

redfish decreased by about ten cents per pound from 2011 to 2012 and the average nominal price for witch flounder changed very little. All 7 of the other allocated groundfish species increased in price in 2012, with the largest increase being \$0.71/lb for haddock (Figure 4).

Using simple average nominal prices of all groundfish species combined to compare changes in prices over time may be misleading because this average does not account for annual changes in the quantity and mix of groundfish species landed. A price index was therefore constructed to more accurately reflect price trends of groundfish species. The approach used the “Fisher Ideal” index (Balk 2008), which was constructed from price and quantity data recorded in dealer purchases of all groundfish species. Quarterly data were used in all fishing years from 2007 through 2012. May-July (quarter one) of 2007 was set as the base period, with a value of 1.0.

The index values (Figure 5) show how combined nominal prices have changed in relation to quarter one 2007 nominal prices. A value less than one means that prices are lower compared to the base time period, while a value greater than one indicates that prices have increased relative to quarter one in 2007. In 2012, the quarterly adjusted groundfish price indices increased in quarters 1 and 2, decreased in quarter 3, and then reached a six-year high in quarter 4.

3. NUMBER OF VESSELS AND EFFORT

Effort indicators provide information about the amount of fishing that occurred to produce the landings. In this report, three indicators were used to measure fishing activity and effort: the number of active fishing vessels, the number of fishing trips, and the number of days absent from port.

3.1. Number of Vessels

The number of active vessels in the groundfish fleet continued to decline in 2012. Both the number of vessels with revenue from any species and the number of vessels with revenue from a groundfish trip continued to fall. The total number of groundfish limited access eligibilities fell by 56 eligibilities in 2009-2012. In addition, the numbers of eligible vessels that did not renew a limited access groundfish permit has increased over the 2009-2012 period. The percentage of inactive vessels with a limited access groundfish permit has remained around 35-40% over the 2009-2012 period, with 2012 having the lowest percentage of inactive vessels (35%) in the four year span. Both the number and the percentage of groundfish limited access eligibilities placed in Confirmation of Permit History (CPH) have grown over the 2009-2012 period. In 2012, 60 additional eligibilities were placed in CPH, a 35.7% increase from the number of eligibilities in CPH in 2011 (168 eligibilities). In 2009, 81 eligibilities (5.5% of total eligibilities) were placed in CPH. By 2012, there were 228 eligibilities in CPH, accounting for 16.2% of the total number of eligibilities (Table 10).

The number of vessels with revenue from any species fell from 776 vessels in 2011 to 764 vessels in 2012 (1.5%). Since 2009, the number of vessels with revenue from any species has fallen 16.6%, with the fishery losing 152 active vessels. The number of vessels with revenue from a groundfish trip declined 4.3% from 2011 to 2012 (419 to 401 vessels). Over 2009-2012, the number of vessels with revenue from a groundfish trip fell from 566 vessels in 2009 to 401 vessels (29.2%) (Table 10).

The reduction in the number of active vessels in the groundfish fleet should be interpreted carefully. Amendment 16 implemented a number of measures that induced the fishery toward fewer vessels, without necessarily requiring owners of non-active vessels to leave the fishery entirely. For example, an owner with a groundfish permit on each of three vessels is now allowed to stack all three permits onto one active vessel to reduce costs. In addition, Amendment 16 allows owners of permits held in Confirmation of Permit History (CPH), which are permits that are not associated with an actual fishing vessel, to participate in sectors (i.e., allows the owner of permits in CPH to contribute the landings history for permits in CPH as PSC towards a sector's yearly allocation of ACE). Alternatively, if the eligibility in CPH is in the common pool, the holder of that eligibility can lease DAS to other vessels, with some restrictions. Clearly there are now fewer vessels actively fishing under a limited access groundfish permit, and fewer vessels within the total groundfish fleet are earning revenue on groundfish trips. However, we cannot conclude that all owners of inactive vessels are no longer participating in the fishery at all; some are gaining revenue as lessors of PSC/ACE or DAS. Others have likely stopped actively groundfishing and are targeting other species. Some have left the commercial fishing industry entirely.¹⁷

