

1.1 ECONOMIC IMPACTS

1.1.1 No Action and Status Quo

No action could be defined as the continuation of all the measures including the open area DAS and access area trip allocations as specified in the present regulations (Framework 19). Thus, under no action the measures from the most recent year shall continue. The full-time limited access vessels will get 42 DAS and 4 access area trips assuming that general category IFQ program is implemented. A full description of the no action (status quo) alternative is provided in Section 2.2.1. Although, biological projections do not include biomass and landings estimates for the “No Action”, this scenario is expected to result in less than optimal long-term landings and economic benefits compared to the alternatives included in this Framework. This is because “No Action” would allocate 3 trips to ETA, which is higher than the projected biomass in that area can support and no access into areas on GB while the biomass in those areas can support one trip. Under “No Action” open area DAS allocations would also be higher than sustainable levels because the present conditions of biomass in those areas were not taken into account. As a result, in the short-term, i.e., in 2010 fishing year, landings, revenues and economic benefits with no action could exceed landings and economic benefits for the status quo (NCLF20) and for no-closure high F (NCLF24) alternatives since open area DAS allocations would be larger in 2010 with “No Action”. On the other hand, more open area DAS is allocated with the new closure options (CLF24 and CLF18), thus, no action landings, revenues and economic benefits could be less compared to these alternatives. Over the long-term, however, landings, revenues, producer and consumer surpluses and total economic benefits under “No Action” would fall short of the levels corresponding to all of the other alternatives considered in this Framework because of the suboptimal allocation of open area DAS and access area trips.

This action also includes a status quo option (NCLF20), *which for practical purposes is No Action* in terms of how the Council would set specifications. Specifically, status quo would maintain the same approach the Council has used in recent years by setting specifications (access area trips and DAS allocations) equal to an overall $F=0.20$ to prevent overfishing and account for uncertainty in projections and management measures in the fishery. Status quo for this action is considered to be the scenario that has an overall fishing mortality of 0.20 and does not include a new closure in the Channel (NCLF20). Therefore, this scenario is considered as the baseline, which provides the standard against which all other alternative actions are compared in terms of the economic impacts. Specifically, under “Status quo,” in open areas, full-time limited access scallop vessels would receive an allocation of 29 days-at-sea. There will be 4 access area trip allocations including one trip for Nantucket Lightship, one trip for Delmarva and 2 trips for the Elephant Trunk Area.

The economic impacts of the status quo scenario were analyzed in Section 1.2 relative to the impacts of the alternatives described in Section 2.0.

1.2 AGGREGATE ECONOMIC IMPACTS OF THE FRAMEWORK 21 ALTERNATIVES

The section provides a cost/benefit analysis of the allocation alternatives proposed by the Council through Framework Action 21 to the Sea Scallop FMP including the status quo option as defined above in Section 1.1. The economic impacts of the proposed alternatives are compared with the impacts of “No Action” scenario qualitatively. For the quantitative cost/benefit analyses, the baseline is defined as the “status quo” option (NCLF20) for the reasons explained above (Section 1.1). In addition to the status quo option, 3 other scenarios are under consideration, 2 that propose closing a new area in the South Channel for area rotation (CLF18 and CLF24) and another without (NCLF24) at different overall F values. The following sections analyze the aggregate impacts of these options on landings, effort, revenues, fishing costs, consumer and producer surpluses and net economic benefits.

1.2.1 Summary of overall economic impacts of the alternatives

The short-term and long-term economic impacts of the alternatives considered in this Framework could be summarized as follows:

- In the short-term, i.e., in 2010 fishing year, landings, revenues and economic benefits for the status quo (NCLF20) and for no-closure high F (NCLF24) could fall short of landings and economic benefits for the ‘No Action’ alternative. This is because “No Action” open area DAS allocations would be higher than the allocations proposed for NCLF20 and NCLF24 alternatives, resulting in higher landings from open areas in 2010, while all the alternatives would provide 4 access area trips although to different areas. On the other hand, more open area DAS is allocated with the new closure options (CLF24 and CLF18), thus, revenues and economic benefits for these options could be higher than the No Action levels.
- Over the long-term, however, landings, revenues, producer and consumer surpluses and total economic benefits for the status quo and other proposed alternatives are expected to exceed the “No Action” levels. This is because No Action results in suboptimal allocation of open area DAS and access trips because the present biomass conditions are different compared to the time when allocations were made in Framework 19. For example, No Action would allocate 3 trips to ETA, which is higher than the projected biomass in that area can support and no access into areas on GB while the biomass in those areas can support one trip. Under “No Action” open area DAS allocations would also be larger than optimal. Therefore, there will be negative impacts on the biomass resulting in lower yield and economic benefits over the long-term.
- Under the status quo alternative, the landings (42 million lb.) will be less than the levels estimated for the other alternatives in the short-term, i.e., during 2010 fishing year (Table 1). This is because open area DAS allocations will be smaller under the status quo compared to the other options. In 2011 and 2012, however, status quo landings are expected to increase 62 million lb. and to 69 million lb. respectively, exceeding the levels for all the other alternatives. Similarly, over the long-term, the status quo landings are expected to be higher than landings

compared to the other alternatives if year 2010 is not included. Because the alternative with new closure and low fishing mortality (F=0.18) results in higher landings in 2010 and similar levels of landings during the rest of the period, the sum of landings over the 2010-2016 and longer period including 2023 are slightly higher for this alternative compared to the sum status quo landings.

Table 1. Estimated Landings (million lbs.)

