



Attn: Patricia A. Kurkul  
Regional Administrator  
NMFS, Northeast Regional Office  
55 Great Republic Dr.  
Gloucester, MA 01930

Feb 11, 2011

**Re: Scoping Comments on Monkfish Amendment 6, RIN 0648-BA50**

Food & Water Watch (FWW) is a national consumer action organization that defends and advocates for robust public management of natural resources, including fish. We are writing to urge the New England and Mid-Atlantic Fishery Management Councils to rethink the use of a catch share program for the jointly managed monkfish fishery via Amendment 6. Below, please find FWW's comments regarding the proven negative consequences of fishery privatization and the potential consequences for monkfish and those that fish for them if a catch shares program is adopted.

Catch share systems as implemented throughout the United States and the world have typically resulted in an unfair giveaway of public resources to private entities. The gains in economic efficiency hailed by supporters of catch shares have come at the expense of the livelihoods of thousands of smaller-scale, traditional fishermen and their communities, and the claims of increased fishery sustainability and safety are a topic of continued academic debate. The design of catch share programs may violate guiding provisions within the Magnuson-Stevens Fishery Management Act, and have been found to violate human rights in international court.

While FWW believes that catch share-like programs can be one of many effective tools in addressing the modern challenges of fishery management, these programs must be rigorously designed to ensure that they retain public control of the fisheries resources and return a portion of the value of each fishery to the public. Allocations to fishermen must be fair and equitable, and the programs should include incentives to maintain a diverse fleet, minimize damage to the environment, and allow new participants in the fishery.

FWW urges the Council to reconsider the implementation of catch shares for monkfish until there is meaningful guidance on designing catch share programs in the United States to address the concerns stated herein. At the minimum, the Council must rigorously and broadly consider the environmental, economic, and social consequences of catch share programs, and explore all possible alternatives to catch share programs that privatize our nation's public resources.

## **Economic Devastation**

***The initial distribution of shares can create windfall profits for a select few and moves the fishery towards rapid consolidation that further disadvantages smaller scale fishermen. To avoid these consequences (detailed below), the New England Fishery Management Council (NEFMC) must ensure that catch share program design includes strict limits on transferability and consolidation, includes a tiered distribution of shares to preserve fleet diversity, and does not give away catch shares in perpetuity. The NEFMC should explore alternative management strategies that have fewer of these negative consequences.***

Catch share programs are justified by the idea of maximizing the economic efficiency of a fishery. Unfortunately, this “optimization” or “rationalization” comes at the cost of excluding large numbers of people from the system entirely. Shares in a new catch share fishery are typically distributed proportional to historical catch records. Those who receive the largest initial distribution of shares — or have the most capital to buy and lease shares — often gain control over an entire fishery, pushing smaller fishermen out of fishing and even into bankruptcy.<sup>1</sup> These privileged few may sell their quota and gain an instant profit,<sup>2</sup> or use the expected value of quota as collateral to get loans from a bank.<sup>3</sup> Anticipation of a new catch shares program can distort these statistics, as it prompts new fishermen to enter the fishery and current fishermen to increase their catch, a behavior termed “fishing for history.”<sup>4</sup>

Once quotas are distributed, the fishery moves rapidly toward consolidation. In 2010, less than five months after catch shares were implemented in the groundfish fleet in New England, 55 out of the initial 500 boats in the fishery controlled 61% of the revenue.<sup>5</sup> In another example, the ocean quahog fishery in the mid-Atlantic became so consolidated that one firm controlled 35 percent of the available quota two years after the program began.<sup>6</sup> Many quota holders don’t even fish themselves. Instead they become “armchair fishermen” or “fishery landlords” by leasing their quota for exorbitantly high prices. The Canadian halibut fishery switched to a privatized catch share system in 1991, and by 2006 a total of 79 percent of the quota was leased out instead of being fished by quota owners themselves.<sup>7</sup> Quota leasing has become the single largest operating cost for these fishermen, pushing them to the margins of profitability,<sup>8</sup> which could drive more fishermen into bankruptcy.<sup>9</sup>