3.1.1. Number of Active Vessels by Home Port

From 2011 to 2012, all home port states in the Northeast Region, except for Maine, experienced a decline in the number of vessels with revenue from any species. In absolute terms, Rhode Island lost the greatest number of active vessels (-6 vessels); in percentage terms, New Hampshire experienced the greatest decline (10.9%: 46 to 41 vessels). With the exception of Maine, the number of active vessels was at a 4 year low for all home port states. The number of active vessels home ported in Maine grew from 88 vessels in 2011 to 95 vessels in 2012 (8%), but it was still lower than it was in 2009 (112 vessels) and 2010 (102 vessels). Looking at the six major home ports in the Northeast, all major ports in Massachusetts, except for Gloucester, lost active vessels from 2011 to 2012. Boston lost two active vessels (49 to 47 vessels). The number of active vessels fell by one vessel in both Chatham (39 to 38 vessels) and New Bedford (70 to 69 vessels). The number of active vessels increased by one vessel in Gloucester, Massachusetts (91 to 92 vessels) and by two vessels in Portland, Maine (16 to 18 vessels). In Point Judith, Rhode Island, the number of vessels that had revenue from any species remained unchanged from 2011 to 2012 at 44 vessels (Table 11).

Over 2009-2012, the number of vessels with revenue from a groundfish trip fell 29.2% (566 vessels to 401 vessels), with a 4.3% decline occurring from 2011 to 2012 (419 vessels to 401 vessels) (Table 12). The number of vessels that had revenue from a groundfish trip fell in Massachusetts, New Hampshire, and New Jersey in 2012 from 2011. Massachusetts experienced the greatest decline in absolute terms, losing 17 vessels (7.6%). In percentage terms, New Jersey saw the greatest loss; there was a 35.3% decline (17 to 11 vessels) in 2012 from 2011. In contrast, Maine, Rhode Island, and New York all experienced increases from 2011 to 2012; Maine gained 4 vessels (47 to 51 vessels), New York gained one (42 to 43 vessels), and Rhode Island gained five (49 to 54 vessels).

¹⁷ The Northeast Fisheries Science Center is conducting ethnographic research on the different ways that New England groundfish fishermen have responded to the changes in the fishery. Contact Economist Tammy Murphy at tammy.murphy@noaa.gov for more information on this project.

In 2012, all four major home ports in Massachusetts saw declines from 2011 in the number of vessels with revenue from a groundfish trip, with Boston, Chatham and Gloucester at a four year low. Gloucester lost the greatest number of vessels with revenue from a groundfish trip in absolute terms, 9 vessels, a 12.9% decline from 2011. In percentage terms, Boston experienced the greatest decline between 2011 and 2012, a 17.7% drop in the number of vessels that had revenue from a groundfish trip (34 to 28 vessels). From 2011 to 2012, the number of vessels that had revenue from a groundfish trip increased in Portland, Maine (15 to 16 vessels) and Port Judith, Rhode Island (28 to 33 vessels) (Table 12).

3.1.2. *Number of Active Vessels by Vessel Size*

Declines in the number of active vessels with revenue from any species on all trips occurred each year between 2009 and 2012 within all vessel length classes. The largest percentage decline in the number of active vessels between 2009 and 2012 occurred in the <30' vessel size category (34%: 73 to 48 vessels). This decline is likely influenced by the presence of skiffs in this vessel length category; permit holders may be transferring quota associated with these skiffs onto other vessels they own, or leasing their quota to other fishermen. The 30' to < 50' vessel size category, which has the largest number of active vessels with revenue from any species on all trips, experienced a 17.2% decline (478 to 396 vessels) during the past 4 years. The 50' to < 75' vessel size category, containing the second largest number of vessels, experienced a 13% reduction from 2009 to 2012 (236 to 205 vessels). Finally, the ≥75' vessel category experienced an 11% reduction in the number of active vessels between 2009 and 2012 (129 to 115 vessels) (Table 13).

The number of vessels with revenue from any species on at least one groundfish trip also declined each year from 2009-2012 within all vessel length classes. The largest percentage decline in the number of active groundfish vessels between 2009 and 2012 occurred in <30' vessel size category (53%: 34 to 16 vessels). Again, this decline may reflect the presence of skiffs in this length category. The 30' to < 50' vessel size category, which has the largest number of active groundfish vessels, experienced a 33% decline (305 to 206 vessels) during the past 4 years. The 50' to < 75' vessel size category, containing the second largest number of active groundfish vessels, experienced a 27% reduction from 2009 to 2012 (157 to 115 vessels). Finally, the ≥75' vessel category experienced a 9% reduction in the number of active groundfish vessels between 2009 and 2012 (70 to 64 vessels) (Table 14).

