affiliations remaining in the fishery slightly increased. Overall, there were 69 fewer vessel affiliations earning total groundfish revenues in 2013 than there were in 2010. A slight increase in the concentration of groundfish revenues among vessel affiliations occurred in the percentages of vessel affiliations earning the top 25%, 50%, and 75% of groundfish revenues. For example, in 2012, the top 5.1% of vessel affiliations earned 50% of groundfish revenues. In 2013, this percentage of top vessel affiliations earning 50% of groundfish revenues decreased to 4.2% (Table 39).

Taken together, Table 38 and Table 39 imply that there are fewer ownership groups remaining in the fishery and therefore, fewer groups to divide up all species and groundfish revenues earned from actively fishing under limited access groundfish permits. Groundfish revenues were distributed among vessel affiliations slightly less equally in 2013 than they were in 2012. The distributions of revenues among vessel affiliations indicate that groundfish revenues are more concentrated among vessel affiliations than all species revenues, as was also the case among individual vessels.

7. EMPLOYMENT

Changes in employment levels can result from changes in fishery regulations. If new management approaches, such as catch shares, foster vessel consolidation or reductions in fishing effort, working conditions (such as pay, time spent at sea, and number of jobs) may be affected. Although NMFS does not track employment in the fishing industry in the Northeast, Vessel Trip Reports contain information about crew size on fishing trips and on the duration of trips. While these reports do not identify the actual number of individuals employed (e.g., crew often work for more than one vessel owner), the VTR data can be used to determine the number of crew positions available and the length of time that crew spend at sea.

In general, trends in crew employment indicators were negative, suggesting that in 2013 there were fewer opportunities for crew work on most vessel sizes and in many of the region's home port states. For the fleet as whole, total crew positions, total crew trips, and total crew days were at four-year lows in 2013. The ratio of crew days to crew trips—which is described in more detail in Section 7.2 and can be interpreted as an indicator of time spent per earning opportunity (a crew trip)—was also at a four-year high for the fleet in 2013.

7.1. Number of Crew Positions

The total number of crew positions, measured by summing the average crew size of all active vessels on all trips, declined annually between 2010 and 2013 from 2,268 to 2,039, a 10.1% decline and a four-year low in 2013. From 2012 to 2013, the number of crew positions fell across vessel sizes, with decreases ranging from 1.3% (-1 crew position) for the smallest vessel class to 5.7% (-38 crew positions) for the 50′ to <75′ length class (Table 40).

Most home port states saw declines in the number of crew positions in 2013. Crew positions were at a four-year low for the home port states of Massachusetts, New Hampshire, New York, and Rhode Island, with declines from 2012 to 2013 ranging from 2.6% for Rhode Island to 9.5% for New Hampshire. In Maine, the number of crew positions (228 crew positions) declined 5.8% (-14 crew positions) from 2012 to 2013, but it was higher than it was in 2011 (222 crew positions). Connecticut saw no change in the number of crew positions from 2012 to 2013

(39 crew positions). The numbers of crew positions were at four-year highs in 2013 for the home port state of New Jersey and for all the other northeast home port states combined (Table 41).

7.2. Number of Crew Trips

Although the number of crew positions is an indicator of the availability of jobs, this measure is uninformative about the number of trips available for crew to work.[35] To account for this distinction, a crew trip indicator was derived. Because most crew members are paid on a per trip basis, this crew trip indicator provides a measure of the total opportunities for crew to earn a share of the landings revenues.

Total crew trips were calculated by summing the crew size of all trips taken in each fishing year across both vessel size category (Table 40) and home port state (Table 41). Total crew trips taken by the fleet steadily declined from 125,032 in 2010 to 106,699 in 2013 (a 14.7% reduction overall). From 2012 to 2013, total crew trips declined by 8.9%. Crew trips declined annually between 2010 and 2013 for all vessel size categories as well. The largest drop from 2012 to 2013 in both absolute and percentage terms occurred in the 30′ to <50′ category, which saw a decrease of 7,045 crew trips (-10.7%). The other vessel size categories saw decreases ranging from 3.7% to 7.0% in the number of crew trips from 2012 to 2013 (Table 41).

The numbers of crew trips were at four-year lows in 2013 for nearly all home port states: Connecticut, Massachusetts, Maine, New Hampshire, New Jersey, and New York. The exceptions were the home port state of Rhode Island and the remaining Northeast region home port states combined, which saw a four-year highs in 2013 in their numbers of crew trips (Table 41). For home port states that hit four-year lows in their numbers of crew trips, declines over the four-year time period ranged from 10.6% for New York to 35.0% for Connecticut. In absolute terms, Massachusetts saw the largest decrease in the number of crew trips over the four-year period (9,851 trips: 54,204 trips to 44,353 trips). From 2012 to 2013, declines in these home port states ranged from 5.5% for New Jersey to 26.4% for New Hampshire. The home port state of Rhode Island had an additional 1,989 crew trips in 2013, a four-year high and a 13.3% increase over 2012 (Table 41).

