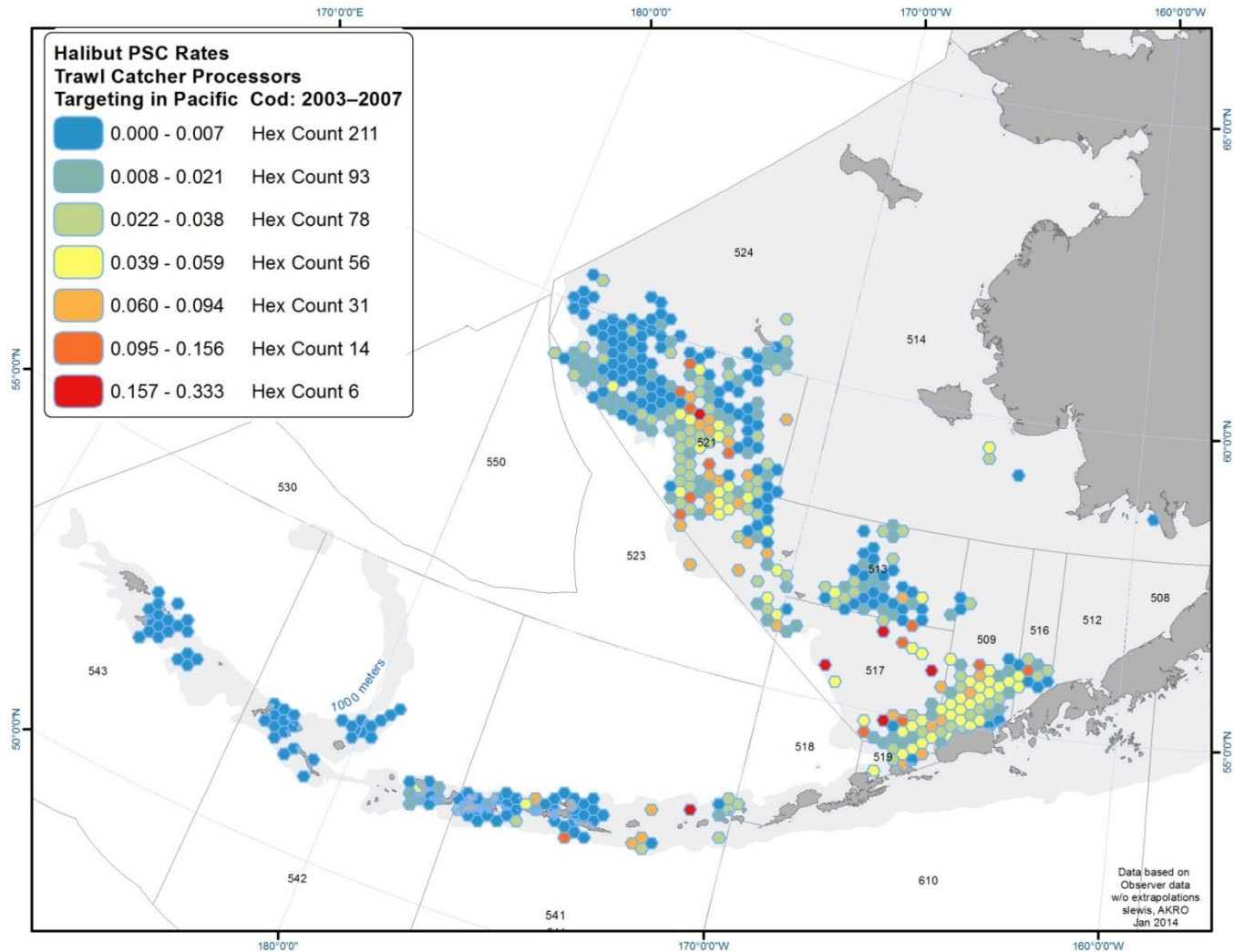
Halibut PSC Rates from 2008–2012 in the Pacific Cod Fishery of Longline Catcher Processors



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.



