Supplemental Economic Impacts for Summer Flounder Commercial Issues Amendment

Provided by the Northeast Fisheries Science Center Social Sciences Branch

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Section 1: Non-Qualifying MRIs: Activity and Revenue by Species

In analyzing the economic impacts of the requalification alternatives, it is important to consider how dependent vessels are on summer flounder for their fishing revenue. Below is a breakdown of activity levels and revenue dependency on summer flounder for moratorium right IDs (MRIs) that did not meet the requalification criteria under the various alternatives. The focus is on non-qualifiers since those qualifying MRIs would not be affected. MRIs are associated with different permits over time.[1] Vessel revenue in 2017 is presented here for vessels that have been attached to the same non-qualifying MRI since the start of 2017.

A large number of permits associated with MRIs that did not meet requalification criteria also did not actively fish during 2017; roughly 60% of non-requalifying MRIs were active under all seven alternatives (Table 1). Of those that were active, the vast majority did not fish for summer flounder in 2017 (3.9% - 12.0% of active non-requalifying MRIs were active in the fluke fishery; Table 2). Of those that did fish for summer flounder in 2017, a relatively small percentage of revenue was associated with summer flounder (2.8-8.5%). Nevertheless, some vessels would have to change their fishing behavior if they failed to requalify.

Table 1: Activity of non-qualifying MRIs in any fishery during 2017.

Alternative	# Non-Qualifying MRIs	# Attached to same permit since start of 2017	# Active in any fishery in 2017	# Inactive in 2017	% Active in any fishery in 2017
1b-1	516	471	291	180	61.8%
1b-2	448	409	237	172	57.9%
1b-3	389	355	221	134	62.3%
1b-4	306	281	165	116	58.7%
1b-5	295	273	174	99	63.7%
1b-6	271	254	157	97	61.8%
1b-7	233	213	129	84	60.6%

[1] When permit history is transferred from one vessel to another (e.g., via a vessel replacement), the MRI(s) associated with Vessel A would be transferred to Vessel B, even though the vessel permit numbers would stay the same for each vessel and would not transfer. For this reason, a single vessel (identified through its permit number) may be associated with multiple MRIs for summer flounder over time. The requalification criteria are evaluated at the MRI level, rather than the vessel permit level.

Table 2: Non-qualifying MRIs active in the summer flounder fishery in 2017, and revenue dependence on summer flounder.

Alternative	# Active in fluke fishery	% Active in fluke fishery (relative to all non-requalifying MRIs actively fishing in 2017)	Avg. fluke revenue	Avg. total revenue	Percent revenue from fluke
1b_1	35	12.0%	$32,973	$731,940	4.5%
1b_2	19	8.0%	$48,306	$713,012	6.8%
1b_3	16	7.2%	$27,072	$831,898	3.3%
1b_4	7	4.2%	$53,930	$636,991	8.5%
1b_5	9	5.2%	$24,614	$752,186	3.3%
1b_6	10	6.4%	$22,793	$807,745	2.8%
1b_7	5	3.9%	$24,105	$382,190	6.3%

Section 2: Regional Revenues and Prices

Under re-allocation scenarios, revenues and costs to the summer flounder fleet (those holding summer flounder permits) are expected to change. These changes are very difficult to predict for alternatives 2C and 2D, due to potential annual variation in allocation under alternative 2C and the unknown effects of coastwide allocation periods under alternative 2D.

For alternative 2B, changes in price and revenue are estimated by plotting prices vs. quantities landed by region for each year, 2007-2016. The data points are then fitted with a simple linear regression line. As one would expect, higher quantities landed result in lower prices for both the Northern (Maine through New York) and Southern (New Jersey through North Carolina) regions (Figure 1 and Figure 2). The curve is steeper (more negative slope) for the Northern Region suggesting that ex-vessel price decreases at a slightly faster rate with quantity landed increases than for Southern Region landings. The higher intercept for the Northern Region however indicates that starting price (when landings=0) is higher than for the Southern Region. The linear regression line fits the data quite well in both cases, but more so for the Northern Region (as indicated by the R-squared values).

It is worth noting that landings for the Northern Region are under 6 million lbs. in each year, while they are above 6 million lbs. in each year (except 2016) for the Southern Region. Therefore, if the price-quantity relationship fundamentally changes between the existing Northern landings range and Southern landings range, the regressions will be unable to detect this. Since the current allocations have been in place since 1993, including more years of data would also not solve this issue.