FISH YEAR	STATUS QUO	NO CLOSURE F=0.24	CLOSURE WITH HIGH F	CLOSURE WITH LOW F
2010	42	47	54	49
2011	62	60	57	59
2012	69	66	58	61
2013	65	63	64	66
2014	67	65	66	69
2015	65	64	66	68
2016	61	61	62	63
2010-2016 Subtotal for the period	431	426	427	436
2017	66	65	64	65
2018	65	65	62	65
2019	58	58	55	57
2020	65	64	63	64
2021	65	64	65	65
2022	57	56	57	57
2023	64	64	64	64
2017-2023 Subtotal for the period	439	436	430	437
2010-2023 Grand Total	870	863	857	873

- As a result, revenues, producer and consumer surpluses and total economic benefits for the status quo (NCLF20) will be lower than the levels for other alternatives in the short-term (year 2010, Table 4, Table 10 to Table 13), but will exceed the levels for other alternatives in the long-term with the exception of the new Closure alternative with low F. The alternative with new closure and low F (CLF18) results in slightly higher overall long-term benefits (Table 2).

Table 2. Long-term cumulative present value of scallop revenue, producer and consumer surpluses and economic benefits (million \$, in 2008 inflation adjusted prices, discount rate of 7%)

Period	Data	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010-2016	Present value of scallop revenue	2523.0	2505.9	2506.1	2551.4
	Difference from Status quo		-17.0	-16.9	28.4
	% Difference from Status quo		-0.68%	-0.67%	1.13%
2010-2016	Present value of producer surplus	2226.5	2209.0	2201.3	2245.2
	Difference from Status quo		-17.5	-25.2	18.7
	% Difference from Status quo		-0.79%	-1.13%	0.84%
2010-2016	Present value of consumer surplus	168.4	167.9	167.8	171.9
	Difference from Status quo		-0.5	-0.6	3.5
	% Difference from Status quo		-0.29%	-0.34%	2.06%
2010-2016	Present value of total economic benefits	2395.0	2377.0	2369.2	2417.1
	Difference from Status quo		-18.0	-25.8	22.1
	% Difference from Status quo		-0.75%	-1.08%	0.92%

- In the short-term, high F alternatives (NCLF24 and CLF24) result in higher landings, revenues, and total economic benefits. Over the long-term, the reverse is true. The long-term landings, the cumulative present value of revenues and economic benefits of the low-F options (NCLF20 and CLF18) are greater than the levels for the high F options (Table 2).
- The alternative with new closure and low F (CLF18) is estimated to increase scallop revenues by 28.4 and total economic benefits by \$22.1 million in the long-term for the period from 2010-2016 compared to the status quo option (Table 2). The high F options will reduce the total economic benefits by \$25.8 million (CLF24) and by \$18.0 million (NCLF24) during the same period. If 2010 is not included, however, status quo alternatives results in larger economic benefits compared to the all other options. For example, for the 2010-2016 period, total scallop landings for the status quo are 431 million pounds and total scallop landings for the CLF18 are 436 million pounds. This difference of 5 million lb. is mostly due to the higher landings in 2010 with the CLF18 option (7 million lb. higher), thus, landings and economic benefits would be higher for the status quo for the period 2011-2016. Nevertheless, the difference in the economic benefits of the status quo option (NCLF20) and the new closure with F (CLF18) are quite small over the long-term.

A detailed analysis of the short-term and long-term economic impacts is provided in Section 1.2.2 to 1.2.6 below.

1.2.2 Impacts of Framework 21 alternatives on prices, revenues and revenues

In the short-term, i.e., in 2010 fishing year, prices will be slightly higher and revenues will be lower for the status quo (NCLF20) option compared to the other options because landings with status quo measures will be lower than the levels for other options (Table 3 to Table 6).

Long-term economic benefits are measured by the present value of cumulative benefits by applying a 7% discount rate. For this reason, the sum of revenues over the long-term periods is lower than the sum of undiscounted yearly revenues. Over the period 2010-2016, the cumulative present value of revenues for the new closure (CLF18) option is estimated to be \$28.1 million larger and the revenues with High-F options will be about \$17 million less than the than the status quo option (Table 6). This is mostly because of the higher landings and revenues for the CLF18 option in 2010 compared to status quo. Over the longer-term, 2010 to 2023, the differences in the cumulative present value of revenues for these four options are expected to be small. Nevertheless, long-term the status quo revenues are expected to be slightly higher than the revenues for other options (Table 6).

Table 3. Estimated Prices (estimate in inflation adjusted 2008 prices)

FISH YEAR	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010	7.31	7.27	7.25	7.28
2011	7.18	7.19	7.20	7.20
2012	7.13	7.15	7.18	7.17
2013	7.16	7.18	7.17	7.16
2014	7.16	7.17	7.17	7.16
2015	7.18	7.18	7.18	7.16
2016	7.19	7.20	7.19	7.18
2017	7.19	7.19	7.19	7.19
2018	7.19	7.19	7.20	7.20
2019	7.21	7.21	7.21	7.21
2020	7.20	7.20	7.20	7.20
2021	7.20	7.19	7.19	7.20
2022	7.21	7.21	7.21	7.20
2023	7.20	7.20	7.20	7.21

Note: Projections assume that the disposable per capita income, the import prices will stay constant at their 2008 level and scallop exports constitute 45% of the domestic landings. The price model projections are adjusted down by 10% to have estimates comparable to the current levels.

Table 4. Estimated Scallop Revenue (in Million \$ and 2008 prices)

FISH YEAR	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010	304	344	388	358
2011	447	435	412	424
2012	490	472	416	437
2013	465	449	457	476
2014	482	470	474	491
2015	469	460	473	490
2016	439	436	447	455
2017	474	465	460	470
2018	468	466	448	468
2019	416	418	399	411
2020	465	462	456	462
2021	467	462	465	468
2022	411	404	410	408
2023	459	462	461	462