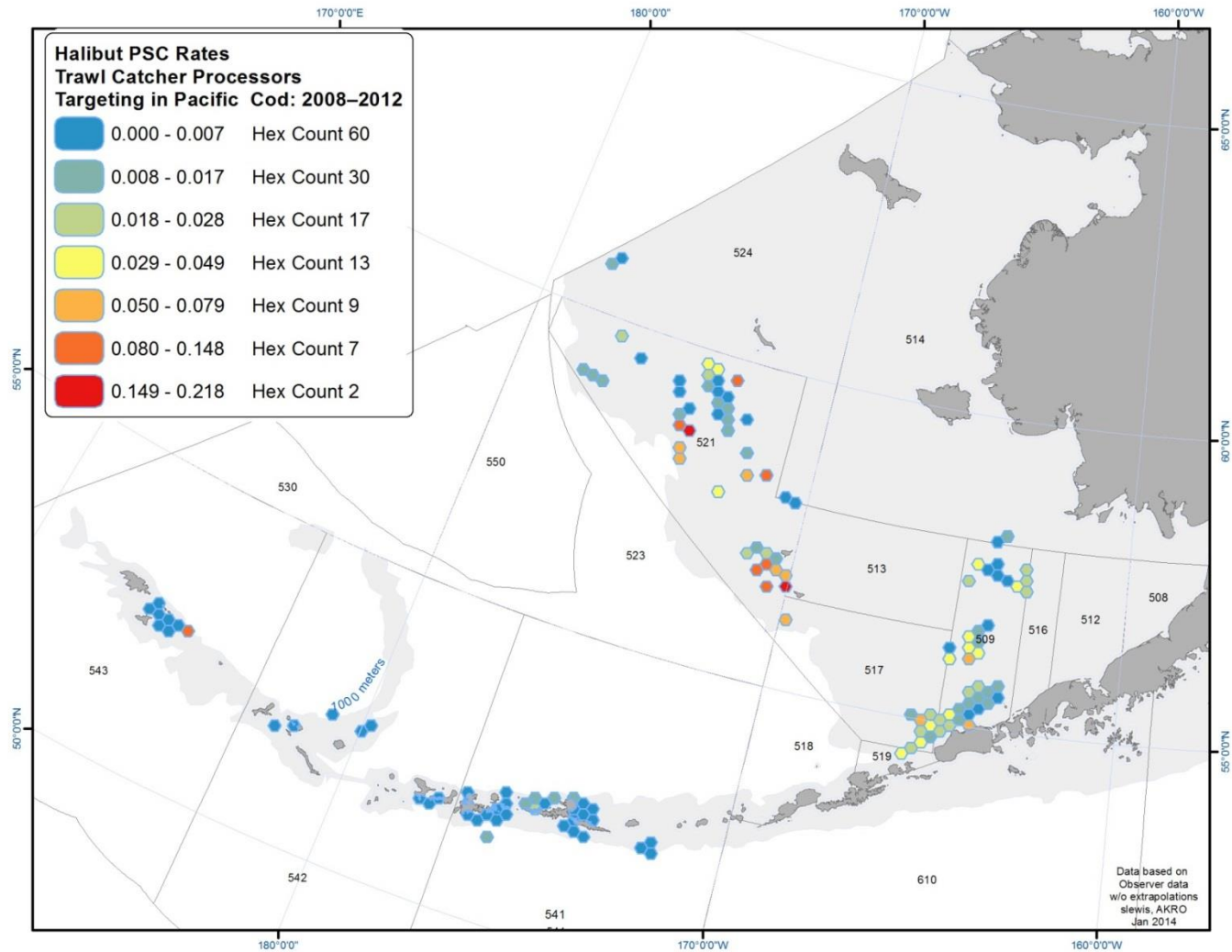
Halibut PSC Rates from 2003–2007 in the Pacific Cod Fishery of Trawl Catcher Processors and Motherships



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.



