

New England Groundfish Crew Rapid Assessment Summary Report



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Conducted by:

Meredith Mendelsonⁱ and Jessica Gribbon Joyce
Gulf of Maine Research Institute 350 Commercial Street,
Portland, ME 04101

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Introduction

In May 2010, the New England groundfish fishery entered a new management regime, and a large percentage of the industry joined sectors, fishing as cooperatives and sharing both responsibility and liability for fishing under a hard total allowable catch (TAC). During the development of this management regime, many in the fishing, science and management communities recognized a need for increased socioeconomic data and analysis to inform the decision-making process and assess impacts.

In particular, the Social Sciences Branch (SSB) of the Northeast Fishery Science Center identified a notable data gap with respect to information about non-owner vessel captains and crewmen. Given the 2010 implementation of sector management in the groundfish fishery, this project focuses on this fishery and seeks to provide a baseline snapshot of current groundfish crew demographics; identify potential impacts from the new groundfish regulations; and assess how best to contact, assess and track changes in the vessel crew population in the future. Broader assessments of crew in general will follow, as discussed in the final section of this report.

The impact of sectors on vessel captains and crew have varied widely depending on the sector, vessel home port, vessel's initial allocation and harvest strategy, and access to capital, but there were also many common refrains. In this report, we attempt to identify commonalities by sector and port where possible, and pull out some of the more unique and illustrative examples and concerns whenever possible. In addition to impacts directly resulting from implementation of the expanded sector management system under Amendment 16, groundfish fishermen were also affected by reductions in annual catch limits (ACLs) mandated by stock rebuilding requirements in the Magnuson-Stevens Conservation and Management Reauthorization Act of 2006 (MSA). Therefore, some of the impacts in this report may not be solely attributable to either "hard TACs/ACLs" or "sectors," but reflect the concurrent implementation of both regimes (Kitts *et al.* 2011).

Goals and Objectives

This project was informed by a previous outreach project conducted by the Gulf of Maine Research Institute (GMRI) to solicit feedback on the NMFS Northeast Fisheries Science Center, SSB's suite of performance measures and indicators of social and economic change in fishing and related industries. In that project, vessel crew were underrepresented and challenging to reach, demonstrating a critical need for focused research addressing data gaps in this segment of the fishing population. The SSB, in the course of its development of a social and economic monitoring and evaluation plan for the Northeast, is developing surveys for vessel owners, captains and crew. In order to provide the qualitative ethnographic information needed to develop the survey for long-term use, GMRI conducted a rapid appraisal to provide additional information for the survey development and implementation as well as inform the mechanisms for obtaining information.

The purpose of this rapid assessment was threefold:

1. To identify demographic/other characteristics of vessel crew.
2. To make a preliminary identification of possible impacts of sector implementation on crew livelihoods, and the causes of these impacts.
3. To identify the best methods to reach this group of stakeholders for follow up research/data collection efforts, e.g., surveys and oral histories.

Approach and Methods

For this report, we define groundfish crew as non-owner captains (also referred to as hired captains), deckhands, and engineers. Therefore, when we reference ‘crewmen’, we are generally referring to all of these categories. When we specifically refer to a ‘captain’, we are referring to a hired captain, and not an owner/operator. We did speak to several owners who spoke on behalf of their crew, and we noted this relationship in the report where applicable. A deckhand has a variety of responsibilities, including, but not limited to: setting and hauling gear, sorting catch, gutting fish, gear and vessel maintenance, and cleaning. The crew we interviewed through this project reported their current crew size from one to five individuals, which is representative of a typical groundfish vessel. The number of crew varies depending on gear type, the size of a vessel, and the target species. The vast majority of crew are paid a ‘share’ of the vessel’s revenue for the trip, which is referred to as the lay system. “Under the lay system, the crew is paid with a share of revenues or a share of revenues less costs” (McConnell and Price 2006). Costs include fuel, ice, food, and other expenses incurred under sector management such as the cost of leasing fish.

Certainly the greatest challenge in obtaining information about vessel crew is the mobile nature of the work. Crew often move among fisheries, and occasionally among harbors or vessels within a given year, and income is reported on 1099 forms, if at all. Finding opportunities to interview crewmen can prove challenging as they are often at sea. When not fishing, but at the dock, they are typically working; otherwise they are away from the vessel spending time with family or engaged in other types of work and difficult to locate or unwilling to take time for interviews.

For purposes of reaching a broad array of groundfish vessel crew, we experimented with a variety of outreach methods, including: holding focus groups (advertised through sector managers and with signs at gear shops, at piers/fish houses, and on the Saving Seafood and GMRI websites); utilizing the “snowball” contact method¹; having a local fisherman coordinate a group or introduce us to individuals in their harbor; and simply talking to crewmen at piers, docks, and occasionally, restaurants and bars. The efficacy of each method varied depending on the nature of the port. A workshop/focus group held at the FishExpo trade show in New Bedford (June, 2010) did not receive any attendance. Additional focus groups met with varying success. Portland and Point Judith meetings had very little attendance, while a second focus group in New

¹ "Snowball sampling (generically called chain referral) is a network sampling method for studying hard-to-find populations" (Bernard 2006).

Bedford (that was not related to FishExpo) drew a larger group. We suspect this could simply be due to timing; the difficulty inherent to scheduling an event in advance is the possibility that the weather will be good and fishing activity will result in low attendance.

Generally, we found that we had to rely more heavily on individual interactions (mostly in person but occasionally by phone) arranged through existing relationships with the vessel owner who helped us reach their crew, or through “snowballing” from other contacts. This approach was time consuming, as it also was weather and fishing activity-dependent, and therefore was difficult to schedule in an efficient manner. The interviews were conducted from December 2010 through May 2011², with the bulk occurring during January through April, the second half of the fishing year. Our plan to follow up and gap-fill with phone contact was challenging, as calls were not often returned, and owners were often reluctant to provide phone numbers for their crew. We encountered significantly more crewmen fishing on sector vessels than common pool vessels, which is partially due to the fact that very little common pool fishing activity is occurring for groundfish³, and also because this project focused on groundfish sector crew.

