

Testimony of the
Fisheries Survival Fund
on Reconsideration of
the Target F in Scallop
Framework 21

Projected Scallop Biomass Under the Four Scenarios

From Final Framework 21

Table 48 – Total biomass in mt by year and scenario (2010-2016)

year	Biomass			
	nc20	nc24	cl18	cl20
2010	153,912	153,396	154,212	153,566
2011	175,935	171,345	172,854	167,573
2012	185,267	180,230	185,439	178,499
2013	188,053	183,770	194,641	187,274
2014	191,951	188,596	198,823	191,774
2015	193,688	191,471	199,817	194,184
2016	196,258	194,343	199,384	195,258
Cum. 2010-2016	1,285,064	1,263,151	1,305,170	1,268,128

Note: SAW 45 estimated the Bmsy proxy as **108,628** metric tons

Under the No Closure, F=0.24 Alternative, scallop biomass is projected to grow to **179%** of the long-term biomass estimated to produce maximum sustainable yield

The Current Overfishing Level is F_{max} , or 0.37

- “If stock biomass is equal or greater than B_{max} as measured by the resource survey weight per tow index (currently estimated at 8.16 kg/tow for the Georges Bank resource and 3.90 kg/tow for the Mid-Atlantic resource area), *overfishing occurs when fishing mortality exceeds F_{max} , currently estimated as 0.24.”*

- *Final Amendment 10*, at 3-20

- “If stock biomass is equal or greater than B_{max} as measured by an **absolute value of scallop meat (mt.) (currently estimated at 108,600 mt. for scallops in the Georges Bank and Mid-Atlantic resource areas)**, *overfishing occurs when fishing mortality exceeds F_{max} , currently estimated as 0.29.”*

- *Final Framework 19*, at 60 (bold emphasis in original)

- “Based on the results of the last stock assessment workshop, biological reference points have been set for the entire US sea scallop stock. The threshold fishing mortality rate for fully-recruited scallops that generates the maximum yield-per-recruit, F_{max} , was estimated at 0.37.”

- *Final Framework 21*, at 44

The SSC Has Accepted $F_{max}=0.37$ As the Best Science

The PDT examined the consequences of a range of fishing scenarios, the associated probability of overfishing (i.e., probability that 2010 F is greater than F_{max}) and the projected loss in yield relative to F_{max} . Based on the results of these analyses, the SSC endorses the proposal by the Scallop PDT and other conventions of risk-based harvest rules that ABC be based on 25% probability of overfishing. Analyses of uncertainty indicate that a 25% risk of overfishing is associated with less than 1% loss in yield relative to F_{max}

Probability of Overfishing	2010 Fishing Mortality	2010 Yield
20%	0.27	28,500
25%	0.29	29,500
30%	0.30	30,500

The SSC recommends that Acceptable Biological Catch of scallops in 2010 should be 29,578 mt for the overall fishery.

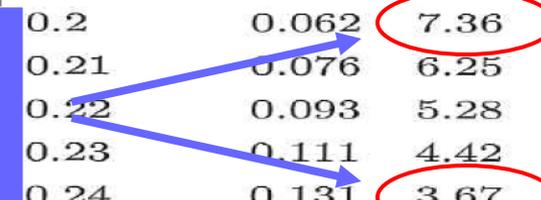
- Memo, Dr. Steve Cadrin, SSC Chair, to Capt. Paul Howard, at 1 (Sept.23, 2009)

- The SSC based its ABC recommendation on F_{max} , as the OFL, of 0.37.
- The SSC utilized 0.29 (not 0.284) to calculate ABC, in compliance with NS 1 guidelines and Amendment 11, as the level representing a 25% risk of overfishing.
- The Council, not the SAW, chooses the “objective and measurable criteria for identifying when the fishery . . . is overfished.” 16 U.S.C. § 1853(a)(10).
- In so doing, the Council must use the “best scientific information available.” 16 U.S.C. § 1851(a)(2).

Table 4. Probability of overfishing (POF) and loss of yield per recruit (percentage loss compared to maximal) for sea scallops in Georges Bank, the Mid-Atlantic, and overall, with respect to target fishing mortality rates, assuming $\sigma = 0.06$ implementation uncertainty.