3.2. **Number of Trips, Days Absent and Trip Length**

Numbers of fishing trips, days absent from port, and average trip lengths by active vessels were analyzed, in the aggregate and by four vessel length classes, to evaluate vessel activity patterns during 2009-2012 (Table 15). Vessel trip report (VTR) data were used to determine the number and length of trips taken in each fishing year¹⁸.

Effort on groundfish trips generally decreased in 2012. Vessels took fewer groundfish trips, with fewer total days absent on groundfish trips. However, for the groundfish trips taken, average groundfish trip length was slightly longer in 2012 than it was in 2011. The total

¹⁸ For some trips, there were missing values for days absent. This means that for some trips, trip length was not available.

groundfish fleet overall took a total of 14,496 groundfish trips in 2012, declining 9.2% from 2011 (1,462 fewer trips). Declines in the number of groundfish trips taken occurred in all vessel length class sizes, with the exception of vessels 50' to <75' in length (Table 15).

The number of days absent on groundfish trips has also decreased; groundfish vessels had 1,530 (7.1%) fewer days absent on groundfish trips in 2012 than they did in 2011. The decline in the number of days absent on groundfish trips also occurred across vessel length classes. (Table 15).

Average trip length on groundfish trips increased slightly in 2012, by 2.2% or 0.03 days per trip, from what it was in 2011. However, average groundfish trip length did not increase for all four vessel length classes; it increased for the smallest two length classes (<30' and 30' to <50'), but decreased for the two largest length classes (50' to <75' and ≥75'). It should be also be noted that over 2009-2012, average groundfish trip length for the fleet has increased steadily from its low of 0.96 days per trip in 2009 to its 2012 level of 1.38 days per trip, a 43.75% increase overall (Table 15).

Effort measures for non-groundfish trips show that the groundfish fleet overall took fewer non-groundfish trips in 2012 than they did in 2009-2011, but those trips are longer than they were in 2010 and 2011. The total number of non-groundfish trips taken by the fleet in 2012 was 32,523 trips, a four year low and 3.4% lower than in 2011. However, for the fleet overall, the total number of days absent on non-groundfish trips in 2012 was higher than it was in 2011, with 635 (2.3%) more days absent. Furthermore, although the total number of days absent was 9.4% fewer than 2009, the average trip length in 2012 was the same as 2009 (0.92 days per trip) and higher than in 2010 and 2011 (0.86 days per trip) (Table 15).

Vessels in the < 30' and 30' to <50' length classes mirrored the trend for groundfish effort for the fleet overall, with fewer but slightly longer groundfish trips. In contrast, vessels in the 50' to <75' length class displayed a modest increase in groundfish trips in 2012 over 2011(1%). In addition, the number of days absent on groundfish trips decreased by 407 days (5.9%), and average groundfish trip length fell from 2.05 days per trip to 1.91 days per trip. Finally, the largest vessel length class, ≥ 75', experienced declines in all effort measures. In 2012, these vessels took 1,143 trips, a 3.1% decline from 2011 and a 12.9% decline from 2009. They also had 466 (6%) fewer days absent on groundfish trips in 2012 than in 2011 and average groundfish trip length declined from 6.63 days per trip to 6.44 days per trip (Table 15).

For vessels less than 30', all measures of non-groundfish effort in 2012 were the lowest they've been for the 2009-2012 period. These vessels took 68 (5.9%) fewer non-groundfish trips in 2012 than they did in 2011, with 62 (16.5%) fewer days absent on non-groundfish trips, and average non-groundfish trip length fell slightly from 0.33 days per trip in 2011 to 0.32 days per trip in 2012. In the 30' to <50' length class, there was a small decline (1%) in the number of non-groundfish trips in 2012 from 2011, but the trips that were taken were longer in length, with 73 more days absent in 2012 than in 2011 and an increase in average non-groundfish trip length from 0.42 days per trip in 2011 to 0.43 days per trip in 2012. The 50' to <75' vessels also took fewer and longer non-groundfish trips in 2012 than in 2011. For this vessel length class, the number of non-groundfish trips taken was at a 4 year low for the 2009-2012 period, with 853 (8.5%) fewer non-groundfish trips taken in 2012 than in 2011. However, from 2011 to 2012, the number of days absent on non-groundfish trips increased by 340 (2.9%) days and average non-groundfish trip length increased from 1.17 days per trip in 2011 to 1.33 days per trip in 2012. Non-groundfish effort for the ≥ 75' vessel class followed the same patterns of fewer, but longer, non-groundfish trips. These vessels took 2,137 non-groundfish trips in 2012, a four year low and