Fishermen in Iceland who had been excluded from their country’s catch share system took their grievances before the United Nations Human Rights Committee, alleging that privatization violated the International Covenant on Civil and Political Rights by forcing



fishermen without quotas to pay money to a privileged group of citizens (the quota holders) in order to pursue their occupation. After reviewing the issue, the Committee ruled that privatized catch-share systems violated international law.<sup>10</sup>

***Consolidation of the fleet translates into widespread job losses and reduced wages for fishermen and crew. NOAA and the NEFMC must acknowledge that catch shares programs cause job losses, and widely inform stakeholders of the negative economic consequences of fleet reduction. Effective fisheries management strategies must minimize these adverse effects by preserving job opportunities within the fishery. The NEFMC should explore alternative management strategies that do not lead to significant unemployment for fishermen.***

As a result of consolidation, many fisheries have lost well over half of their fishing fleets. In Alaska’s Bristol Bay king crab fishery, only 89 out of 251 boats remained the year after catch shares were implemented.<sup>11</sup> In early 2010, New England implemented catch shares in the groundfish fishery through a “sector” program, and the community warned that “50-75 percent of the fleet and thousands of jobs will be lost in a relatively short period of time.”<sup>12</sup> Five months after the program was implemented, 253 of the 500 boats in the fishery were just sitting at the dock, unable to fish without quota.<sup>13</sup>

**Fleet Reduction Means Job Losses**

“Fleet reduction” — meaning fishermen being cut out of fishing — is often highlighted as a success of IFQ programs.<sup>14</sup> But every time a boat stops fishing, an estimated 3 to 6 jobs are lost,<sup>15</sup> resulting in struggling coastal and fishing communities.

<b>IFQ Program</b>	<b>Boats in fishery prior to IFQ</b>	<b>Boats in Fishery after IFQ</b>	<b>Boats lost</b>
Alaska Halibut	3450 boats in 1994	1156 boats in 2008	66% in 14 years
Alaska Sablefish	1404 boats in 1994	362 boats in 2008	74% in 14 years <sup>16</sup>
Bering Sea and Aleutian Islands Pollock	100 catcher and 30 catcher-processor in 1998	90 catcher and 21 catcher-processor in 2005	10% catcher and 30% catcher-processor in 7 years <sup>17</sup>
Bering Sea and Aleutian Islands red king crab	251 boats in 2004	74 boats in 2007-2008	71% in 3-4 years

Bering Sea and Aleutian Islands snow crab	189 boats in 2004	78 boats in 2007-2008	59% in 3-4 years
Pacific Sablefish	328 boats in 2000	87 boats in 2008	73% in 8 years <sup>18</sup>
Gulf of Mexico Red Snapper	546 permits in 2007	466 permits in 2008	15% in one year
Wreckfish	91 boats in 1990	Less than 5 boats in 2009	95% <sup>19</sup>
Surf clam	128 boats in 1990	50 boats in 2005	61% in 15 years <sup>20</sup>
Ocean Quahog	92 permits in 1991	47 permits in 2005	49% in 14 years <sup>21</sup>

Despite widespread academic agreement that catch share programs create job loss in communities, NOAA Administrator Jane Lubchenco recently announced that catch shares are “merely a tool” and “not the cause” of lost fishing jobs.<sup>22</sup>