7.3. Number of Crew Days

Crew days, calculated by multiplying a trip's crew size by the days absent from port, were summed across vessel size categories and home port states to provide additional information about the time crew spend at sea to earn a share of the revenues. Because the number of trips affects the crew days indicator, this indicator is also a measure of work opportunity. Conversely, crew days can be viewed as an indicator of time invested in the pursuit of "crew share" (the share of trip revenues received at the end of a trip). The time spent at sea has an opportunity cost. For example, if crew trips and crew earnings remain constant, a decline in crew days would reveal a benefit to crew in that less time was forgone for the same amount of earnings. The ratio of crew days to crew trips accounts for these factors. The absolute value of this ratio does not, in itself, provide information about opportunities for crew. However, annual

[35] For example, a vessel with three crew members that makes 10 trips a year is considered equivalent (with respect to crew positions) to a vessel with three crew members that makes 60 trips per year.

changes in the ratio are informative. For example, a declining trend in the ratio would imply a reduction in time spent per "earning opportunity" (a crew trip).

Total crew days for all vessel sizes combined decreased 6.8% from 2012 to 2013 for all vessels. Since total crew trips declined during the same time period at a higher rate (8.9%), the ratio of crew days to crew trips has increased. This suggests that the time spent per earning opportunity has increased, while at the same time earning opportunities have decreased. Total crew days were at four-year lows in 2013 for all vessel size categories, with the exception of the <30′ vessel size category, which saw a 1.8% rise (+13.0 crew days) from 2012 to 2013 (Table 40).

Most home port states saw declines in 2013 in their total numbers of crew days. Massachusetts, New Jersey, and New York hit four-year lows in their numbers of crew days in 2013, with declines over 2010-2013 varying from 5.2% for New Jersey to 11.7% for Massachusetts. Massachusetts also saw the largest decline in absolute terms (-9,717 crew days from 2010 to 2013). In Connecticut, Maine, and New Hampshire, crew days declined in 2013 from 2012, but they were not as low as they had been for other years in the time series. Decreases in these states from 2012 to 2013 ranged from 7.8% for Maine to 20.7% for Connecticut, with Maine seeing the largest fall in crew days among these states in absolute terms (-1,287 crew days). In Rhode Island, the number of crew days was higher in 2013 than it was in 2011, but it did not reach a four-year high. Rhode Island saw a 5.8% increase in crew days from 2012 to 2013, but crew days have declined overall (-4.4%) for Rhode Island during the four years. In the remaining Northeast region home port states, the combined number of crew days was at a four-year low in 2013, decreasing 3.5% from 2012 and 5.0% overall from 2010-2013 (Table 41).

The ratio of crew days to crew trips, indicating time spent per earning opportunity for crew, was a four-year high in 2013 for the groundfish fleet as a whole, increasing 2.8% from 2012 and 8.0% from 2010. The home port states of Massachusetts, Maine, New Hampshire, and New York all saw four-year highs in their ratios in 2013. In Connecticut and New Jersey, the ratio fell in 2013 from 2012 but increased overall in the four-year time span by 35.6% and 23.8%, respectively. The home port state of Rhode Island and the remaining Northeast region home port states combined both saw four-year lows for their ratios of crew days to crew trips in 2013, with their ratios falling 14.7% and 4.0% over 2010-2013, respectively (Table 41).

Changes in crew-based employment indicators do not indicate, by themselves, whether crew incomes have changed. Crew income is influenced by many factors such as a vessel's revenue/cost sharing formula (including whether or not the costs of leasing quota are passed onto crew), the amount of revenue a vessel receives from fish sales, the costs of fishing, the number of vessels actively fishing, and the intensity of fishing. In the following section, measures of crew share of net revenues will be discussed.

8. NET REVENUES

Net revenues were estimated using trip costs[36] collected by Northeast Observers and At-Sea-Monitors, as well as other data sources. Net revenue is defined as gross revenue less trip costs. Typically, net revenue is then split between the vessel owner and the crew. Two types of net revenue analysis are provided: (1) yearly changes in average net revenue per day on

[36] Trip costs are typically those that vary with the amount of fishing effort, such as fuel, bait, or fishing hooks.