It is worth noting that we encountered diverse responses from owners when we asked for access to their crew. Many owners happily put us in touch with captains and crew, many of whom have been with them for years. Similarly, crewmen who reached out to us or attended a focus group were typically well-rooted in the industry—many had worked on specific vessels for many years, or were related to the vessel owner. Some were past vessel/permit owners or owned an interest in vessels/permits. In these cases, as long as the individuals were currently performing the duties of a captain or crew and speaking to this position, we considered them crew rather than owners. On the other hand, several owners that we contacted refused to facilitate access to their crew. None of these individuals explained that this was out of privacy concerns, though we can’t say for certain that this was not part of their rationale. A few said that their crew were not adequately informed to speak to the substantive issues, and interestingly, at least two felt that they either did not want their crew’s opinion to be heard/valued since they were highly transient crewmen, or because they felt that as permit holder and vessel owners, their investment was of utmost importance and they were concerned that this data would be used to inform discussion on crew shares in any future allocation systems. In some cases, the captains spoke to us about their crew, providing the demographic information and some insights about their crew’s income. Others declined to participate altogether.

This is of critical importance because it speaks to a significant caveat about this dataset. We know from anecdotal information that there are undocumented workers on fishing vessels, as well as transient crew whose participation in the groundfish fishery is

² The groundfish fishing year runs from May 1 through April 30.

³ For example, from May 2010 – January 2011, sector groundfish landings were 42,223,652 lbs., whereas common pool groundfish landing were only 1,261,784 lbs. This difference is much smaller when comparing sector and common pool landings for non-groundfish trips over the same period (Kitts et al. 2011, Tables 2 & 3).

limited to only a few months.⁴ Generally, the crewmen we encountered during the course of this fieldwork were more invested in the fishery, rather than transient or day laborers (“daymen”). Therefore, we acknowledge that the crewmen represented in this study reflect an unknown level of bias toward more invested, active vessel crew.

We conducted a total of 57 interviews with crew distributed by home port as follows: New Bedford, MA (10); Point Judith, RI (9); Gloucester, MA (9); Boston, MA (7); Chatham, MA (7); Scituate, MA (5); Portland, ME (5); Port Clyde, ME (3); Cape Porpoise, ME (1); and Portsmouth, NH (1).⁵ We had particular difficulty reaching crew in New Hampshire due to the timing of the fieldwork (by winter when interviews were being conducted, many vessels in the New Hampshire fleet were no longer groundfishing and their crew had dispersed). We had hoped to have some representation from ports on Long Island, New York, as well, though very few vessels are actively sector fishing from Long Island, and attempts to reach these crewmen were ultimately unsuccessful. We also had difficulty reaching Portuguese crew in New Bedford, despite hiring a translator with experience in crew interviews; however, this was primarily due to the fact that crew in this area were out fishing.

In most interviews, we obtained a majority of the following basic demographic information including:

- age;
- length of time with current vessel;
- years in the fishing industry;
- gear type on current vessel;
- home port;
- city of residence;
- full/part time status (based on their own assessment: often determined by year-round fishing activity rather than total income derived from fishing);
- relationships to others on vessel (e.g., kin or non-kin);
- ethnicity;
- primary language (if other than English);
- involvement in other fisheries;
- family involvement in the fishing industry or related industries;
- history with individual vessels (e.g., other duties performed on current or previous vessels, including ownership interests, and length of time spent on other vessels);
- number of crew on the vessel currently; and
- change and timing of any change in number of crew on the vessel.

⁴ Several crewmen we interviewed expressed frustration and concern that the disaster relief database would be used again in the future for economic relief or crew share purposes, stating that they felt many on the list were not active crewmen who merited such consideration or relief.

⁵ The numbers in parenthesis following the ports are the number of crewmen we interviewed in each location.

We also asked open-ended questions about changes that may have occurred since sectors were implemented. These questions addressed fishing behavior; regulatory changes; changes in reporting and monitoring requirements; income; employment patterns; safety and community impacts. Finally, we asked individuals for their insights about the most effective ways to reach crewmen for purposes of obtaining this information efficiently in the future, with an eye toward informing future survey and other work.

Demographics

As mentioned in the methods section, the sample size for this assessment was 57.⁶ Our interview subjects ranged in age from 22 to 64, with an average age of 44 (median 46) (46 interviewees provided their ages [n=46]). They have been fishing from 5 years to 50 years, with an average length of time in the fishery of 23 years (median 25 [n=47]), and the average years with the current vessel was 13 (median 10 [n=44]). Many expressed concern about the increasing age of those in the fishing industry, noting that they no longer saw young people entering the fishery. Of those who provided an answer about their full/part time status (n=49), approximately 90% considered themselves to be full-time fishermen. Roughly half of respondents do not have additional sources of income other than groundfishing (n=39). Other sources of income for those who offered this information include: participation in other fisheries (lobster, clams, squid, whiting, shrimp, monkfish, commercial rod and reel); skilled labor including carpentry, boatbuilding and fiberglass work; and other labor (farming, landscaping). Three individuals conduct fisheries-related research or advocacy work.

All of the crew we spoke to aboard Boston-homeported vessels were working on trawlers. All of the vessels in Chatham were gillnet vessels, with just under half switching over to hook/longline gear for a portion of the year. In Gloucester, two-thirds of the vessel crew were working on gillnet vessels, with one-third on trawlers.⁷ The New Bedford crewmen all worked on trawlers. In Point Judith and Portland, all but one (a gillnetter) from each port were working on trawlers. In Scituate, the crew we interviewed were evenly split between gillnet and trawl vessels.

Most respondents (79%) lived in relatively close proximity (under 20 miles) to the vessel's home port (n=43). Exceptions were in Maine, where several individuals lived an hour or so from the dock (in other coastal communities), and New Bedford, where a handful of crewmen we spoke to commuted from outer Cape Cod.

⁶ As these interviews did not utilize a paper questionnaire and were primarily conducted in person by several interviewers, the same exact questions were not asked of each interviewee; therefore, the number of responses (n) in each category are less than the total sample size. Responses were categorized into the most relevant category, which may have encompassed several similar questions.

⁷ Of the Gloucester crewmen we spoke with, six were members of a sector composed of primarily gillnetters and three were members of a sector composed primarily of trawlers.

Roughly one-quarter (22%) of the crewmen interviewed were related to the vessel's owner, captain, or other crew aboard (n=45). One was a partner in the vessel's ownership, and one had been a former owner of the vessel and was running it for the person to whom he had sold it. Fifty-seven percent come from fishing families or have family members in seafood-related industries (n=49). While responses to this question were incomplete, those that answered reflect a mix in each community of first generation crewmen as well as those with a longer family history of fishing.

Most of the individuals we encountered were English speaking Americans and not recent immigrants or first generation Americans. This is a likely bias due to the difficulties of reaching non-English speaking crew, as mentioned above. Several gillnetters noted that they take daymen from Central America, several captains were Italian, Polish and Portuguese, and several deckhands were Irish.