The precise impacts of catch shares on crew are relatively unknown, but the research that has been done belies the claim that crews have safer, better jobs with higher wages.<sup>23</sup> Vessel owners are shifting the costs of leasing additional quota onto crew by taking a large percentage of the total catch value before calculating wages. The crew of the Canadian halibut fishery received 10-20% of the catch value before catch shares, and now receive only 1-5 percent.<sup>24</sup> Even the quota owners who continue to fish their own quota have begun to pay their crew less, justifying this change by arguing that paying higher wages would make leasing their quota (and firing their crew) more profitable than fishing it themselves.<sup>25</sup> So, in the Canadian halibut fishery, although the overall value of the fishery has increased by 25 percent over 17 years, the crews’ share of that value has dropped by 73 percent.<sup>26</sup> In the Bristol Bay red king crab and Bering Sea snow crab fisheries, some crew members report that pay has dropped from 5-6 percent of catch value to less than 1 percent,<sup>27</sup> while an estimated 1,214 crew members lost their jobs entirely after IFQ implementation in those fisheries.<sup>28</sup>

***Catch shares can hurt communities and prevent new fishermen from entering the fishery. The NEFMC must ensure that catch share programs are designed to follow all of the guidelines in the Magnuson-Stevens Act to prevent individual and community economic hardship. Further, the NEFMC must include all likely community effects of consolidation and job loss in its economic assessments of the proposed program.***

The Magnuson-Stevens Fishery Conservation and Management Act specifies that all fishery management plans must “take into account the importance of fishery resources to fishing communities...in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.”<sup>29</sup> And that catch shares programs must provide for “fair and equitable initial allocations” of quota, prevent “excessive” consolidation, and set aside portions of the catch for entry-level fishermen, small vessel owners, and crew.<sup>30</sup>

But catch share programs have widely failed to meet these criteria. The economic hardship and job loss among fishermen due to catch share programs have widespread impacts — related industries like processors, baiters, and boat repairers also suffer, along with the ports and communities reliant on fishing. As unemployment spreads, there is less to spend at grocery stores, restaurants, and other key community businesses, which can eventually lead to a resident exodus in search of jobs and opportunity.<sup>31</sup> A study of the Nova Scotia mobile gear groundfish catch share program found that transferability of shares resulted in striking regional imbalances in consolidation, as some areas acquired quota at the expense of other towns and ports.<sup>32</sup> The increasing fortunes of those able to take advantage of catch shares in these communities have exacerbated disparities of wealth and status and put a strain on the values of hard work and equity that held the communities together.<sup>33</sup>

Quota leasing and purchasing also prevents new fishermen from entering the fishery. One study estimated that it can cost between \$250,000 to \$500,000 for a new entrant to lease enough quota for a single fishing trip in Alaska’s halibut fishery.<sup>34</sup> Fishermen who already have quota can use their existing quota as leverage for loans, but fishermen just starting out may have to use personal assets, such as their homes, for the required down-payment (between a quarter and half of the loan, or \$62,500 to \$250,000) before they can even catch any fish.<sup>35</sup> Purchasing the quota outright is out of the reach of most, since widespread leasing drives up the price of quota.<sup>36</sup>

***It is not clear that catch shares increase fishermen safety. The NEFMC should acknowledge that safety improvements due to catch shares are not guaranteed, and are unlikely in fisheries not already compromised by a “race to fish.”***

Catch shares are touted as a sure method for increasing fishermen safety,<sup>37</sup> but the data is unclear that such programs reduce accidents and deaths at sea.<sup>38</sup> The anticipated safety benefit of catch shares systems is that fishermen no longer have to race for fish. However, a survey of fishermen safety in six countries found that some catch shares-managed fisheries, especially those with quota aggregation and quota leasing, tended to continue to have major vessel accidents and fishing fatalities.<sup>39</sup> Overall, the data is mixed. Some

fisheries have experienced reductions in search and rescue missions (for example, Alaska's halibut and sablefish fishery saw a 63% reduction in missions after catch shares were implemented),<sup>40</sup> while others have seen no improvement (fisheries in Iceland, New Zealand, and some U.S. fisheries maintained high accident rates).<sup>41</sup>