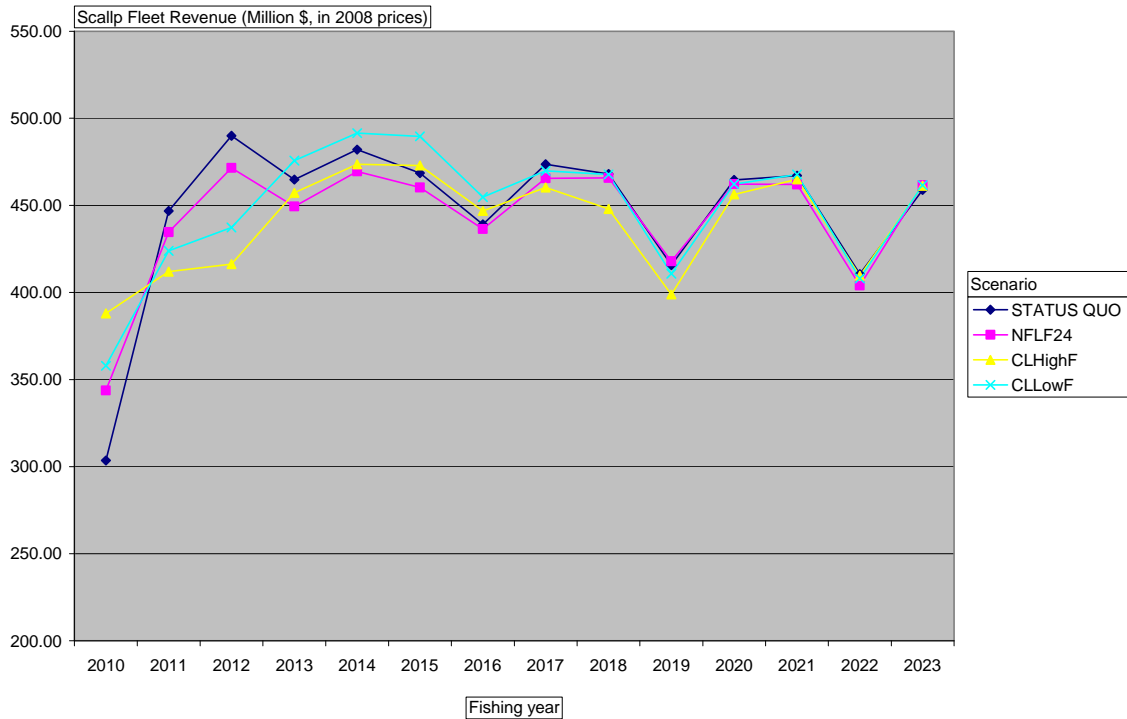
Table 5. Change in Scallop Revenue Compared to STATUS QUO (in Million \$ and 2008 prices)

FISH YEAR	NO CLOSURE F=0.24	CLOSURE WITH HIGH F	CLOSURE WITH LOW F
2010	40.2	84.4	54.3
2011	-12.2	-34.8	-22.9
2012	-18.4	-73.7	-52.7
2013	-15.4	-7.6	10.9
2014	-12.4	-8.4	9.5
2015	-8.3	4.3	21.1
2016	-2.7	7.6	15.6
2017	-8.1	-13.4	-3.7
2018	-2.2	-20.0	-0.1
2019	2.2	-16.8	-4.9
2020	-2.4	-8.3	-2.3
2021	-5.0	-2.1	0.7
2022	-6.6	-1.0	-2.5
2023	2.8	2.5	2.7

Table 6. Cumulative present value of scallop revenue by period (million \$, in 2008 inflation adjusted prices, discount rate of 7%)

Period	Data	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010-2016	Present value of scallop revenue	2523.0	2505.9	2506.1	2551.4
	Difference from Status quo		-17.0	-16.9	28.4
	% Difference from Status quo		-0.68%	-0.67%	1.13%
2017-2023	Present value of scallop revenue	1624.2	1613.7	1590.5	1618.4
	Difference from Status quo		-10.5	-33.7	-5.9
	% Difference from Status quo		-0.65%	-2.08%	-0.36%
2010-2023	Present value of scallop revenue	4147.2	4119.6	4096.6	4169.8
	Difference from Status quo		-27.5	-50.6	22.6
	% Difference from Status quo		-0.66%	-1.22%	0.54%

Figure 1. Projected Scallop Revenue



1.2.3 Impacts of Framework 21 alternatives on effort and fishing costs

Total effort measured in terms of DAS-used as a sum total of all areas is expected to be smaller in 2010 for the Status Quo (22,053 DAS) compared to the other options. As a result, status quo trip costs (about \$35 million) will be lower compared to the costs with other options (ranging from \$41 million to 51 million in 2010, Table 9). Total DAS-used and trip costs with the closure alternatives are expected to be higher than the no-closure options both in 2010 and over long-term (Table 7).

Table 7. Estimated DAS-used (All areas)

FISH YEAR	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010	22,053	25,740	32,020	28,189
2011	31,521	30,676	30,760	31,559
2012	35,264	34,250	33,579	34,703
2013	33,810	32,838	32,807	34,031
2014	35,331	34,684	34,087	35,155
2015	35,004	34,560	34,509	35,556
2016	35,181	34,991	34,529	35,165
2010-2016 Subtotal for the period	228,164	227,739	232,291	234,358
2017	36,385	35,809	35,117	35,858
2018	36,172	36,261	34,573	36,224
2019	35,050	35,183	34,005	34,685
2020	36,407	36,084	36,083	36,226
2021	36,636	36,430	36,880	36,906
2022	35,594	35,442	35,765	35,628
2023	36,520	37,238	36,845	36,680
2017-2023 Subtotal for the period	252,764	252,447	249,268	252,207
2010-2023 Grand total	480,928	480,186	481,559	486,565