Assessing change over time in the number of crew aboard the vessel was difficult. Approximately one-third (32%) of the 57 total respondents (n=18) mentioned that they had noted a reduction in crew numbers aboard their vessels in comparison to when they were operating under the Days-at-Sea (DAS) management regime. These observations are consistent with data that demonstrates a steady recent decline in the number of crew opportunities in the groundfish fishery. For example, there was a 17% decline in the number of crew positions available during the first 9 months of the 2010 fishing year in comparison to the same period in 2007. The number of crew trips and crew days also declined during this period (see Table 19 in Kitts *et al.* 2011).

Respondents commented that some boats were going shorthanded because they were unable to make a financially viable trip for more than the current number of crewmen, while others were fishing only one boat under sectors when they used to run two under DAS.⁸ However, this was not purely a problem related to the implementation of sectors. For some, the reductions in vessel crew had in fact occurred in 2010 due to the switch to sector management, while for others it had been occurring since DAS were implemented.

Participation in other fisheries was more distinctly regional. In southern New England, including New Bedford, Chatham and Point Judith, monkfish, skate, and squid were the primary target species other than groundfish. In Gloucester, Portland and Port Clyde, shrimp is a prominent fishery. Small mesh fisheries and tuna were mentioned throughout the region, and dogfish is a target fishery for several vessels in Chatham and Scituate. In addition to distinct regional participation in other fisheries, recent data indicate that it is the smaller vessels (less than 50 ft) that were relying more on non-groundfish trips and landings for their revenues in 2010 than in past years. For these

⁸ Under the sector system, members of any given sector are allowed to 'stack' multiple permits on one boat – whether these permits were originally associated with one or multiple owners and vessels.

smaller vessels⁹, the 2010 average all species revenue per vessel increased from the previous 3 years while the 2010 average groundfish revenue per vessel was among the lowest in previous years (see Table 10 in Kitts *et al.* 2011).

Changes in 2010: what is different under Sector Management?

Harvest Strategy in Sectors

“Used to be that you went out to get fish, and now you're worried about what you will get.”

Of the 36 responses to the question about how their harvest strategy and fishing behavior have changed this year, many crewmen noted that they are steaming away from fish, “juggling” their choke species with plentiful stocks, and expressed concern about the high price of leasing Annual Catch Entitlement (ACE). In Gloucester, a long-time gillnet captain noted that the need to stretch small allocations of choke species across the year meant that they were not able to fish their normal grounds, and have been geographically constrained as a result. We heard similar comments throughout the region. The challenge of avoiding certain stocks compounded other non-sector changes, such as high fuel prices and uncertainty about where to find fish, and was constraining fishing activity.

There was a high (74%) response rate to questions around quota leasing costs and the cost of business (n=42). Crew from smaller vessels, even in ports with permit banks, generally felt that the cost of leasing was too high and the allocations of the vessels they work on were smaller than landings from previous years. One hired captain from Gloucester said that “no one has enough fish to survive.” Many crew commented that it was better to lease allocation out or that they had shifted effort toward other fisheries, such as monkfish, skate and lobster, thus drastically reducing the amount of time targeting groundfish. Respondents’ comments regarding recent shifts in effort to other fisheries are also supported by data gathered by NMFS which show a steady decline in the number of groundfish trips in the first nine months of the last four fishing years (from 24,299 in 2007 to 13,116 in 2010) and days absent on groundfish trips (22,832 in 2007 to 14,052 in 2010) and an increase in non-groundfish trips (32,468 in 2007 to 37,625 in 2010) and days absent (26,485 in 2007 to 28,214 in 2010) during the same period (Kitts *et al.* 2011, see Table 9).

One Cape Porpoise deckhand commented that the owner he works for could lease out his allocation and make the same amount of money (or more) than he would actively fishing, but that he chose to fish to provide employment for his son and other crew - selling to the Portland Fish Exchange. Others, typically crew on larger vessels, seemed comfortable with lease prices (as did the vessel owners), acknowledging that it was a cost of doing business that allowed continued access to more plentiful stocks. On several of

⁹ Data presented include both sector and common pool vessels even though they are presented as an aggregate and individually in Table 10 because 2010 sector data is not comparable with previous years’ data prior to the implementation of sectors.

those vessels, crew reported that the owners had invested in separator trawls and are targeting haddock, while others are pursuing pollock and redfish. Most respondents commented that their vessel's allocations of historic target species were significantly lower than their previous years' harvest had been. One Gloucester deckhand, and former hired captain told us that in 2009, they landed 200,000 lbs. of cod with only three gillnets in the water, targeting only cod. In 2010, the two permits combined had 40,000 lbs. of cod ACE and they had 120 nets in the water as they attempt to target a greater variety of stocks.

Operating under sectors resulted in changes in fishing behavior for many vessels that resulted in impacts on crew; these ranged from losing jobs when an owner decided to lease their entire quota to spending more time on the water looking for fishing grounds that would limit catching choke species. Many crewmen saw a reduction in their shares when the owner leased quota in due to low allocations. However, some crewmen on larger vessels had an increase in their share because leasing ACE was more affordable than leasing DAS for some larger vessel classes (see Leasing ACE Section below).

Regulatory Discards

"The best thing sectors have done is end the discards and high-grading. Regulatory discards weigh on fishermen more than anything."

Many crewmen mentioned the reduction in regulatory discarding that has been achieved by sector management, noting that it had been the primary problem under DAS and that they had been deeply troubled by it. However, the problem has not disappeared altogether. In southern New England, crewmen noted that the zero retention rule for blackback (winter) flounder tempers the sweetness of reduced discards for other stocks, especially as fishermen see more flounders than in years past. Skate and monkfish trip limits still result in discards and can make it more difficult to cobble together a successful trip by targeting a variety of species. Two respondents expressed concern about the increased mortality of sublegal fish due to increased at-sea-monitoring, noting that fish that would have gone over alive in past years are now staying on deck to be measured and then go over dead. As one New Bedford captain said, "this is bad for the resource and bad for the relationship between fishermen and [NMFS]." This topic had a relatively low response rate (n=17). While crew commented that sectors improved groundfish discards, the effects of discards in other fisheries continue to impact their ability to make ends meet by targeting other fisheries.

Leasing Annual Catch Entitlement (ACE)

"You have to lease..."

The leasing of ACE under the sector management system is affecting daily crew wages both positively and negatively, and overall reducing the number of employment opportunities for many crew. Almost 72% percent of crewmen we spoke with responded to a question about leasing ACE, and affirmed that the vessel on which they crew was

either leasing ACE into or out of its “portfolio”. As one Gloucester captain said, “it’s very expensive to lease, but you have to lease [because of the allocation formula and discard calculation methodology].” A Point Judith captain felt that leasing is not financially viable if you have to lease more than half your allocation.

