

# NOAA Catch Share Performance Indicator Series

## Mid-Atlantic

### Atlantic Ocean Quahog Individual Transferable Quota Program

**NOAA Fisheries** has developed standard indicators to measure the economic performance of individual U.S. catch share programs over time. To calculate these metrics catch, effort, landings, revenue, share accumulation and cost recovery data are used.

**Management History:** Prior to implementation of the ITQ Program, ocean quahogs were managed through quarterly quotas and the fishery was not overfished or experiencing overfishing. When the Mid-Atlantic Surfclam ITQ Program was being considered, the Council worked to include ocean quahogs to prevent effort transferring from the surfclam fishery to the ocean quahog fishery.

**Objectives:** The Ocean Quahog ITQ Program was implemented by the Mid-Atlantic Fishery Management Council to: (1) conserve the ocean quahog resource and stabilize harvest rates; (2) simplify regulatory requirements to minimize public and private management costs; (3) promote economic efficiency by bringing harvest capacity in line with processing and biological capacity; and (4) create a management approach that is flexible and adaptive to short-term events or circumstances.

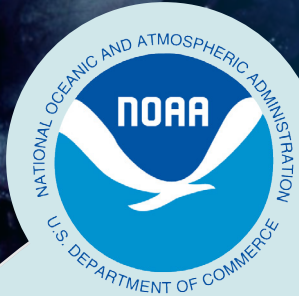
**Key Management Events:** The commercial quota for ocean quahogs averaged 5.7 million bushels during the Baseline Period\* and was then reduced to 4.0 million bushels in the mid-1990s based upon stock conditions. The quota was increased to 4.5 million bushels in 1999, and again to 5.2 million bushels in 2003 where it has since remained.

Prior to implementation of the ITQ Program, the commercial sector landed 90% of the available ocean quahog quota. This trend continued through the early 2000s. However, in recent years, the commercial sector has landed 57-66% of the available quota.

**Performance Trends:** The revenue and pricing information are presented in real terms (adjusted by the GDP deflator index for 2010). Both the number of entities holding shares and the number of active vessels have declined over the duration of the ITQ Program. The number of entities holding shares dropped by 30% in 1991, when compared to 1990 (the first year of the ITQ Program) and continued to decrease until there were 40 entities holding shares in 2011. Over the course of the ITQ Program, the number of active vessels has decreased by 50% to 34 active vessels.

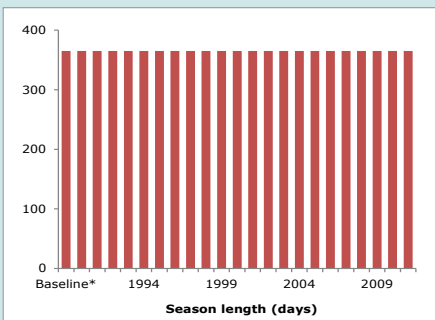
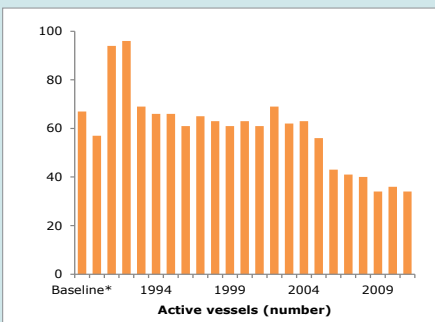
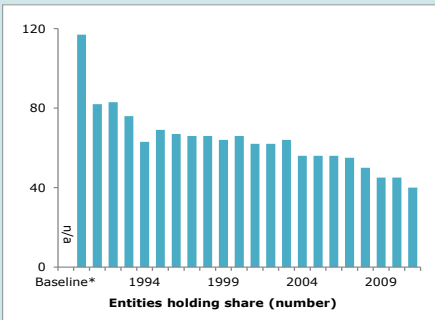
Ocean quahog revenue per vessel was \$581,000 in the Baseline Period\*, but decreased by 48% to \$282,000 in the first two years of the ITQ Program. Since then, revenue per vessel has been as high as \$734,000 in 2009. However, revenue per vessel has decreased by 10% between 2010 and 2011 to \$612,000.

\*Baseline Period refers to average of three years prior to Ocean Quahog ITQ implementation (1987-1989).