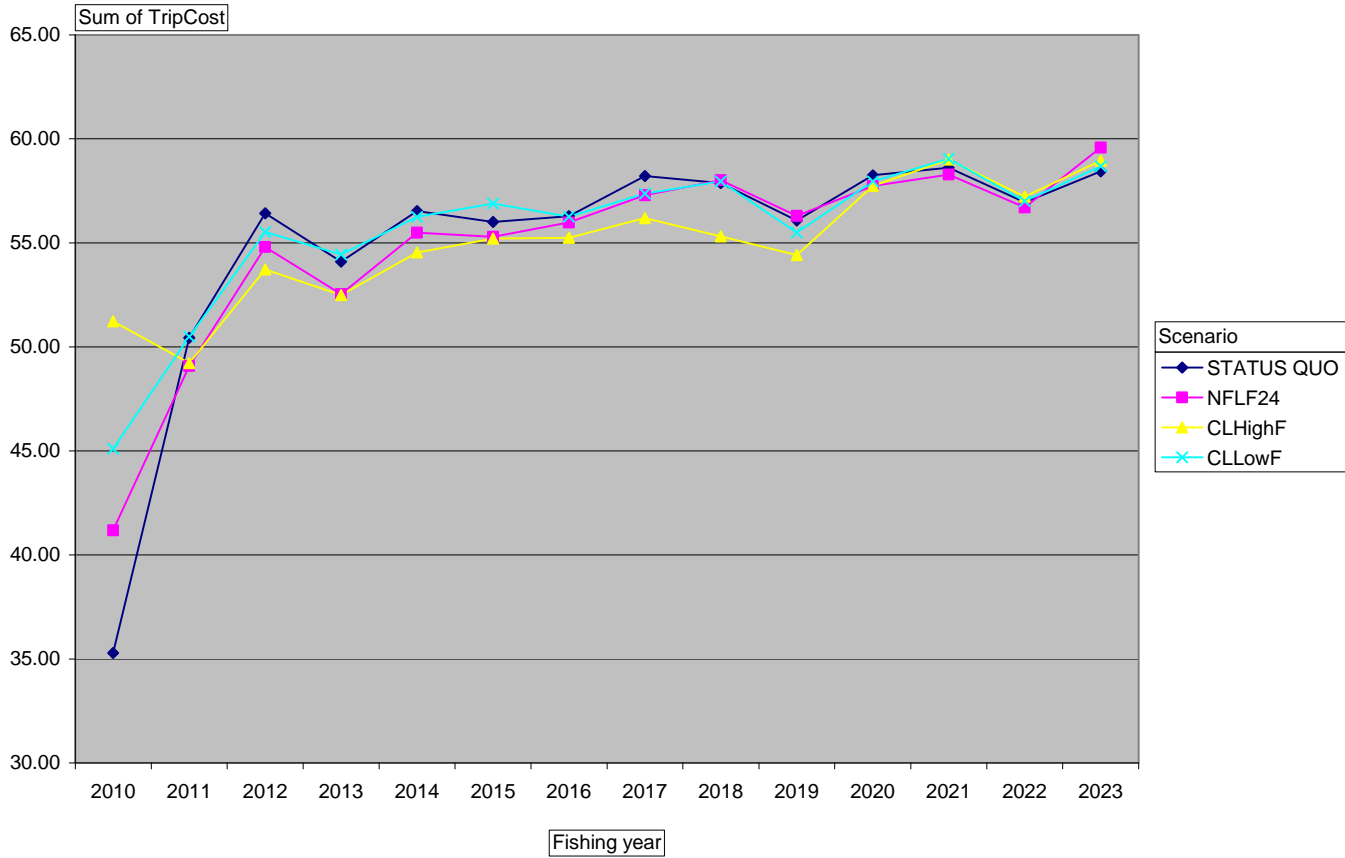
Table 8. Estimated open area DAS-used per full-time vessel

FISH YEAR	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010	29	38	51	42
2011	30	29	27	28
2012	43	40	27	29
2013	29	27	27	29
2014	27	25	28	29
2015	26	24	28	29
2016	28	27	33	34
2010-2016 Average for the period	30	30	32	31
2017	24	24	24	24
2018	24	24	24	23
2019	27	27	26	26
2020	23	23	23	23
2021	23	24	23	23
2022	27	27	27	27
2023	24	23	23	24
2017-2023 Average for the period	24	24	24	24
2010-2023 Average	27	27	28	28

Table 9. Estimated Trip Costs (Million \$, in 2008 prices)

FISH YEAR	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010	35.28	41.18	51.23	45.10
2011	50.43	49.08	49.22	50.49
2012	56.42	54.80	53.73	55.52
2013	54.10	52.54	52.49	54.45
2014	56.53	55.49	54.54	56.25
2015	56.01	55.30	55.21	56.89
2016	56.29	55.99	55.25	56.26
2017	58.22	57.29	56.19	57.37
2018	57.88	58.02	55.32	57.96
2019	56.08	56.29	54.41	55.50
2020	58.25	57.73	57.73	57.96
2021	58.62	58.29	59.01	59.05
2022	56.95	56.71	57.22	57.00
2023	58.43	59.58	58.95	58.69

Figure 2. Estimated Trip Costs (Million \$, in 2008 prices)



1.2.4 Impacts of Framework 21 alternatives on producer benefits

Producer surplus for a particular fishery shows the net benefits to harvesters, including vessel owners and the crew, and is measured by the difference between total revenue and operating costs. Because the landings and revenue will be lower with the status quo option in 2010 compared to the other options, producer surplus will be lower as well (Table 10). Status quo producer benefits are expected to exceed the benefits for other options during the next two years (2011-2012). Over the long-term, the cumulative present value of the producer benefits for the new closure option with low-F ($F=0.18$) is estimated to exceed the status benefits by \$18.7 million, while the high-F options both with no closure and new closure are estimated to result in lower producer benefits (Table 11).