The comparative cost of leasing ACE versus leasing DAS appears to vary by vessel size class and DAS availability in years past. A handful of crewmen on smaller vessels felt that they had made out better under DAS leasing because it was more affordable and the trip limits were predictable. One Portland dayboat owner related that ACE was priced at around 60-70% of market value during the winter months, and that he was unable to cover his costs and turn a profit on those margins. Under DAS, his leasing costs were in the range of 5-20% of his gross income. A Scituate captain agreed that the DAS leasing costs were proportionately more affordable, noting that approximately one-third of profit before other settlement expenses are taken out was going to ACE lease costs—much more than he had anticipated. Captains and owners on larger vessel classes seemed to feel that ACE leasing was more economical than did small vessel owners, perhaps based on whether leased stocks were targeted stocks or needed to cover assumed discards. In other words, larger vessels are more likely to be able to afford to lease in non-target or choke stocks that may be of lesser value or profit margin, but allow them to access target species, whereas this may not be financially feasible for smaller vessels. One captain of a New-Bedford based trawler stated that DAS leasing cost his boat in the six figure range because of limited availability in their size class. Relative to DAS, he said, ACE leasing was much less expensive. Several captains of larger trawlers noted that they were paying high lease prices for certain stocks such as white hake, sometimes well-above the ex-vessel value, in order to target lower value stocks; expenses (including, but not limited to fuel and satellite communications) were also going up dramatically.

For almost all of these vessels, the price of the leased fish is coming off the top in the settlement along with fuel, grub and other expenses. Most vessels seemed to be using a pay-as-you-land approach to paying for leased fish, while others were taking a percentage off of trips that were profitable enough to do so (some did this on sector trips only, others on all trips made by the vessel). Only three owners were absorbing some or all the cost of leasing fish, and all were concerned about the impact on the well-being of their crewmen. One owner absorbed the cost of the first 50,000 lbs. leased in, and crew in his area noted that he was unique in doing so. When asked why he did this when it wasn’t customary in his community, the owner said, “if you don’t pay [your] crew then you don’t have crew *or* good crew, so it’s worth it.” A Chatham deckhand agreed, saying that leasing quota hurts the crew, who pay for it, so it’s better to be on boat with a large allocation in hand. Chatham deckhands also pointed out while crewmen bore a portion of the cost of leasing in ACE, the vessel owners could deduct those costs as a business expense on their taxes, whereas the crew could not.

Several crewmen felt that any ACE leased out from the vessel was a financial loss for the crewmen, as most owners would not “pay out” the crew. Two crewmen had personal conflicts on this subject, as their fathers own the boat they work on. On one hand, one said, he wanted to see his father maximize his income, even if that meant

leasing out his allocation to the highest bidder. But as the vessel captain, this constituted lost fishing opportunity for himself and the crew. Another understood his father's decision to lease out his allocation rather than lease in necessary ACE to make a profitable groundfish season, but it meant he was out of work for the winter, along with their other deckhand. A Point Judith owner-operator decided to hold back from leasing out the vessel's allocation until the end of the year in case the squid fishery was shut down. Ultimately, he did not use it, nor was he able to lease it so late in the fishing year; but he saw this as simply an opportunity cost, as he was making more money on squid than he would have had he switched over to groundfishing. Other boats leased ACE in and were not able to catch the fish due to rolling closures and other limitations, which is a loss to both owner and crew. Finally, a unique concern was raised by one New Bedford respondent, who felt that a few sectors were restricting the movement of leased ACE in that port to certain sectors or within their own sector.

Personal Income and Responsibilities

"You think you're going to get rich, but you don't. You think you're going to starve, but you don't."

This was one of the few topics where it appeared there were clear distinctions by port, and possibly by sector, though we believe there may be bias in the sector delineation based on our snowballing methodology in certain ports. Whether or not crew are generally making better money varied by port (n=29). But in all ports there were some crew working harder and longer trips/seasons for the same money as in years past, representing a significant opportunity cost in both time and money.

One sector's trawler captains in northern New England seemed to be faring better than their counterparts in other ports, with three captains seeing increases of 25-35%. The owner of another trawler in this sector noted that in comparing financial records from 2009 to 2010, the crew was seeing 20% increases in their crew share from the lay system in 2010 while fishing a similar number of trips. In Portland and Port Clyde, other crewmen (and owners speaking on behalf of their crewmen) felt their income was stable or better. In Boston, one owner expected his crew would do better this year (2010) than last because they were fishing more consistently throughout the year, and a deckhand said he felt ex-vessel prices had stabilized for some of their target species so he expected to earn more this year than last. But a Boston crewman said, "[I'm] working harder for less overtime. I used to think nothing of taking a trip off but now I can't afford to. It used to be that people fished because the money was better than ashore, but now that's not necessarily true." In these ports (and a few others – see Chatham, Point Judith below), some crewmen reported they are working the same amount or harder for the same pay or a modest increase.

In Chatham, Scituate and Gloucester, most crewmen who directly addressed their personal income (n=10) said their income had decreased dramatically, by as much as 50-75%. Though not all were speaking directly to income change from fishing year 2009 to fishing year 2010 (when sectors were implemented) some emphasized the impact of the

new management system specifically. One Scituate captain said that last year he was making \$400/day in January, and this year, he had made \$180 for the entire month. A Gloucester deckhand compared his expected 2010 fishing income (\$20K) to his earnings on a highliner 30 years earlier (\$55-60K), and a Portland captain said his annual income had been stagnant for the last twenty years. One Chatham deckhand felt the shorter seasons of years past were preferable; “we make half of what we used to and now it takes most of the year instead of 3-5 months.”

Point Judith crew had a more diverse set of responses. One captain pointed out that the zero retention policy on blackback flounder greatly reduced his allocation, as most of his history was on blackbacks. Another captain felt that the sector system helped him make as much money as last year, and he would not have otherwise. However, he also noted that being on the “right boat is key,” meaning that the vessel’s allocation was an important factor in the crew’s income, and that ex-vessel prices were stable this year, with cod perhaps a bit higher than in years past. A deckhand was ahead of last year’s income, but felt it was an unfair comparison because their critical fluke fishery was reduced last year due to a delayed sector allocation in state waters. A Point Judith owner-operator noted that “crew often have to choose between working a short amount of time on DAS for moderate amount of money or for a longer stretch of time but at a lower rate,” citing an example of working 25 days for \$20,000 (on a common pool vessel) or 100 days for \$40,000 (on a sector vessel). “The smarter guys will realize that working for less money makes more sense.”

Changes in Job Availability and Responsibilities

“Good captains are like good owners--jobs are available if you're reliable and a good fisherman. Bad crew can't get jobs.”