### **Fishery Health**

***Privatization of a natural resource, like fish, does not ensure or even improve the chances that it will be better managed for conservation. Catch share systems do not ensure the recovery of fish stocks or prevent them from collapsing. The NEFMC must distinguish between conservation measures, such as a Total Allowable Catch (TAC), and management strategies such as catch shares. The NEFMC should avoid privatization of the monkfish fishery by exploring alternative management strategies, and use any new management strategy to incentivize ecologically responsible fishing and gear types.***

The National Resource Council concluded in 1999 that “much of the political support for IFQs is similarly driven by faith in the assumption that privatization will foster ecological sensibility.”<sup>42</sup> The NRC felt that catch shares may promote conservation by keeping catch below the total allowable catch, but only so long as there exists proper monitoring, enforcement, and penalties for violators.<sup>43</sup> As highlighted in their opinion, the key management strategy to ensure conservation is the existence of a biologically based TAC, while catch shares is just one way, but not the only way, to implement this conservation strategy.<sup>44</sup>

One widely cited study that suggested catch share programs are the solution to wide-scale fisheries collapse<sup>45</sup> has been criticized for failing to differentiate between landings increases due to catch shares management and landings increases due to the enforcement of a sustainable catch limit.<sup>46</sup> An opposing study painted a much more complicated picture. Looking at fish numbers, use of habitat-damaging gear and commercial landings data in fifteen North American catch share programs, the author concluded that results varied widely between programs, and that the implementation of catch shares – in 15 separate regional examples – did not ensure ecological sustainability.<sup>47</sup> A third researcher looked at stocks in 20 international catch share programs and found 8 that continued to decline.<sup>48</sup>

Fish populations under some of the most mature ITQ systems in the world are still overfished. In New Zealand, the percentage of assessed stocks below target levels increased from 15% to more than 30% between 2006 and 2010. In 2010, almost a quarter of New Zealand fish stocks experienced overfishing, six percent of them were collapsed and 13 percent were depleted.<sup>49</sup> In another example, Norway's cod stocks dropped to their lowest quota ever available in 2006 after years of catch shares management.<sup>50</sup>



***Catch share programs inherently include incentives to discard and “high-grade” fish, which can distort stock assessments and can only be countered through expensive monitoring and enforcement programs. The cost of these programs may further disadvantage small fishermen. The NEFMC must acknowledge that catch share programs likely increase high grading and discarding and include all projected costs for stock assessments, monitoring, and enforcement in any proposed catch share program. Any proposal for a catch share programs should make it explicitly clear what the expected increased burden of monitoring will be on individual fishermen.***

Stocks continue to decline because the very design of most catch shares programs includes incentives to discard some of the catch. By restricting fishermen to the amount of fish in their quota and making it too expensive to acquire additional quota, fishermen may discard smaller fish that will bring in less profit at the dock. This process, called “high-grading,” can result in the death of many fish, which are tossed overboard, depleting fishing stocks while yielding no profit for fishermen. Similarly, “bycatch” — ocean wildlife that is unwanted or illegally caught while fishing other species — is also discarded and has undermined fishery recovery efforts.

Discarding and high-grading have been described as “an almost inevitable outcome of quota-managed fisheries,”<sup>51</sup> and the implementation of catch shares typically increases incentives to discard and high-grade, particularly in multi-species fisheries like the New England and Mid-Atlantic monkfish fishery.<sup>52</sup> Low-impact fishing with lower bycatch and high-grading could be incentivized through fisheries management, but the reverse is currently happening: larger boats with less selective fishing methods are becoming dominant in the new privatized and consolidated catch share fisheries around the world.