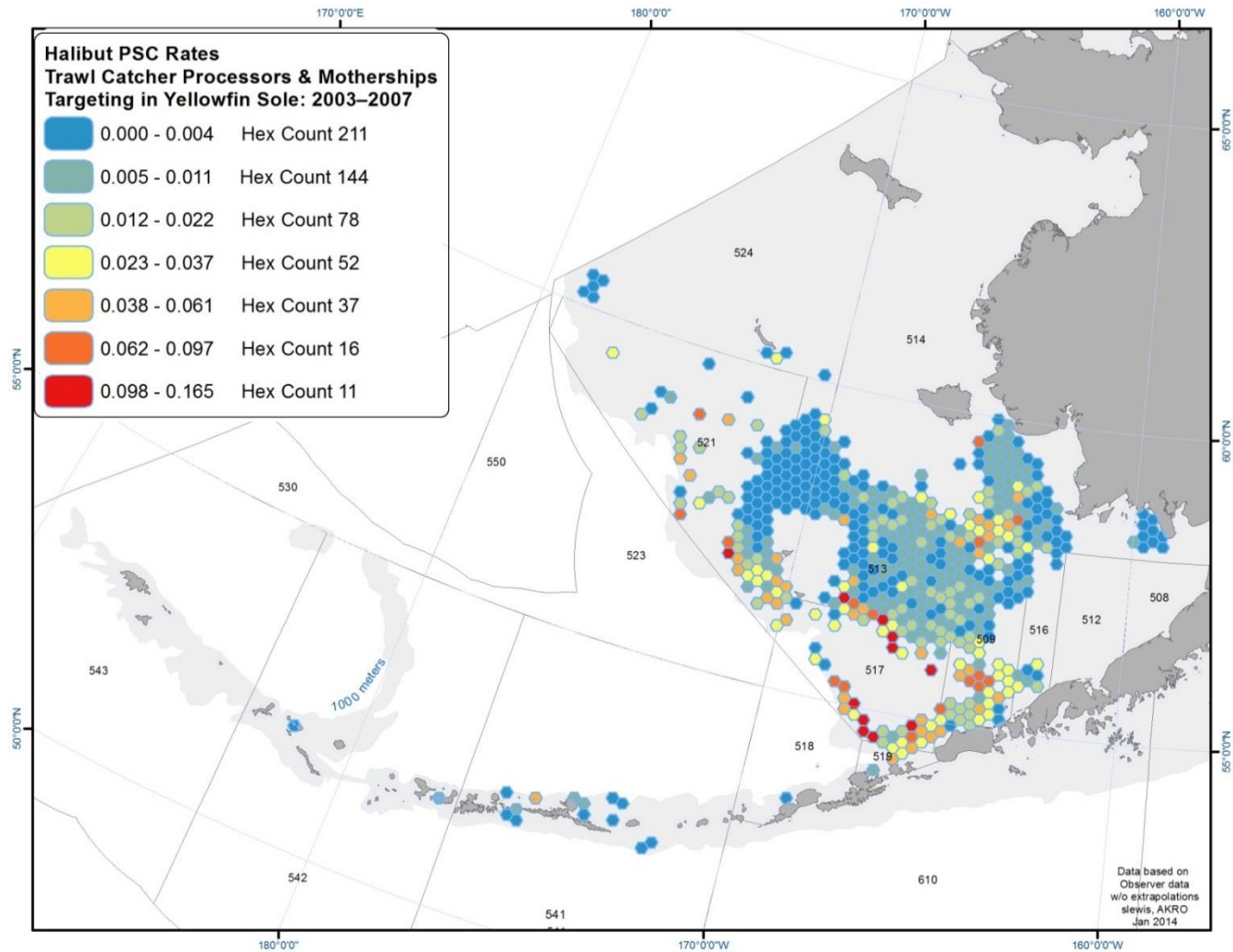
Halibut PSC Rates from 2008–2012 in the Pacific Cod Fishery of Trawl Catcher Processors and Motherships



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.



