

## **Northeast Region**

There are five catch share programs implemented in the Northeast region including the oldest catch share programs among all federally managed Fishery Management Plans (FMPs). Individual Transferable Quota (ITQ) programs for the surfclam and ocean quahog fisheries were developed by the Mid-Atlantic Fishery Management Council and implemented in 1990. The Mid-Atlantic Council subsequently developed an IFQ program for the golden tilefish fishery that was implemented in 2009. The New England Council developed an IFQ program for a portion of the Atlantic sea scallop fishery that was partially implemented in 2008 and fully implemented in 2010. Last the Sector Management Program initially authorized in 2004 with Amendment 13 to the Northeast Multispecies FMP, commonly referred to as the New England Groundfish FMP, was greatly expanded with modifications under Amendment 16 and implemented during 2010. A snapshot of the performance indicators for the most recent complete available year is reported in Table 3.

More detailed trend data is provided for the Ocean Quahog fishery, followed by Surfclams, General Category Scallops, the Mid-Atlantic Golden Tilefish fishery and New England groundfish. In addition to trend data, the management history, objectives, and key events or features of each catch share program are briefly described. For all fisheries a Baseline Period has been constructed as the average of the three years prior to catch share program implementation. All price and revenue data are adjusted for inflation to 2010 equivalent dollars using the Gross Domestic Product price deflator. Quantities such as quotas and pounds are all reported in units consistent with each FMP. Ocean quahogs and surfclams are reported in bushels, scallops are reported in meat weights, golden tilefish are reported in live weight. Groundfish quota and catch are reported in live weight while landings are reported in landed weight.

**Table 3. Northeast Region Fishery Performance Measures by Catch Share Program**

	Ocean Quahog (2011)	Surfclam (2011)	General Category Scallops (2010)	Golden Tilefish (2011)	Groundfish Sectors (2011)
<b>Catch and Landings</b>	Bushels	Bushels	Pounds of Scallop Meats	Pounds	Pounds
Quota allocated to Program	5,332,982	3,400,047	2,559,370	1,895,248	179,487,960*
Aggregate landings	3,045,417	2,219,951	2,280,679	1,884,695	61,038,536**
% Utilization	57%	65%	89%	99%	39%
ACL exceeded	No	No	No	No	No
<b>Effort</b>					
Entities holding share (number)	40	55	321	13	781
Active vessels (number)	34	37	159	9	301
Days at sea (days)	2,106	2,911	4,202	925	19,227
Trips (number)	2,147	1,916	6,281	97	13,642
Season length (days)	365	365	365	365	365
<b>Revenue (\$)</b>					
Catch Share Program revenue	\$20,838,866	\$26,014,314	\$20,024,836	\$5,314,396	\$87,145,765
Non-Catch Share Program revenue	\$107,098	\$74,167	\$652,144	\$5,281	\$25,714,597
Average price (\$/pound)	\$6.84	\$11.72	\$8.78	\$2.82	\$1.43
Catch Share revenue per active vessel	\$612,908	\$703,090	\$125,942	\$590,488	\$289,521
Non-Catch Share revenue per vessel	\$18,027	\$2,005	\$4,102	\$587	\$85,431
Catch Share revenue per day at sea	\$9,895	\$8,937	\$4,766	\$5,745	\$4,533
Non-Catch Share revenue per day at sea	\$51	\$39	\$104	\$54	\$1,337
Catch Share revenue per trip	\$9,706	\$13,577	\$3,188	\$54,788	\$6,388
Non-Catch Share revenue per trip	\$50	\$39	\$104	\$54	\$1,885
<b>Other</b>					
Excessive share cap	None	None	Yes	Yes	N/A
Cost recovery fee collected (\$)	None	None	\$82,557	\$20,907	N/A

\* Live weight

\*\* Landed weight

N/A denotes not applicable

## **Mid-Atlantic Ocean Quahog ITQ Program**

### **a. Management History**

The surfclam and ocean quahog fisheries, managed by the Mid-Atlantic Fishery Management Council, were the Nation's first fisheries to adopt an Individual Transferable Quota (ITQ) management system beginning in 1990. In the several years prior to ITQ program implementation, surfclams had been the more intensively exploited species and were subject to limited access, whereas ocean quahogs remained an open access fishery. Compared to surfclams, ocean quahogs are distributed farther offshore and the fishery was prosecuted by only the larger vessels. Like the surfclam fishery, ocean quahogs were subject to quarterly quotas, but the effort limits imposed on surfclam fishing time were not needed in the ocean quahog fishery. Thus, the economic problems in the surfclam fishery with inefficient use of fishing vessels that were idled much of the year were not evident in the ocean quahog fishery. Nevertheless, when the Mid-Atlantic Surfclam ITQ Program was being considered the ocean quahog fishery was approaching the limit of its specified optimum yield and there was concern over the transfer of effort from surfclams to ocean quahogs if the former became an ITQ system and the latter did not. The ITQ Program for both surfclams and ocean quahogs was implemented through Amendment 8 to the FMP.

Since the ITQ Program was implemented, the plan has been amended on six occasions. While making no substantive changes to the ITQ system, these amendments altered overfishing definitions, added the Maine-based mahogany quahog fishery to the management unit, resolved administrative differences between New England and Mid-Atlantic FMPs, and brought the FMP into compliance with MSA provisions on Essential Fish Habitat and bycatch reporting. More recently, the Mid-Atlantic Council initiated development of Amendment 15 and Amendment 16. Among other proposed measures, Amendment 15 would develop recommendations for a cost recovery program and the latter, Amendment 16, would address share accumulation caps. However, since both Amendments are still under development, the accumulation cap and cost recovery performance measures cannot be reported herein.

### **b. Objectives**

The objectives established in 1990 for the ITQ program by the Mid-Atlantic Fishery Management Council have not changed in the more than 20 years the program has been in existence. The objectives include:

- Conserve the ocean quahog resource and stabilize harvest rates
- Simplify regulatory requirements to minimize public and private costs of managing the resource
- Bring harvest capacity in line with processing and biological capacity to allow industry participants to achieve economic efficiency
- Create a management approach that is flexible and adaptive to short term events or circumstances

### **c. Key Events and Features**

Initial shares for the Mid-Atlantic Ocean Quahog ITQ Program were primarily based on historical participation in the fishery in terms of landings. This meant that initial quota shares were

allocated to owners of ocean quahog fishing vessels. However, the ITQ Program permits the transfer of quota shares to any individual or entity provided they would be eligible to own a US Coast Guard documented vessel without requiring actual ownership of a vessel<sup>8</sup>. Quota shares may be transferred on a permanent basis or transferred (leased) on an annual basis to another entity. Quota shares may be owned by industry participants (processors or vessel owners) or other entities provided they would be eligible to own a fishing vessel. Processors may purchase ocean quahogs from a vessel owner that owns quota share or they may operate their own fleet of vessels which may lease additional quota from others. Processors may also contract for harvesting services to a fishing vessel owner. The variety of possible business arrangements complicates interpretation of performance measures such as the number of participating vessels or revenue per vessel since some vessels that are engaged in harvesting ocean quahogs may not be owners of a quota share and, conversely, some owners of quota shares may not be engaged in harvesting ocean quahogs.

The ocean quahog and surfclam fisheries use specialized gear that is used exclusively to harvest clams with very low catch rates of species other than ocean quahogs or surfclams. This means that revenues from species other than ocean quahogs on trips where ocean quahogs are harvested are very low (at most 1.8%). For this reason, performance measures for the Mid-Atlantic Ocean Quahog ITQ Program are based only on ocean quahog landings and revenues.

#### **d. Recent Trends**

The Baseline Period refers to the average of the three years prior to implementation of the Mid-Atlantic Ocean Quahog ITQ Program, 1987-1989.

- i. Catch and Landings – All landings and quota are reported in bushels.

The commercial quota for ocean quahogs averaged 5.7 million bushels during the 1987-1989 Baseline Period (Figure 1). Over the first five years of the ITQ Program, the quota was held nearly constant averaging 5.3 million bushels. Consistent with resource conditions, the quota was decreased by approximately 7% per year from 5.4 million bushels in 1994 to 4.0 million bushels in 1998. From 1999 to 2003 the quota remained constant at 4.5 million bushels before being increased to 5.2 million bushels where it remained through 2011.

Ocean quahog landings averaged 4.6 million bushels during the Baseline Period (Figure 1). By and large, landings were maintained at pre-ITQ levels through 1995, but declined to 3.4 million bushels in 2000 as quota levels were decreased during this period. As the quota was increased to 4.5 million bushels from 1999-2003, landings rebounded to 4.2 million bushels in 2003. After declining over the next four years, ocean quahog landings increased from 3.0 million bushels in 2005 to 3.5 million bushels in 2010. However, landings were down 14% in 2011 compared to 2010.

Prior to implementation of the ITQ Program, 90% of the available quota was landed (Figure 2). This trend in quota utilization rates continued through the 1990s and early 2000s where

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<sup>8</sup> US Coast Guard regulations limit ownership of documented vessels to U.S. Citizens or U.S. owned corporations.

approximately 97% of the commercial quota was landed. Since 2005, quota use rates have ranged between 57-66% of the available quota.

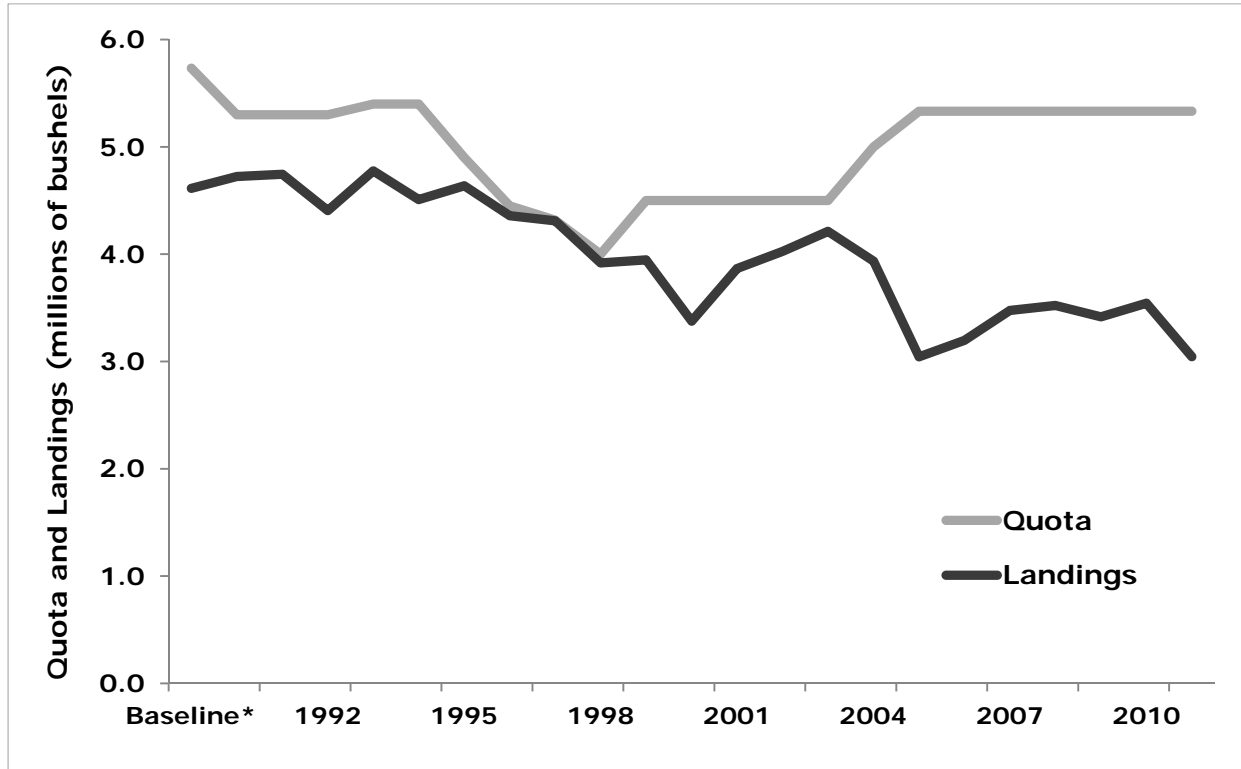


Figure 1. Quota and landings in the Mid-Atlantic Ocean Quahog ITQ Program

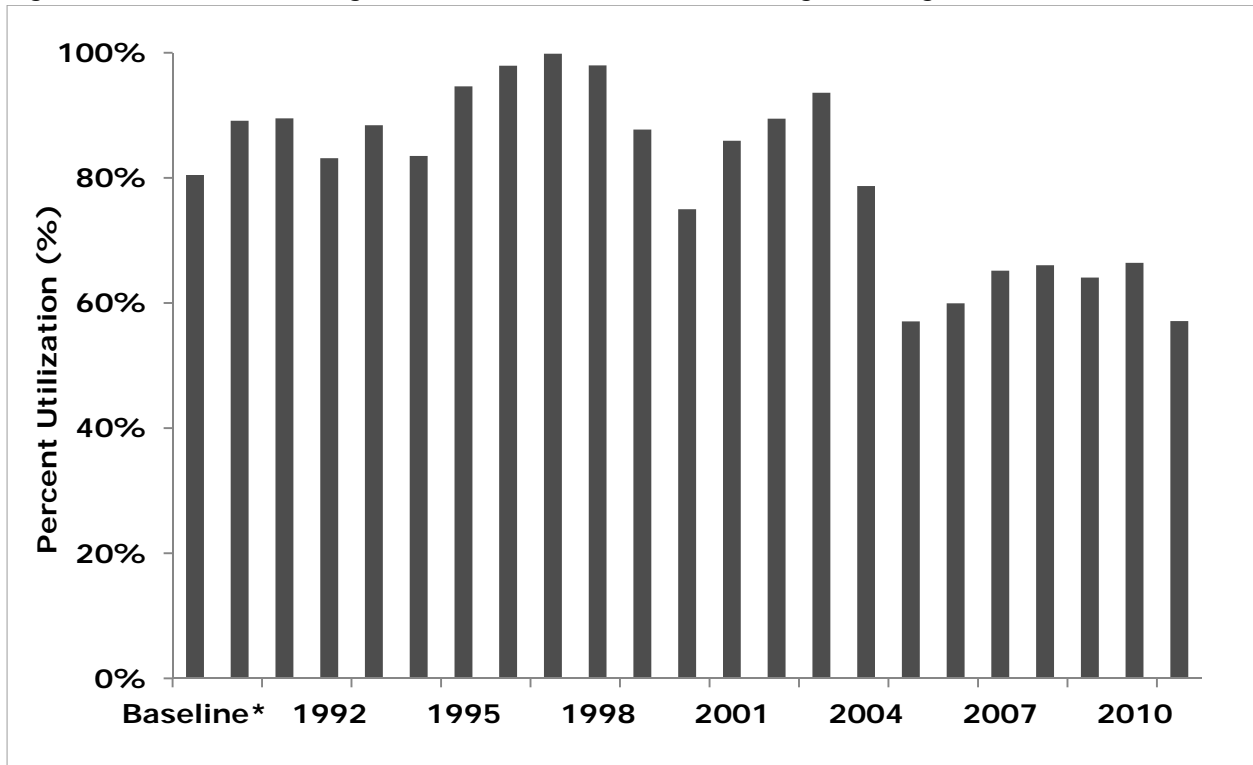


Figure 2. Utilization of available quota in the Mid-Atlantic Ocean Quahog ITQ Program

ii. Effort

Upon implementation in 1990, there were a total of 117 entities (i.e., unique ocean quahog allocation holder) that received an initial allocation of quota share. After the program's first year (following ITQ Program implementation and the subsequent allocation transfers), the number of entities receiving quota share declined to 82 and was reduced to 76 in 1993 (Figure 3). From 1995 to 2003 the number of entities issued quota shares was nearly constant ranging from 69 to 62 entities. In 2004, the number of entities dropped to 56 where it remained until 2007. Over the most recent four years the number of entities issued ocean quahog quota shares declined to 40, an annual average reduction of 7.6%.

The number of vessels that reported landing ocean quahogs averaged 67 during the Baseline Period years of 1987 to 1989 (Figure 4). The number of active vessels declined to 57 in 1990, but increased to more than 90 vessels harvesting ocean quahogs in both 1991 and 1992. The number of active vessels returned to numbers that were similar to that of the pre-ITQ Baseline Period averaging 64 vessels from 1993 through 2004. Since 2005, the number of active vessels has been declining at an average annual rate of 7.5% from 56 vessels in 2005 to 34 in 2011. As noted previously, the variety of possible business arrangements through which quota shares may be transferred complicates the interpretation of the changes in vessel activity levels.

Days spent fishing for ocean quahogs averaged 2,885 days during the pre-ITQ Program Baseline Period, but with the exception of 2001- 2004 days absent has been on a consistent downward trend to a low of 2,106 days in 2011 (Figure 5). The trend in days absent follows a similar trend to that of total trips as average trip duration has remained relatively constant ranging between 19 and 24 hours. Total trips taken where ocean quahogs were landed averaged 3,322 during the Baseline Period (Figure 6). Upon implementing the ITQ Program, the number of trips declined slightly in 1990, spiked to almost 6,000 trips in 1991, then stabilized from 1992 to 2001 ranging between 3,700 and 4,200 trips. However, since 2002 the number of trips that harvested ocean quahogs declined at an average annual rate of 8.6% from 4,935 trips in 2002 to 2,147 trips in 2011.

Prior to implementation of the ITQ Program the management program was structured to assure that a continuous supply of ocean quahogs would be provided to the market through a system of quarterly quotas. No additional measures were deemed necessary to assure that a reliable source of ocean quahogs could be brought to the market. Thus, while the timing of when ocean quahogs were harvested may have changed with the ITQ Program in place it did not change the fact that some ocean quahogs were available throughout the season, with or without the ITQ Program (Figure 7).