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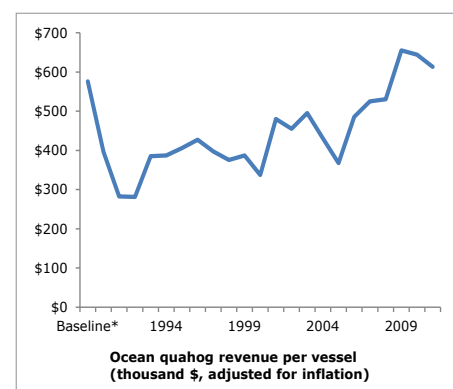
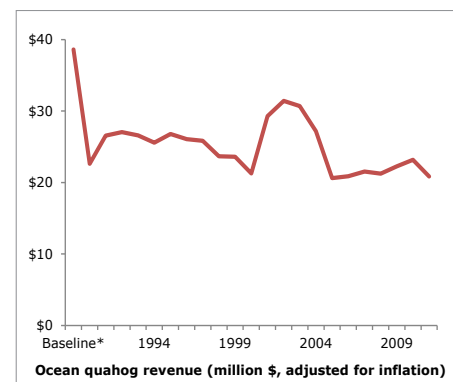
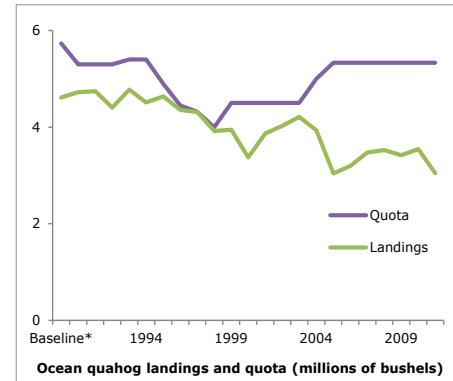
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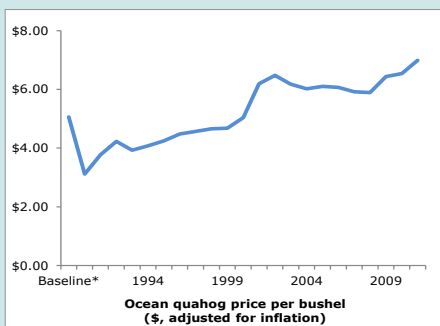
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**Prices:** The average price per bushel for ocean quahogs was \$8.36 in the Baseline Period\* and initially dropped to \$4.79 in the first year of the ITQ Program. In subsequent years, the price remained near \$6.00 until 2001, when the average price per bushel began to rise. Average prices peaked at \$7.80 in 2002 and subsequently declined to \$6.84 in 2011.

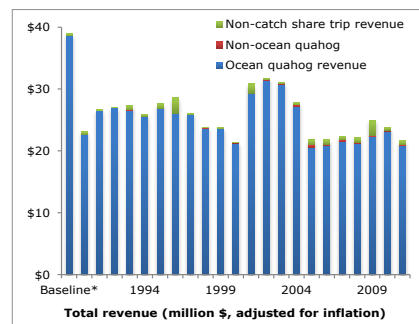


**Share Caps and Cost Recovery:**

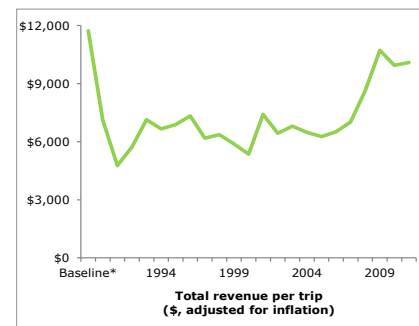
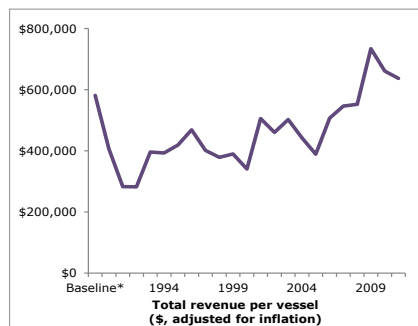
The purpose of quota share caps is to prevent individual shareholders from controlling production and prices, as well as to achieve management objectives, per the Magnuson-Stevens Act and the National Standards.