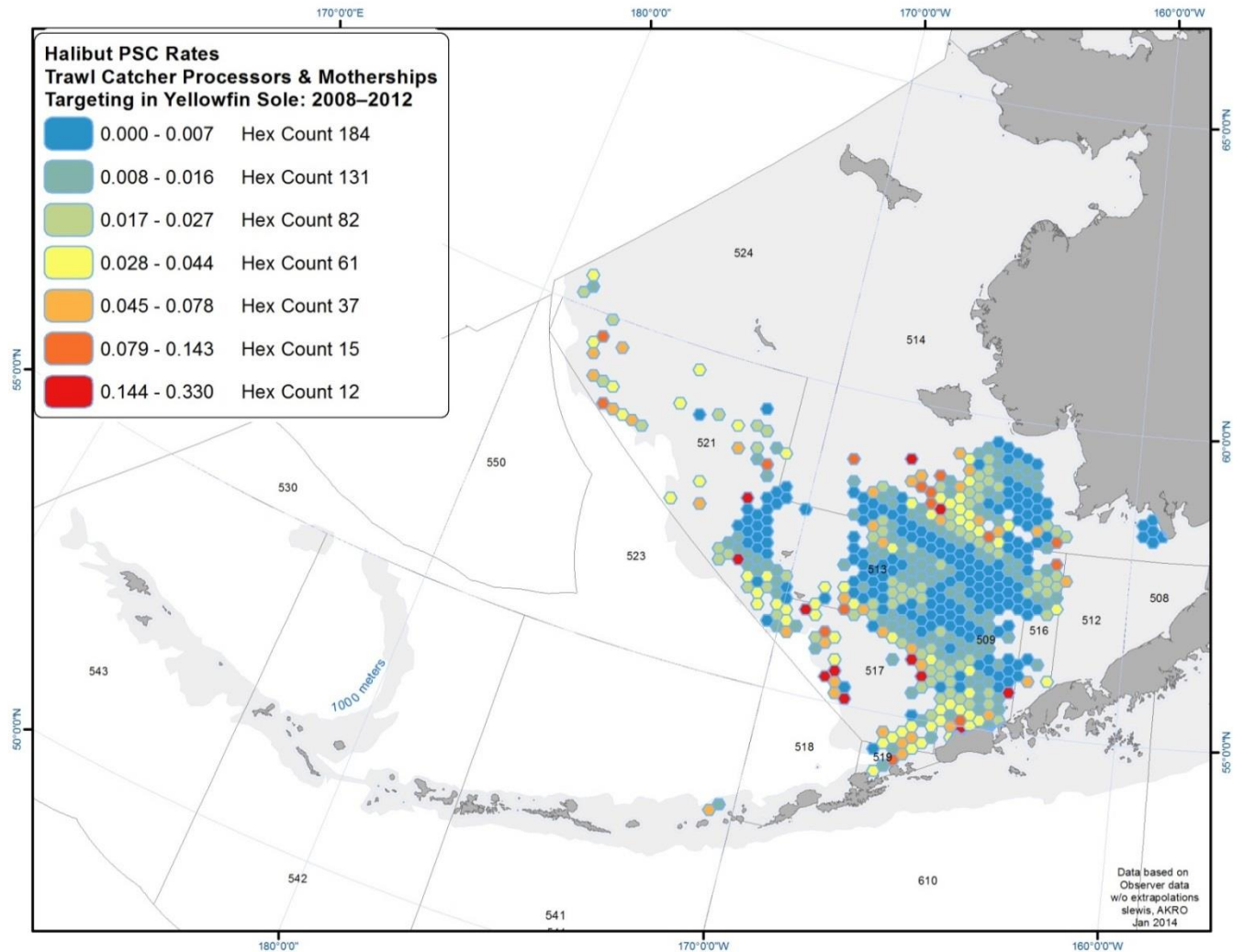
Halibut PSC Rates from 2003–2007 in the Yellowfin Sole Fishery of Trawl Catcher Processors and Motherships



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.