The success of catch shares programs depends significantly upon monitoring both quota and non-quota holders that fish in related fisheries. Unreported landings, high-grading, and discarding weaken and can destroy the market for quota shares.<sup>53</sup> One of the only fisheries with significant and proven reductions in discard rates is the multispecies groundfish trawl fishery in British Columbia, which has 100% at-sea observer coverage and dockside monitoring.<sup>54</sup>

The United States struggles with monitoring and enforcement. In recent years, the National Marine Fisheries Service (NMFS) only analyzed 66 fishing trips of catch shares program vessels in the Gulf of Mexico red snapper fishery in 2009, and 55 trips in 2008.<sup>55</sup> In 2009, 1,898 red snapper were kept while 2,245 (over half of the total catch) were caught accidentally and then discarded, were discarded dead, or met some other unknown fate besides being sold at dockside.<sup>56</sup> These bycatch numbers were significantly worse than those in 2008,<sup>57</sup> when only about a quarter of the total red snapper catch was discarded, indicating that catch shares do not minimize bycatch problems over time and might



actually make it worse.

The National Resource Council suggested catch shares programs could improve monitoring and enforcement by levying fees to fund on-board and/or dockside monitoring programs.<sup>58</sup> New catch shares programs in the U.S. are looking for ways to pass those costs on to fishermen, but the systems proposed could only further hurt small fishermen. For example, in the New England sectors program, which the NRC highlighted as one of the most difficult regions to monitor and enforce (due to the large number of small boats and numerous ports),<sup>59</sup> the necessary improvements for monitoring the catch shares program were estimated by a local research institute to cost between \$6 million and \$12 million.<sup>60</sup> While the federal government will be subsidizing much of the initial implementation,<sup>61</sup> on-board observer costs are estimated to stay at \$700 to \$1,000 a trip<sup>62</sup> – a price that large quota holders will have few problems paying, but smaller fishermen already working at the margins of profitability, particularly with the additional costs of quota leases, may not be able to endure. Without long-term federal support, monitoring costs could drive the remaining small fishermen out of the industry.

### **The New England and Mid Atlantic Monkfish fishery**

***New England fishermen are already experiencing significant economic devastation from the implementation of the groundfish sectors program which is currently in litigation and loudly opposed by many smaller-scale historic fishermen. The NEFMC should not further restrict fishing opportunities for struggling fishermen by implementing a catch shares program for monkfish. If it does proceed with a catch shares program, it should not use the groundfish sectors program as a model, as it is significantly flawed. The NEFMC should consider all alternative management strategies.***

According to the public notice for this scoping period, “Nearly 75-percent of limited access monkfish permit holders also hold a limited access permit in the Northeast multispecies fishery, where a catch share program (in the form of sector management) has been implemented. As a consequence, many monkfish permit holders have requested that the Councils consider a catch share program in the monkfish fishery to coordinate the management and improve the performance of both fisheries.”<sup>63</sup>

The NEFMC suggests that it is stakeholders that want to extend catch shares to monkfish, but there is not widespread community support for this action. In a recent public meeting between the NEFMC and stakeholders in the fishery, “the proposal found little favor, as fishermen, boat owners and fish dealers rose to oppose the expansion of catch shares to another fishery, while roundly condemning the existing management plan in the groundfish industry which, they say, has created only hardship for many fishermen.”<sup>64</sup> The Northeast multispecies fishery has already caused significant job losses and consolidation of profits. In just five months, 253 of the initial 500 boats are sitting idle while 55 of the



boats now control 61% of the revenue,<sup>65</sup> and those cut out of the fishery already do not support the expansion of these job-killing programs.

***Referenda for catch share programs have been fraught with problems, as smaller-scale fishermen are typically under-represented, and even intentionally excluded. The NEFMC and MAFMC must ensure that all fishermen with a stake in the fishery are allowed to vote on the implementation of a catch shares program, not just those running large operations.***

The use of income and catch level to determine voter eligibility for a catch shares referendum can exclude small-scale fishermen from the voting process unless deliberate measures are taken. The NEFMC uses the Gulf of Mexico Fishery Management Council's commercial grouper and tilefish referendum as a model,<sup>66</sup> but this vote was fraught with problems.