Table 10. Estimated Producer Surplus: Total Revenue – Trip Costs (Million \$, in 2008 prices)

FISH YEAR	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010	268	303	337	313
2011	396	386	363	373
2012	434	417	363	382
2013	411	397	405	421
2014	425	414	419	435
2015	413	405	418	433
2016	383	380	392	398
2017	415	408	404	413
2018	410	408	393	410
2019	360	362	344	355
2020	406	404	399	404
2021	408	404	406	409
2022	354	347	352	351
2023	400	402	402	403

Figure 3. Estimated Producer Surplus: Total Revenue – Trip Costs (Million \$, in 2008 prices)

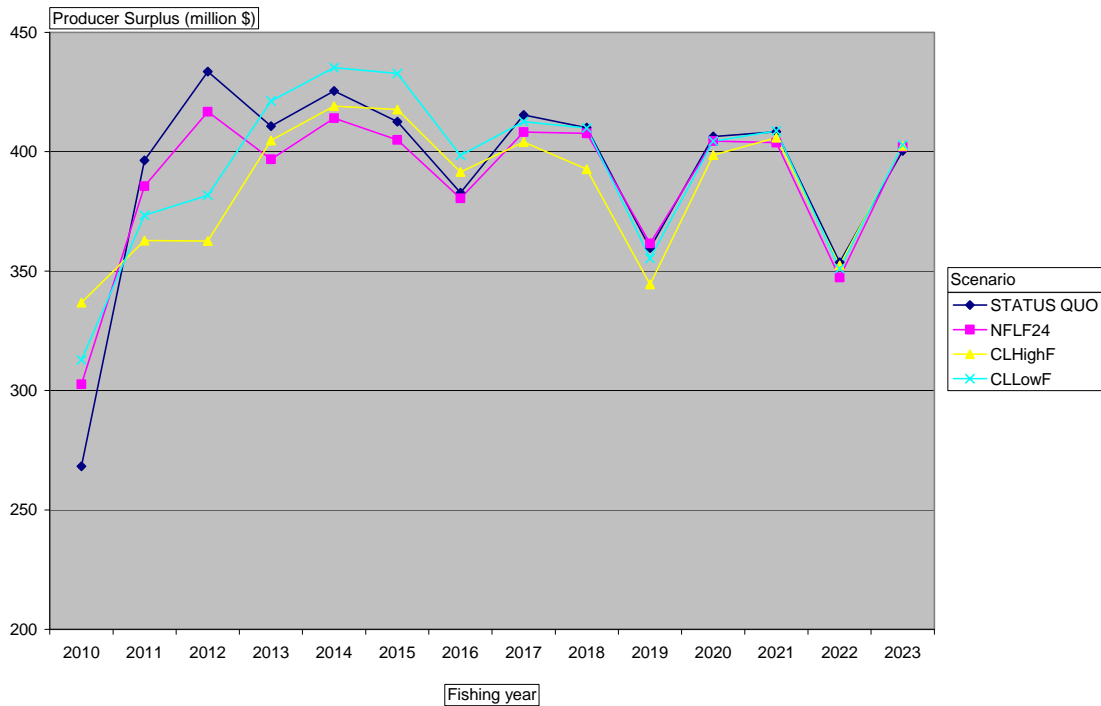


Table 11. Cumulative present value of producer surplus by period (million \$, in 2008 inflation adjusted prices, discount rate of 7%)

Period	Data	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010-2016	Present value of producer surplus	2226.5	2209.0	2201.3	2245.2
	Difference from Status quo		-17.5	-25.2	18.7
	% Difference from Status quo		-0.79%	-1.13%	0.84%
2017-2023	Present value of producer surplus	1416.8	1406.7	1386.5	1411.5
	Difference from Status quo		-10.1	-30.3	-5.3
	% Difference from Status quo		-0.71%	-2.14%	-0.37%
2010-2023	Present value of producer surplus	3643.3	3615.8	3587.8	3656.7
	Difference from Status quo		-27.6	-55.5	13.4
	% Difference from Status quo		-0.76%	-1.52%	0.37%

1.2.5 Impacts of Framework 21 alternatives on consumer benefits

Consumer surplus for a particular fishery is the net benefit that consumers gain from consuming fish based on the price they would be willing to pay for them. Consumer surplus will increase when fish prices decline and/or the amount of fish harvested go up. In the short-term (2010), the high F options are estimated to result in higher benefits compared to the low-F options (Figure 4). Over the long-term, however, the low-F options including status quo and new closure will result in higher consumer benefits due to the positive impacts on the scallop resource biomass and yield (Table 12).

Figure 4. Estimated Consumer Surplus (Million \$, in 2008 prices)