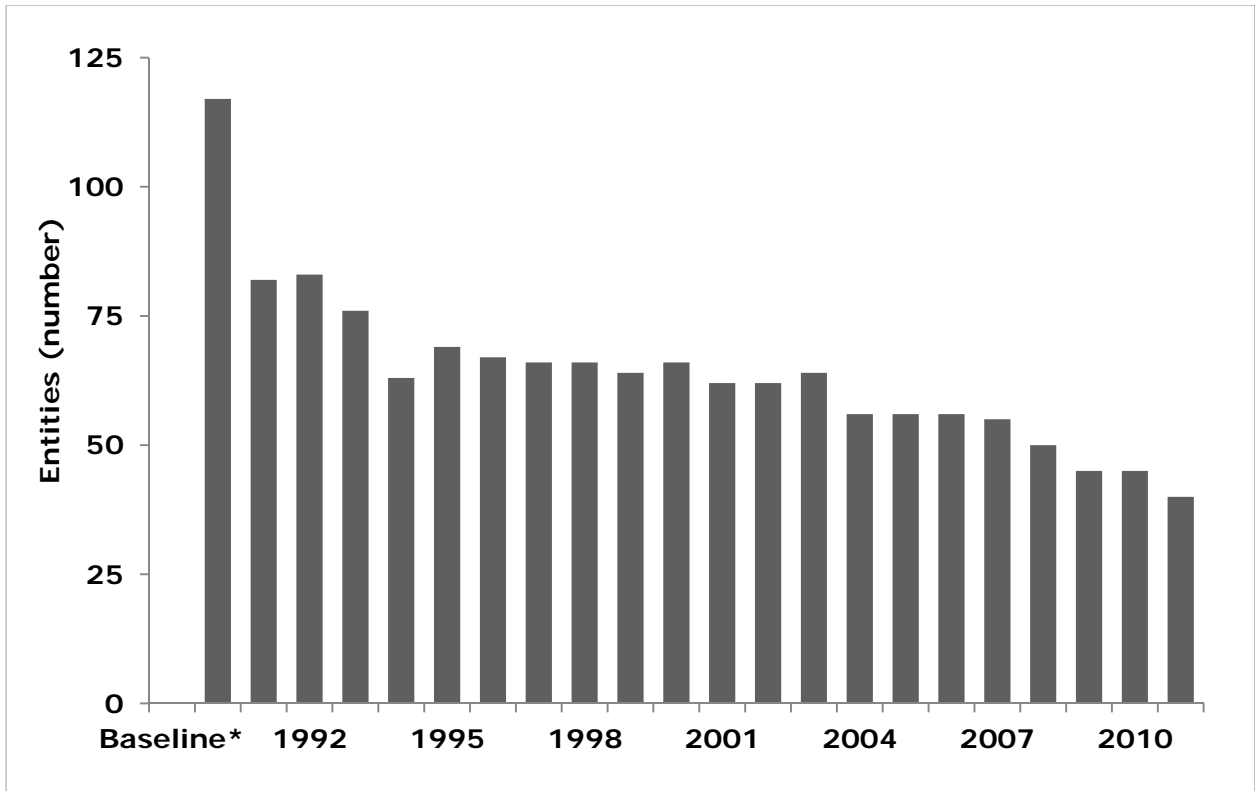


Figure 3. Number of entities holding share in the Mid-Atlantic Ocean Quahog ITQ Program

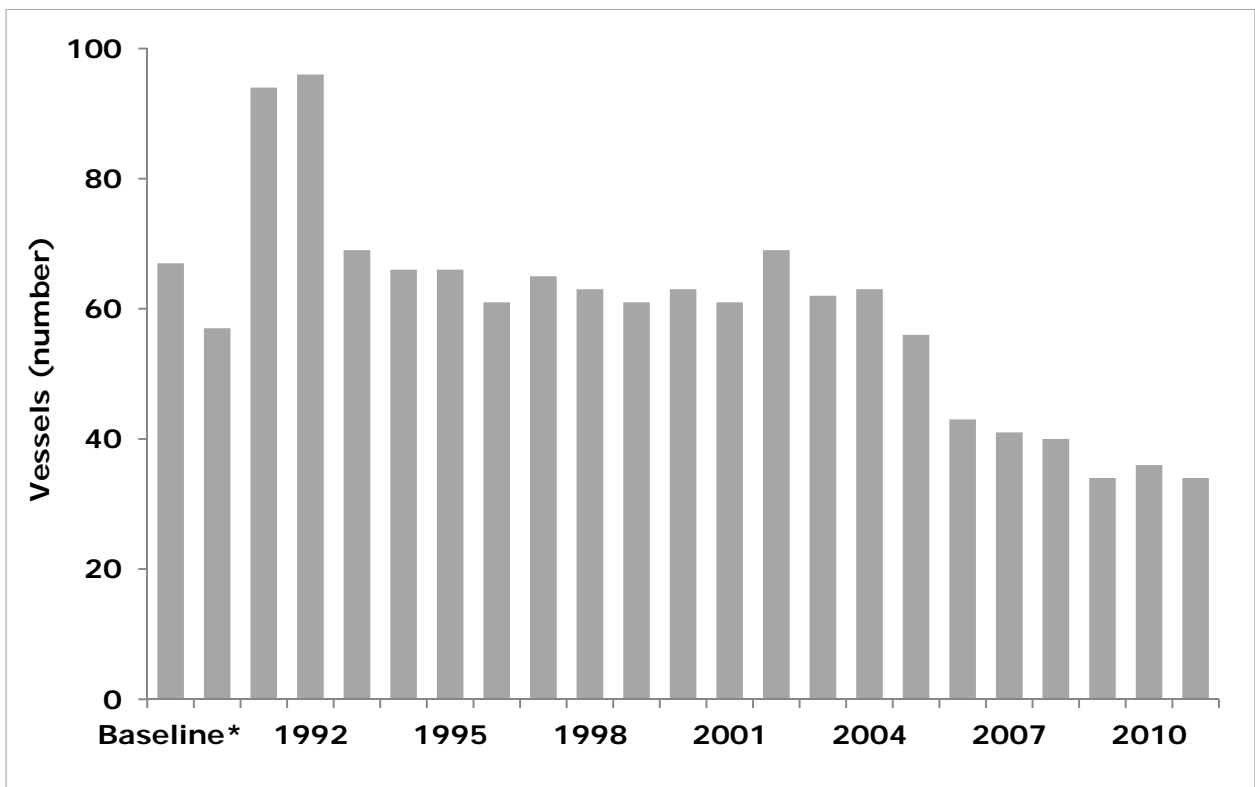


Figure 4. Active vessels fishing quota in the Mid-Atlantic Ocean Quahog ITQ Program

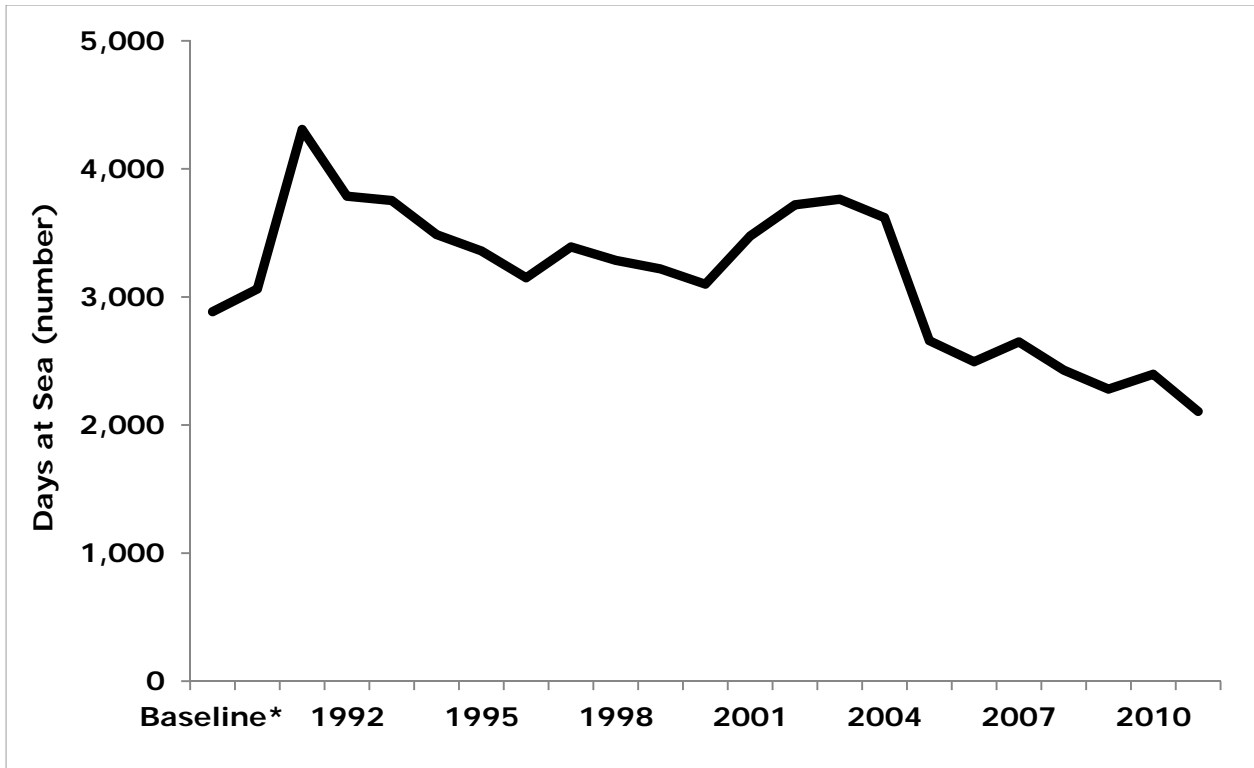


Figure 5. Number of days at sea on trips fishing quota in the Mid-Atlantic Ocean Quahog ITQ Program

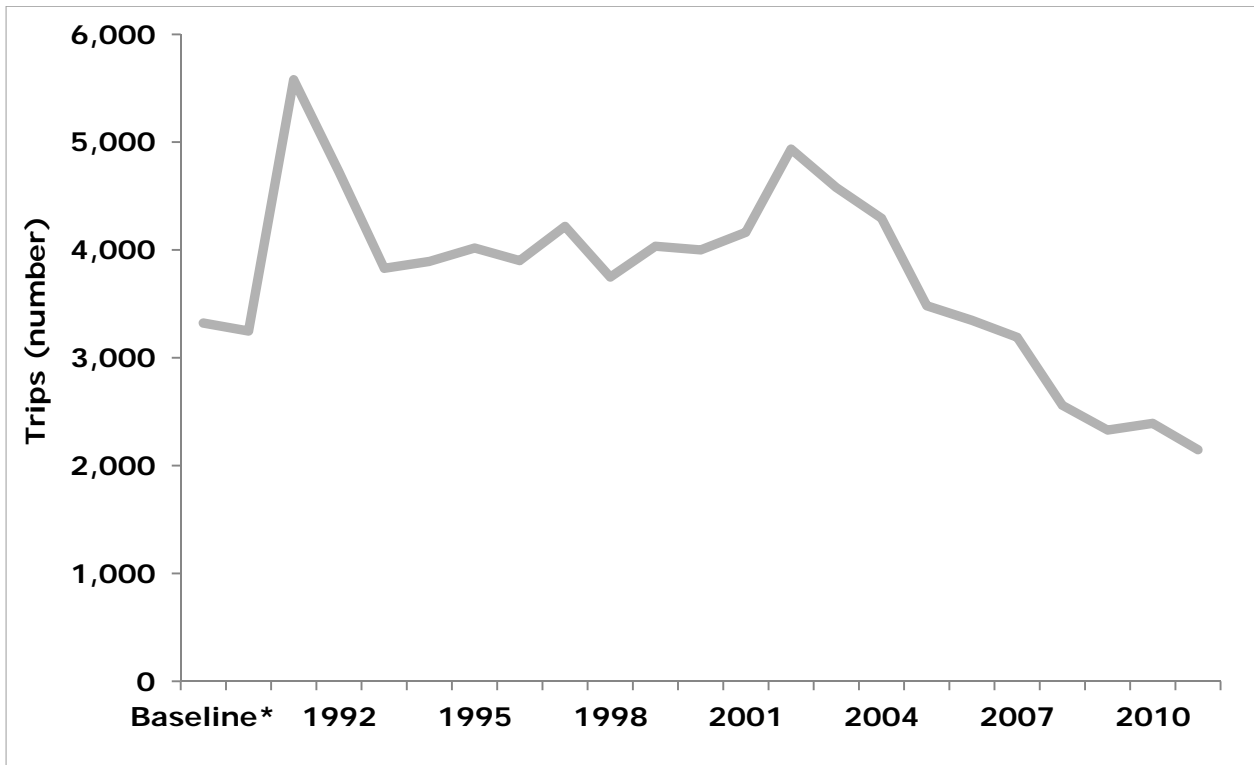


Figure 6. Number of trips harvesting ocean quahogs in the Mid-Atlantic Ocean Quahog ITQ Program



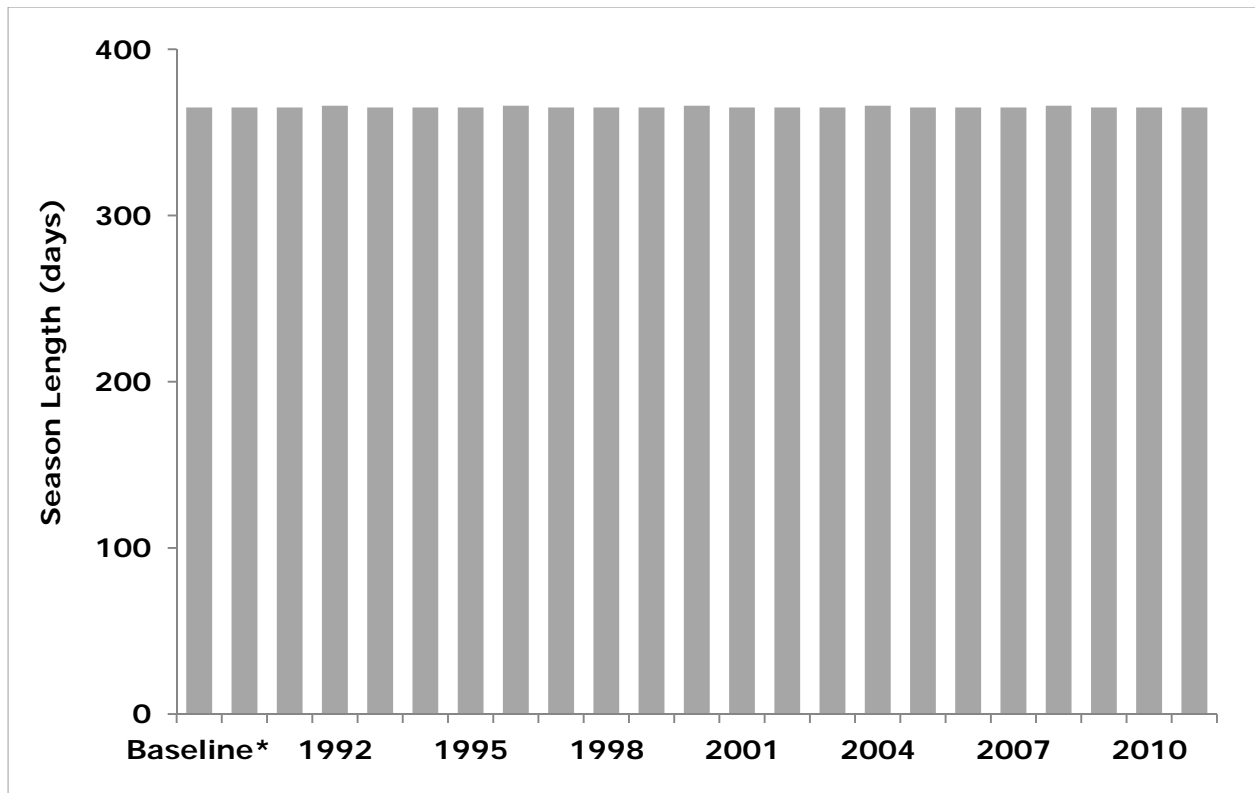


Figure 7. Season length (days) in the Mid-Atlantic Ocean Quahog ITQ Program

- iii. Revenue – All price and revenue data have been adjusted by the GDP deflator indexed for 2010.

Total dockside revenue from sales of ocean quahogs averaged \$28.1 million during the pre-ITQ Program Baseline Period (Figure 8). In the first year of the ITQ Program, total revenue dropped almost 20% to \$22.6 million even though total landings had increased by 2.4%. However, total revenues declined because the increase in landings was more than offset by a 21.4% decline in the average price per bushel from just over \$6 per bushel during 1987-1989 to less than \$5 in 1990 (Figure 9). Annual revenue rebounded to \$26.6 and \$27.0 million in 1991 and 1992, respectively, but declined over the next eight years by an average annual rate of nearly 3%. Annual revenue rose dramatically in both 2001 and 2002 to a 21-year high of over \$31 million. Since 2002 ocean quahog revenue has been trending downward at an average annual rate of 4% to \$20.9 million in 2011.

As noted above, the inflation-adjusted price per bushel of ocean quahogs initially dropped from the Baseline Period average of \$6.10 per bushel to \$4.79 in the first year of ITQ Program. However, in subsequent years the price per bushel increased at an average annual rate of 4.4% through 2002 when the price per bushel peaked at \$7.80 per bushel. The ocean quahog price declined over the next six years through 2008 to \$6.02. More recently (2009 to 2011), the price per bushel has been increasing at an average rate of just over 4% to \$6.84 per bushel in 2011.