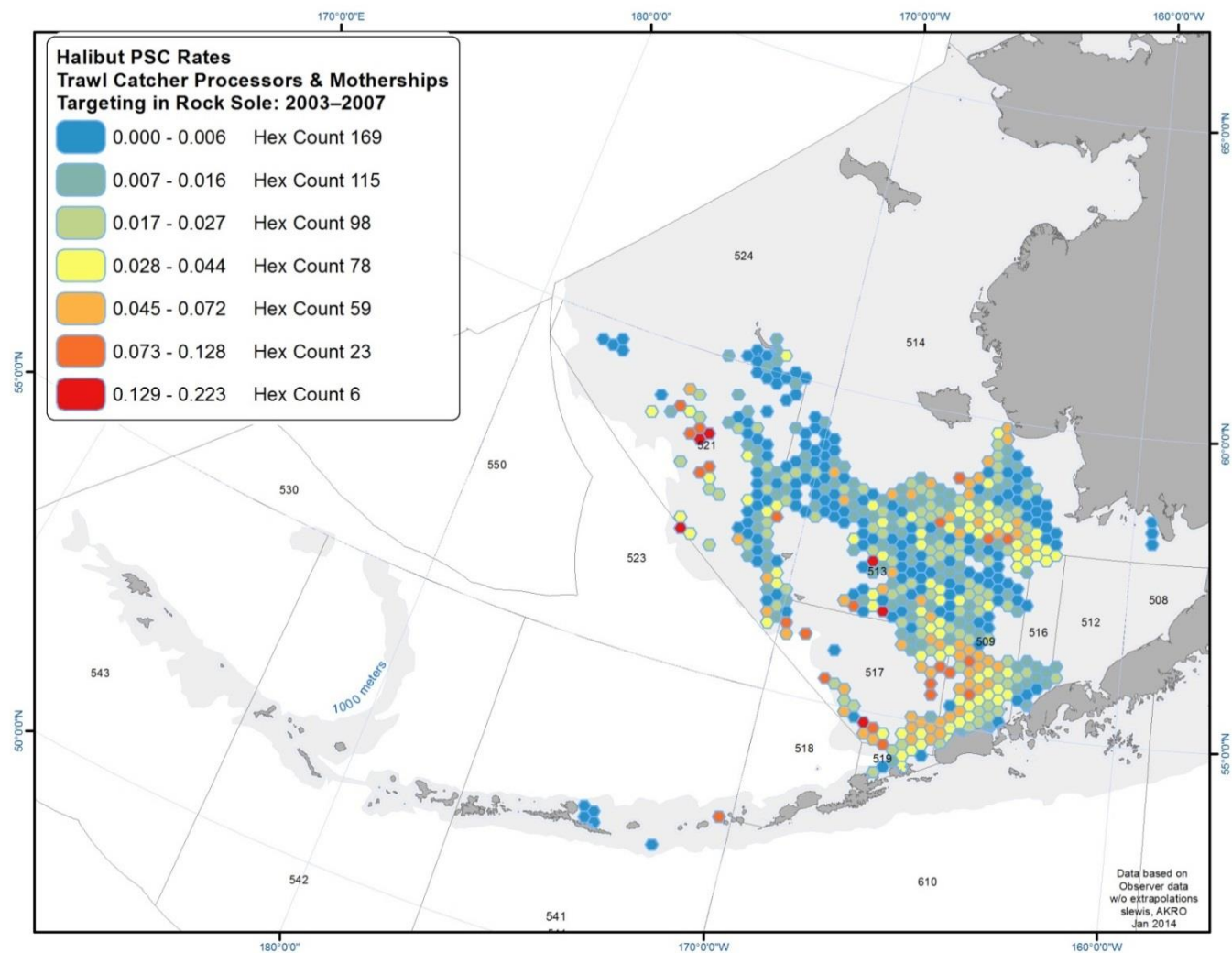
Halibut PSC Rates from 2008–2012 in the Yellowfin Sole Fishery of Trawl Catcher Processors & Motherships



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.