Currently, there is no accumulation limit, nor has a cost recovery program been implemented, as neither was required at the time the ITQ Program was developed. However, these issues are under review by the Mid-Atlantic Fishery Management Council.

**Total Revenue:** Vessels who participate in the Mid-Atlantic Ocean Quahog ITQ Program generate revenue from ocean quahog landings, as well as small amounts of other species on ocean quahog trips. In addition, these same vessels also participate in other fisheries (including non-catch share programs) and this revenue contributes to their total revenue.

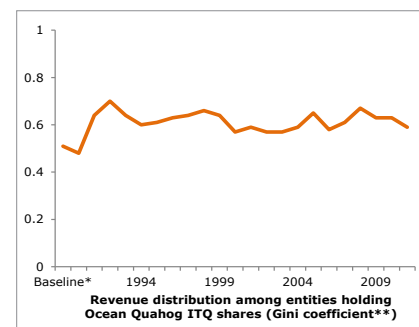


Total revenue from ocean quahog trips (ocean quahog and non-ocean quahog revenue) and non-ocean quahog trips was \$39 million during the Baseline Period\*. Total revenue decreased by 40% to \$23 million in 1990 and remained fairly constant through 2011 with a few high revenue years greater than \$30 million from 2001 to 2003. During the Baseline Period\*, ocean quahog revenue accounted for 99% of vessels' total revenue, while revenue from non-ocean quahogs on ocean quahog trips and non-catch share revenue accounted for less than 1% of total revenue most years; this trend has remained fairly constant.



**Total revenue per vessel and total revenue per trip:** Total revenue per vessel was \$420,000 during the Baseline Period\*. Following an initial drop to \$280,000, total revenue per vessel was on an upward trend for most years and peaked at \$655,000 in 2009. Total revenue per vessel was \$613,000 in 2010 and 2011. Likewise, the total revenue per trip initially decreased from \$11,700 during the Baseline Period\* to \$7,100 in 1991, but in recent years increased to a high of \$10,700 in 2009 and was \$10,000 in 2011.

**Revenue Distribution:** The Gini coefficient measures the evenness of a distribution. Here, it measures the distribution of revenue among entities holding shares in the Mid-Atlantic Ocean Quahog ITQ Program. A value of 0 indicates that all shareholders earn the same amount of revenue, while a value of 1 indicates that one shareholder earns all of the revenue.



The Gini coefficient for the Mid-Atlantic Ocean Quahog ITQ Program was near 0.5 during the Baseline Period\* and in 1990. In 1992, the Gini coefficient increased to 0.7 and has remained fairly constant at 0.6 since then.

\*\*0 = perfect equality; 1 = perfect inequality

For more detailed information on the Atlantic Surfclam and Ocean Quahog ITQ Program, please visit: <http://www.nero.noaa.gov/sfd/sfdclam.html>

More fact sheets can be found at: <http://www.st.nmfs.noaa.gov/economics/fisheries/commercial/catch-share-program/fact-sheets/index>

For more information on catch share programs: [http://www.nmfs.noaa.gov/sfa/domes\\_fish/catchshare/index.htm](http://www.nmfs.noaa.gov/sfa/domes_fish/catchshare/index.htm)

\*Baseline Period refers to average of three years prior to Ocean Quahog ITQ implementation (1987-1989).

# NOAA Catch Share Performance Indicator Series

## Mid-Atlantic

### Atlantic Surfclam Individual Transferable Quota Program

**NOAA Fisheries** has developed standard indicators to measure the economic performance of individual U.S. catch share programs over time. To calculate these metrics catch, effort, landings, revenue, share accumulation and cost recovery data are used.

**Management History:** In the 13 years preceding the adoption of the Individual Transferable Quota (ITQ) management system for Atlantic Surfclams and Ocean Quahogs, the surfclam fishery was managed through limited entry, quarterly quotas and fishing time restrictions. Prior to implementation of the ITQ Program, the fishery was not overfished or experiencing overfishing; however, the large vessels with hydraulic clam dredges participating in the fishery were capable of high catch rates. Often, the fishery was limited to six hours every other week to keep catches within harvest limits.