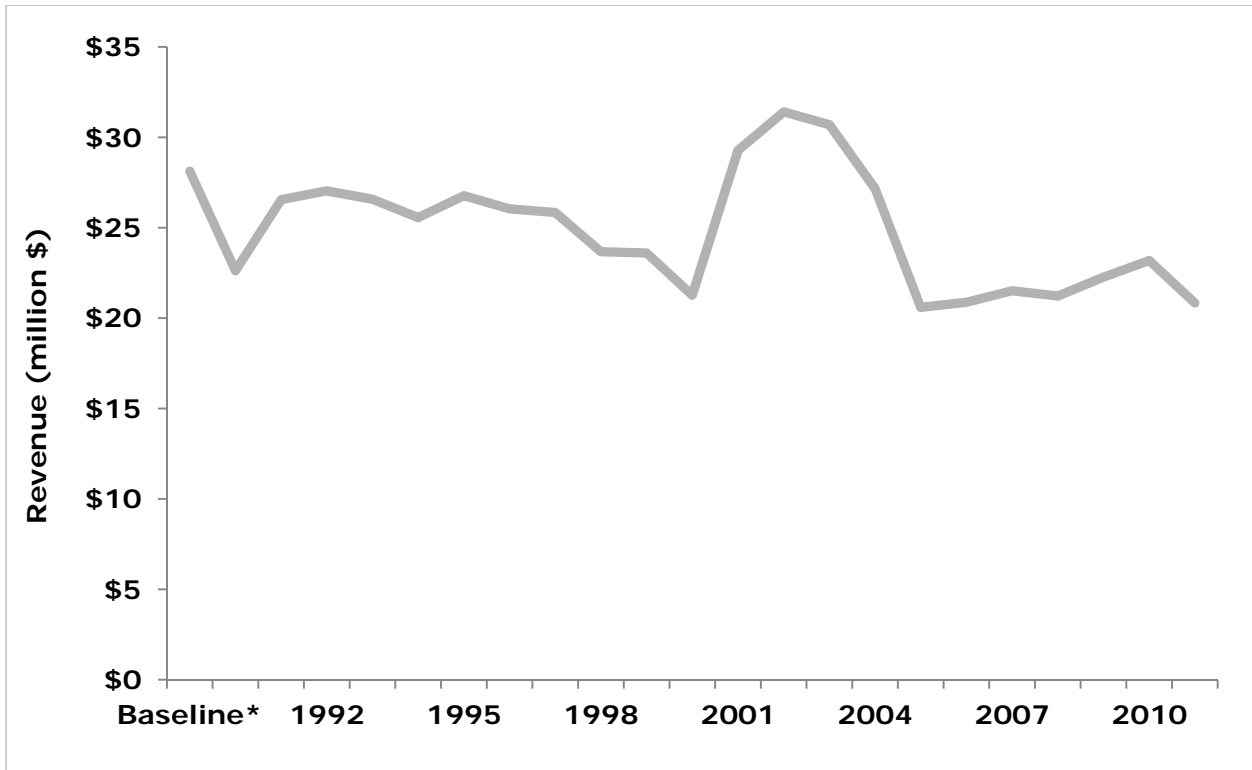


Figure 8. Total revenue (inflation-adjusted 2010 dollars) by vessels fishing quota in the Mid-Atlantic Ocean Quahog ITQ Program

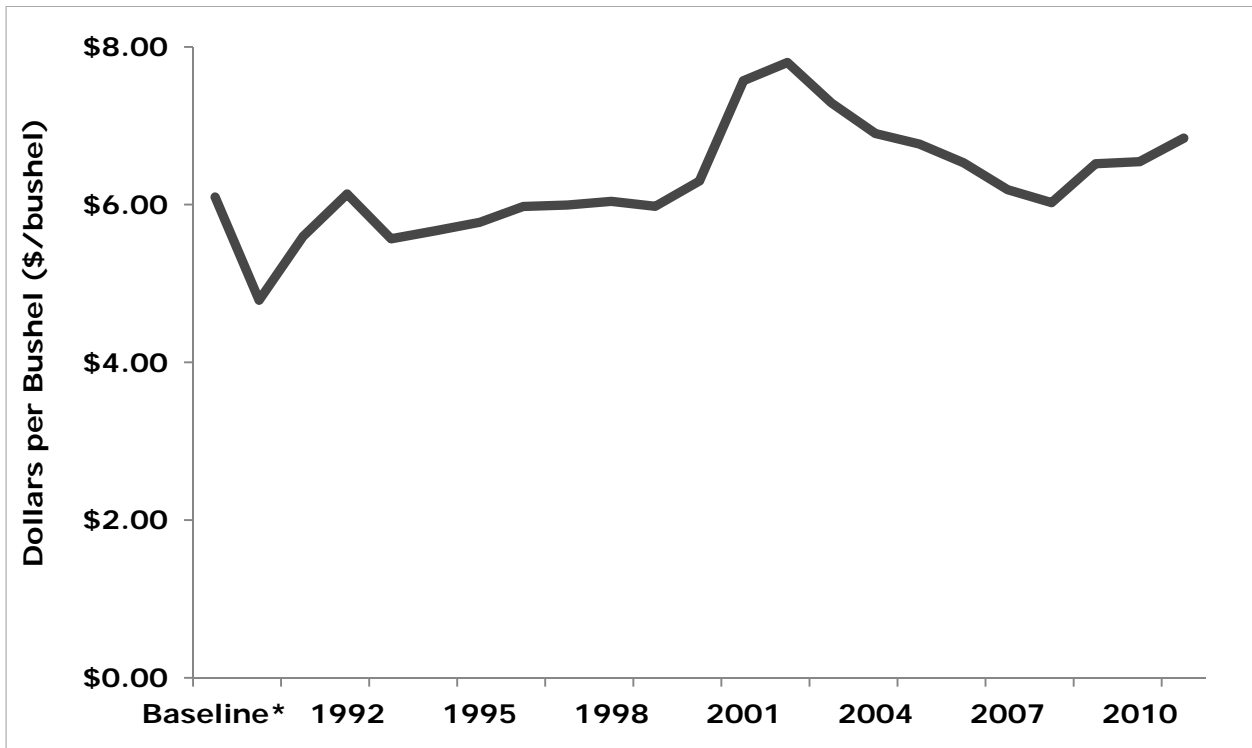


Figure 9. Average ocean quahog price per bushel (inflation-adjusted 2010 dollars) in the Mid-Atlantic Ocean Quahog ITQ Program

Average revenue earned per vessel from the sale of ocean quahogs was \$420,000 during the Baseline Period (Figure 10). Average revenue per vessel dropped to its lowest level at \$280,000 in 1991 and 1992, predominantly because of the unusually large number of active vessels in these two years. Since 1993, however, ocean quahog revenue per vessel has been on an upward trend at an average annual rate of 3.6%. Revenue per vessel peaked at \$655,000 in 2009. Ocean quahog revenue per vessel declined in both 2010 and 2011 to \$613,000, still about one-third greater than pre-ITQ Program levels.

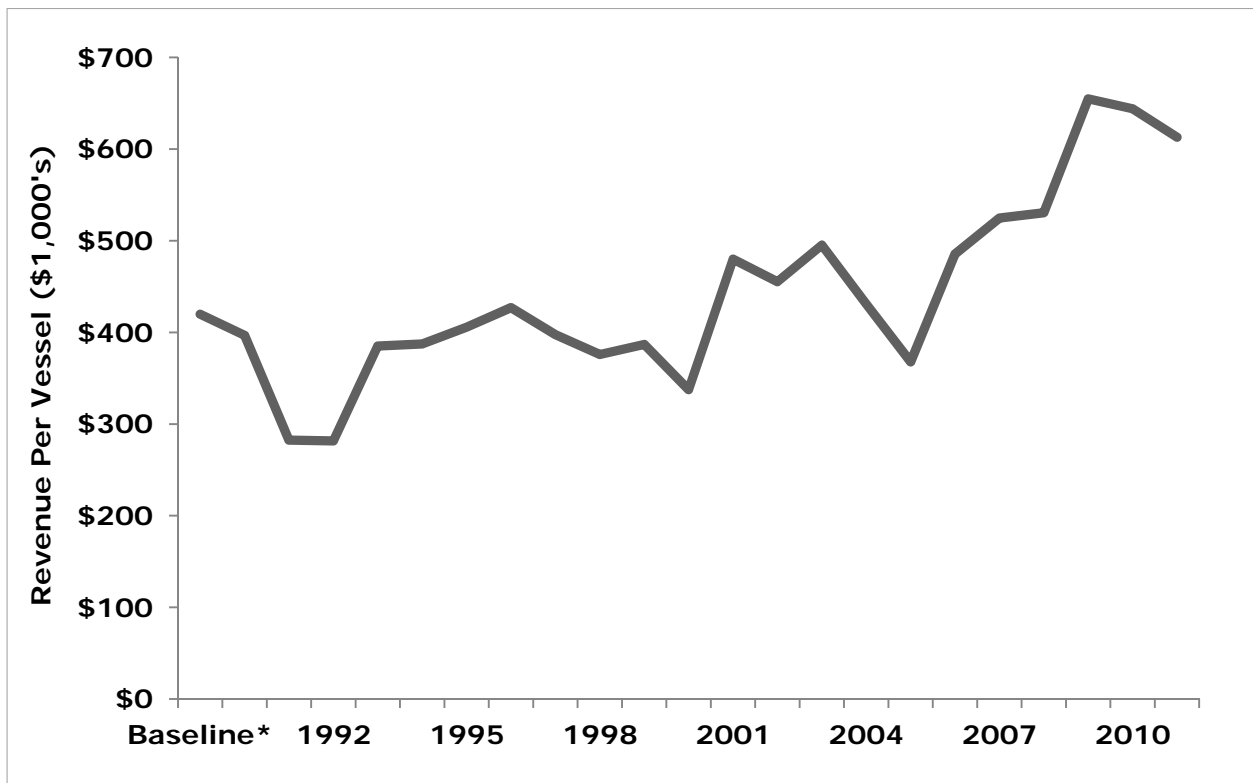


Figure 10. Revenue (inflation-adjusted 2010 dollars) per vessel fishing quota in the Mid-Atlantic Ocean Quahog ITQ Program

Since the ITQ Program was implemented ocean quahog revenue per trip has ranged from a low of \$4,758 in 1991 to a high of just over \$9,706 in 2011 (Figure 11). Ocean quahog revenue per trip averaged \$8,467 during the pre-ITQ Baseline Period. Between 1993 and 2007, average trip revenue varied without trend ranging between \$5,000 and \$7,000 per trip. However, since 2005 average trip revenue has increased in consecutive years through 2011, increasing at an average annual rate of 8.9%.

Revenue per day initially declined following ITQ Program implementation from an average of \$9,749 during the 1987-1989 Baseline Period to \$7,388 in 1990 (Figure 12). After also declining in 1991, average revenue per day has been on an upward trend increasing from \$6,165 in 1991 to a high of \$9,865 in 2011. In the intervening years, ocean quahog revenue per day was increasing at an average annual rate of 2.7%.

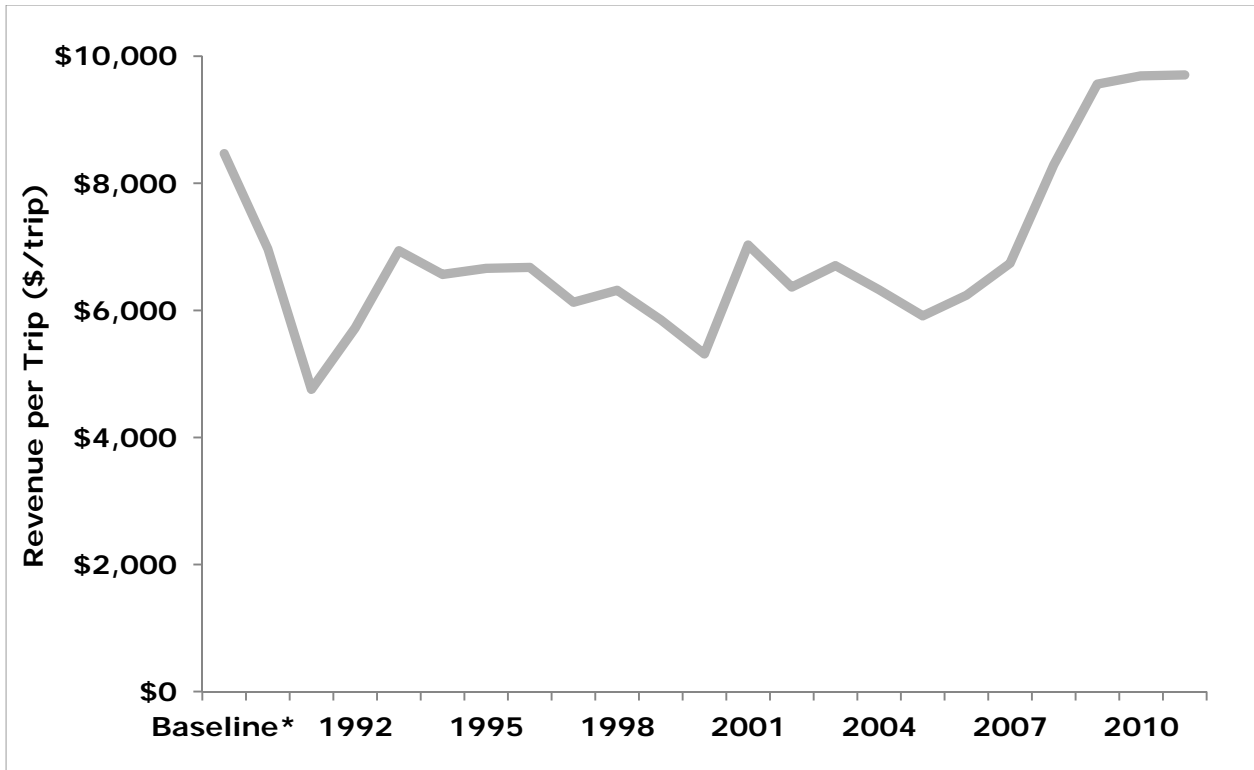


Figure 11. Revenue (inflation-adjusted 2010 dollars) per trip that vessels fish quota in the Mid-Atlantic Ocean Quahog ITQ Program

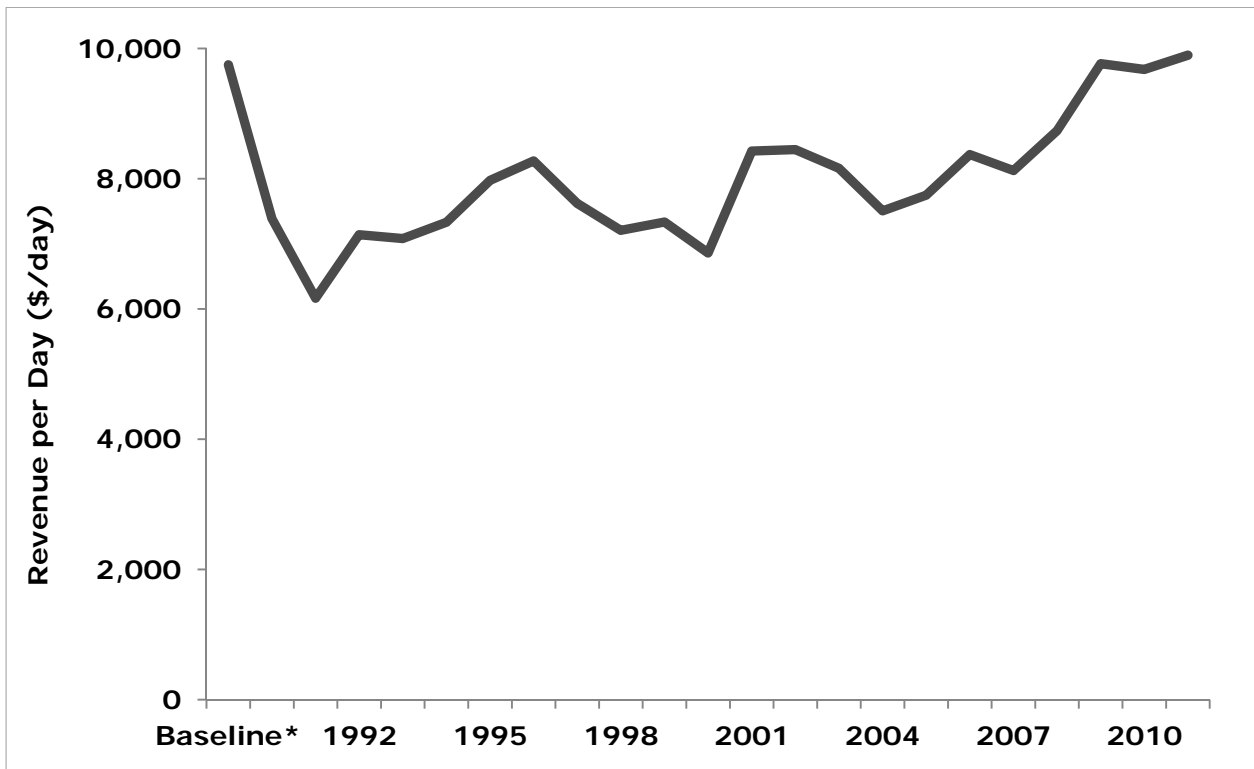


Figure 12. Revenue (inflation-adjusted 2010 dollars) per day at sea that vessels fish quota in the Mid-Atlantic Ocean Quahog ITQ Program

## **Mid-Atlantic Surfclam ITQ Program**

### **a. Management History**

Managed by the Mid-Atlantic Fishery Management Council since 1977, the surfclam and ocean quahog fisheries were the Nation's first fisheries to adopt an Individual Transferable Quota (ITQ) management system beginning in 1990. In the thirteen years prior to adoption of the ITQ management system, the surfclam fishery was managed through limited entry, quarterly quotas, and restrictions on fishing time designed to maintain a steady flow of clams available to the market. Although these measures were successful in rebuilding the surfclam resource, quota levels were maintained by limiting vessels to only 36 hours each quarter. These limitations resulted in inefficient use of fishing vessels characterized by significant idle harvesting capacity for much of the year since the hydraulic dredge gear used in the fishery could not be used in other fisheries.

Since implementation of the ITQ system with Amendment 8 to the Fishery Management Plan (FMP), the FMP has been amended on six occasions. While making no substantive changes to the ITQ system, these amendments altered overfishing definitions, added the Maine-based mahogany quahog fishery to the management unit, resolved administrative differences between New England and Mid-Atlantic FMPs, and brought the FMP into compliance with MSA provisions on Essential Fish Habitat and bycatch reporting. More recently the Mid-Atlantic Council initiated development of Amendment 15 and Amendment 16. Among other proposed measures, Amendment 15 would develop recommendations for a cost recovery program and the latter, Amendment 16, would address share accumulation caps. However, since both Amendments are still under development, the accumulation cap and cost recovery performance measures cannot be reported herein.