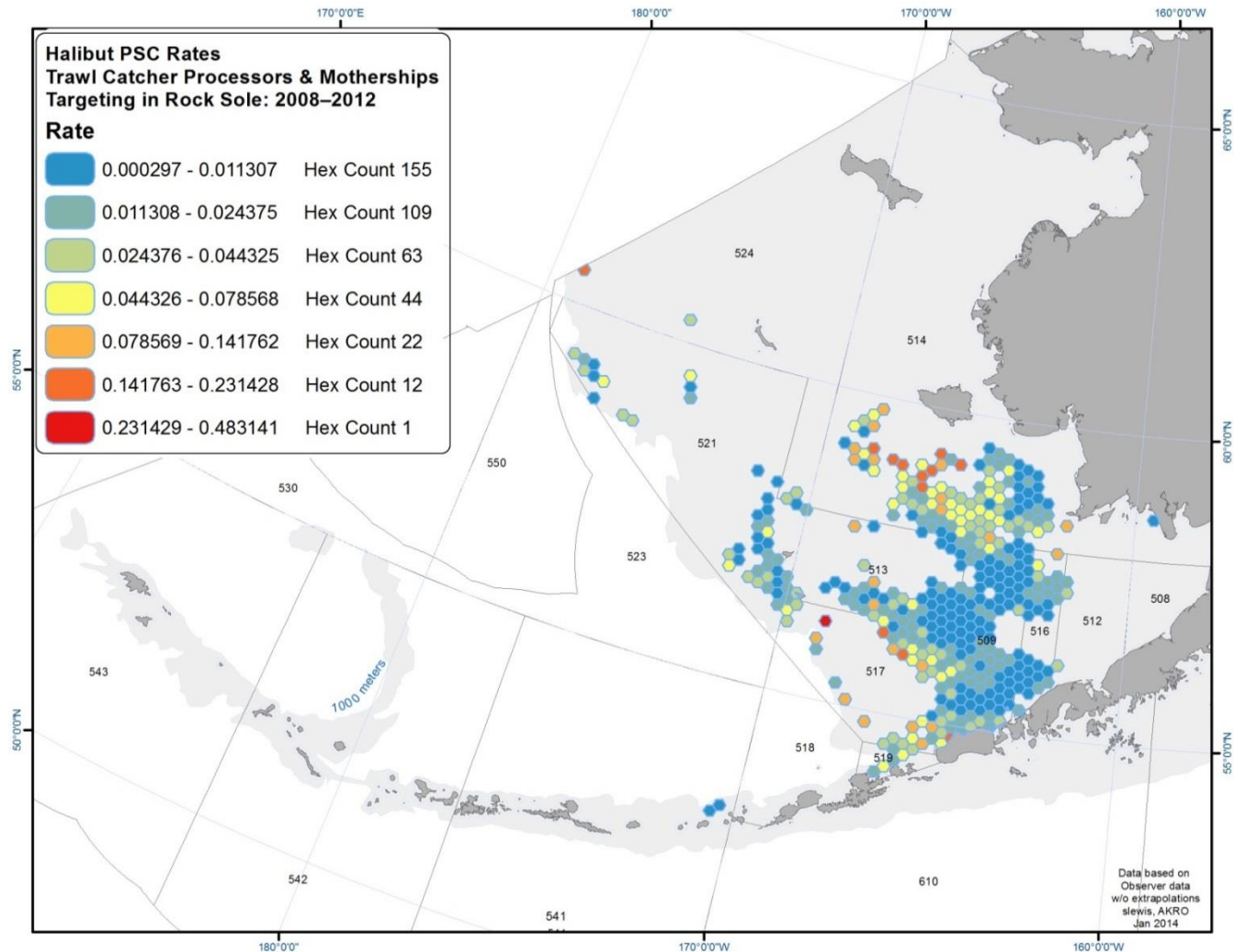
Halibut PSC Rates from 2003–2007 in the Rock Sole Fishery of Trawl Catcher Processors and Motherships



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.



Halibut PSC Rates from 2008–2012 in the Rock Sole Fishery of Trawl Catcher Processors & Motherships



Source: Developed on request by Steve Lewis; GIS Coordinator/Analyst, NOAA Fisheries, Alaska Region, on January 10, 2014.