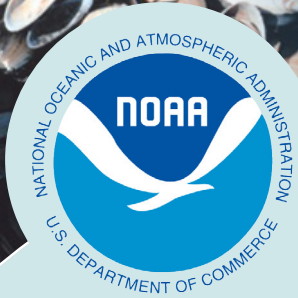
**Objectives:** The Surfclam ITQ Program was implemented by the Mid-Atlantic Fishery Management Council to: (1) conserve the surfclam resource and stabilize harvest rates; (2) simplify regulatory requirements to minimize public and private management costs; (3) promote economic efficiency by bringing harvest capacity in line with processing and biological capacity; and (4) create a management approach that is flexible and adaptive to short-term events or circumstances.

**Key Management Events:** Coincident with the implementation of the Surfclam ITQ Program, the commercial quota for surfclams was reduced by 1% from the Baseline Period\* of 3.1 million bushels. The first ten years (1990 - 1999) of the ITQ Program, quota decreased at an average annual rate of 2% based upon stock conditions. The quota increased steadily until 2004, when it was set at 3.4 million bushels where it has since remained. Prior to implementation of the ITQ Program, the commercial sector landed 90% of the available surfclam quota. This trend continued through the 1990s and early 2000s when approximately 90% of the commercial quota was landed. However, in recent years, the commercial sector has landed 65-87% of the available quota.

**Performance Trends:** The revenue and pricing information are presented in real terms (adjusted for inflation with the GDP 2010 index). Surfclam revenue was \$38 million in the Baseline Period\*, but has fluctuated from \$23.3 - \$38.3 million from 1990 - 2011. In recent years, revenue has decreased by 3 - 9% annually from 2007 until 2011.

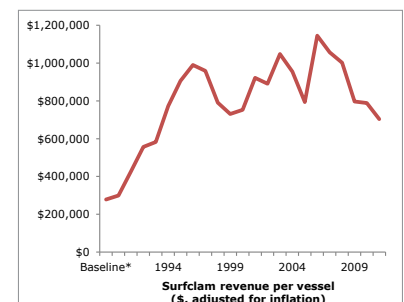
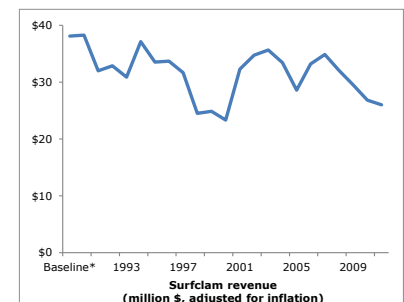
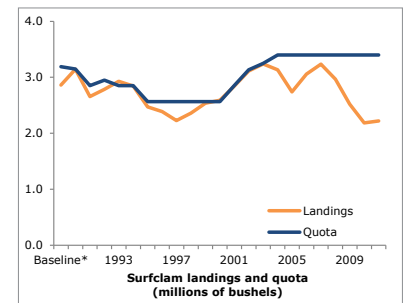
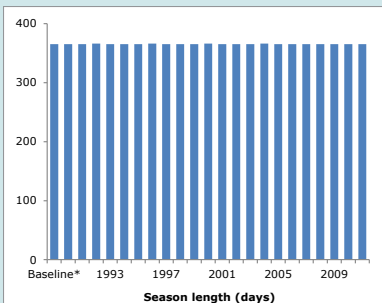
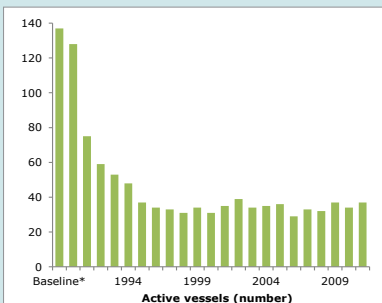
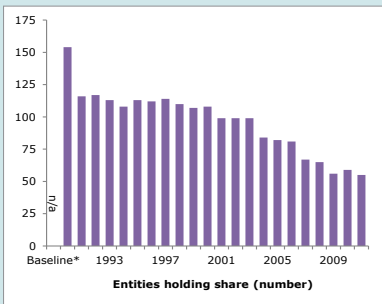
Economic efficiency, measured here as surfclam revenue per vessel, increased steadily for the first seven years of the ITQ Program and then fluctuated somewhat until peaking in 2006 at \$1.8 million per vessel. Although revenue per vessel has steadily declined since 2007, in 2011 it is still 153% greater than during the Baseline Period\*. The ITQ Program was also successful at reducing capacity; the number of active vessels decreased (by 73%) from 137 during the Baseline Period\* to 37 in 2011.