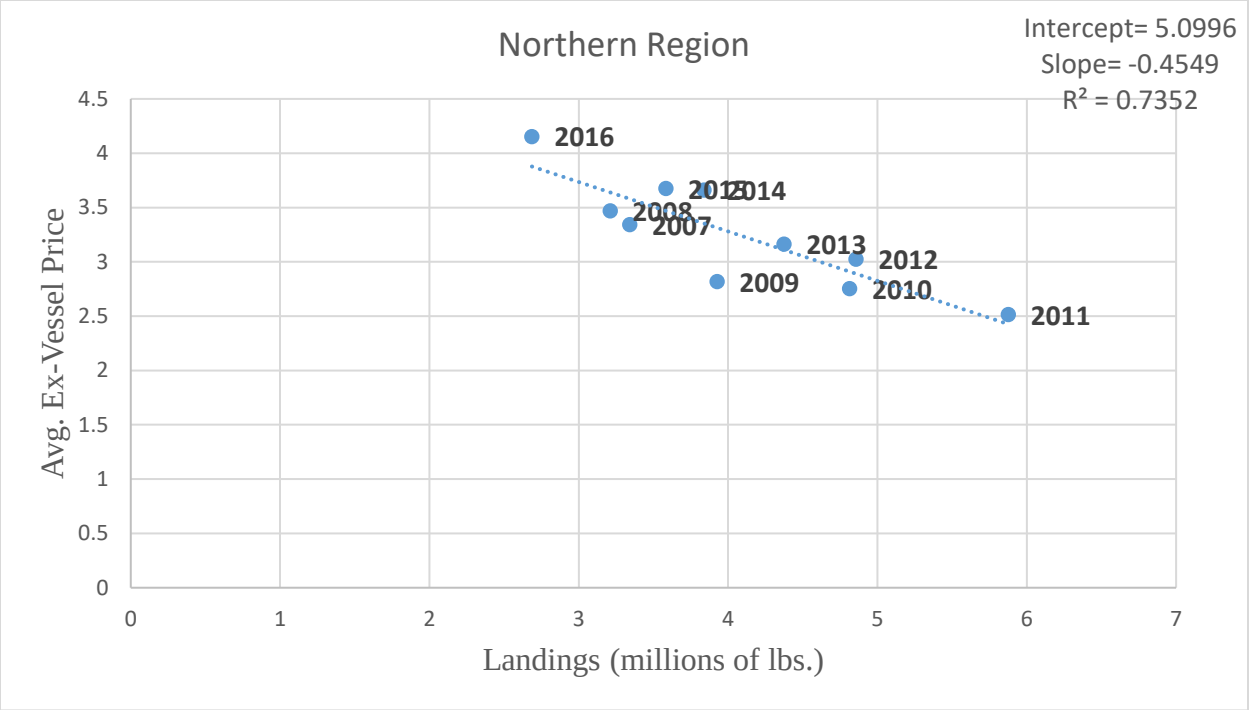

Figure 1: Price-Quantity relationship for summer flounder landed in the Northern Region, 2007-2016.