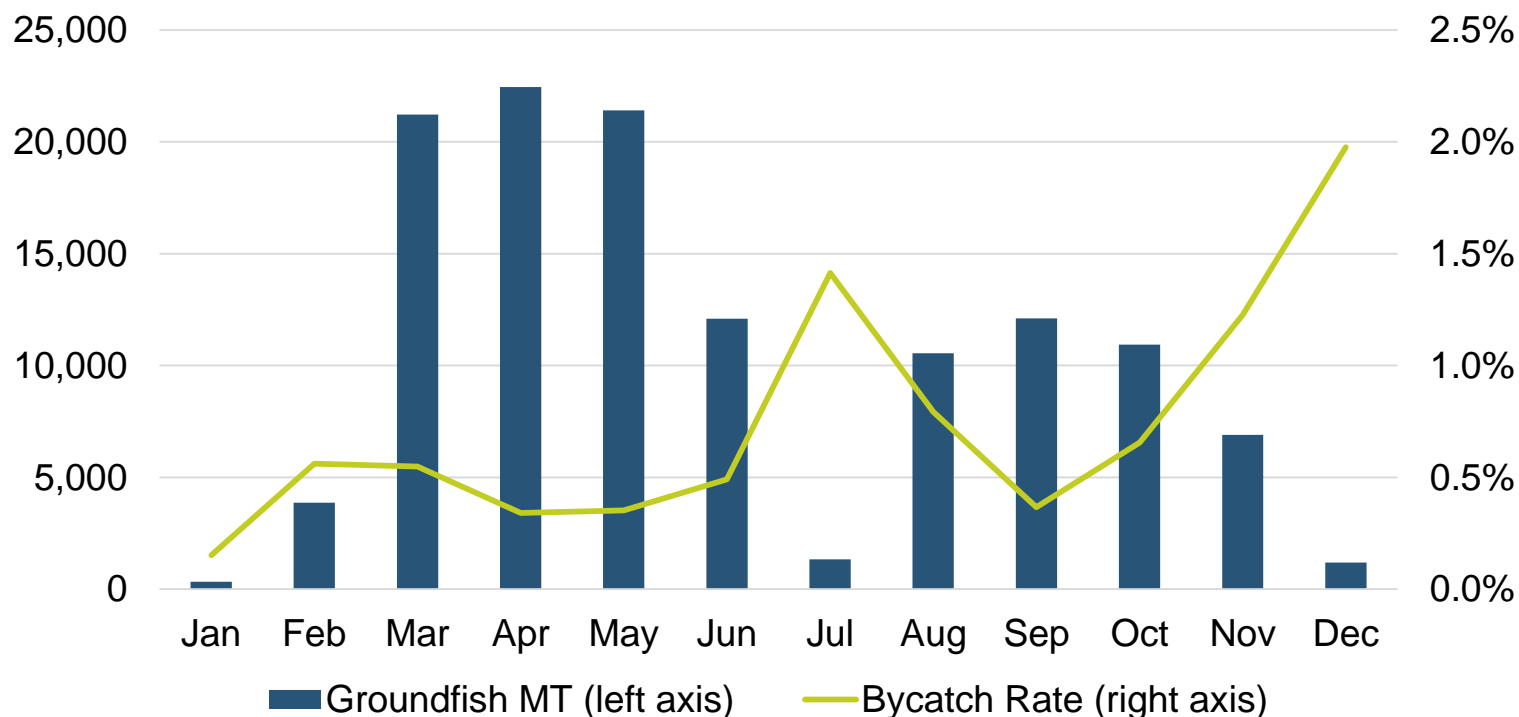


Series of Figures Showing Bycatch by Month

■ Example: Two figures for A80-CP yellowfin sole bycatch

■ First of each pair shows Groundfish + Bycatch Rate

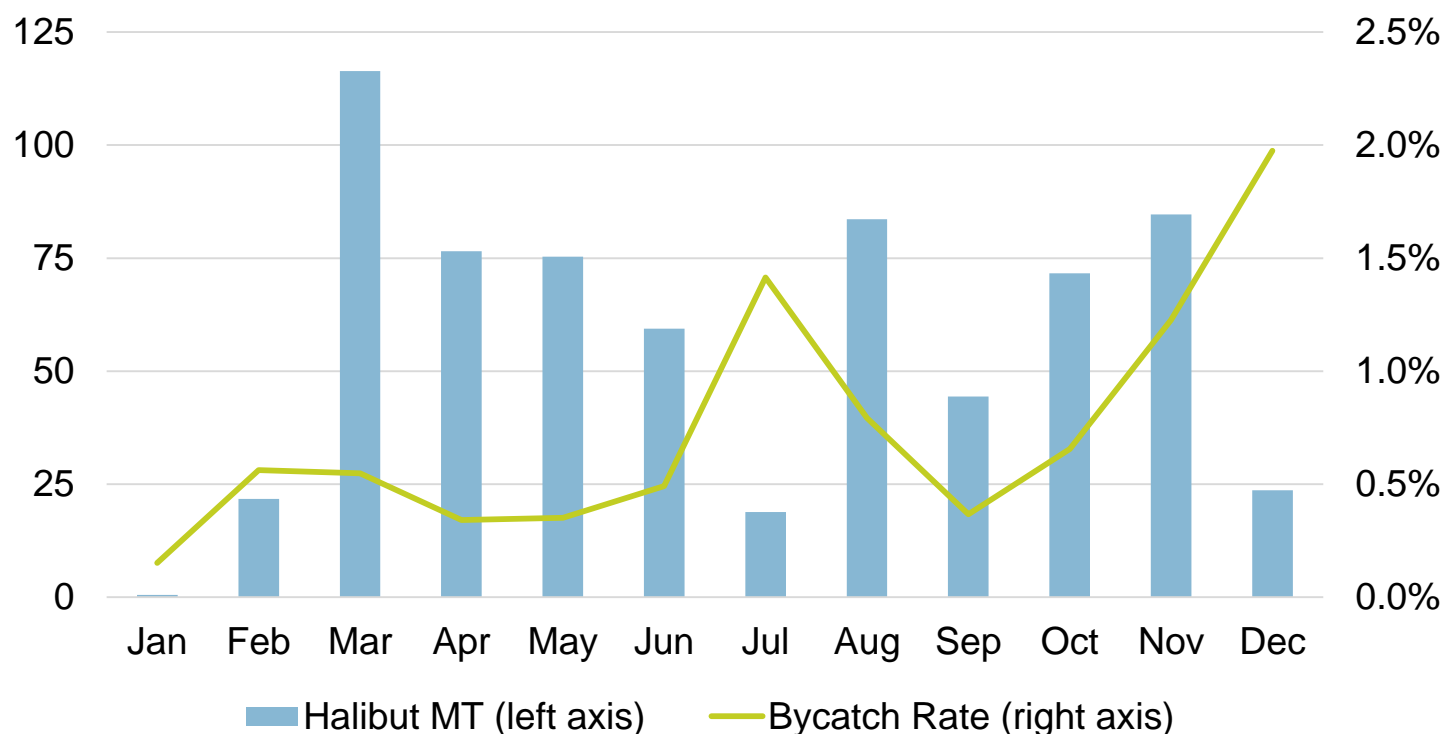
- ◆ Left-hand axis for the bars showing Groundfish MT
- ◆ Right-hand axis for the line showing bycatch rate