### **b. Objectives**

The objectives established in 1990 for the ITQ Program by the Mid-Atlantic Fishery Management Council have not changed in the more than 20 years the program has been in existence. The objectives include:

- Conserve the surfclam resource and stabilize harvest rates
- Simplify regulatory requirements to minimize public and private costs of managing the resource
- Bring harvest capacity in line with processing and biological capacity to allow industry participants to achieve economic efficiency
- Create a management approach that is flexible and adaptive to short- term events or circumstances

### **c. Key Events and Features**

Initial quota shares for the Mid-Atlantic Surfclam ITQ Program were primarily based on historical participation in the fishery in terms of landings. This meant that initial quota shares were allocated to owners of surfclam fishing vessels. However, the ITQ Program permits the transfer of quota shares to any individual or entity provided that they would be eligible to own a US Coast Guard documented vessel without requiring actual ownership of a vessel. Quota shares may be transferred on a permanent basis or quota may be transferred (leased) on an annual basis to another entity. Quota shares or quota may be owned by industry participants (processors or vessel owners) or other entities provided they would be eligible to own a fishing vessel. Processors may purchase clams from a vessel owner that owns quota share or they may operate their own fleet of vessels or may contract for harvesting services to a fishing vessel owner. The variety of possible business arrangements complicates interpretation of performance measures such as the number of participating vessels or revenue per vessel since some vessels that are

engaged in harvesting clams may not be owners of a quota share and, conversely, some owners of quota shares may not be engaged in harvesting surfclams.

The surfclam fishery uses specialized gear that is used exclusively to harvest clams with very low catch rates of species other than clams. This means that revenues from species other than surfclams on trips where surfclams are harvested are very low (no more than 1.3%). For this reason, performance measures reported herein for the Mid-Atlantic Surfclam ITQ Program are based only on surfclam landings and revenues.

#### **d. Recent Trends**

The Baseline Period refers to the average of the three years prior to implementation of the Mid-Atlantic Surfclam ITQ Program, 1987-1989.

##### **i. Catch and Landings – All landings and quota are reported in bushels.**

The commercial quota for surfclams averaged 3.2 million bushels and landings averaged 2.9 million bushels during the 1987-1989 Baseline Period (Figure 13). Consistent with resource conditions, the quota was decreased by approximately 3% per year over the first six years of the ITQ Program. From 1996 to 2000, the quota remained constant at 2.6 million bushels before being increased by an average of 7% per year to 3.4 million bushels in 2004. The surfclam quota has remained at 3.4 million bushels in every year through 2011. Landings of surfclams tracked available quota in just about every year from 1990 through 2003 as quota utilization averaged 97% from 1990 to 2003 (Figure 14). During these years the surfclam quota was exceeded on two occasions, in 1993 by 3% and again in 2000 by 1%. These were the only occasions in the entire program history that quotas were exceeded.

Since the quota was set at 3.4 million bushels in 2004, quota utilization averaged 81% as landings have been declining at an average annual rate of 4.2%. Since 2007 quota use rates have declined from 95% in 2007 to 65% in 2011. Over these years landings declined from 3.2 million bushels to 2.2 million bushels in 2011.

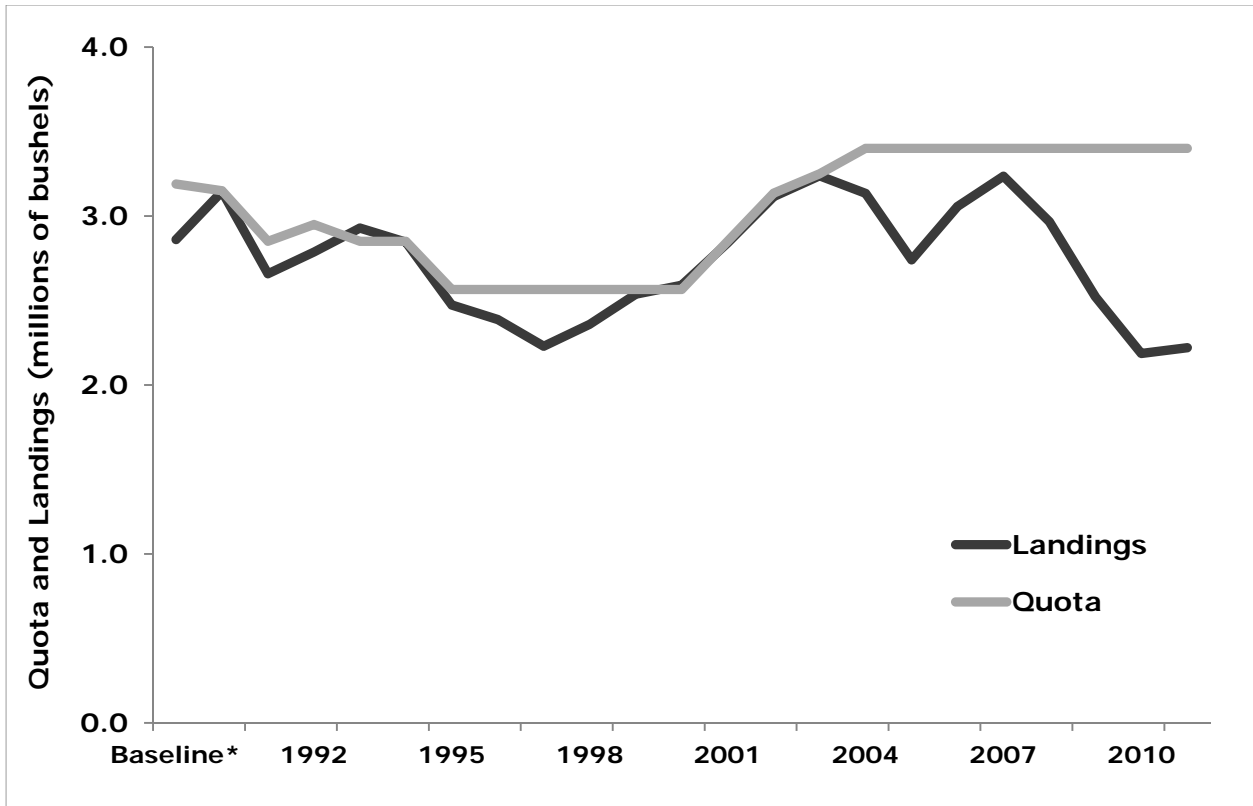


Figure 13 Quota and landings in the Mid-Atlantic Surfclam ITQ Program

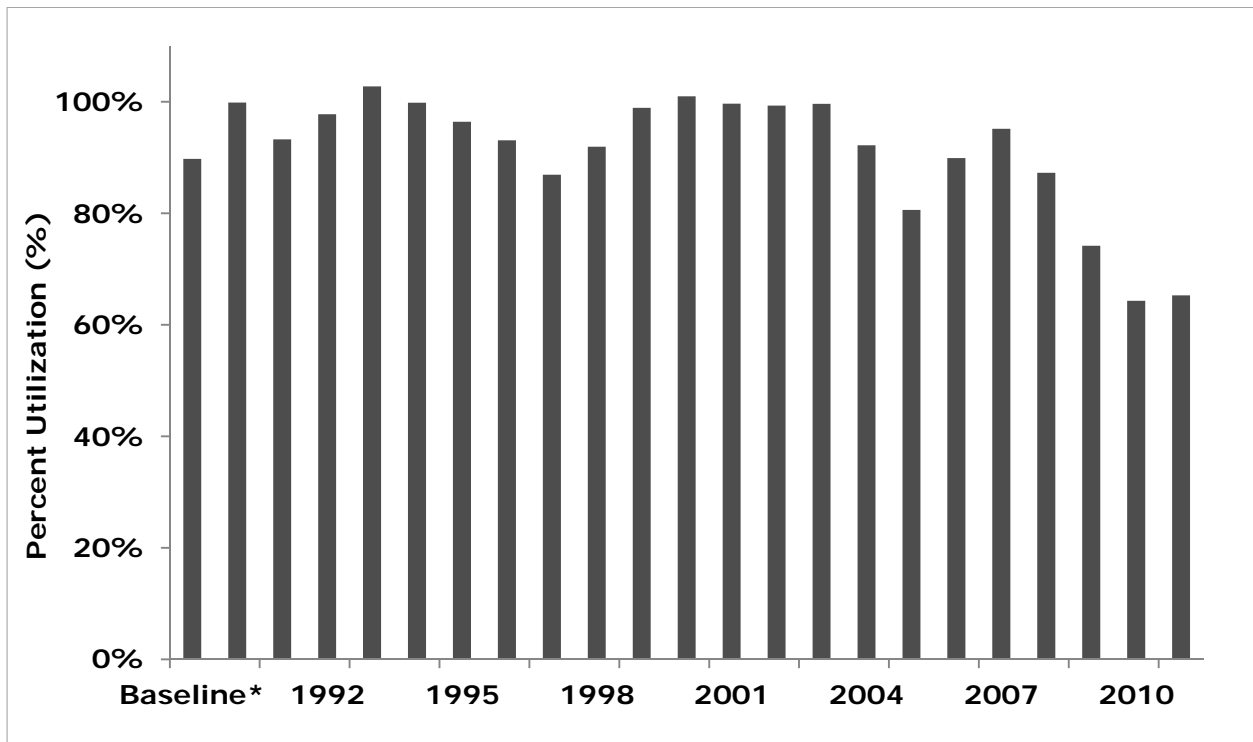


Figure 14. Utilization of available quota in the Mid-Atlantic Surfclam ITQ Program

ii. Effort

Upon implementation in 1990, there were a total of 154 entities (i.e., unique surfclam allocation holders) that received an initial allocation of quota share. After the first year of implementation the number of entities receiving quota share declined to 116 (Figure 15). The number of entities holding surfclam quota share stayed relatively constant ranging from 107 – 117 through calendar year 2000. Since 2005, the number of entities that held surfclam quota share has declined at an average annual rate of 5.6% to 55 entities in 2011.

The number of vessels that reported landing surfclams averaged 137 during the Baseline Period years of 1987 to 1989 (Figure 16). The number of active vessels declined about 18% per year for the first five years of the ITQ Program. However, since 1995, the number of active vessels harvesting surfclams has been relatively stable ranging between 29 and 39 vessels in every year. As noted previously, the variety of possible business arrangements through which allocation may be transferred complicates the interpretation of the changes in vessel activity levels.

Total trips taken on which surfclams were landed averaged 2,884 during the Baseline Period (Figure 17). Upon implementation of the ITQ Program, the number of trips declined in nearly every year through calendar year 2000. The number of trips increased in consecutive years of 2001 and 2002, but has since resumed the general downward trend observed during the first decade of the ITQ Program to 1,916 trips taken during 2011. On average, the number of trips taken during the 22 years the ITQ Program has been in existence has declined by an annual average rate of 1.5%. By contrast, after initially declining after the ITQ Program was implemented, the number of days spent on surfclam trips increased by an average annual rate of 7.0% from 1,706 days in 2001 to 2,911 days in 2011 (Figure 18). When coupled with the general decline in trips, this means that the average trip duration increased. After averaging less than a day (0.7 days) from 1990 through 2003, average trip duration increased to more than a day from 2004 onward. More recently, trip duration averaged 1.5 days during 2009-2011, more than twice that of the first fourteen years of the ITQ Program.

Prior to implementation of the ITQ Program, the management program was structured to assure that a continuous supply of surfclams would be provided to the market through a system of quarterly quotas and limits on fishing time. These measures meant that surfclams were available throughout the year. These measures were eliminated upon ITQ Program implementation allowing surfclams to be harvested according to market conditions. Thus, while the timing of when clams were harvested may have changed, the ITQ Program did not change the fact that some clams were available throughout the season with or without the ITQ Program (Figure 19).



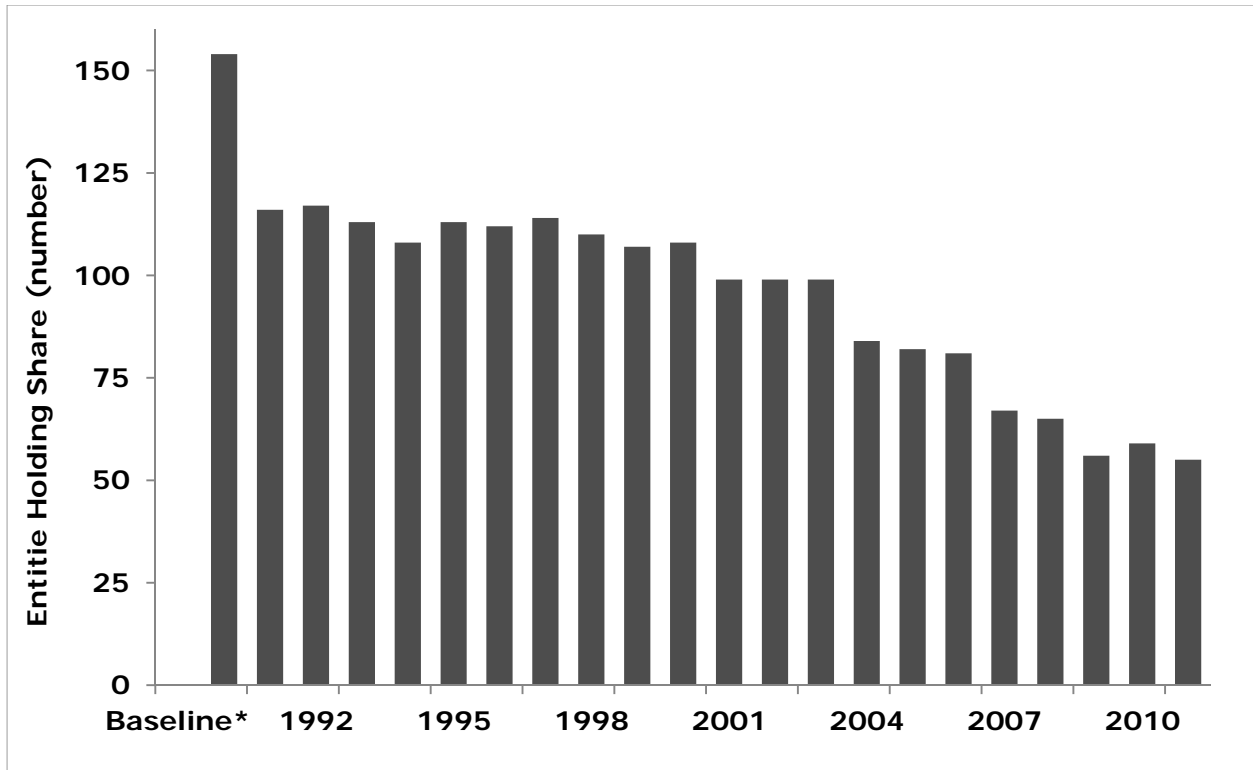


Figure 15. Number of entities holding share in the Mid-Atlantic Surfclam ITQ Program