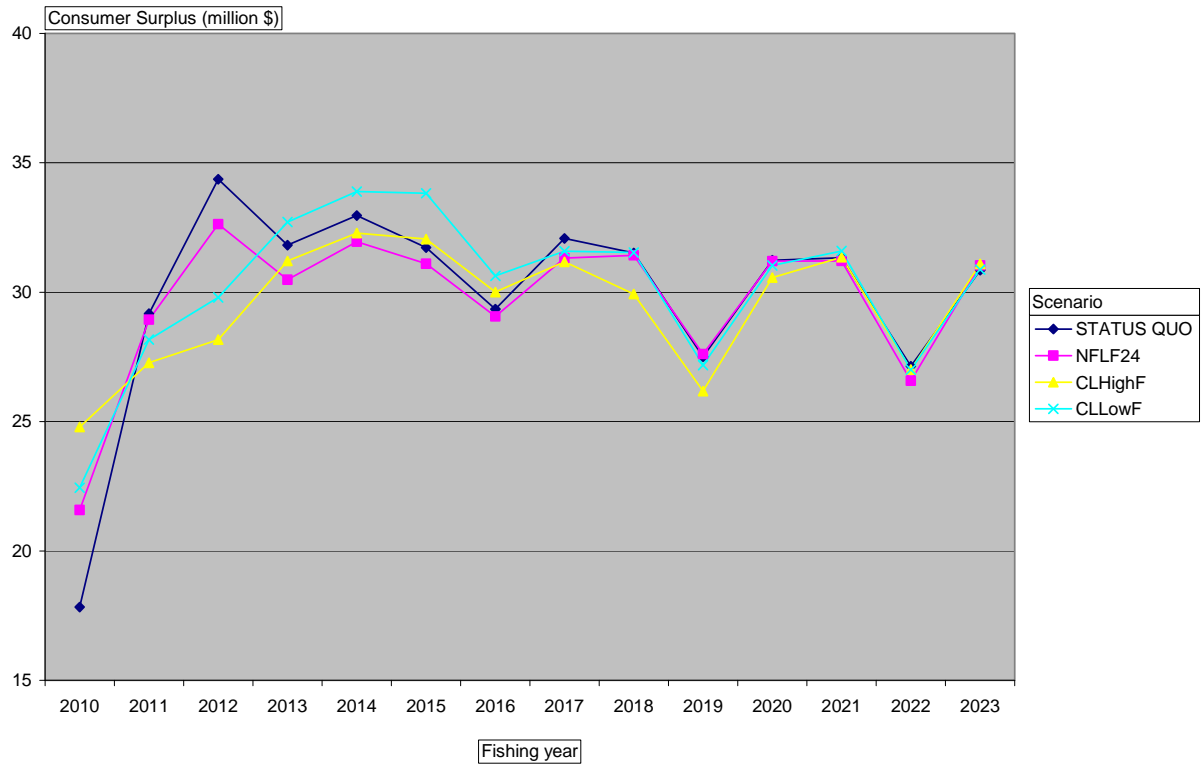


Table 12. Cumulative present value of consumer surplus by period (million \$, in 2008 inflation adjusted prices)

Period	Data	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010-2016	Present value of consumer surplus	168.4	167.9	167.8	171.9
	Difference from Status quo		-0.5	-0.6	3.5
	% Difference from Status quo		-0.29%	-0.34%	2.06%
2017-2023	Present value of consumer surplus	108.9	108.2	106.4	108.4
	Difference from Status quo		-0.7	-2.5	-0.5
	% Difference from Status quo		-0.66%	-2.30%	-0.47%
2010-2023	Present value of consumer surplus	277.3	276.1	274.2	280.3
	Difference from Status quo		-1.2	-3.1	3.0
	% Difference from Status quo		-0.44%	-1.11%	1.07%

1.2.6 Impacts of Framework 21 alternatives on total economic benefits

Economic benefits include the benefits both to the consumers and to the fishing industry and equal the sum of benefits to the consumers and producers. In the short-term, high F alternatives (NCLF24 and CLF24) result in higher landings, revenues, and total economic benefits (Table 13). Over the long-term, the reverse is true. Long-term economic benefits are measured by the present value of cumulative benefits by applying a 7% discount rate. For this reason, the sum of revenues over the long-term periods is lower than the sum of undiscounted yearly revenues. The long-term landings, revenues and economic benefits of the low-F options whether without new closure (NCLF20) or with new closure (CLF18) are greater than the levels for the high F options (Table 15).

The alternative with new closure and low F (CLF18) is estimated to increase total economic benefits by \$22.1 million in the long-term for the period from 2010-2016 compared to the status quo option (Table 13). The high F options will reduce the total economic benefits by \$25.8 million (CLF24) and by \$18.0 million (NCLF24) during the same period. If 2010 is not included, however, status quo alternative results in larger economic benefits compared to the all other options. For example, for the 2010-2016 period, total scallop landings for the status quo are 431 million pounds and total scallop landings for the CLF18 are 436 million pounds. This difference of 5 million lb. is mostly due to the higher landings in 2010 with the CLF18 option (7 million lb. higher), thus, landings and economic benefits would be higher for the status quo for the period 2011-2016. Nevertheless, the difference in the economic benefits of the status quo option (NCLF20) and the new closure with F (CLF18) are quite small over the long-term.

Table 13. Total Economic Benefits: Consumer Surplus+ Producer Surplus (Million \$, in 2008 prices)

FISH YEAR	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010	286	324	362	335
2011	426	414	390	402
2012	468	449	391	412
2013	443	427	436	454
2014	458	446	451	469
2015	444	436	450	467
2016	412	410	422	429
2017	447	440	435	444
2018	442	439	423	441
2019	387	389	371	383
2020	438	436	429	435
2021	440	435	437	440
2022	381	374	379	378
2023	431	433	434	434

Table 14. Change in Total Economic Benefits compared to STATUS QUO (Million \$, in 2008 prices)

FISH YEAR	NO CLOSURE F=0.24	CLOSURE WITH HIGH F	CLOSURE WITH LOW F
2010	38	75	49
2011	-11	-35	-24
2012	-19	-77	-56
2013	-15	-7	11
2014	-12	-7	11
2015	-8	5	22
2016	-3	9	17
2017	-8	-12	-3
2018	-2	-19	0
2019	2	-16	-5
2020	-2	-8	-2
2021	-5	-2	1
2022	-7	-1	-3
2023	2	2	2

Figure 5. Total Economic Benefits (\$ million, in 2008 prices)