Overall, the duties of crewmen have not changed significantly, though the owners saw some minor changes (n=11). Some changes mentioned were working with at-sea monitors, vessel maintenance and repair on shore, and reporting (for captains). A Port Clyde owner operator pointed out that crew used to come to the boat with certain skills and be required to do shore work. Under DAS, he wasn’t able to find skilled crew and could not afford to pay a deckhand to work on the haul-out. The first year he was able to do so was 2010, paying his deckhand half the yard crew’s hourly rate. A Boston owner noted that the decreased number of crew aboard his vessel meant that less work was being done at sea. This owner attributed the reduction in crew to DAS reductions prior to the implementation of sectors and ongoing rising fuel costs. At least two crewmen were former captains who had gone back on deck when their owners stopped running two boats concurrently, and one deckhand had had to move to another vessel for a period over the summer when his boat ran out of allocation—a departure from years past.

When asked about an increase or decrease in crew jobs, many of the 23 respondents around the region agreed that job availability seemed to be decreasing and crew turnover was low. Crew with good sites are staying put, and in bigger ports, the good boats and captains have the ability to find and retain good crew if they want them,

but they know they have to keep them busy. In Gloucester, several crewmen and owners reflected on their responsibilities to each other and their families—the crew felt that their owners were keeping them going and the crewmen were sticking it out in lean times for their owners as well. As noted previously, data from vessel logbooks indicates that the number of crew positions, along with crew days has been steadily decreasing since 2007 (Kitts *et. al.* 2011, Table 18). Therefore, the transition to sectors may well be compounding the decline in employment opportunities, but is not necessarily causing a new trend.

Those without a regular site are finding fill-in trips increasingly rare. In Chatham, one deckhand said that “crew who have stuck it out hope they can find enough work-- they switch around boats to fill in when someone is short handed so there aren't a lot of jobs for others from outside ports.” A Point Judith deckhand observed that boats with good allocation are 'locked up' and not accepting new crew inquiries. “They are all set with the good people, and the rest is a mess.” In Gloucester, one owner underscored this point—his three crew were all former highliner captains. A Portland captain agreed that the surviving crewmen were able to shift around, giving him ready access to good crewmen. Another Portland captain strongly disagreed; “finding qualified crew is almost impossible.” Others concurred with this last opinion, stating that it was difficult to secure experienced crew, and if they lost the good hands aboard, they'd only find “junkies” and non-English speaking daymen available. “Available crew lacks skill--good deckhands want to go scalloping because the money is better even though draggers need skilled hands and scallopers don't.”

Growth Potential

"If anyone was in a position to get into this, I thought it was me. But I'm petrified. It used to be a guy like me would work for a guy like my boss and when he was ready to retire he'd sell it to me."

Twenty-eight crewmen responded to a question about growth potential. There was little interest from the crew we spoke to in trying to buy a vessel and permit to enter the fishery owning a business. Most cited the uncertainty of the fishing business as the reason for this reluctance. Several had already been in the industry and sold their permits and vessels, going to work for someone else. Still, a few individuals own an interest of some sort in the vessel they worked on or owned all/part of a permit. One young deckhand out of Cape Porpoise was interested in purchasing a small gillnet boat and groundfish permit, and did feel like he had access to capital; however he is in the minority, and also is diversified in the lobster industry.

Others believe permit banks may create an entry mechanism for them. In Chatham, two deckhands expect that the Cape Cod Fisheries Trust will enable them to lease fish at a reasonable price, making it economically viable to purchase a boat and permit with little or no history. However, one cautioned that the Trust should prioritize leasing to the Cape Cod Fixed Gear Sector at lower costs rather than focusing on getting the best price from other sectors. Another Chatham crewman had hoped to buy into the

fishery but still has concerns that ownership is too financially uncertain. The Gloucester Community Preservation Fund holds similar promise for a deckhand in that port, though it's not there yet. He said that he had a purchase and sale agreement on a boat but decided to buy land instead because the availability of leased fish was limited and prices were high.

Permit banks were mentioned generally during a handful of interviews, and the comments were mixed, with about half in support of permit banks, as their boat's owner leased quota from them. The other half indicated that both private and state permit banks are driving up permit prices and are hard to compete with. This affects business viability for owners and the growth potential for hired captains and deckhands.

Reporting and Monitoring Requirements

“Everyone is unhappy because there are more observers disrupting the solitude of life at sea, and the vessel-crew dynamic.”

Twenty-four crewmen responded to a question about reporting requirements. When asked about new reporting requirements, a resounding groan was heard from most captains and crew. They expressed frustration about the redundancy of the hailing and reporting requirements, and several were worried about the threat of enforcement if they made mistakes while meeting the lengthy and confusing reporting requirements under sectors. Several noted that things were disorganized early in the fishing year, with little guidance on the numerous changes to vessel monitoring system (VMS) screens.

Perhaps not surprisingly, at-sea monitoring is another source of much consternation. The impacts were certainly more strongly felt by the smaller boats in the fleet due to the fact that in more confined spaces, the presence of the At-Sea Monitor (ASM) or Northeast Fishery Observer Program (NEFOP) observer seems to be a more significant intrusion into the crew's normal work pattern. However, the level of training and experience of an ASM or NEFOP observer also makes a difference in the level of disruptions of normal crew work patterns. Some vessels distinguished between observers and ASMs in their comments and preferred to have more experienced NEFOP observers on board.¹⁰ Because ASMs seem to have a high turnover rate, one captain felt he was continually training someone and suffering from their inexperience; several used the descriptor “clueless” to describe the ASMs. Only one crewman felt the observer program helped to enforce safety regulations, while many felt that the newest crop of both ASMs and observers are a safety hazard at sea due to their lack of experience on boats. One captain said that he is distracted from his vessel's operations because his attention is on the ASM's safety on deck. Others mentioned concerns about misidentification of stocks or inaccurate sampling methodologies being used, and even general laziness of ASMs. Many were frustrated by the pace of the ASMs' work, saying it slows the pace of their

¹⁰ For purposes of this report, we will use the term ASM unless the respondent specified that the person he was referring to was a NEFOP observer.

fishing activity; “there is a very fluid system on the boat, and the cog in the wheel is the [ASM].”

At-sea monitoring also presents significant operational challenges. Captains emphasized the difficulties inherent, especially for dayboats, in calling for an ASM 48-hours in advance due to weather variability, especially in winter months, and noted that cancelling monitored trips requires an extra layer of effort. Other problems with ASMs, from the captain’s perspective, included the challenge of communicating with them (while out at sea or readying for a trip) about when to meet the vessel. A Point Judith captain was especially angry about ASMs he had seen using picks to grab fish, when he takes pride in good handling. He said that the ASMs’ actions resulted in increased mortality of sub-legals, and damage to the quality of his product for kept fish.