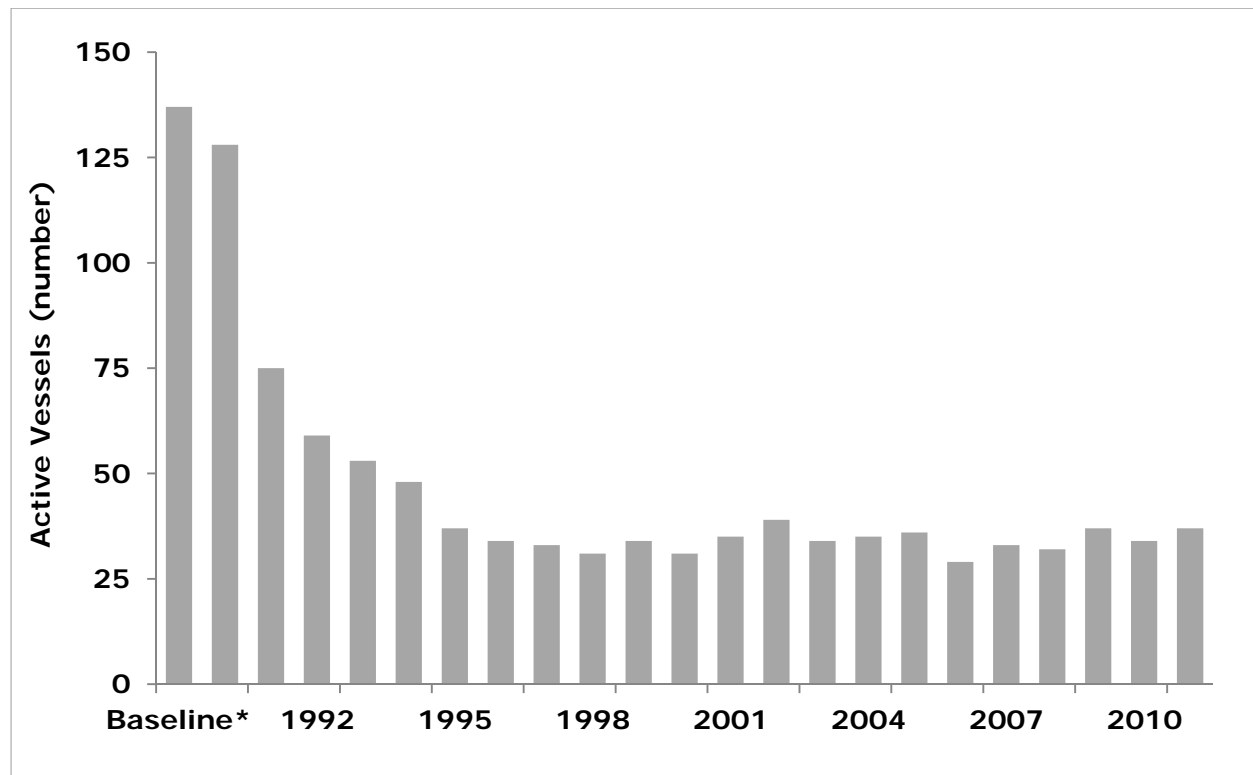


Figure 16. Active vessels fishing quota in the Mid-Atlantic Surfclam ITQ Program

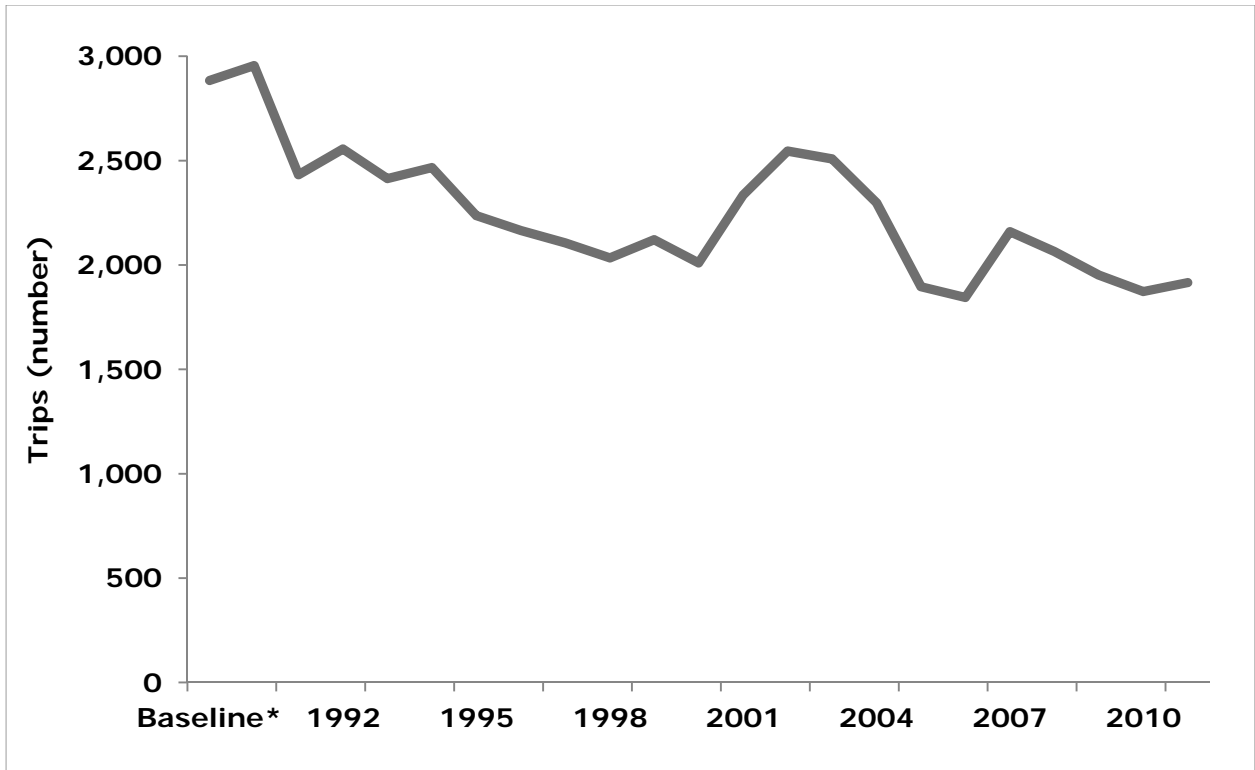


Figure 17. Number of trips harvesting surfclams in the Mid-Atlantic Surfclam ITQ Program

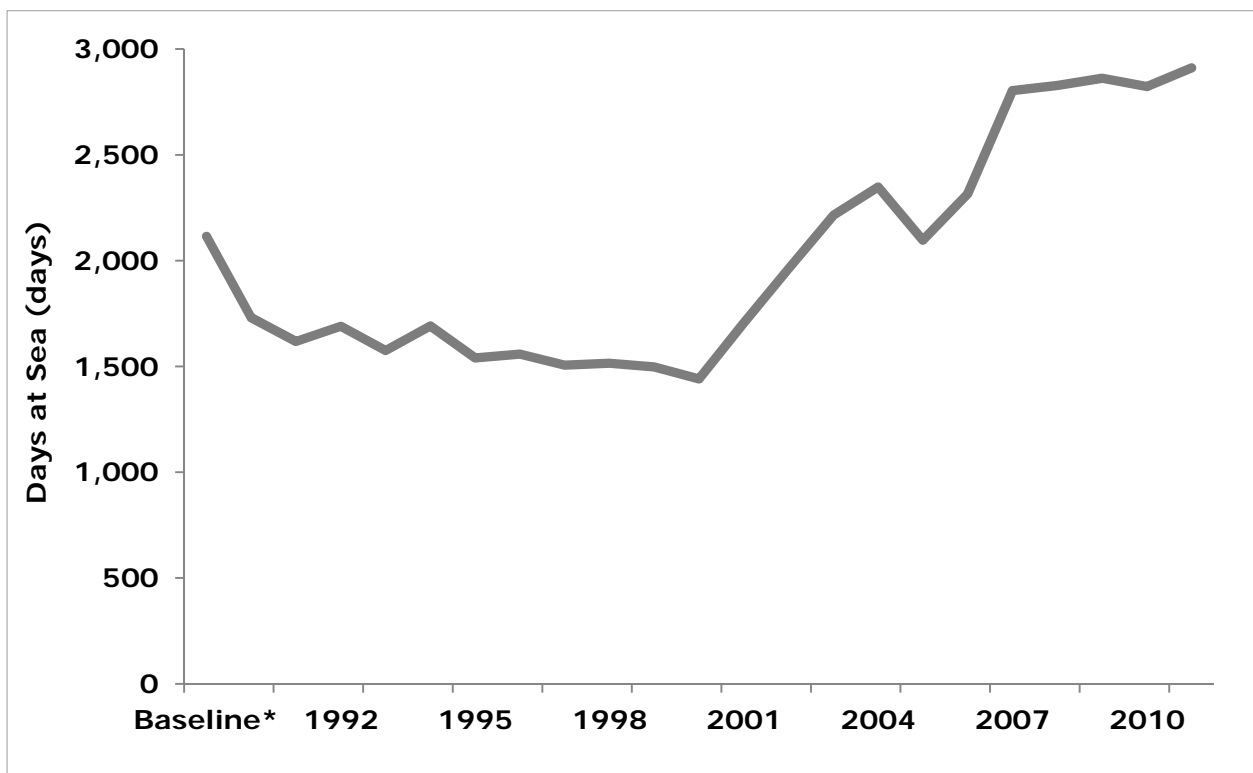


Figure 18. Number of days at sea on trips fishing quota in the Mid-Atlantic Surfclam ITQ Program

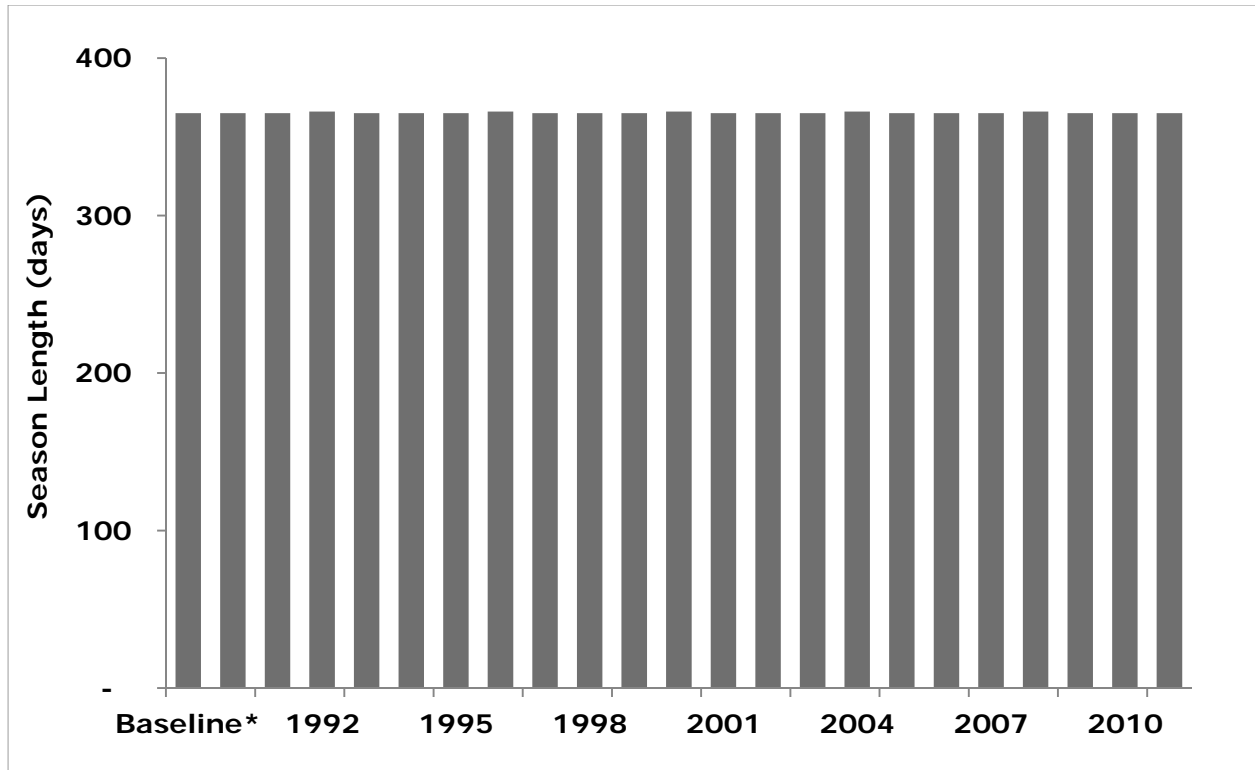


Figure 19. Season length (days) in the Mid-Atlantic Surfclam ITQ Program

- iii. Revenue – All revenue data have been adjusted by the GDP deflator indexed for 2010.

Gross revenue from the sale of surfclams averaged \$30.1 million during 2005-2011. However, after peaking at \$34.8 million during 2007, gross revenues have been declining (Figure 20) at an average annual rate of about 7.0%. Notably, since 2007, gross revenues declined at a slower rate than landings (-8.8%) because the average price per bushel of surfclams increased at an average rate of 2.2% (Figure 21).

Average revenue earned per vessel was \$278,000 during the Baseline Period (Figure 22). Average revenue per vessel increased in each of the first seven years of the program before declining for the first time in 1997 to \$659,000, still more than twice the Baseline Period average. Although revenue per vessel fluctuated between 1997 and 2006, the average revenue was still on a general upward trend. In fact, revenue per vessel from 1990 to 2006 increased at an average annual rate of 10.3%. However, over the most recent five years revenue per vessel declined an average of 9% from \$1.1 million in 2007 to \$703,000 per vessel in 2011. This change was partly due to lower surfclam revenues during 2011 as well as more active vessels (37 in 2011 compared to 33 in 2007).

Since the ITQ Program was implemented, surfclam revenue per trip has ranged from a low of \$11,602 in 2000 to a high of just over \$18,000 in 2006 (Figure 23). Surfclam revenue per trip averaged \$13,211 during the pre-ITQ Baseline Period. During the first 10 years of the program, revenue per trip exceeded the Baseline Period in the three years of 1994-1997, but was otherwise below the Baseline Period average through calendar year 2000. Note that most of these years corresponded to a period where the quota was declining; hence, most performance measures including revenue per trip would be expected to be declining. The link between revenue per trip and available quota is also evident from 2001 to 2004 as both revenue per trip

and available quota were increasing. However, over the most recent five years, revenue per trip has been declining from \$16,147 in 2007 to \$13,577 in 2011 despite the longer trip duration.

Revenue per day initially improved following ITQ Program implementation from an average of \$18,014 during the 1987-1989 Baseline Period to \$22,109 in 1990 (Figure 24). Since then, average revenue per day has declined in most years at an annual average rate of 3.8% to a time series low of less than \$9,000 in 2011.

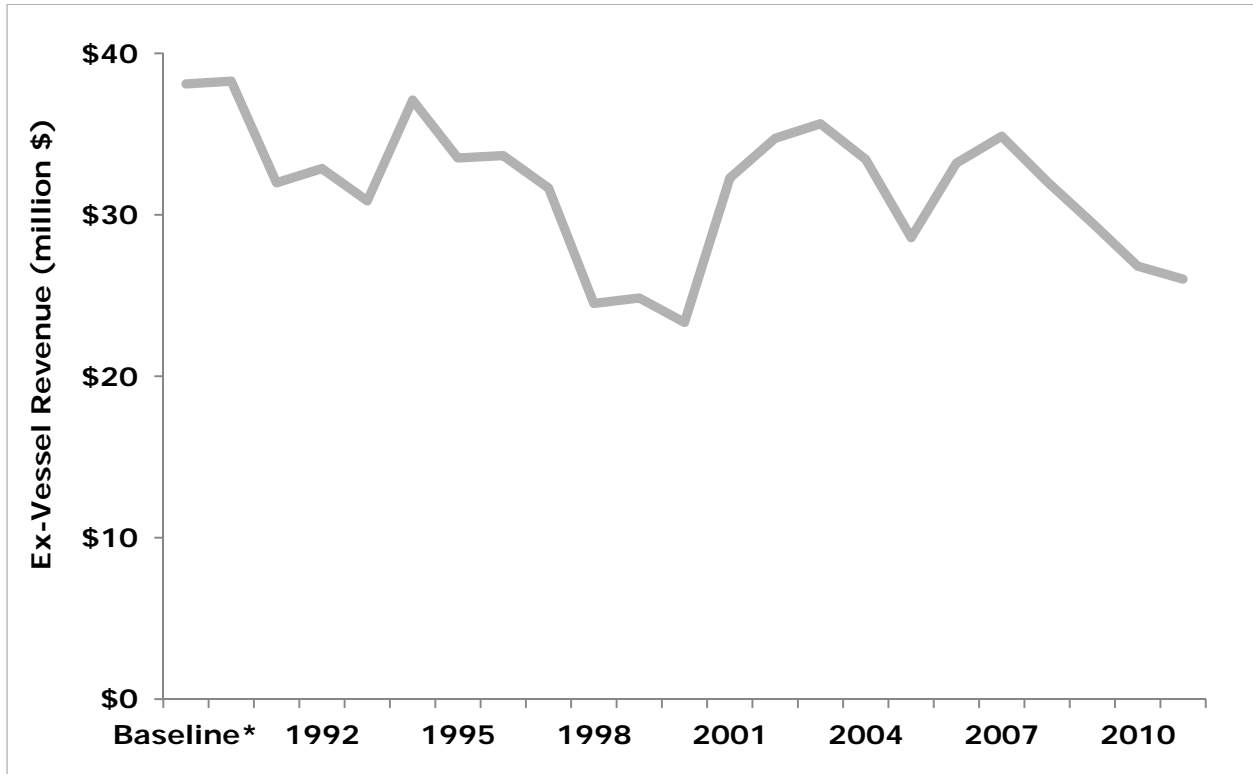


Figure 20. Total revenue (inflation-adjusted 2010 dollars) by vessels fishing quota in the Mid-Atlantic Surfclam ITQ Program

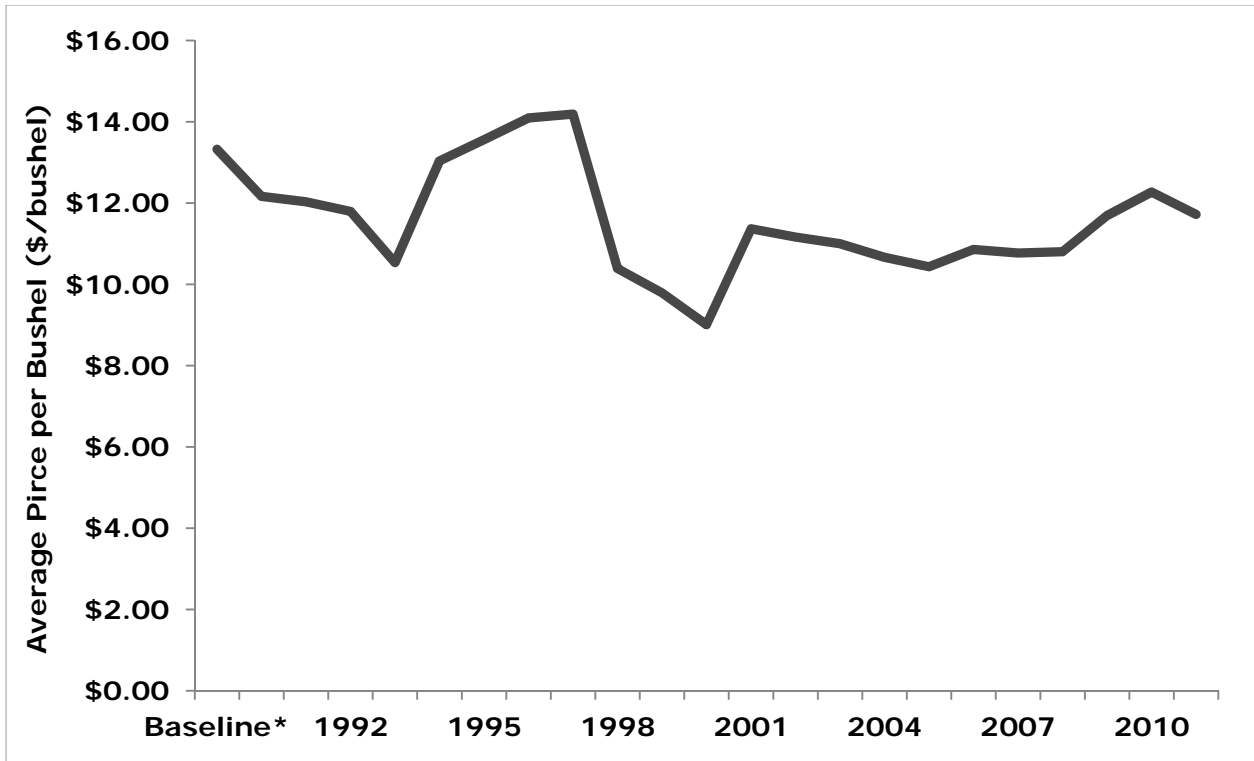


Figure 21. Average surfclam price per bushel (inflation-adjusted 2010 dollars) in the Mid-Atlantic Surfclam ITQ Program