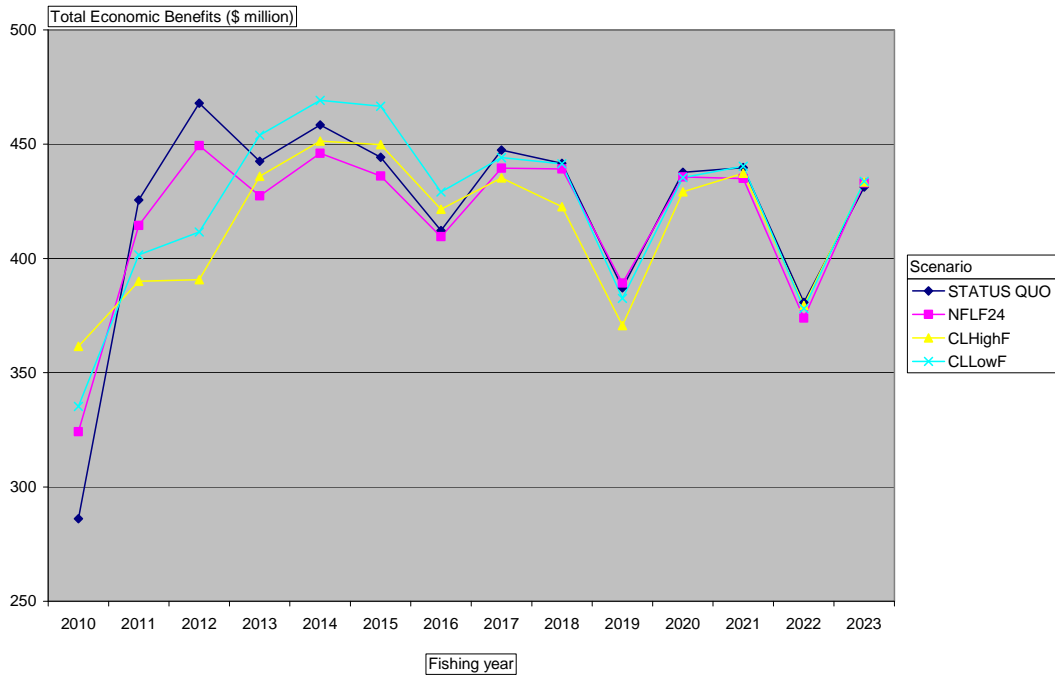


Table 15. Cumulative present value of total economic benefits by period (million \$, in 2008 inflation adjusted prices)

Period	Data	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
2010-2016	Present value of total economic benefits	2395.0	2377.0	2369.2	2417.1
	Difference from Status quo		-18.0	-25.8	22.1
	% Difference from Status quo		-0.75%	-1.08%	0.92%
2017-2023	Present value of total economic benefits	1525.7	1514.9	1492.9	1519.9
	Difference from Status quo		-10.8	-32.8	-5.8
	% Difference from Status quo		-0.71%	-2.15%	-0.38%
2010-2023	Present value of total economic benefits	3920.7	3891.9	3862.1	3937.0
	Difference from Status quo		-28.8	-58.6	16.3
	% Difference from Status quo		-0.73%	-1.49%	0.42%

1.3 ECONOMIC IMPACTS OF GENERAL CATEGORY IFQ PROGRAM

1.3.1 Economic impacts of IFQ program on the limited access and general category vessels if there is a delay in implementation

If the LAGC IFQ program is not fully implemented before March 1, 2010 the LAGC fishery is allocated 10% of the total projected scallop catch during the transition period to ITQs, compared to 5%. The FW21 management scenarios include a specific DAS allocation to the LA fishery based on that sector of the fleet being allocated 95% of the projected catch. Regulations require that if the transition period is extended for another year LA DAS must be reduced by an equivalent amount to prevent overfishing. This measure is not expected to impact the results of the cost benefit analyses presented in Section 1.2 above since there will be no change in the overall landings, revenues, producer and consumer benefits if the general category fishery scallop landings equal to their total allocation. This measure will have positive impacts on the general category vessels by doubling their net revenues and negative impacts on limited access vessels by reducing their net revenues by 5% in 2010. Table 16 shows these impacts for each of the four options considered in this framework. The revenues are estimated by removing the set-asides for observers and research. Specifically, one-percent of the estimated TAC for each access area and open area DAS would be set-aside to help fund observers and 2% of the estimated TAC for each access area and open area DAS would be set-aside to fund scallop-related research.

Table 16. The economic impacts of delay in IFQ measures on limited access and general category vessels

Year/Scenario	Data	Status quo (NCLF20)	No Closure F=0.24 (NCLF24)	New Closure (F=0.24) (CLHighF)	New Closure (F=0.18) (CLLowF)
GENERAL CATEGORY TAC 5%	Total landings after set-asides	40.3	45.9	51.9	47.7
	General category TAC (lb.)	2.0	2.3	2.6	2.4
	Limited Access Fleet Revenue	280	317	358	330
	General category Fleet Revenue	14.7	16.7	18.8	17.4
	Revenue per limited access vessel	822,793	931,762	1,051,552	970,010
	Trip costs per limited access vessel	95,632	111,621	138,854	122,241
	Net revenue per limited access vessel	727,161	820,142	912,698	847,769
GENERAL CATEGORY TAC 10%	General category TAC (lb.)	4.0	4.6	5.2	4.8
	Limited Access Fleet Revenue	265	300	339	312
	General category Fleet Revenue	29.4	33.3	37.6	34.7
	Revenue per limited access vessel	779,488	882,722	996,207	918,957
	Trip costs per limited access vessel	90,599	105,746	131,546	115,807
	Net revenue per limited access vessel	688,889	776,976	864,662	803,150
	% change in limited access net revenue per vessel with delay	-5%	-5%	-5%	-5%

1.3.2 Quarterly hard-TAC for transition period to IFQ

The economic impacts of 10% TAC for the transition period were analyzed in Amendment 11 and Framework 19. The economic impacts of the level of general category TAC as determined in this action are within the range of impacts analyzed in Amendment 11 (Sections 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11) and Framework 19 (Section 5.4.10, 5.4.10.1.2). Under the status quo alternative, total TAC for the general category fishery would be about 4.0 million pounds in 2010 and will vary between 4.6 million pounds (NCLF24) to 4.9 million pounds (CLLowF) under the other alternatives (Table 16), very similar to the amounts estimated for Framework 19. These are double the amounts general category vessels will receive if IFQ program is implemented. Although management of general category fishery by a hard TAC during would create some derby style fishing, the division of the total TAC into quarterly TACs will reduce race to fish to some extent and lessen the negative economic impacts associated with derby fishing as analyzed Section 5.4.10.1.1 of Framework 19 and discussed in Sections 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11.

Consistent with Amendment 11 and Framework 19 measures, Framework 21 would divide general category allocation (10% of total scallop TAC) into four quarters with higher proposed allocations during the spring and summer (Quarters 1 and 2) when meat weights are larger. Overall general category landings were historically highest during the second quarter (about 44% landed from June-August). Based on landings data from the last few years about 23% of landings were in Quarter 1 and another 22% in Quarter 3 (Table 17). Given that general category landings are expected to be 10% of the total scallop landings in 2008, the differences in the quarterly distribution of landings is not expected to have significant impact on the scallop ex-vessel prices and the distribution of revenues.