Finally, one of the primary complaints about ASMs from the crew perspective is that they affect the work environment negatively, which decreases crew job satisfaction. There is a significant tension that results from the sense of being watched. Several crew felt as though they were assumed to be criminals--“like you’re in prison.” One deckhand in Point Judith wondered what kind of training the ASMs receive, since they appear to expect the captain and crew to mistreat them. And, as a Gloucester deckhand put it, the knowledge that at-sea monitoring costs will eventually be paid by the industry “adds insult to the injury of having them aboard.” One respondent speculated that the ASMs were better paid than he was, and another said, “[you] feel like you got ten people standing on your back making a living.” Finally, one captain noted that ASMs were a double-edged sword for boats that fished cleanly, since having them aboard results in the use of actual discards rather than an assumed rate based on total catch. “[You’re] better off with an observer¹¹,” he said, “but who wants one every day?” Two captains also admitted that the “observer effect” continues to be significant, and influences their fishing behavior on observed trips (e.g., by fishing areas where they know there will be less chance of encountering choke species).

Interestingly, the Dockside Monitoring program¹² did not receive nearly the same level or passion of criticism, though it was not described as without fault. Most responses were about the redundancy of having both an ASM and a Dockside Monitor (DSM), in addition to dealer reports - or called the dockside monitoring program “a joke.” Most owners and crewmen are concerned about the expense when the industry has to pay for it in the future, and feel it is a waste of money. One New Bedford captain said they are a nuisance if you have to wait to offload, and that it can sometimes be difficult to accurately predict your landing time. Another said offloads were slowed by the DSM’s presence. Two Boston captains said they have had difficulty receiving hails back from the DSM company about whether or not they will be monitored, and one perceived this to be a problem with the company rather than his VMS system.

¹¹ Although the captain said observer, he is referring to at-sea monitors.

¹² As of September 19, 2011, there will be no centralized NOAA funded dockside monitoring program, though reporting will continue through dealer reports.

Safety at Sea

"Some boats are downright dangerous to work on."

Responses about safety-related impacts of sector management (n=22) were mixed. A few crewmen said it's about the same as DAS. A couple of captains felt that the new system improved safety because they no longer had to worry about losing time steaming in if the weather turned. Others disagreed, saying the incentive to fish in bad weather persisted, especially for offshore boats who could command a higher price by bringing in their catch as the dayboat fleet headed back out after a storm. Those who participate in monkfish and skate fisheries also were still keenly aware of the impact of the DAS clock on their activity and safety. Finally, captains in several ports noted that vessel maintenance has been significantly reduced on an already aging fleet. A deckhand in Point Judith attributed this to financial strain and the demand for permits with good history, and commented about the dangerous working conditions on some of these vessels. But he admitted that overall, safety had improved without the constraints of the DAS clock. A New Bedford captain theorized that this is because haul-outs have become more expensive over time due to environmental regulations restricting them from doing their own maintenance work in the yard. Finally, a Portsmouth owner and a New Bedford crewman noted that several captains are going short-handed or even alone, which is very unsafe. In these scenarios, owners simply cannot afford to pay crew due to lower allocations and increased costs of operating under sectors.

Enforcement

Only a handful (n=5) of crewmen responded to questions about enforcement. Of those who commented, the most common sentiment about enforcement is that crewmen felt they might be breaking some rule that they don't know about because of the complicated regulations and reporting requirements. One captain commented extensively on his belief that some vessels are still discarding legal size fish in order to target other species that are not managed under the sector system, such as lobsters. He noted that those committed to following the rules continue to do so, and pirates continue to be pirates, particularly in small ports where offloading to trucks is common. Another crewman agreed that you could get away with breaking the rules even with an ASM aboard because they would be unaware of what was going on.

Community, Family and General Well-Being

"We've forgotten the people--this is all about the fish."

"It's not just the fishermen they are affecting."

There were 22 responses surrounding the theme of community, family, and general well-being. The strongest place-based theme of this fieldwork was the pervasive stress we found in the Scituate community. The individual stories heard there were anguished, and the weights of financial stress, depression and anxiety were palpable. The primary reason for Scituate being hard-hit by sectors is that groundfish vessels fishing out

of Scituate received particularly low allocations due to limitations in their ability to access certain stocks during the history period sector allocations were based on. The closure of the Massachusetts Fishermen's Health Partnership Plan is exacerbating the problems fishermen face as well, interrupting the care they have been accustomed to by forcing them to seek new doctors and affecting a sense of pride as they are forced to join the state plan. One Scituate captain had been fishing for months simply to break even on quota he had leased in, and had cashed out his retirement savings to pay the mortgage. He said, "[I am] thoroughly disgusted, and most of all, it's sad. I need to think about getting out, and I love it." Another Scituate deckhand said, "I feel like everyone just pushes you to your limit until you quit. How much shit can one person take until they quit? These guys have taken more than anyone knows."

Although Scituate is one extreme, it wasn't just in Scituate that we heard bad news. Around the region, individual crewmen related stories about the impact of financial stress on their communities. Marriages were falling apart, heart problems seemed more common, and the concerns about whether or not they'd be able to support their family in the future weighed heavily on the minds of many we spoke to. A Chatham deckhand told us, "In '09 I thought I was going to lose my house...[fishing is] not fun anymore. At 25, I didn't mind it. Of course, I was making a lot more money then." Several offshore captains talked about the toll of being away from home so much, sacrificing time with their wives and children, in some cases resulting in divorce. While some of these comments refer to impacts prior to sectors under the DAS system, it was commonly stated that sectors are compounding family and health issues. They spoke of friendships being wedged apart as the fishery switched to sectors and competition changed. One Gloucester crewmen noted that "fishermen have dicey friendships to begin with," but agreed that the community impacts others were talking about were real. In Chatham, one deckhand said that those who supported sectors were thinking about their own ability to succeed, rather than what the management system meant for the next generation of fishermen and their ability to get in. A Point Judith captain saw it differently, saying that "divergent opinions are a product of people not wanting to change. Fishermen used to be cowboys, keeping their honey holes secret, but it's not like that anymore."

These conversations were certainly laced with a sense of bittersweet nostalgia, as they discussed personal experiences in the fishing industry over time in New England. One owner said that in the old days, "you could go up and down the coast working and making a good living, and now they took the swagger out of it. It's no longer the same sense of pride." He went on to say that for fishermen, their work is a large part of their identity so removing it has a tremendous impact. Several individuals framed how bad things were in the context of why they stayed in the business; even when they felt they had other options, they chose fishing because they didn't want to do anything else. As one Point Judith captain said, "I love it; even though I complain and bitch, I love the industry."