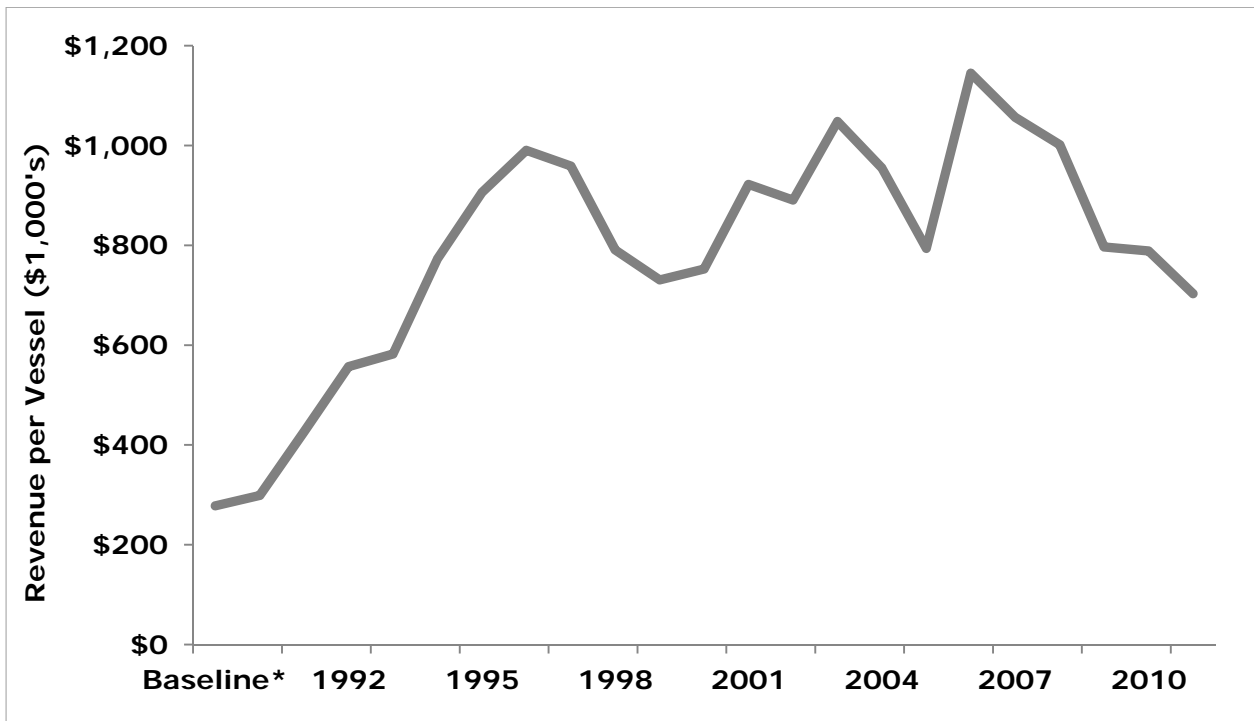


Figure 22. Revenue (inflation-adjusted 2010 dollars) per vessel fishing quota in the Mid-Atlantic Surfclam ITQ Program

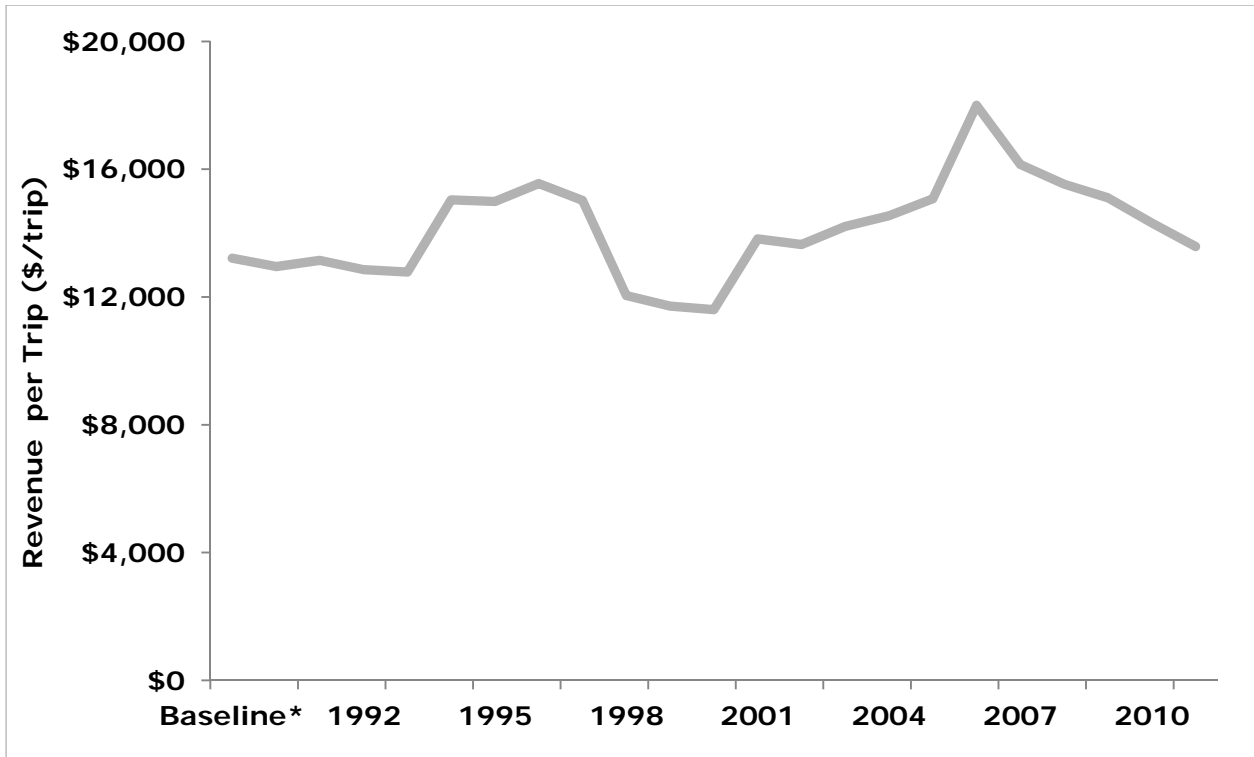


Figure 23. Revenue (inflation-adjusted 2010 dollars) per trip that vessels fish quota in the Mid-Atlantic Surfclam ITQ Program

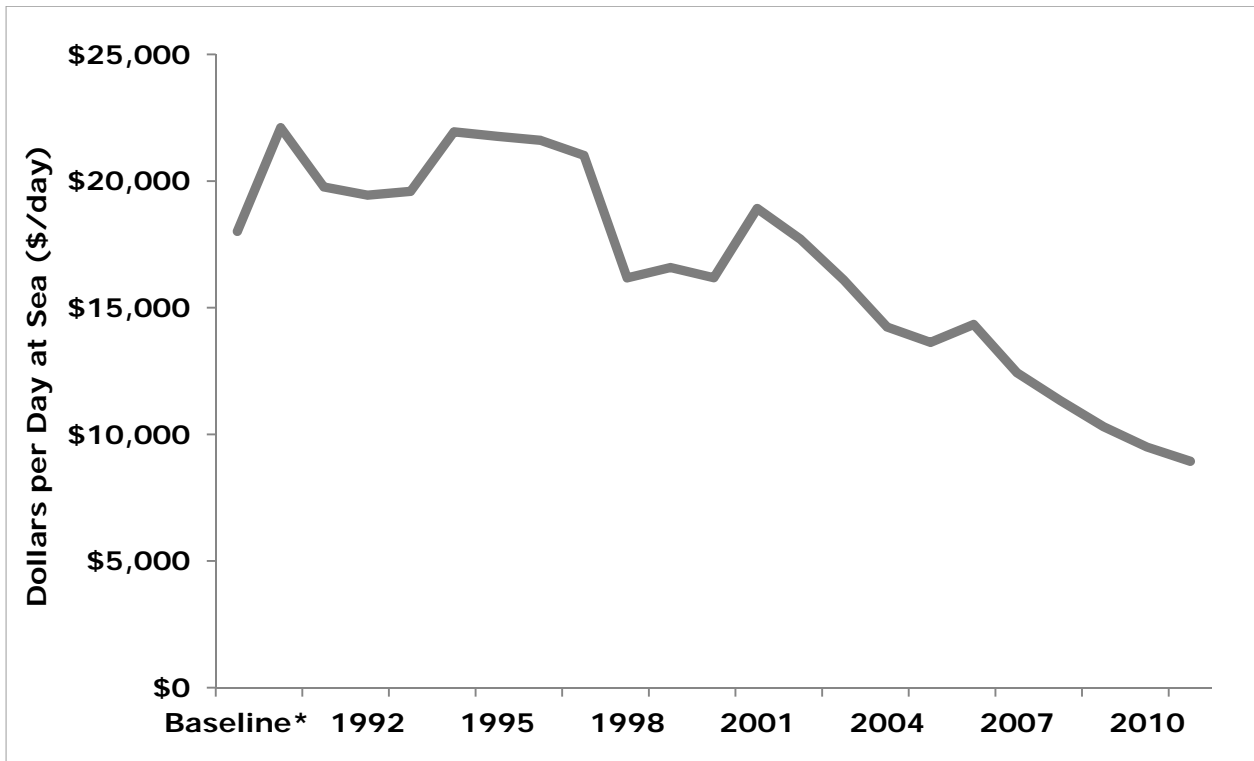


Figure 24. Revenue (inflation-adjusted 2010 dollars) per day at sea that vessels fish quota in the Mid-Atlantic Surfclam ITQ Program

## **Mid-Atlantic Golden Tilefish IFQ Program**

### **a. Management History**

The Fishery Management Plan (FMP) for the Mid-Atlantic golden tilefish fishery was first implemented in 2001. The original FMP implemented a limited entry program establishing a tiered permitting system based on level of participation in the fishery. The fishery was managed with an overall landings limit that was sub-divided among each of the permit categories. The FMP included an open access permit category subject to a low trip limit to accommodate incidental quantities of golden tilefish that are occasionally landed while fishing for other species.

After setting aside 5% of the total quota to account for expected incidental landings in other fisheries. These fisheries are not quota managed, and are instead subject to a low trip limit. The remaining 95% of the annual quota was subdivided among the limited access permit categories including Full-Time Tier 1, Full-Time Tier 2 and Part-Time with two-thirds assigned to the Full-Time Tier 1 permit category, 15% to the Full-Time Tier 2 category and 19% assigned to the part-time category. Fishermen in the Full-Time Tier 1 permit category were able to come to an agreement between themselves to manage the quota allocated to the permit category as a whole in such a way that harvesting could be timed to market conditions. This cooperative agreement allowed individuals in the permit category to stay within their collective quota while avoiding market gluts and spreading landings throughout the year. Fishermen in the other permit categories were unable to come to agreement on any similar cooperative arrangements resulting in an early closure of the Full-Time Tier 2 fishery in 2005 and 2006 and the part-time quota was closed early in 2002, 2004, 2005, and 2006. These early closures prompted the Mid-Atlantic Fishery Management Council to develop a catch share program for the golden tilefish fishery. Amendment 1 to the FMP was submitted in 2008 and the Individual Fishing Quota became effective in 2009.

### **b. Objectives**

The primary objectives of the IFQ Program are to reduce overcapacity and eliminate problems associated with the race to fish golden tilefish. Ending the "race to fish" is anticipated to eliminate short fishing seasons, increase market stability, increase flexibility and efficiency of fishing operations, improve safety at sea, improve management and compliance, and provide biological benefits to golden tilefish and other marine resources.

### **c. Key Events/Features**

Golden tilefish management is unique because many key events occurred outside the traditional management process. Prior to the implementation of the IFQ Program, fishermen crafted internal agreements that aided cooperation. Their cooperative operations helped fishing businesses stay viable under the new regulations, which laid the foundation for implementing the IFQ Program (Kitts et al. 2007<sup>9</sup>).

The IFQ Program permits allocations to be transferred on a permanent basis or on an annual basis (leased) to another entity. A cap on accumulation of golden tilefish quota shares was set at 49% of the total quota shares. This accumulation cap was set at the same time the IFQ Program was implemented. The IFQ Program also established cost recovery for purposes of recovering the costs of data collection, monitoring, and enforcement of the program. Although the golden tilefish fishing year runs from November 1 through October 31, the cost recovery fee is based on expenses and landings made during each calendar year. In 2010, total recoverable

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<sup>9</sup> Kitts, A., Pinto da Silva, P. and Rountree, B. 2007. The evolution of collaborative management in the Northeast USA tilefish fishery. [Marine Policy](#), vol. 31(2): 192-200.

costs of \$21,438 represented 0.43% of the fishery ex-vessel value during the fee period. In 2011, total recoverable costs of \$20,907 represented 0.39% of the fishery value during the fee period.

**d. Recent Trends**

- i. Catch and Landings – All values are reported in whole weight pounds.

The golden tilefish fishery opens on November 1 of each year and closes October 31 of the following year. Annual data reported herein are for fishing years 2010 and 2011, which correspond to November 2009 to October 2010 and November 2010 to October 2011 respectively. The Baseline Period years for the golden tilefish fishery include fishing years 2007-2009.

The annual quota for golden tilefish averaged 1.86 million pounds during the 2007-2009 Baseline Period years and was 1.90 million pounds in both 2010 and 2011 (Figure 36). Landings during the Baseline Period were 1.7 million pounds. During 2010 and 2011, total landings increased to 1.92 and 1.88 million pounds, respectively. Utilization of golden tilefish quota increased in 2010 and 2011 compared to the 2007-2009 average of 93.7% (Figure 37), although landings exceeded the quota during 2010 by 1.5%.

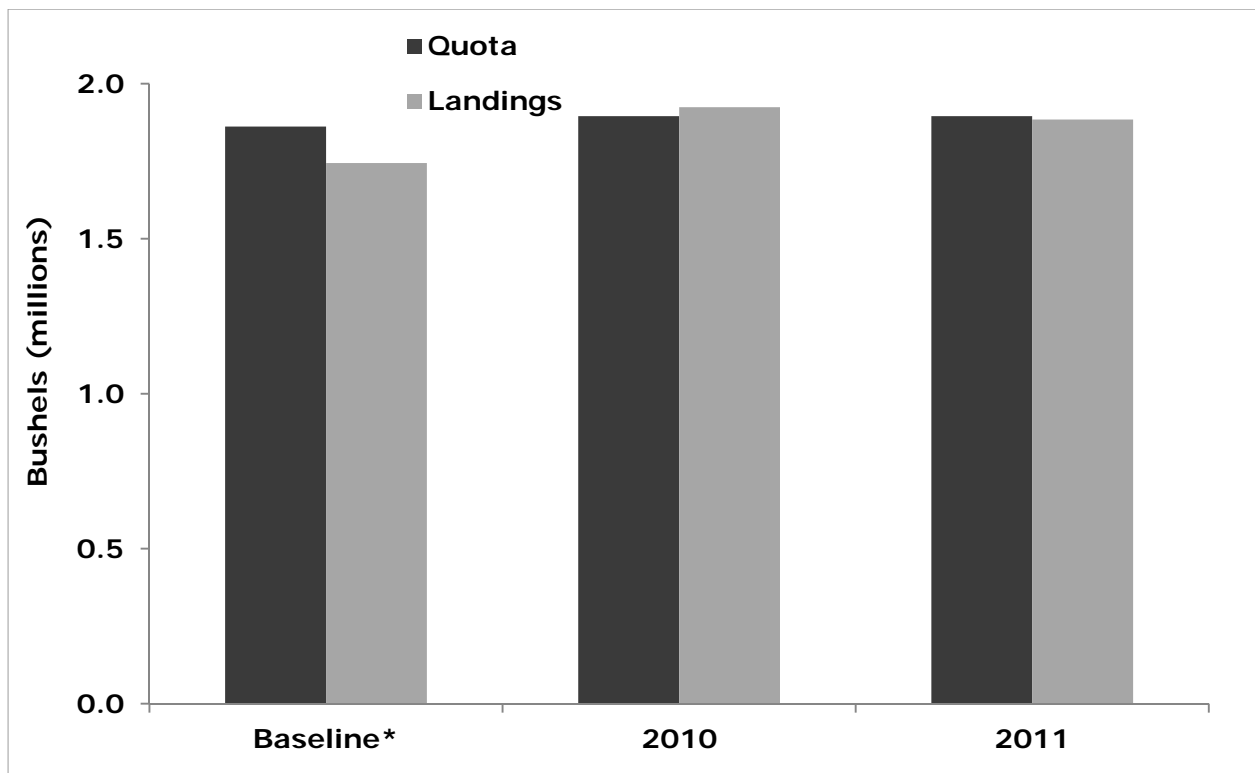


Figure 36. Quota and Landings in the Mid-Atlantic Golden Tilefish IFQ Program



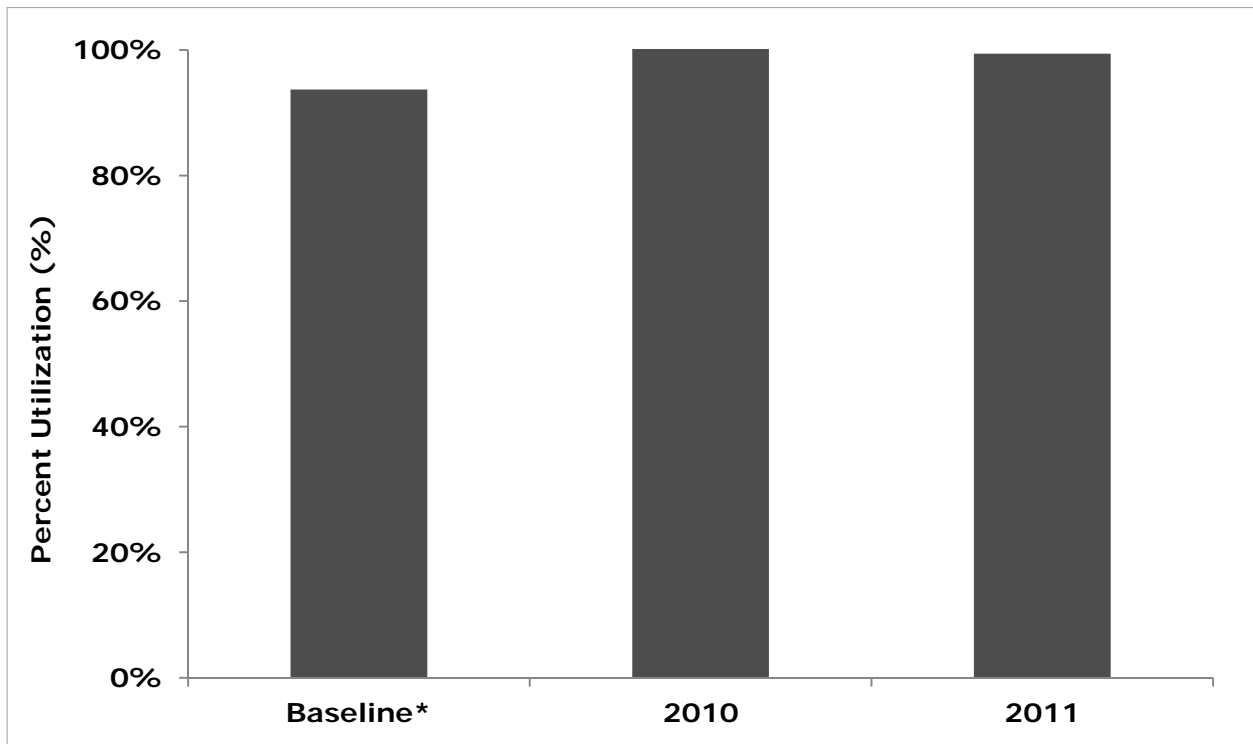


Figure 37. Utilization of available quota in the Mid-Atlantic Golden Tilefish IFQ Program

ii. Effort

Prior to program implementation there were about 30 vessels in the three limited access permit categories that were eligible to receive a quota share. However, due to inactivity in the fishery only 15 of the 30 eligible entities were issued a quota share in the first year of the program (Figure 38). In 2011, 13 entities were issued a quota share. On average, 14 vessels were active in the golden tilefish fishery during the Baseline Period (Figure 39).