Georges Bank			Mid-Atlantic			Overall		
F_{TARGET}	POF	%Loss	F_{TARGET}	POF	%Loss	F_{TARGET}	POF	%Loss
0.1	0.006	27.5	0.2	0.033	9.4	0.15	0.016	16.22
0.11	0.009	25.2	0.21	0.042	8.2	0.16	0.022	13.71
0.12	0.014	22.9	0.22	0.053	7.2	0.17	0.029	11.77
0.13	0.019	20.5	0.23	0.064	6.3	0.18	0.038	10.09
0.14	0.026	19.4	0.24	0.078	5.4	0.19	0.049	8.63
0.15	0.034	16.7	0.25	0.093		0.2	0.062	7.36
0.16	0.044	14.1	0.26	0.110		0.21	0.076	6.25
0.17	0.057	11.9	0.27	0.129		0.22	0.093	5.28
0.18	0.071	10.1	0.28	0.149		0.23	0.111	4.42
0.19	0.088	8.5	0.29	0.170		0.24	0.131	3.67
0.2	0.107	7.1	0.3	0.192		0.25	0.153	3.03
0.21	0.128	5.9	0.31	0.216		0.26	0.177	2.47
0.22	0.151	4.9	0.32	0.240		0.27	0.201	1.99
0.23	0.176	4.1	0.33	0.265	1.3	0.28	0.227	1.58
0.24	0.202	3.3	0.34	0.290	1.0	0.29	0.254	1.23
0.25	0.231	2.7	0.35	0.316	0.9	0.3	0.281	0.93
0.26	0.260	2.2	0.36	0.341	0.7	0.31	0.309	0.68
0.27	0.291	1.8	0.37	0.367	0.6	0.32	0.337	0.48
0.28	0.321	1.4	0.38	0.392	0.4	0.33	0.365	0.32
0.29	0.353	1.2	0.39	0.417	0.3	0.34	0.392	0.20
0.3	0.384	0.9	0.4	0.441	0.3	0.35	0.419	0.11
0.31	0.415	0.8	0.41	0.465	0.2	0.36	0.445	0.05
0.32	0.445	0.6	0.42	0.489	0.2	0.37	0.470	0.01
0.33	0.475	0.5	0.43	0.511	0.1	0.38	0.495	0.00
0.34	0.504	0.4	0.44	0.533	0.1	0.39	0.519	0.01
0.35	0.532	0.4	0.45	0.554	0.1	0.4	0.541	0.04

Note that moving from F of 0.24 to 0.20 doubles the loss of yield per recruit



Landings Projections From SAW 45:

“Under both scenarios, biomass and landings are expected to increase modestly in the next three years (Figure B8-1,2). Under the first scenario ($F = 0.20$), landings are expected to rise from a little more than 26,000 mt meats in 2006-2007, to over 32,000 mt in 2008-2009, compared to a range of 26,000 mt in 2006-2007 to over 34,000 mt in 2008-2009 in the $F = 0.24$ scenario.”

- SAW 45 at 165

- These equate to landings of 70,650,000 pounds of meats under the $F = 0.20$ scenario, and 74,970,000 pounds under $F = 0.24$
- Estimated landings from the 2010 fishing year are estimated to be in the range of 57,000,000 pounds (and 52,500,000 in 2008)

Difference Between Options, Total Benefits

Source: Final FW 21, page 243

Table 84. Short and long-term cumulative present value of the total benefits (million \$, in 2008 inflation-adjusted prices, discount rate of 7% except otherwise noted as 3%)

Period	Data	No action	No Closure <i>F</i> = 0.20 (Status Quo)	No Closure <i>F</i> = 0.24	Closure <i>F</i> = 0.20	Closure <i>F</i> = 0.18
2010	PV of Total Benefits	320	280	316	349	324
	Difference from Status quo	41		36	69	44
	Difference from No Action		-41	-5	29	3
2011-2016	PV of Total Benefits	1,965	2,020	1,964	1,923	1,992
	Difference from Status quo	-56		-56	-98	-29
	Difference from No Action		56	0	40	67
	Difference from No Action (3%)		63	0		
2010-2016	PV of Total Benefits	2,285	2,300	2,280		
	Difference from Status quo	-15		-20		
	Difference from No Action		15	-5		
	Difference from No Action (3%)		22	-5		
2017-2023	PV of Total Benefits	1,422	1,493	1,481		
	Difference from Status quo	-71		-12	-34	-7
	Difference from No Action		71	59	37	64
	Difference from No Action (3%)		103	85	56	94
2010-2023	PV of Total Benefits	3,707	3,793	3,761	3,731	3,802
	Difference from Status quo	-86		-32	-62	9
	Difference from No Action		86	54	24	95
	Difference from No Action (3%)		125	81	44	134

Total
Difference,
2010 to 2016,
0.86%
(20/2300)

Difference Between Options, Total Landings

Source: Final FW 21, page 239

Table 80. Estimated Landings (million lbs)

Fishing Year	No Action	No Closure <i>F</i> = 0.20 (Status Quo)	No Closure <i>F</i> = 0.24	Closure <i>F</i> = 0.20	Closure <i>F</i> = 0.18
2010	50	42	47	54	49
2011	59	62	60	57	59
2012	67	69	66	58	61
2013	63	65	63	64	66
2014	66	67	65	66	69
2015	65	65	64		68
2016	59	61	61		63
2010-2016 Subtotal for the period	427	431	426		436
2017	64	66	65		65
2018	62	65	65		65
2019	54	58	58		57
2020	61	65	64		64
2021	61	65	64		65
2022	53	57	56		57
2023	63	64	64		64
2017-2023 Subtotal for the period	418	439	436	430	437
2010-2023 Grand Total	846	870	863	857	873

Total
Difference,
2010 to 2016,
1.2% (5/431)