

Alternative 3, Option 2 - Area 4 Setline Survey as Primary, EBS Trawl Survey as Secondary

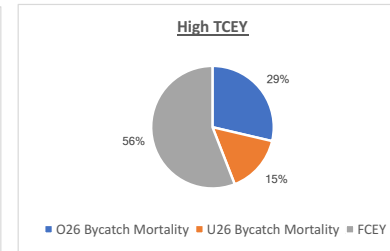
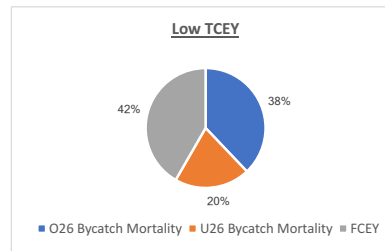
This spreadsheet can provide different estimates of PSC Limits and associated estimates of impacts based on Alternative 3, Option 2 of the October 2018 Council Motion  
 All values in the highlighted cells can be modified and may change the resulting ABM PSC Limit

<b>Inputs:</b>			
Starting Point	1,958	Scenario - Change in Abundance from 2017:	
Ceiling	3,515	Setline Survey	0%
Floor	1,000	Trawl Survey	0%
<b>Primary Index - Area 4 Setline Survey</b>		<b>Bycatch Area &amp; Size Composition:</b>	
Standardized Year	2017	% of BSAI Bycatch Mortality in 4CDE	82.1%
Primary Index Reference	7,250	% of 4CDE Bycatch that is O26	65.0%
Primary Index Rate Change	1.0		
<b>Secondary Index - EBS Trawl Survey, Standardized to Mean Value</b>			
Secondary Index Reference	126,684		
Low Threshold	1.00		
High Threshold	1.00		
Low Multiplier on Slope	0.35	Multiplier values closer to zero slow the rate of change	
High Multiplier on Slope	0.35		

Year	Setline Index	Standardized Setline	Trawl Index	Standardized Trawl	Slope Modifier	ABM PSC Limit	Without Secondary
1998	18,502	2.552	161,256	1.27	0.10	3,515	3,515
1999	16,201	2.235	129,116	1.02	0.01	3,515	3,515
2000	16,203	2.235	118,677	0.94	-0.02	3,515	3,515
2001	13,780	1.901	141,219	1.11	0.04	3,515	3,515
2002	12,104	1.670	101,706	0.80	-0.07	3,134	3,269
2003	10,866	1.499	132,151	1.04	0.02	2,964	2,935
2004	9,987	1.378	130,075	1.03	0.01	2,716	2,697
2005	9,550	1.317	132,518	1.05	0.02	2,611	2,579
2006	9,802	1.352	155,964	1.23	0.08	2,806	2,647
2007	9,673	1.334	143,903	1.14	0.05	2,706	2,612
2008	10,264	1.416	140,247	1.11	0.04	2,845	2,772
2009	9,834	1.356	168,102	1.33	0.11	2,880	2,656
2010	9,146	1.262	195,535	1.54	0.19	2,843	2,470
2011	8,669	1.196	186,666	1.47	0.17	2,666	2,341
2012	8,403	1.159	189,000	1.49	0.17	2,606	2,269
2013	7,989	1.102	183,989	1.45	0.16	2,468	2,158
2014	7,995	1.103	171,427	1.35	0.12	2,401	2,159
2015	8,130	1.121	172,237	1.36	0.13	2,442	2,196
2016	7,826	1.079	153,704	1.21	0.07	2,260	2,114
2017	7,250	1.000	126,684	1.00	0.00	1,958	1,958
2018	7,141	0.985	NA	NA	NA	NA	1,929
Mean	10,444	1.440	151,709	1.20	0.07	2,956	2,820
<b>Scenario</b>	<b>7,250</b>	<b>1.000</b>	<b>126,684</b>	<b>1.00</b>	<b>0.00</b>	<b>1,958</b>	<b>1,958</b>

<b>Scenario Results:</b>							Average Use (2016-2018)	Average % Use of Limit
Sector	Starting PSC Limit (mt)	ABM PSC Limit (mt)	Change in PSC Limit	Use - % of Limit	PSC Mortality (mt)			
A80	972	972	0.00%	95%	923	1,290	74%	
TLAS	415	415	0.00%	95%	394	498	67%	
Longline	395	395	0.00%	50%	198	161	23%	
CDQ	175	175	0.00%	95%	167	157	50%	
<b>Total</b>	<b>1,958</b>	<b>1,958</b>	<b>0.00%</b>	<b>86%</b>	<b>1,682</b>	<b>2,106</b>	<b>60%</b>	

Area 4CDE, M lbs. net weight	Starting Low TCEY	Low TCEY	% Change	Starting High TCEY	High TCEY	% Change
TCEY	3.22	3.22	0%	4.49	4.49	0%
O26 Bycatch Mortality	1.48	1.48	0%	1.48	1.48	0%
U26 Bycatch Mortality	0.80	0.80	0%	0.80	0.80	0%
Comm. Discard Mortality	0.05	0.05	0%	0.05	0.05	0%
Subsistence	0.06	0.06	0%	0.06	0.06	0%
FCEY	1.63	1.63	0%	2.89	2.89	0%



In the Scenario Results box above, you can see the effect of a change in abundance from 2017 on the PSC Limit and on the directed fishery harvest  
 It reflects the % change in abundance of either or both surveys and estimated % of PSC Use by sector, which can be changed above  
 Low TCEY and High TCEY values represent either end of the 95% confidence range of where TCEY may land, given the Setline Index value