Lingering Impacts of Days-at-Sea

“Effort controls need to go.”

Every port had crewmen concerned about the continued impacts of DAS management in other fisheries as well as lingering input controls on sector fishing behavior (n=18). Fishermen from Portland and Gloucester continued to be frustrated by the impact of rolling closures. Southern New England fishermen continued to be restricted by monkfish and skate trip limits and the need to utilize DAS in those fisheries while also fishing on a sector trip. Several respondents also expressed concern about the allocation formula, stating that it constituted a change in currency, as many individuals purchased permits for DAS rather than the associated landings history. They also felt that it punished those who had backed off of depleted stocks, such as Gulf of Maine cod. As one Point Judith crewman put it, “During the qualifying years, southern New England fishermen had very low trip limits—it wasn’t worth it to go—so our allocation now is low. We were punished for laying off the resource--those who hammered it were rewarded.” Lower sector allocations for southern New England fishermen have resulted in either less pay and/or fewer job opportunities for crew working on groundfish vessels. These crew have had to find work in other fisheries to supplement their groundfish work or move to a different port.

Thoughts on Consolidation

“The rich are getting richer.”

Almost everyone who addressed this issue (n=28) felt that consolidation was already occurring. With that said, fishermen’s views on how and why consolidation is occurring varied widely. Several crewmen, including a few of the youngest we spoke to, said they could not fault an owner for wanting to sell to the highest bidder. But many crewmen focused on the size of the players as an indicator of their access to capital, saying that fleet owners were getting bigger, and creating monopolies; “the more money you have, the more fish you can buy.” A Portland captain agreed, saying that fleet owners were the only ones who could afford ACE but it was the small boats that needed it to survive. A Gloucester deckhand agreed, saying “Consolidation doesn’t look same to everyone. If a large boat buys out another permit (or five), they pull the boat’s crew, etc., out as well.” Others expressed similar concern, saying that the impact of consolidation on jobs was significant. A Portland owner said the small boats kept the Portland Fish Exchange alive this summer, and a Point Judith owner said jobs were contracting in that port due to decreased fishing opportunities. When asked about where crewmen are working who lost their jobs on sector vessels, the responses ranged from working on boats in other fisheries, to fish lumping, processing/shipping, and construction.

The respondents’ perceptions are confirmed by NMFS data that indicates some consolidation in the number of vessels has been occurring in the first 9 months of each year from 2007 to 2010, beginning before the introduction of sectors and continuing since (Kitts *et al.* 2011, Table 16). (See text box below for information on how to interpret

Table 16.) The number of low revenue vessels (based on total revenue quartiles) dropped between 2007 and 2008, while the number of higher revenue vessels dropped particularly in between 2009 and 2010. In other words, the lower revenue vessels were already affected under the DAS program, while the higher revenue vessels were most affected by the introduction of ACLs and sectors. Further, to the extent that those higher revenue vessels may be parts of multiple vessel fleets under a single owner, the owner may be positively affected, though the crew on the vessels that were removed would be negatively affected, as would be shoreside services.

One Chatham captain said there was no future for his children if the lease value was greater than the opportunity cost of fishing his allocation, but another deckhand in the same port disagreed, saying, “If a little guy sells out to a big guy, that's the little guy's choice—he has more flexibility.” A Boston captain suggested that permits should have to stay with the boat, and if the vessel is not fishing, the permit shouldn't be used either. He felt that lease-only permits wreak havoc with the permit market, while a New Bedford owner supported a 5% ownership cap on ACE. A Point Judith deckhand felt owner-operator provisions would help preserve fleet diversity. A Gloucester deckhand wasn't so sure, saying that efforts to control consolidation still would not affect permit values (that were ultimately the problem).

It should be noted that in Kitts *et al.*'s Table 16 (2011:28), because these are quartiles by revenue, when the number of vessels in a quartile category drops this may mean that vessels dropped out of the fleet OR it may mean that vessels moved into a different revenue quartile in the subsequent year (either higher or lower), or some of both. Because the total number of vessels drops we know that some vessels *have* left the fleet. But we cannot say which vessels those are or which revenue quartiles they come from. Further, “[w]hile consolidation has occurred at the vessel level, these analyses do not provide information about consolidation at the ownership/business entity level, which is broadly defined as individual owners, ownership groups, or legally constituted corporations having a financial and management interest in more than one vessel” (Kitts *et al.* 2011:11). In other words, sometimes when a vessel leaves the fleet it is because its owner has consolidated quota onto another vessel or vessels, rather than that the owner has left the fishery.

Finding Solutions

"Without more flexibility, sectors are going to fail."

Another common refrain in these conversations was that sectors were supposed to create more flexibility, but many felt that they had simply added new regulations and requirements rather than stripping away old ones. Comments about the lack of flexibility were often linked to sentiments that financial hardships are being created by sectors through issues other than, or in addition to, low allocations. One captain suggested that reduced notice to the ASM program (i.e., less than 48 hours) would be useful, and another wanted to see length-horsepower restrictions removed (presumably on permit transfers, as sector vessels have been exempted from these restrictions for groundfish DAS leasing). Two others questioned the merits of maintaining the closed areas and rolling closures in a hard TAC fishery, and one wanted to see southern New England blackback flounder allocated rather than continued as a zero retention stock. Lease prices

for ACE were also of concern, and two captains felt that stabilizing these prices would optimize yield and reduce incentives for piracy or high-grading.

Three crewmen in Point Judith were focused on changing allocation-related issues. While two hoped the allocation formula would be revisited, another suggested that the 10% annual ACE carry forward needed to include fish leased into the sector rather than only its original allocation. Other suggestions from Point Judith included expedited trading of ACE between sectors (it typically takes 3-6 days for Rights of First Offer inside the sector to expire) and individualizing the discard rate in order to really affect fishing behavior. There were 24 respondents to a question about comments on changes needed in sector system.

While there is the desire to effect change in sector management, there is also a shared sentiment that any efforts to get involved in the management process would be futile. Stated reasons for this belief included the following general comments: 1) the outcomes are predetermined by Council members, 2) NMFS is not listening, and 3) environmental groups have too much weight in the process. Additionally, crew do not feel that they have a voice in the management process.

Year One: Summing Up Sectors

"People who don't like sectors don't have any allocation."