1.7% fewer than in 2011. However, these vessels had 285 (3.6%) more days absent on non-groundfish trips than they did in 2011, and from 2011 to 2012, the average length of a non-groundfish trip for these vessels increased from 3.66 to 3.91 days per trip (Table 15).

4. AVERAGE VESSEL PERFORMANCE

A complete assessment of fishery economic performance requires information from all vessels on all fishing-related costs and on all fishing-related revenues to determine profits. Actual annual financial profit is the sum of the owner's share of net revenue for all trips made over a year less annual fixed costs.¹⁹ This information would include the cost of purchasing additional ACE or DAS and the revenues from the sales of fish and ACE. Although progress is being made to address critical data gaps, at this time the Social Sciences Branch (SSB) does not have sufficient information to estimate profitability for various segments of the groundfish fleet, or at a finer level (e.g., on the vessel affiliation or the individual vessel level). The primary obstacles to this estimation are (1) a lack of data on fixed costs and crew payments²⁰ and (2) incomplete data on ACE trading and DAS leasing.

This report uses three metrics to evaluate financial performance: (1) nominal revenue per vessel and day; (2) total factor productivity, and (3) net revenue. None of these measures alone provides a complete assessment, but taken together they allow insights into important aspects of economic performance and provide some indication of trends in the economic efficiency of the active groundfish fleet.

In contrast to the FY2010 and FY2011 Groundfish Performance Reports, the net revenue estimations in this report account for the impacts of leasing activity.²¹ Because an overview of ACE leasing activity in FY2012 is necessary to understand these net revenue estimates, the discussion of net revenue has been deferred to Section 8 of this report.

¹⁹ Fixed costs are typically costs that do not vary with the amount of fishing effort such as insurance.

²⁰ Fixed cost and crew payment data was collected through a voluntary survey in 2006-2008. However, vessel owner response to that fixed cost survey was poor and the resulting data quality was insufficient. In 2012, SSB implemented a redesigned cost survey to collect information about fixed costs and crew payments incurred in 2011 from approximately 50% of the commercial fishing vessel owners in the Northeast, according to vessel size and primary gear type. The survey was repeated in 2013, surveying the remaining half of vessel owners in the Northeast for fixed costs and crew payments incurred in 2012. These more recent surveys have resulted in higher response rates than the 2006-2008 efforts, with response rates of 30% and 21% respectively, and the SSB now has fixed cost and crew payment data for over 800 commercial fishing vessels in the Northeast. This data is being analyzed now as the SSB strives towards a more complete understanding of profitability for various segments of the fleet. At this time, both the Northeast Fishery Observer Program (NEFOP) and the At-Sea Monitors (ASM) Program collect some of fishing-related costs and these data can be used to evaluate financial performance. Information contained in VTR and dealer data can also be used to derive additional performance measures.

²¹ Although the Social Science Branch (SSB) cannot yet fully analyze profitability of the active groundfish fleet, it continues to move forward in its understanding of economic performance. The FY2010 and FY2011 Final Reports both provided net revenue estimation (see Kitts et al. 2011 and Murphy et al. 2012). Net revenue is defined as gross revenue less trip costs. Prior to 2013, net revenue analysis did not account for the impact of costs incurred to purchase quota (leasing costs), due to incomplete leasing activity data. At the fishery level, leasing costs incurred by vessel owners that "lease in" fish are offset by leasing revenues earned by vessel owners that "lease out" fish. However, leasing activity does change net revenues received by specific segments of the fleet. Since the release of the FY2011 Final Report, analysis of the net revenues earned by the groundfish fleet has been expanded by examining the impacts of leasing activity. In 2013, the net revenue analysis presented in the FY2011 Final Report was updated to reflect how leasing activity impacts net revenues received by different segments of the fleet (see Kitts and Demarest, 2013).