\*Baseline Period refers to average of three years prior to Surfclam ITQ implementation (1987 - 1989).



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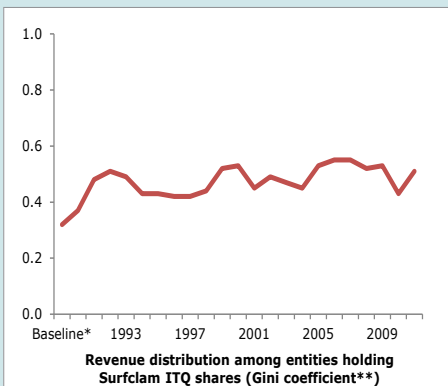
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**Accumulation Limits:** At present there is no accumulation limit for surfclam shares, nor has a cost recovery program been implemented as neither was required at the time the ITQ Program was developed.

The Mid-Atlantic Fishery Management Council is currently in the process of developing an amendment to the fishery management plan that would include accumulation limits and cost recovery.

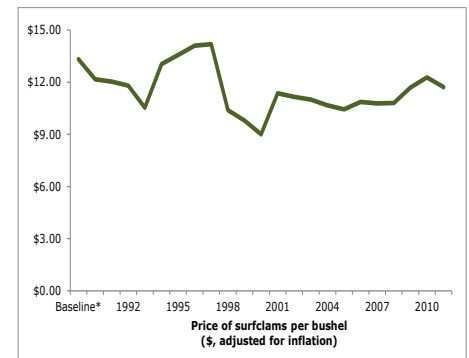
**Revenue Distribution:** The Gini coefficient measures the evenness of a distribution. Here, it measures the distribution of revenue among entities holding shares in the Surfclam ITQ Program. A value of 0 indicates that all shareholders earn the same amount of revenue, while a value of 1 indicates that one shareholder earns all of the revenue.

Prior to implementation of the Atlantic Surfclam ITQ Program, the Gini coefficient was 0.32 in the Baseline Period\* and in 1990 increased to 0.37. The Gini coefficient eventually increased to a maximum of 0.55 in 2006 and 2007. In subsequent years, the Gini coefficient has slightly decreased each year to 0.51 in 2011.

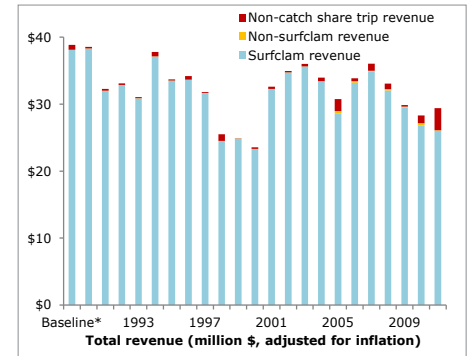


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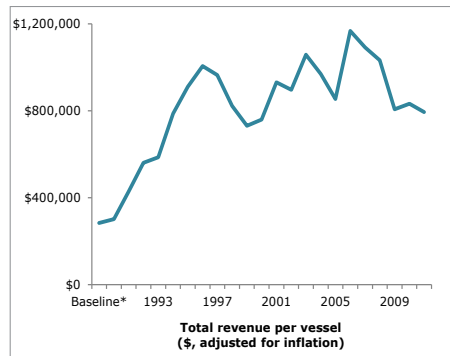
**Prices:** Prices for surfclams have fluctuated from \$9 – 14 per bushel. Surfclam prices have been slightly increasing since 2005 (5% average annual increase), but decreased by 2% between 2010 and 2011.



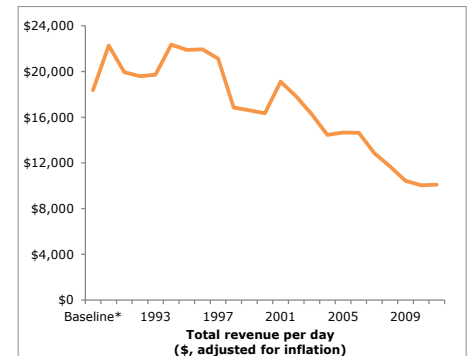
**Total Revenue:** Vessels who participate in the Atlantic Surfclam ITQ Program generate revenue from landings of surfclams, as well as small amounts of other species on surfclam trips. In addition, these same vessels also participate in other fisheries (including non-catch share programs) and this revenue contributes to their total revenue.