In the Gulf referendum, the only fishermen allowed to vote were those who had an active or renewable commercial Gulf of Mexico reef fish permit and a combined average annual grouper and tilefish landings of at least 8,000 pounds during the 1999-2004 period. This excluded approximately 69 percent of permit holders in the Gulf—the majority of fishermen whose livelihoods would be affected should the plan be implemented. Only those fishermen who were most likely to directly benefit from the management program could vote. Not surprisingly, the measure passed overwhelmingly.

FWW sent our own survey to Gulf permit holders, and our “re-referendum” returned starkly different results: 88.37 percent (152 respondents) said they would have voted against the IFQ program and only 6.98 percent (12 respondents) said they would have voted in favor of it. Eight respondents, or 4.65 percent, had no opinion.<sup>67</sup>

The survey also asked fishermen if they believed that the Gulf of Mexico Fishery Management Council was managing the Gulf of Mexico reef fish resource in a manner that benefits public interest. Ninety percent (154 respondents) said no, 7 percent (13 respondents) said yes, and 3 percent (5 respondents) had no comment.

The lesson is clear: the level at which “significant” investment in the fishery is set by a council will determine if smaller scale fishermen, who likely have the most to lose in the implementation of a catch share program, will even have the right to vote.

Monkfish is typically caught incidentally, and there are few directed fishery participants. These direct fishery participants earn a lower tier of income than fishermen participating in the broader groundfish fishery, so eligibility criteria for participation in the referendum should reasonably reflect their lower income.

In addition, it is possible that some fishermen now struggling because of the NE sectors program will turn to or intensify their efforts in non-quota regulated fisheries (like monkfish) to try to make ends meet. These fishermen may not be represented in voter referenda that only look at past income or past catch history. Further restricting access to northeastern fisheries is an unnecessary step that will only hurt these fishermen more.



## **Final Recommendations**

FWW urges the NEFMC to withdraw its proposal to implement catch shares in the New England and Mid-Atlantic monkfish fishery. Catch share programs that privatize fisheries cause significant job losses and hurt fishing communities while transferring the wealth of a public resource to private entities. The rush to implement these systems by NMFS and the Fisheries Management Councils ignores these devastating economic effects, and overlooks the likely cumulative effects of more of these systems further marginalizing the small fishermen of the United States. In addition, the ecological benefits touted by catch shares proponents are overstated and subject to debate in academic literature.

If the NEFMC continues with this scoping process, they must thoroughly study the likely economic effects on all participants in the fishery, not just those who are likely to remain in the fishery after consolidation. NEFMC should consider cumulative impacts of this program, existing catch shares programs, and possible future catch share programs in the region. Any referendum held on implementing catch shares in the monkfish fishery must include all fishery participants, not just those who dominate the fishery and are most likely to benefit from a catch shares program.

In addition, the Council should review in the proposed Environmental Impact Statement the full record of academic literature detailing the questionable ecological benefits for catch shares. As highlighted by the National Resource Council, catch shares are a management tool, not a conservation method. Catch shares do not always improve the health of a fishery; they inherently incentivize high-grading and bycatch, and move a fishery towards larger vessels that may use more destructive gear. The NEFMC must present support for its case that catch shares, not the associated TAC, are responsible for any stock improvements.

FWW urges the NEFMC to consider alternative methods for managing the monkfish fishery. We agree that we need responsible fisheries management policies to sustainably utilize the fish in our oceans, but we believe it can be done in a way that enhances, not destroys, the lives of fishermen and their communities.

FWW calls this approach “Fair Fish.” As fish are a public resource, the federal government has a duty to preserve this resource in the public trust. But the assumption that this can only be achieved through privatization is false. Following upon the “common pool resources” research by Nobel-prize winning economist Elinor Ostrom, a recent analysis of fisheries have shown that there are many paths to effective co-management of fisheries resources between the public and the government.<sup>68</sup> Quota systems can be a part of the answer without relinquishing control of the resource.