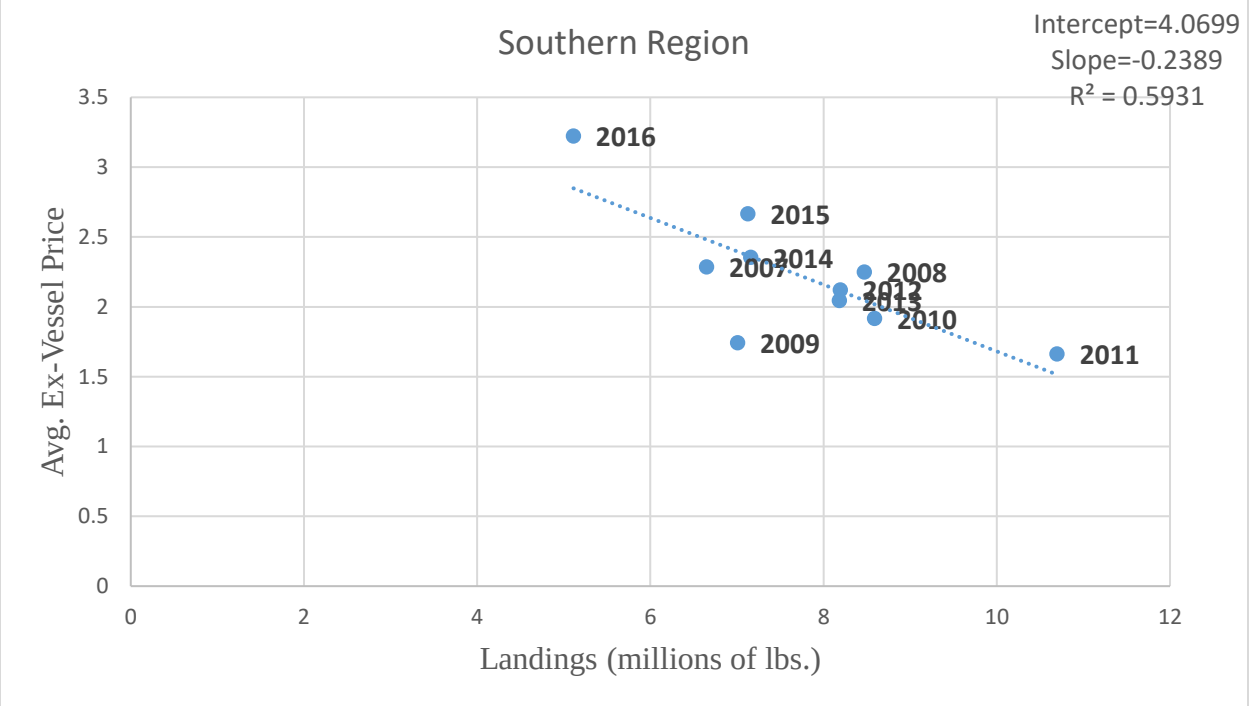

Figure 2: Price-Quantity relationship for summer flounder landed in the Southern Region, 2007-2016.

Overall changes in price and revenue are analyzed using a hypothetical 2019 quota that is

1. Equal to the 2018 quota, with *status quo* allocations
2. Alternative 2B1: 9.1% lower for Southern states and 19% higher for Northern states
3. Alternative 2B2: 19.2% lower for Southern states and 40.1% higher for Northern states

Landings for each state are assumed to be equal to that state's quota. This is based on the fact that of the 8 states who receive at least 1% of the commercial quota, 6 of them landed at least 90% in each of the last five years (2013-2017). The two states that did not reach 90% in each year were Virginia (which received 85% in each year) and Maryland (that reached 65% each year).

Overall, reallocation scenarios have little impact on fleet-wide revenue (Table 3). Aggregate revenue is estimated to increase by $0.3 million under Alternative 2B1 and by $0.5 million under Alternative 2B2. An important caveat to these results, in addition to the fact that these results are estimated off a linear regression which obviously does not fit the data perfectly, is a possible substitution effect. Landings of other species, as well as imported products, have an impact on summer flounder ex-vessel prices. These price interactions, while important, are highly involved and are beyond the simplified analysis presented here. Further research on product substitution and import effects is warranted.

Table 3: Estimated Regional Prices and Ex-Vessel Revenue under Alternative 2B Reallocation Scenarios compared to *status quo*, 2016 USD, using 2018 as the basis for the coastwide commercial quota in each scenario.

Alternative	Aggregate Quota for North	Aggregate Quota for South	North Price	South Price	Aggregate Revenue
SQ (2018)	2,059,114	4,328,627	$4.16	$3.04	$21,712,711
Alternative 2B1	2,450,346	3,934,722	$3.98	$3.13	$22,079,741
Alternative 2B2	2,884,819	3,497,531	$3.79	$3.23	$22,237,865

The size of summer flounder landed can also have an impact on ex-vessel price. During 2007-2016, summer flounder landed in the North Region more frequently fit into the jumbo and unclassified categories, while summer flounder landed in the South Region more frequently fit into the medium and large categories (Figure 3). Based on these percentages alone, it is not possible to tell if fish landed in the North Region are larger (or smaller) on average than those landed in the South. Dealers also do not have universal size standards for market categories (e.g. a medium summer flounder landed in New York may not follow the same size criteria as a medium summer flounder landed in North Carolina).

Figure 3. Summer flounder landings by market category for the Northern and Southern Regions.