Total revenue has ranged from \$18-34 million over the history of the Surfclam ITQ Program. Surfclam revenue has accounted for 98% of total revenue for most years in the Program. In 2010 and 2011, vessels participating in the Surfclam ITQ Program increased their revenue on non-catch share trips: revenue from non-catch share trips accounted for 4% and 11% of total revenue in 2010 and 2011, respectively.



**Total revenue per vessel** increased in each of the first seven years of the program before declining for the first time in 1997 to \$964,000, still more than three times the Baseline Period\* average. Although total revenue per vessel fluctuated between 1997 and 2011, the average revenue per vessel has been \$914,000.



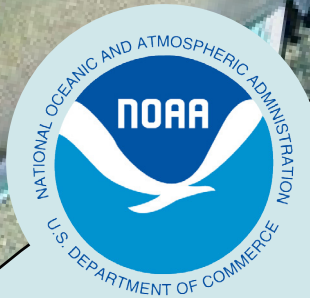
**Total revenue per day** initially improved following ITQ implementation, from an average of \$18,000 during the Baseline Period\* to \$22,000 in 1990. Since then, average revenue per day has declined in most years at an annual average rate of 2% to a time series low of less than \$10,000 in 2011.

For more detailed information on the Atlantic Surfclam and Ocean Quahog ITQ Program, please visit: <http://www.nero.noaa.gov/sfd/sfdclam.html>

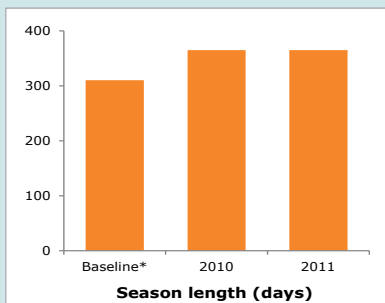
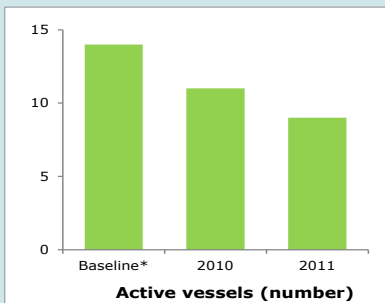
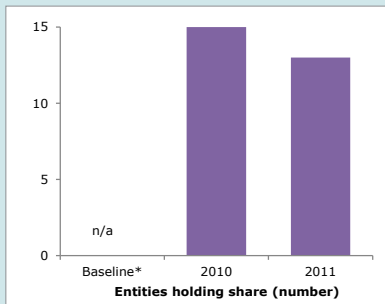
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\*Baseline Period refers to average of three years prior to Surfclam ITQ implementation (1987 – 1989).



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## Mid-Atlantic

### Golden Tilefish Individual Fishing Quota Program

**NOAA Fisheries** has developed standard indicators to measure the economic performance of individual U.S. catch share programs over time. To calculate these metrics catch, effort, landings, revenue, share accumulation and cost recovery data are used.

**Management History:** The Mid-Atlantic Golden Tilefish Fishery was traditionally managed by annual quotas and trip limits. Prior to the 2009 implementation of the IFQ Program, the Mid-Atlantic Council began to evaluate alternatives for a limited access privilege program to improve profitability and reduce overcapacity in order to align harvest capacity of the fleet with target catch levels.