Overall, we heard significantly more negative feedback on the impact of sectors than positive. This was true even in Chatham, where most of the crewmen we spoke to had worked on sector vessels for a few years or more, though certainly their sector experience changed dramatically this year. We heard consistent comments in most ports, and while different places had unique challenges, many concerns were universal. In most ports, the crewmen we spoke to seemed to conclude that the system might have potential, *if*, and this was a very big *if*, they could survive what they expected to be very difficult early years, *and* if TACs increased. The exception to this overall picture, however, was Scituate, where there did not seem to be any hope for better years ahead due to their low allocations.

On the positive side, when asked for their big-picture thoughts on sectors, a large number of crewmen revisited the reduction in bycatch resulting from elimination of trip limits. Their enthusiasm and relief that this issue had been meaningfully addressed was as sincere as it was universal. They also appreciated that some limited flexibility had been introduced through sector exemptions—such as access to certain rolling closure statistical areas, removal of the 120-day blocks and elimination of differential counting. Several captains noted that they felt some stress relief now that they no longer had to worry about the DAS clock. In total, there were 18 respondents who offered a positive comment about sectors when asked.

Crew concerns about the impact of the system are clearly substantial, as this report reflects. Not surprisingly, comments regarding the overall negative impacts of

sectors and opportunities for improvement (n=25) outnumbered the positive comments that we heard.¹³ Allocation concerns strongly persist in all ports—including 1) the landings history-based formula; 2) transboundary resource sharing with Canada; 3) yellowtail bycatch in the scallop fleet; 4) recreational fishing limits; and 5) the lack of mechanisms to assist new entrants. Crewmen emphasized the need for: 1) more flexibility in their fishing activity; 2) higher trip limits for related target stocks like winter skate; and 3) a reduction in reporting requirements. They were concerned that prices had not improved despite reduced quota and landings, and worried about how they could absorb rising costs without better ex-vessel value.¹⁴ They talked about the adverse changes in the culture aboard the vessel due to increased monitoring coverage, the strain on relationships between fishermen in their communities and how their feelings about fishing were changing. Several of them were grateful to have been asked these questions, as they had not been asked how regulations had affected them before.

Tracking Crew

“Tracking crew who leave [the fishery] is virtually impossible.”

Crew agreed that they were difficult to find and that identifying places or mechanisms to reach them was a challenge (n=6). They suggested signs at gear/supply stores, fish houses, settlement houses, and certain restaurants/bars/coffee shops within their communities. Captains can be reached relatively easily through sector managers, but the managers may not know the deckhands. Industry newspapers as well as free community papers are also considered a good option. With regard to reaching crew who had left the fishery, one person suggested using VTR operator data and operator permit information to reach people. Another crewman suggested putting ads in local newspapers and industry papers. The Massachusetts disaster relief fund seemed promising, but one individual warned us that this list included a lot of individuals who only fished a few months. They suggested starting a database and seemed to think individuals would provide contact information.

Looking Forward

This study suggests that the new groundfish regulations may be affecting crew in a number of different ways. The interviews also show that “crew” is not a homogeneous

¹³ Please note that many of the same people offered both overall positive and negative comments/opportunities for improvement on the sector management system.

¹⁴ Section 2.3 of the Interim Report (Kitts *et al.* 2011) describes yearly average prices of groundfish species from 2007-2010, which increased in 2010 from previous years. It is important to note that while the combined average groundfish price increased in 2010 to \$1.47/lb. (from \$1.37/lb. in 2007 and \$1.20/lb. in 2009), price increases were not realized for all allocated species, and market value fluctuates throughout the season. Therefore, depending on their target species and the time of year their catch was landed, amongst other factors, not all fishermen profited from these overall price increases. Additionally, while average prices increased in 2010, any related increase in revenues may have been offset in part by new costs associated with joining and operating in a sector. However, information regarding the impact of sector costs on net revenues is not yet available.

group. Crew may be affected by regulatory changes in different ways on the basis of community/port to which they are tied, length of experience, and connections to owners, among other factors. Due to the fact that we interviewed a relatively small sample of crew, these observations regarding the impacts of sector formation on crew should serve as hypotheses for future study and provide an indication of the impacts that crew in general may be experiencing during this transition.

The new regulations have failed to curtail the existing downward trend in availability of crew opportunities, and have likely accelerated the loss of crew opportunities on groundfish sector vessels. The sector management system is depressing crew income for many individuals since there are new costs that crew must deduct from their settlements, and thus far, most crewmen are not seeing a mitigating increase in their share due to anticipated higher ex-vessel prices under the sector system. Crew job opportunities and wages will be in jeopardy in future years when sectors are expected to fund at-sea monitoring and possibly dockside monitoring¹⁵ in 2013. Further, some crew are working more days on the water in the groundfish fishery and other fisheries for the same amount of pay or only slightly more than they worked under the DAS system. Many crew have had to supplement their groundfish income by working in other fisheries or other jobs.

Crew are experiencing a decrease in job satisfaction and vessel safety as a result of changes in culture aboard the vessel due to increased monitoring coverage. Additionally, there is increasing conflict within sectors and in fishing communities due to the new regulations, and the differential levels of ACE and ability to acquire ACE. This varies by community. Stress and anxiety levels are high among crew and owners as they struggle to maintain viable businesses. Crew continue to feel disengaged from the management decision process, and generally rely on the vessel owners to inform them about changes in regulations.

On a positive note, there are some crewmen we interviewed who have had significant increases in their salaries. Several crewmen acknowledged that sectors can work with higher allocations, higher ex-vessel prices, and more affordable lease prices. There was also a feeling of relief that sectors improved groundfish discards, although the continued discard concerns in other fisheries prosecuted concurrently with groundfish, such as monkfish and skate, are left unresolved.

The Northeast Fisheries Science Center's SSB will be using the information in this report, in association with data gathered on SSB's performance measures (Clay *et al.* 2010), to inform their studies of crew and attempts to contact crew in the coming months and years. Some of the performance measure data has been and will be reported in the Groundfish Reports of which Kitts *et al.* (2011) is the first. Other performance measure

¹⁵ "While NOAA has decided not to centrally fund dockside monitoring for sectors during the 2011 and 2012 fishing years, as it did in 2010, the requirement for the fishing industry (both common pool and sectors) to pay for dockside monitoring beginning in 2013 technically remains in place."
(http://www.nero.noaa.gov/nero/hotnews/NR1120/DSM%20press%20release%207_18-11.pdf)

data will be gathered in two new surveys (one for vessel owners and the other for hired captains and other crew) that SSB expects to implement in late 2011 or early 2012. Pending funding, these surveys will be deployed on an ongoing basis to gather trend data. SSB is also interviewing sector managers and in the coming year will be conducting 40 oral histories of groundfish fishermen both from sectors and the common pool.

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