The foundation of a scientifically determined cap (the TAC) on fishing has been key the preservation and restoration of many fish stocks internationally. From this, percentage quotas can be distributed in ways that are not windfall give-aways, do not exclude smaller scale fishermen, and do not block new entrants to a fishery.

One way to distribute shares is renting or auctioning out quota. For economic and ethical reasons, many researchers agree that quota programs should be funded by fees, and rent paid by those granted access to the public's fish.<sup>69</sup> This system gives the government the greatest flexibility in distributing shares, as they can set tiers of eligibility (such as vessel size), social and environmental priorities (with quota distribution favored to communities or vessels with lower carbon emissions or gear associated with less bycatch or habitat impacts), and can set term limits on the permits so that the system can evolve along with the fishery.

These up-front fees are then reinvested directly into the fishery to fund stock assessments, management, and enforcement, and can also be used to fund community development and national priorities like greening our fishing fleet.

By ensuring that fishermen get their fair share, the U.S. can ensure that the fish in our markets were caught by healthy communities using the best available practices. This ensures a better life for our nation's fishermen and fishing communities, and a better product for our nation's consumers.

We appreciate the opportunity to comment on this important matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Meredith McCarthy".

Meredith McCarthy  
Researcher, Fish Program

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<sup>1</sup> Copes, Parzival and Charles, Anthony. "Socioeconomics of individual transferable quotas and community-based fishery management." *Agricultural and Resource Economics Review*. 33/2. October 2004 at 174-175.

<sup>2</sup> National Research Council. Committee to Review Individual Fishing Quotas. "Sharing the fish: Toward a national policy on individual fishing quotas." National Academy Press. Washington, DC. 1999 at 142.

<sup>3</sup> Arnason, Ragnar. "Iceland's ITQ system creates new wealth." *The Electronic Journal of Sustainable Development*. Vol 1 Issue 2. 2008 at 36.

<sup>4</sup> Macinko, Seth and Bromley, Daniel W. "Who owns America's fisheries?" Center for Resource Economics. 2002 at 18. For an example, see Brandt, Sylvia. "A tale of two clams." *Regulation*. Spring 2005 at 20.

<sup>5</sup> Saving Seafood. "Catch shares cut New England fleet in half; New Bedford mayor to convene council meeting." Dec 9, 2010. <http://www.savingseafood.org/state-and-local/catch-shares-cut-new-england-fleet-in-half-new-bedford-mayor-to-convene-council-me-4.html>

<sup>6</sup> National Research Council. Committee to Review Individual Fishing Quotas. "Sharing the fish: Toward a national policy on individual fishing quotas." National Academy Press. Washington, DC. 1999 at 295.

<sup>7</sup> Pinkerton, Evelyn et.al. "The elephant in the room: The hidden costs of leasing individual transferable fishing quota." *Marine Policy*. 2009 at 4.

<sup>8</sup> Pinkerton, Evelyn et.al. "The elephant in the room: The hidden costs of leasing individual transferable fishing quota." *Marine Policy*. 2009 at 2.

<sup>9</sup> Copes, Parzival and Charles, Anthony. "Socioeconomics of individual transferable quotas and community-based fishery management." *Agricultural and Resource Economics Review*. 33/2. October 2004 at 175.

<sup>10</sup> United Nations, Human Rights Committee, International Covenant on Civil and Political Rights, (91<sup>st</sup> session) *Communication No. 1306/2004. CCPR/C/91/D/1306/2004*. December 2007, #11 at 20. Available at [http://www.bayefsky.com/pdf/iceland\\_t5\\_icpr\\_1306\\_2004.pdf](http://www.bayefsky.com/pdf/iceland_t5_icpr_1306_2004.pdf)

<sup>11</sup> Alaska Journal of Commerce. "High Pressure Tactics Were in Place at Dutch Harbor." Web posted June 5, 2009. Available at [http://www.alaskajournal.com/stories/060509/fis\\_img37\\_001.shtml](http://www.alaskajournal.com/stories/060509/fis_img37_001.shtml)