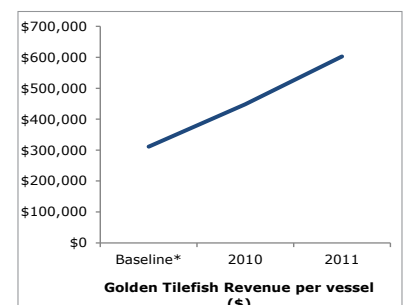
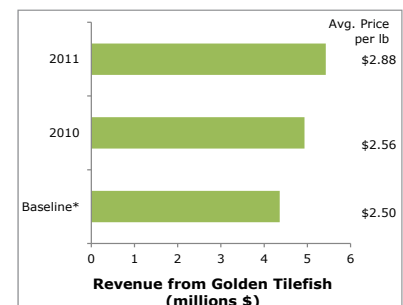
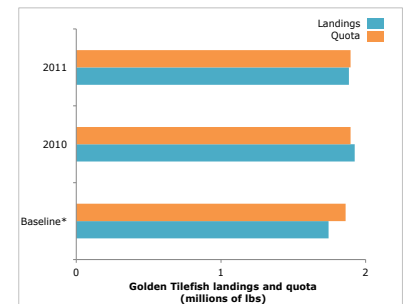
**Objectives:** The primary objectives of the IFQ Program are to reduce overcapacity and eliminate problems associated with the race to fish golden tilefish. Ending the "race to fish" is anticipated to help eliminate short fishing seasons, increase market stability, increase flexibility and efficiency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

**Key Management Events:** Golden tilefish management is unique because many key events occurred outside the traditional management process. Prior to implementation of the IFQ Program, some fishermen opted to craft 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.

**Performance Trends:** The Golden Tilefish Fishery opens on November 1 of each year and closes October 31 of the following year. Annual data are for the fishing year (i.e., 2010 represents the 2009/2010 fishing year).

Fifteen entities were issued quota shares when the IFQ Program was implemented; in 2011, there were 13 entities holding shares. Capacity was also reduced under the IFQ Program, with the number of active vessels declining from 14 vessels during the Baseline Period\* to 11 vessels in 2010 and to nine vessels in 2011. The IFQ Program was also successful at increasing season length, from an average of 310 days per year during the Baseline Period\* to open year round, thereby ending the race to fish.

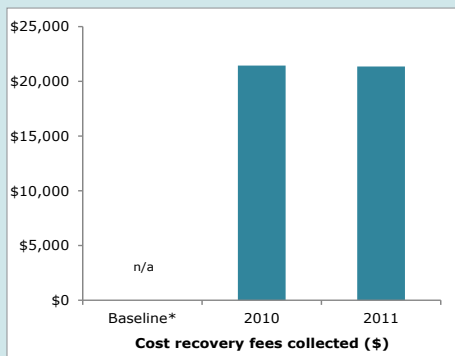
Under the IFQ Program, quota increased from 1.86 million pounds in the Baseline Period\* to 1.90 million pounds in 2010 and 2011. Landings revenue increased 13% in 2010, relative to the Baseline Period\* and increased 10% in 2011, relative to 2010. In addition to increasing economic benefits, economic efficiency also improved, with revenue per vessel doubling from the Baseline Period\* to 2011.



\*Baseline Period refers to average of three years prior to Golden Tilefish IFQ implementation (2007-2009).

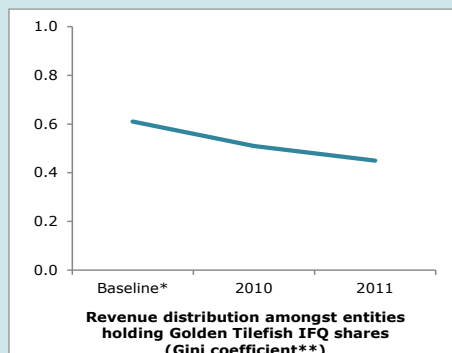
**Catch Limits:** The Annual Catch Limit was implemented in this fishery on November 1, 2012; however, fishermen have operated under a Total Allowable Limit since 2001 and these limits have not been exceeded.

**Cost Recovery Fees:** The Magnuson-Stevens Act authorizes the Secretary to adopt regulations implementing a cost recovery program to recover the actual cost of managing and enforcing limited access privilege programs. Up to 3% of the ex-vessel value in the Golden Tilefish IFQ Program can be collected for cost recovery. In 2011, the amount collected for cost recovery was 0.4% of Golden Tilefish IFQ Program revenue.



**Revenue Distribution:** The Gini coefficient measures the evenness of a distribution. Here, it measures the distribution of revenue among entities holding shares in the Golden Tilefish IFQ Program. A value of 0 indicates that all shareholders earn the same amount of revenue, while a value of 1 indicates that one shareholder earns all of the revenue.