Section 3: Operating Costs and Net Revenue

Ex-vessel revenue can be better put into context by incorporating trip-level expenses (operating costs). This section summarizes trip-level averages on an annual basis for ex-vessel revenue, operating costs, and net revenue. Data is presented for all years in which trip cost estimations are available (2007-2015). All commercial trips that reported landings of summer flounder on their federal VTR were retrieved for these nine years. Trips were then merged with a trip cost estimation model developed by economists at the Northeast Fisheries Science Center Social Sciences Branch. The model estimates all components of operating cost (fuel, bait, ice, oil, etc.) from sample data collected by at-sea observers in the northeast region. Costs are estimated based on trip type, gear, and seasonality.[2] After incorporating operating costs, dealer data was merged for the purposes of calculating ex-vessel revenue and net revenue per trip. Trip-level averages by region for 2007-2015 are given in Table 4 and Table 5.

The number of trips and the nature of trips catching summer flounder in the two regions is substantially different. There are far more trips taken in the Northern Region, though these trips are about half the length of Southern Region trips on average. With shorter trips on average, it is not surprising that summer flounder revenue and total revenue per trip are also lower for trips landing in the Northern Region, on average. Summer flounder also comprises a lower proportion of total revenue in the Northern Region. Average operating costs per trip are lower in the North, as are net revenues per trip, though total net revenues across all trips for the nine-year period are very close. The substantial differences in trip-level metrics are likely a product of multiple factors. Allocations (and thus state quotas) for summer flounder are cumulatively higher in the South, allowing for larger trip limits and potentially more trips that strictly target summer flounder. Longer trips for Southern landing trips may be associated with larger vessels that are able to fish further offshore.

[2] The trip cost estimation model will be available in further detail in a forthcoming publication Werner, DePiper, Jin, and Kitts (2018). “Estimation of Commercial Fishing Trip Costs Using Sea Sampling Data”.

Table 4: Northern Region trip-level data (for all trips reporting summer flounder landings), costs and revenues in 2016 USD.

Year	# of Trips	Avg. Trip Length (days absent)	Total Days Absent	Fluke Revenue Per Trip	Total Revenue per Trip	Operating Costs per Trip	Net Revenue per Trip	Total Net Revenue (all trips)
2007	8,679	0.91	7,921	$690	$4,098	$1,474	$2,623	$22,768,905
2008	9,183	0.88	8,080	$657	$3,746	$1,853	$1,892	$17,376,688
2009	9,541	0.93	8,866	$720	$3,610	$1,117	$2,493	$23,788,863
2010	11,198	0.84	9,432	$802	$3,532	$1,109	$2,423	$27,130,467
2011	11,943	0.91	10,904	$888	$5,027	$1,423	$3,605	$43,050,735
2012	11,057	0.93	10,279	$917	$5,149	$1,421	$3,729	$41,227,510
2013	11,183	0.88	9,850	$862	$4,029	$1,375	$2,654	$29,674,657
2014	10,721	0.93	9,945	$814	$4,692	$1,320	$3,372	$36,154,849
2015	10,528	0.95	10,022	$824	$4,627	$999	$3,627	$38,186,232
Total	***94,033***	***0.91***	***85,299***	***$752***	***$4,025***	***$1,241***	***$2,783***	***$279,358,906***

Table 5: Southern Region trip-level data (for all trips reporting summer flounder landings), costs and revenues in 2016 USD.

Year	# of Trips	Avg. Trip Length (days absent)	Total Days Absent	Fluke Revenue Per Trip	Total Revenue per Trip	Operating Costs per Trip	Net Revenue per Trip	Total Net Revenue (all trips)
2007	4,151	1.57	6,526	$2,590	$7,979	$2,772	$5,207	$21,613,461
2008	3,188	1.80	5,747	$3,647	$11,442	$3,700	$7,742	$24,681,890
2009	4,168	1.66	6,913	$2,154	$9,373	$2,211	$7,162	$29,851,262
2010	4,174	1.80	7,524	$3,204	$11,675	$2,851	$8,824	$36,832,884
2011	4,647	1.67	7,773	$3,261	$10,922	$2,895	$8,028	$37,304,787
2012	4,281	1.83	7,826	$3,830	$12,700	$3,247	$9,453	$40,467,166
2013	3,925	1.87	7,337	$4,031	$11,827	$3,291	$8,536	$33,502,068
2014	3,372	1.98	6,676	$4,750	$11,157	$3,203	$7,954	$26,821,727
2015	2,859	2.09	5,968	$6,312	$11,675	$2,415	$9,260	$26,473,682
Total	***34,765***	***1.79***	***62,289***	***$3,398***	***$10,166***	***$2,733***	***$7,433***	***$277,548,927***