In terms of fishing effort, both the number of trips taken on which golden tilefish was landed (Figure 40) and the days spent fishing (Figure 41) on those trips has declined. Total trips declined from 138 during the Baseline Period to 115 and 97 in 2010 and 2011, respectively. Likewise, days at sea declined from 1,780 in the Baseline Period to 925 days in 2011. On average, trip duration has declined from 12.9 days during 2007-2009 to 9.5 days in 2011.

As noted previously, the Full Time Tier 1 permit category did not exceed the golden tilefish quota allocated to the category in any year since the FMP was adopted in 2001. However, early closures in the other permit categories did occur resulting in shortened seasons averaging 310 days during the 2007-2009 Baseline Period (Figure 42). Since the IFQ Program was implemented, the fishery has not experienced any early closures resulting in golden tilefish being available to the market for the entire year in both 2010 and 2011.

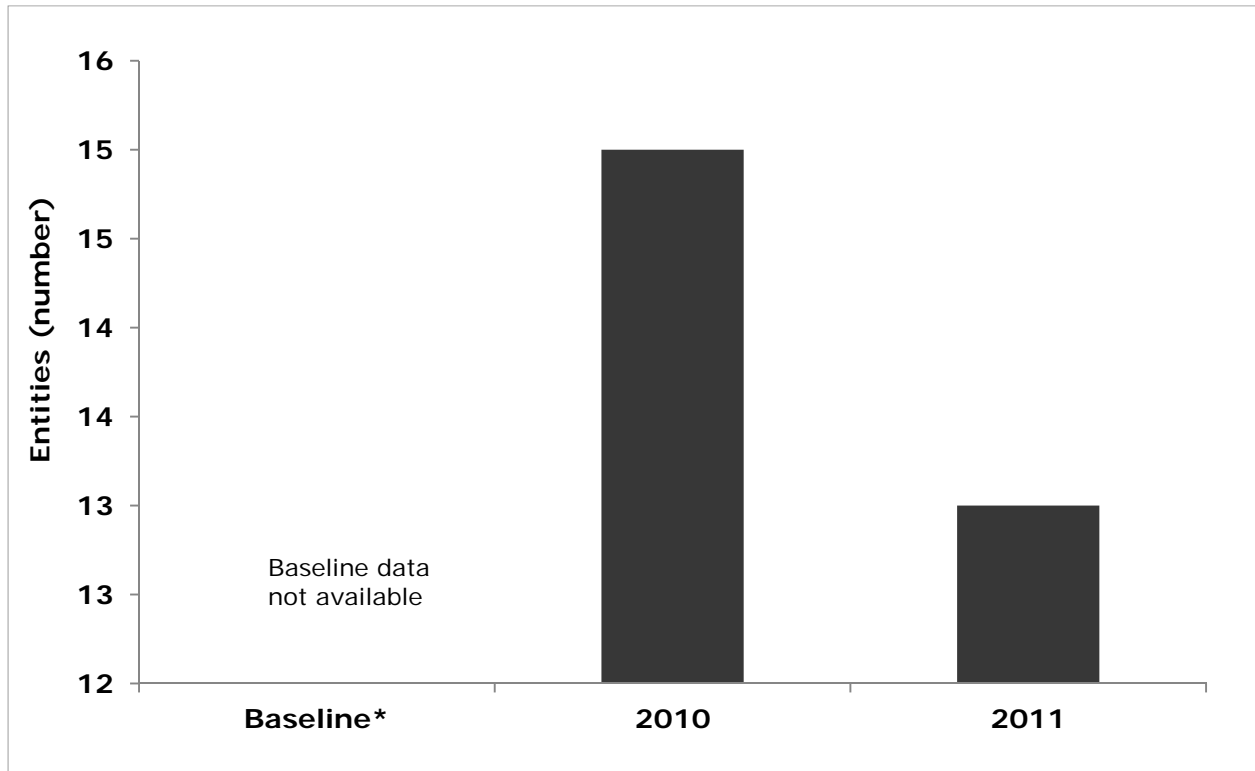


Figure 38. Number of entities holding share in the Mid-Atlantic Golden Tilefish IFQ Program

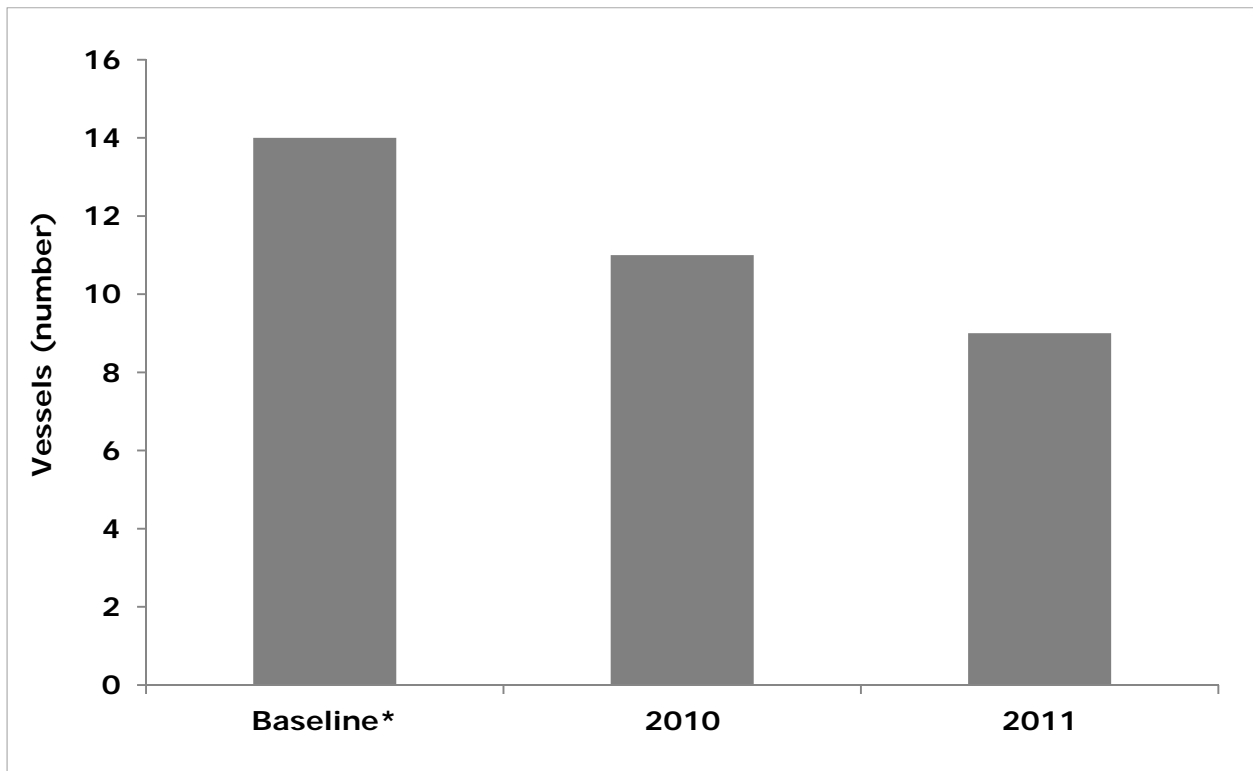


Figure 39. Active vessels fishing quota in the Mid-Atlantic Golden Tilefish IFQ Program

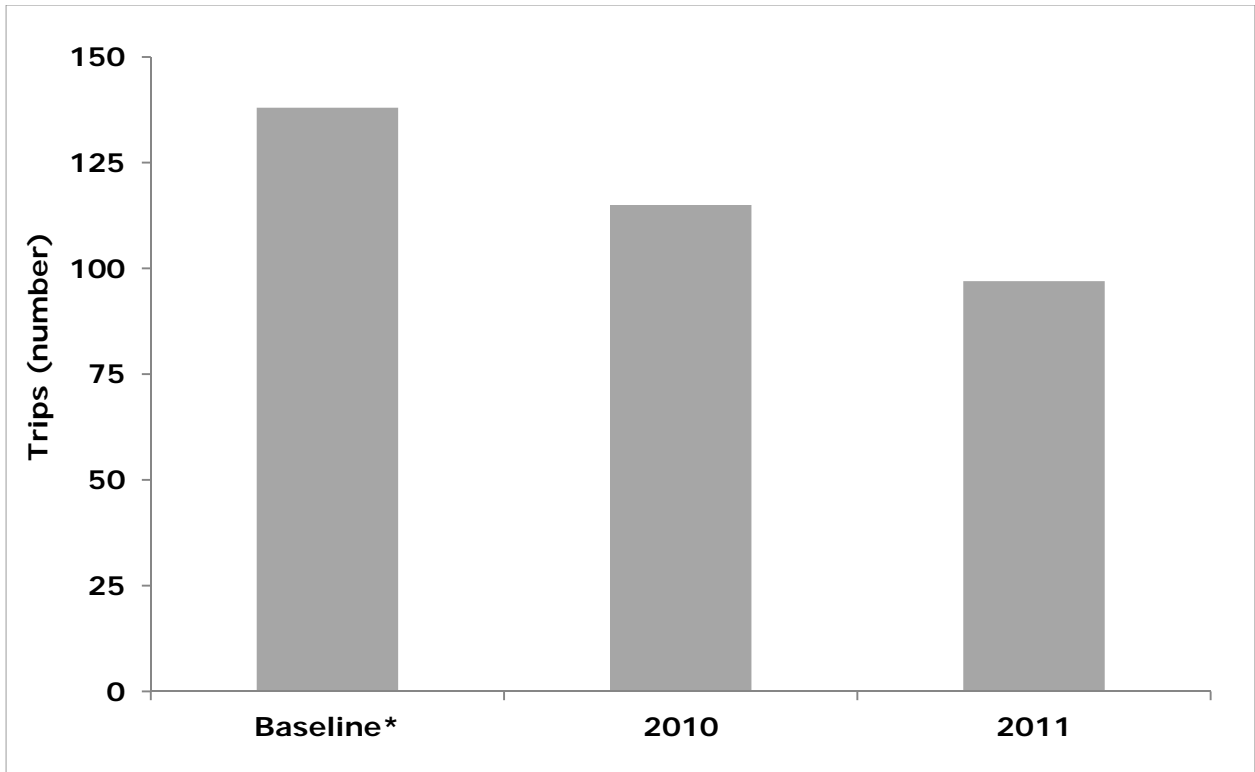


Figure 40. Number of trips harvesting golden tilefish in the Mid-Atlantic Golden Tilefish IFQ Program

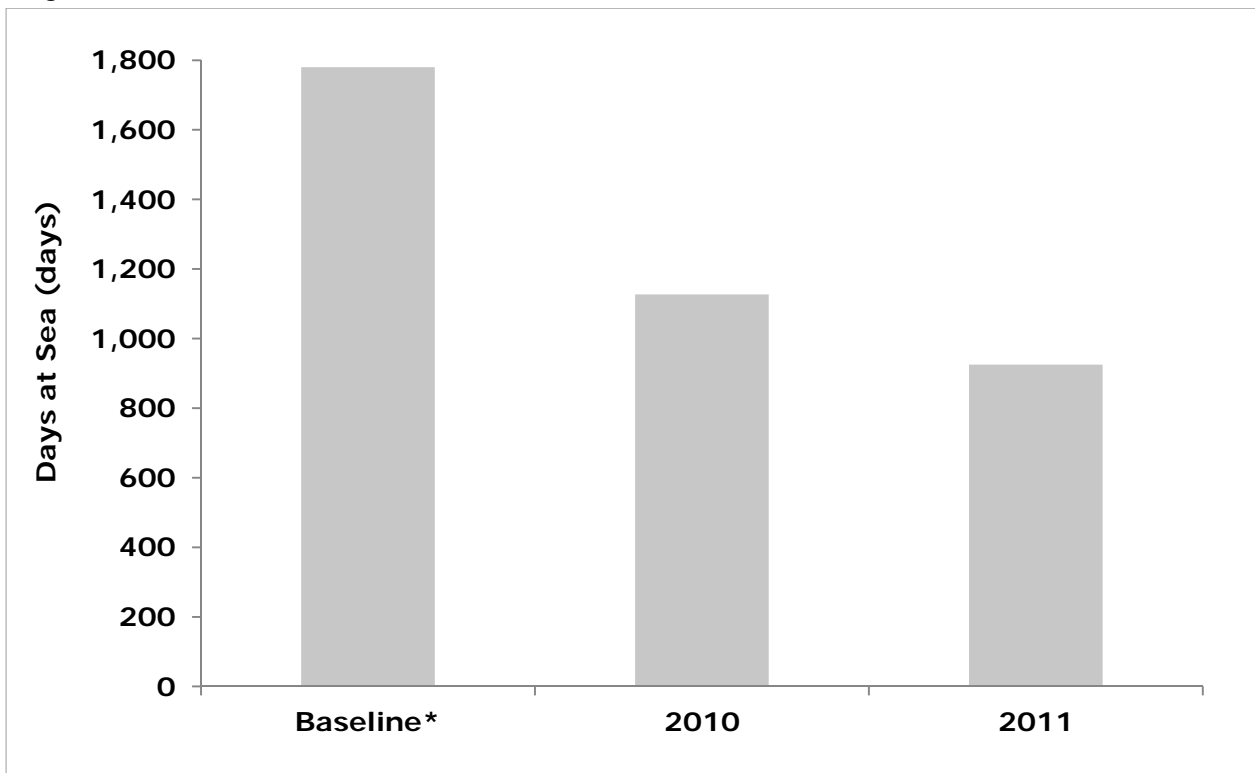


Figure 41. Number of days at sea on trips fishing quota in the Mid-Atlantic Golden Tilefish IFQ Program

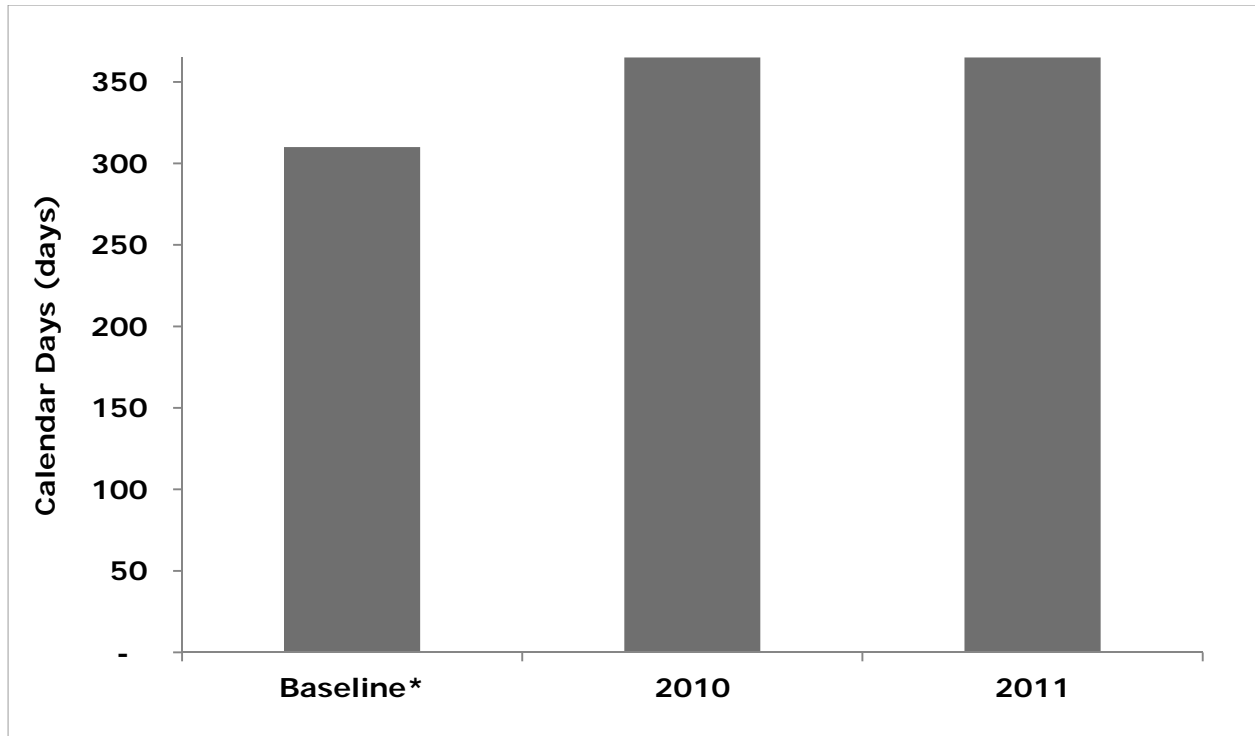


Figure 42. Season length (days) in the Mid-Atlantic Golden Tilefish IFQ Program

- iii. Revenue – All revenue data have been adjusted by the GDP deflator indexed for 2010.