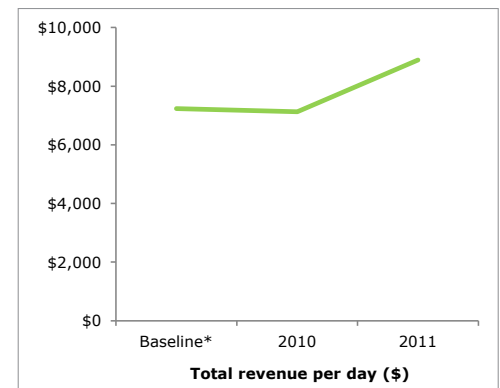
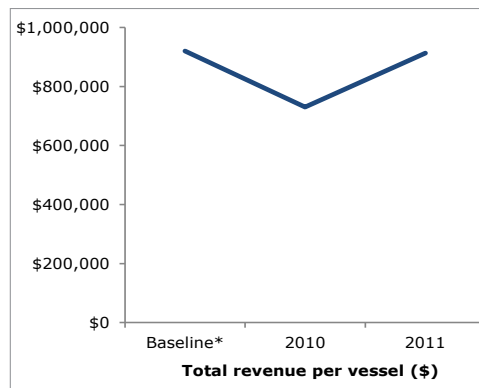
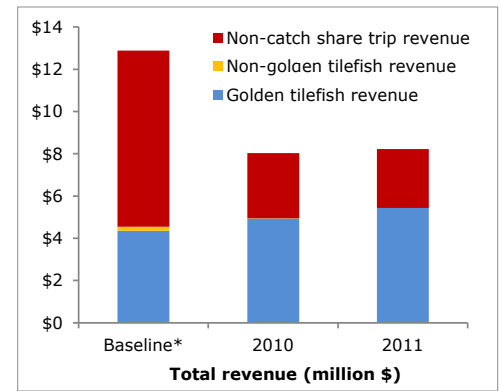
The Gini coefficient for the Golden Tilefish IFQ Program decreased from 0.61 in the Baseline Period\* to 0.51 in 2010 and decreased again to 0.45 in 2011.



\*\*0 = perfect equality; 1 = perfect inequality

**Total Revenue:** Vessels who participate in the Golden Tilefish IFQ Program generate revenue from landings of golden tilefish, as well as small amounts of other species on golden tilefish trips. In addition, these same vessels also participate in other fisheries (including non-catch share programs) and this revenue contributes to their total revenue.

Total revenue from golden tilefish trips (golden tilefish and non-golden tilefish revenue) and non-golden tilefish trips was \$13 million during the Baseline Period\*. Total revenue decreased by 38% to \$8.0 million in 2010 and increased 2% to \$8.2 million in 2011. During the Baseline Period\*, golden tilefish revenue accounted for 34% of vessels' total revenue, revenue from non-golden tilefish on golden tilefish trips accounted for approximately 1% of total revenue and non-catch share revenue accounted for 65% of total revenue. Upon implementation of the Catch Share Program in 2010, golden tilefish revenue accounted for 61% of total revenue, revenue from non-golden tilefish on golden tilefish trips accounted for less than 1% of total revenue and non-catch share revenue accounted for 38% of total revenue. These same proportions were true in 2011 as well.



**Total revenue per vessel** and **total revenue per day** both initially decreased (by 21% and 2%, respectively) upon implementation of the IFQ Program in 2010. In 2011, both total revenue per vessel and total revenue per day increased by 25% when compared to the previous year.

**Share Caps:** The purpose of share caps is to prevent individual shareholders from controlling production and prices, as well as to achieve management objectives, per the Magnuson-Stevens Act and the National Standards. The share cap in this fishery is 49%.

For more information on the Mid-Atlantic Golden Tilefish IFQ Program, please see: <http://www.nero.noaa.gov/sfd/sfdtilefish.html>

Also, see Kitts, A., P. Pinto da Silva, B. Rountree, 2007. The evolution of collaborative management in the Northeast tilefish fishery, Marine Policy, 31: 192 – 200. <http://dx.doi.org/10.1016/j.marpol.2006.07.002>

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\*Baseline Period refers to average of three years prior to Golden Tilefish IFQ implementation (2007-2009).