Table 17. Percentage distribution of general category scallop landings by quarter (all general category vessels)

Quarter	FISHYEAR			
	2004	2005	2006	Average of 2004 - 2006
Q1: Mar-May	19%	17%	32%	23%
Q2:Jun-Aug	45%	44%	42%	44%
Q3:Sep-Nov	24%	26%	18%	22%
Q4:Dec-Feb	12%	12%	8%	11%
Grand Total	100%	100%	100%	100%

1.3.3 Economic impacts of the IFQ program on the limited access and general category vessels

If the LAGC IFQ program is fully implemented before March 1, 2010 then general category qualifiers will receive an individual fishing quota based on their contribution to historical landings. IFQs will not be area-specific; a vessel can choose to participate in an access area program and landings will be removed from their individual allocation. Vessels will be permitted to catch that quota in any area available (open areas or access

areas) until the fleetwide allocation is harvested. This will provide flexibility of the general category vessels and have positive impacts on their economic profits. The impacts of the overall IFQ program were assessed in FSEIS to Amendment 11 and the economic impacts of the present options on the general category fishery combined with the IFQ management will be within the range of impacts discussed in FSEIS to Amendment 11.

1.4 COMPLIANCE WITH REASONABLE AND PRUDENT MEASURE IN RECENT BIOLOGICAL OPINION

The economic impacts of the alternatives to comply with RPM on landings and revenues are provided in Section 5.3.1 of this document in Table 51 (No Action), Table 52 (RPM Alternative 1), Table 55 (RPM Alternative 2), Table 57 (RPM Alternative 3) and Table 59 (RPM Alternative 4). The same section fully describes the model and the assumptions used in these analyses. The economic impacts of these alternative will vary with the Framework 21 alternatives and the window of time the measures are applied. The results of these analyses are shown Table 18 and could be summarized as follows:

- Alternative 1 would is estimated to reduce the scallop fleet revenues by \$536,410 (Status Quo) to \$573,927 (CF20) if 10% of the open area effort is shifted from the June 16 – Oct 14 window to the rest of the year by restricting the open area DAS allocations in Mid.At during this season. The reduction in revenue will be less for the longer period varying from \$333,766 to \$392,821. If open area DAS-used in Mid.At is reduced by 100% during the turtle season, the revenue loss would be about the double of the loss compared with a 10% effort reduction.
- Alternative 2 would restrict the number of access area trips during the turtle season. It would reduce the revenues relatively more compared to Alternative 1 for each scenario and season, ranging from a \$358,928 loss (NCF20) for the longer season with a 10% effort shift to \$1,691,600 for a 100% effort reduction in the access areas during the turtle seasons. This is because the LPUE's in the access areas are greater than the LPUE's in the open areas, thus shifting the same percentage effort have a larger impact when that applies to the access areas.
- Alternative 3 would close the Delmarva access area during the turtle windows. Because this alternative shifts effort to a window when the meat-weight of scallops are larger, it results in an increase in revenue ranging from \$400,606 (CF20, short-period) to \$484,266 (NCF20, long-period).
- Alternative 4 would have the largest negative impacts on the revenues since the reduction in possession limit would reduce the landings from access areas during all periods, rather than shifting the landings form one period to another. The reduction in revenue would range from about \$13 million with a 10% reduction in possession limit to about \$66.5 for a 10% shift in effort during the turtle window.

Table 18. Comparative revenue impacts of the RPM measures

Scenario	NCF20		CF20		NCF24		CF18	
	June16-Oct14	June15-Oct31	June16-Oct14	June15-Oct31	June16-Oct14	June15-Oct31	June16-Oct14	June15-Oct31
Alt 1: Restrict open area DAS in Mid-Atlantic								
Reduction in revenue if 10% effort shift	\$536,410	\$333,766	\$573,927	\$392,821	\$568,136	\$388,858	\$566,555	\$387,776
Reduction in revenue if 100% DAS reduction	\$975,292	\$667,533	\$1,434,817	\$982,053	\$1,262,525	\$864,128	\$1,259,012	\$861,724
Alt 2: Restrict Mid-Atlantic access area trips								
Reduction in revenue if 10% effort shift	\$592,059	\$358,928	\$754,972	\$457,693	\$672,940	\$407,963	\$758,096	\$459,586
Reduction in revenue if 100% effort reduction	\$1,691,600	\$1,025,513	\$1,677,715	\$1,017,095	\$1,682,343	\$1,019,901	\$1,684,658	\$1,021,304
Alt 3: Delmarva closure								
Gain in revenue with effort shift	\$403,921	\$484,266	\$400,606	\$480,291	\$401,711	\$481,616	\$402,264	\$482,278
Alt4: Reduce possession limit in MA access areas								
Reduction in revenue if 10% effort shift	\$46,974,060	\$46,974,060	\$66,555,000	\$66,555,000	\$53,390,880	\$53,390,880	\$60,147,360	\$60,147,360
Reduction in revenue if poss. Limit reduced by 10%	\$13,421,160	\$13,421,160	\$13,311,000	\$13,311,000	\$13,347,720	\$13,347,720	\$13,366,080	\$13,366,080

1.5 IMPROVEMENTS TO THE OBSERVER SET-ASIDE PROGRAM

1.5.1 Prohibit vessels from not paying for observers

This alternative would prohibit a vessel from fishing until all outstanding bills were paid by not issuing a permit to fish in a fishing year after an outstanding bill is due. This measure is expected improve the overall coverage of the scallop fishery and have indirect economic benefits from improved information and monitoring of the fishery and resource.

1.5.2 Limit the amount of observer compensation general category vessels can get per observed trip in access areas

This alternative would create a ceiling to discourage overages by limiting the amount of compensation to two fishing days, whatever the daily compensation rate is for an access area. If this ultimately improves the overall coverage of the scallop fishery there may be indirect economic benefits from improved information and monitoring of the fishery and resource.