Revenue from golden tilefish was higher in both 2010 and 2011 compared to the 2007-2009 Baseline Period (Figure 43). The improvement in total revenue in 2010 was primarily due to landings, as the average price for golden tilefish was nearly identical to that of the Baseline Period average (Figure 44). However, the average price received for golden tilefish increased from \$2.56 per pound in 2010 to \$2.83 per pound in 2011. This price increase resulted in an 8% increase in golden tilefish revenues in 2011 over the previous year.

Golden tilefish are targeted in deep water using bottom longline gear. While other species may be landed on trips that target golden tilefish, revenue from other landings are fairly small and have declined since the IFQ Program was implemented. During the Baseline Period the proportion of revenue from species other than golden tilefish on trips where golden tilefish were landed was approximately 4% of total trip revenue. However, in both 2010 and 2011 the proportion of revenue from species other than golden tilefish declined to 0.3% and 0.1%, respectively. For this reason, the remaining revenue-based performance measures will be reported only for golden tilefish revenues.

Given increasing total revenues and fewer active vessels, revenue per vessel increased in both 2010 and 2011 (Figure 45). In fact, 2011 revenue per vessel (\$590,000) was nearly twice that of the Baseline Period (\$320,000).

Coupling the reduced number of trips and days at sea with increasing revenues means that both revenue per trip (Figure 46) and revenue per day (Figure 47) increased in both 2010 and 2011. Revenue per trip increased from just over \$32,000 in the Baseline Period to about \$43,000 in 2010 and increased to nearly \$55,000 in 2011, a change of 69% in revenue per trip over the Baseline Period. Since days spent fishing went down proportionally more than the number of

trips, relative to the 2007-2009 Baseline Period average, the 2011 increase in revenue per day was even greater (129%).

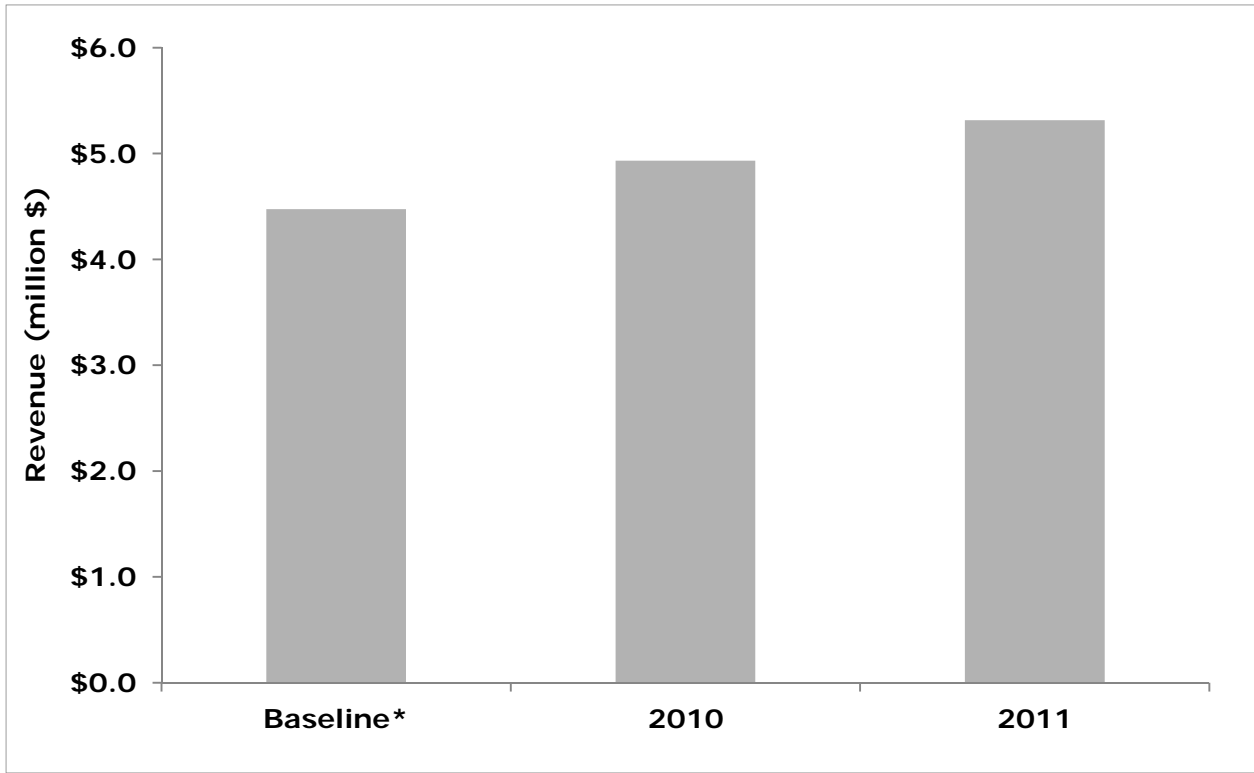


Figure 43. Total golden tilefish and non-golden tilefish revenue (inflation-adjusted 2010 dollars) by vessels fishing quota in the Mid-Atlantic Golden Tilefish IFQ Program

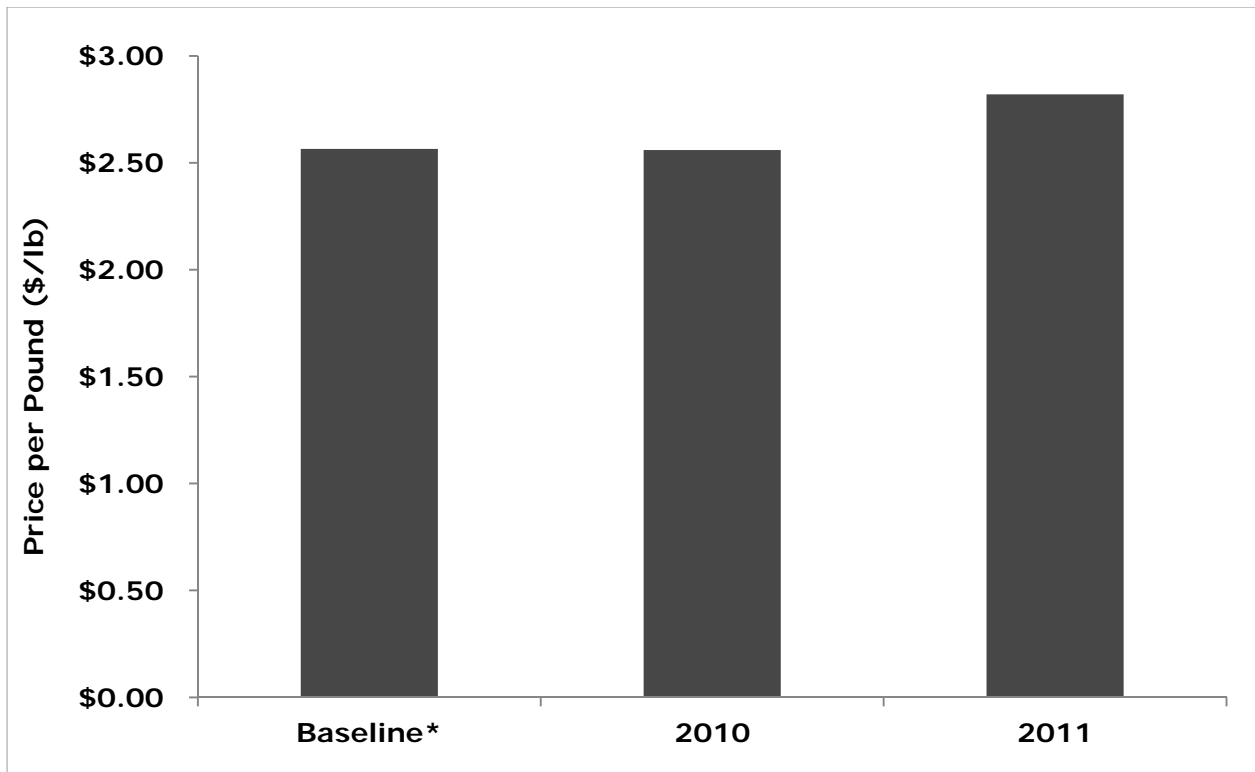


Figure 44. Average golden tilefish price per pound (inflation-adjusted 2010 dollars) in the Mid-Atlantic Golden Tilefish IFQ Program

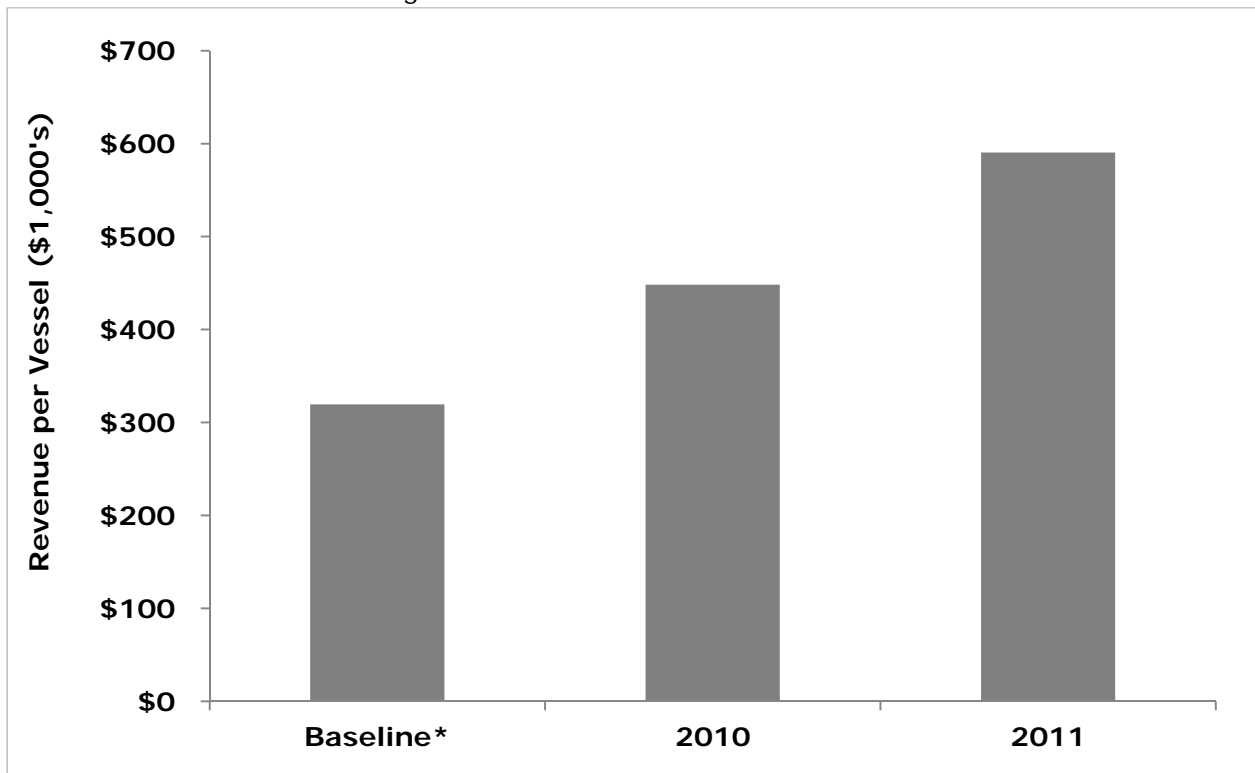


Figure 45. Revenue (inflation-adjusted 2010 dollars) per vessel fishing quota in the Mid-Atlantic Golden Tilefish IFQ Program

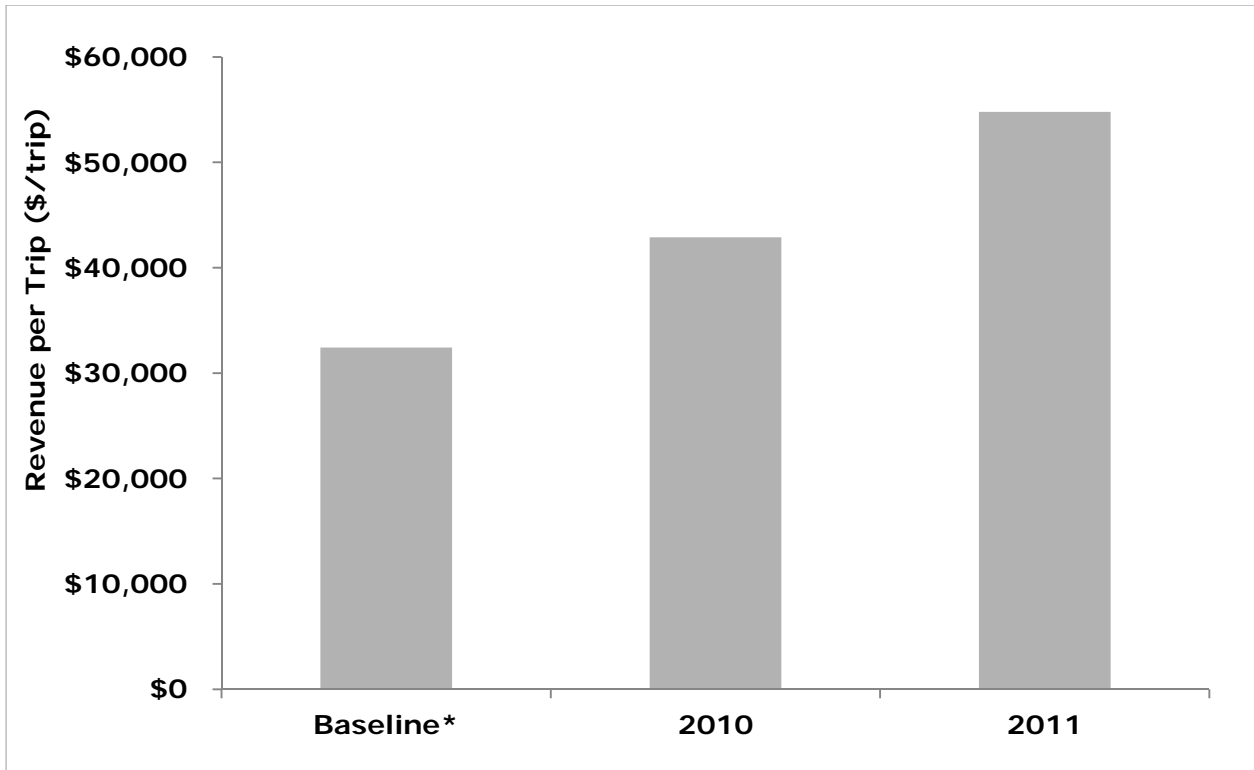


Figure 46. Revenue (inflation-adjusted 2010 dollars) per trip that vessels fish quota in the Mid-Atlantic Golden Tilefish IFQ Program

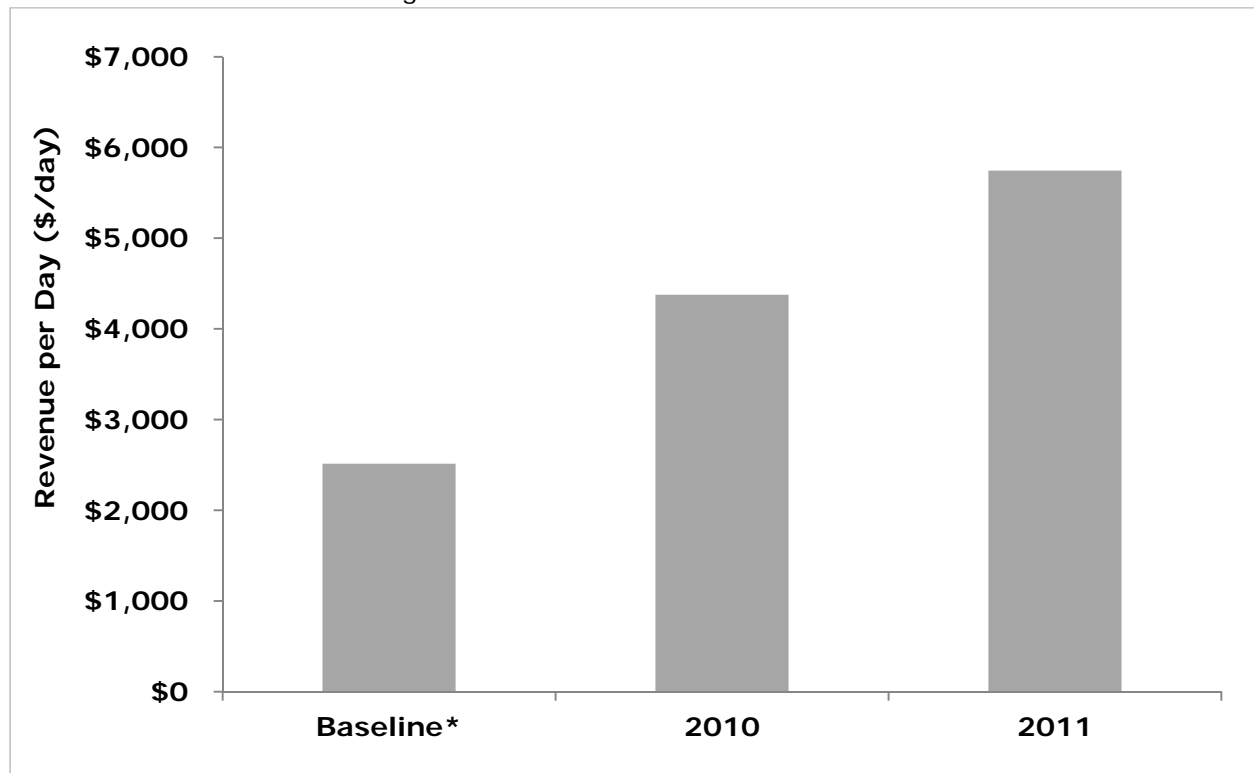


Figure 47. Revenue (inflation-adjusted 2010 dollars) per day at sea that vessels fish quota in the Mid-Atlantic Golden Tilefish IFQ Program