Series of Figures Showing Bycatch by Month

■ Second figure of each pair shows + Bycatch Rate

- ◆ Left-hand axis for the bars showing halibut MT
- ◆ Right-hand axis for the line showing bycatch rate



Potential Options to Reduce BSAI Halibut PSC

- **Excerpted from IPHC's *Report of the Halibut Bycatch Work Group***
 - Presented to stakeholders at the 2013 IPHC Annual Meeting
- **Six Primary Options that could/would apply to both BSAI and GOA**
- **Several additional options specific to Alaska Fisheries**
 - Options for reducing bycatch in fixed gear fisheries
 - Options for reducing bycatch in BSAI Trawl fisheries
 - Options for reducing bycatch in GOA Trawl fisheries

Primary Options

- Establish updated Canada and U.S. bycatch reduction targets
- Authorize currently prohibited gears to retain & sell halibut
- Define minimum standards for catch monitoring and reporting and implement 100% monitoring
- Establish individual vessel accountability for halibut bycatch
- Establish additional time and area closures
- Define areas with high bycatch as “areas of special concern”
 - ◆ reduce their catch limits in areas of special concern; and
 - ◆ adjust catch limits upwards in areas that have minimized bycatch

Additional Options for Alaska Fixed Gear Fisheries

- **Eliminate the minimum size limit for halibut**
- **Require mandatory retention of all halibut**
- **Set the season opening date for halibut (& sablefish) at January 1**
- **Authorize pot gear in the GOA to catch sablefish IFQ & authorize retention of halibut IFQ bycatch in pots.**
- **Stop exempting the sablefish longline fishery from the halibut fixed gear PSC limits**
- **Estimated halibut mortality savings: 1,760 mt**
 - The current halibut PSC cap for GOA fixed gear fisheries is 300 mt, so about 1,460 mt would be saved.
 - The savings in the BSAI are not estimated, but would be smaller.

Options for BSAI Trawl Fisheries

■ Issue individual halibut bycatch quota (halibut IBQ)

- IBQ would be based on their target groundfish quotas
- Require retention of all halibut caught against the IBQ
- Authorize the sale of IBQ halibut to markets

■ Estimated halibut mortality savings: 480 mt

- Assume a 15% reduction in PSC limit when issued as IBQ
- Additionally, any unused IBQ at the end of the year would result in additional halibut mortality savings

Options for GOA Trawl Fisheries

- Rationalize the trawl fishery
- Then implement halibut IBQs

BSAI Halibut Mortality 2003 – 2012

Questions or Comments

Marcus L. Hartley

Marcus.Hartley@norecon.com

907.274.5600