<sup>12</sup> Rothschild, Brian. Testimony on Catch Shares to the Subcommittee on Insular Affairs, Oceans and Wildlife, Committee on Natural Resources, U.S. House of Representatives. April 22, 2010. <http://www.savingseafood.org/washington/dr.-brian-rothschild-testimony-on-catch-shares-4.html>

<sup>13</sup> Saving Seafood. "Catch shares cut New England fleet in half; New Bedford mayor to convene council meeting." Dec 9, 2010. <http://www.savingseafood.org/state-and-local/catch-shares-cut-new-england-fleet-in-half-new-bedford-mayor-to-convene-council-me-4.html>

<sup>14</sup> All from NOAA Fisheries Office of Sustainable Fisheries. Current Catch Share Program Spotlights. Available at [http://www.nmfs.noaa.gov/sfa/domes\\_fish/catchshare/index.htm](http://www.nmfs.noaa.gov/sfa/domes_fish/catchshare/index.htm)

except for Surf clam, from NOAA's Status of Fishery Resources off the Northeastern US: Atlantic Surfclam. <http://www.nefsc.noaa.gov/sos/spsyn/iv/surfclam/> and Ocean Quahog, from NOAA's Status of Fishery Resources off the Northeastern US: Ocean Quahog, <http://www.nefsc.noaa.gov/sos/spsyn/iv/quahog/>

<sup>15</sup> This number varies between fisheries. For the New England groundfish fishery, each boat is estimated to have 3 to 5 jobs available, while for the Alaska King crab and snow crab fishery, an average of 5 to 6 jobs are available. Saving Seafood. "Catch shares cut New England fleet in half; New Bedford mayor to convene council meeting." Dec 9, 2010.

<http://www.savingseafood.org/state-and-local/catch-shares-cut-new-england-fleet-in-half-new-bedford-mayor-to-convene-council-me-4.html> Also, see Knapp, Gunnar.

"Economic Impacts of BSAI Crab Rationalization on Kodiak Fishing Employment and Earnings and Kodiak Businesses. A Preliminary Analysis" Institute of Social and Economic Research, University of Alaska Anchorage. May 2006 at 21.

<sup>16</sup> Calculation performed by Food & Water Watch staff. NOAA reports a 70% reduction, which does not match the numbers provided.

<sup>17</sup> Calculation performed by Food & Water Watch staff.

<sup>18</sup> Calculation performed by Food & Water Watch staff.

<sup>19</sup> Calculation performed by Food & Water Watch staff.

<sup>20</sup> Calculation performed by Food & Water Watch staff. NOAA reports a 74% reduction, which does not match the numbers provided.

<sup>21</sup> Calculation performed by Food & Water Watch staff. NOAA reports a 40% reduction, which does not match the numbers provided.

<sup>22</sup> Gaines, Richard. "NOAA chief: System not causing job loss." *The Gloucester Times*. Dec 16, 2010. <http://www.gloucestertimes.com/local/x1707767675/NOAA-chief-System-not-causing-job-loss>

<sup>23</sup> For an example of such claims, see: Environmental Defense Fund. "What do catch shares mean for fishing jobs and fishing fleets?" Accessed on Feb 4, 2011; page last updated October 28, 2009; available at <http://www.edf.org/page.cfm?tagid=48874>

<sup>24</sup> Pinkerton, Evelyn, et al. "The elephant in the room: The hidden costs of leasing individual transferable fishing quota." *Marine Policy*. 2009 at 5.

<sup>25</sup> Pinkerton, Evelyn, et al. "The elephant in the room: The hidden costs of leasing individual transferable fishing quota." *Marine Policy*. 2009 at 5.

<sup>26</sup> Pinkerton, Evelyn, et al. "The elephant in the room: The hidden costs of leasing individual transferable fishing quota." *Marine Policy*. 2009 at 5.

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