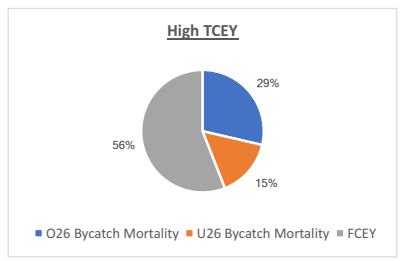
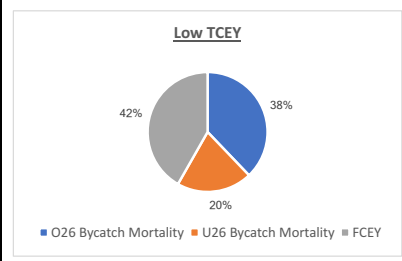
1 **ABM Committee Scenario** 1/23/19 **Primary Increase**  
 2 *Alternative 3, Option 2 - Area 4 Setline Survey as Primary, EBS Trawl Survey as Secondary*  
 3  
 4 *This spreadsheet can provide different estimates of PSC Limits and associated estimates of impacts based on Alternative 3, Option 2 of the October 2018 Council Motion*  
 5 *All values in the highlighted cells can be modified and may change the resulting ABM PSC Limit*  
 6

<b>Inputs:</b>		<b>Scenario - Change in Abundance from 2017:</b>	
Starting Point	1,958	Setline Survey	5%
Ceiling	3,515	Trawl Survey	0%
Floor	1,000		
<b>Primary Index - Area 4 Setline Survey</b>		<b>Bycatch Area &amp; Size Composition:</b>	
Standardized Year	2017	% of BSAI Bycatch Mortality in 4CDE	82.1%
Primary Index Reference	7,250	% of 4CDE Bycatch that is O26	65.0%
Primary Index Rate Change	1.0		
<b>Secondary Index - EBS Trawl Survey, Standardized to Mean Value</b>			
Secondary Index Reference	126,684		
Low Threshold	1.00		
High Threshold	1.00		
Low Multiplier on Slope	0.35	Multiplier values closer to zero slow the rate of change	
High Multiplier on Slope	0.35		

<b>Scenario Results:</b>						Average Use (2016-2018)	Average % Use of Limit
Sector	Starting PSC Limit (mt)	ABM PSC Limit (mt)	Change in PSC Limit	Use - % of Limit	PSC Mortality (mt)		
A80	972	1,021	5.00%	95%	970	1,290	74%
TLAS	415	436	5.00%	95%	414	498	67%
Longline	395	415	5.00%	50%	208	161	23%
CDQ	175	184	5.00%	95%	175	157	50%
<b>Total</b>	<b>1,958</b>	<b>2,056</b>	<b>5.00%</b>	<b>86%</b>	<b>1,766</b>	<b>2,106</b>	<b>60%</b>

Area 4CDE, M lbs. net weight	Starting Low TCEY	Low TCEY	% Change	Starting High TCEY	High TCEY	% Change
TCEY	3.22	3.39	5%	4.49	4.71	5%
O26 Bycatch Mortality	1.48	1.56	5%	1.48	1.56	5%
U26 Bycatch Mortality	0.80	0.84	5%	0.80	0.84	5%
Comm. Discard Mortality	0.05	0.05	0%	0.05	0.05	0%
Subsistence	0.06	0.06	0%	0.06	0.06	0%
FCEY	1.63	1.72	5%	2.89	3.05	5%

Year	Setline Index	Standardized Setline	Trawl Index	Standardized Trawl	Slope Modifier	ABM PSC Limit	Without Secondary
1998	18,502	2.552	161,256	1.27	0.10	3,515	3,515
1999	16,201	2.235	129,116	1.02	0.01	3,515	3,515
2000	16,203	2.235	118,677	0.94	-0.02	3,515	3,515
2001	13,780	1.901	141,219	1.11	0.04	3,515	3,515
2002	12,104	1.670	101,706	0.80	-0.07	3,134	3,269
2003	10,866	1.499	132,151	1.04	0.02	2,964	2,935
2004	9,987	1.378	130,075	1.03	0.01	2,716	2,697
2005	9,550	1.317	132,518	1.05	0.02	2,611	2,579
2006	9,802	1.352	155,964	1.23	0.08	2,806	2,647
2007	9,673	1.334	143,903	1.14	0.05	2,706	2,612
2008	10,264	1.416	140,247	1.11	0.04	2,845	2,772
2009	9,834	1.356	168,102	1.33	0.11	2,880	2,656
2010	9,146	1.262	195,535	1.54	0.19	2,843	2,470
2011	8,669	1.196	186,666	1.47	0.17	2,666	2,341
2012	8,403	1.159	189,000	1.49	0.17	2,606	2,269
2013	7,989	1.102	183,989	1.45	0.16	2,468	2,158
2014	7,995	1.103	171,427	1.35	0.12	2,401	2,159
2015	8,130	1.121	172,237	1.36	0.13	2,442	2,196
2016	7,826	1.079	153,704	1.21	0.07	2,260	2,114
2017	7,250	1.000	126,684	1.00	0.00	1,958	1,958
2018	7,141	0.985	NA	NA	NA	NA	1,929
Mean	10,444	1.440	151,709	1.20	0.07	2,956	2,820
<b>Scenario</b>	<b>7,613</b>	<b>1.050</b>	<b>126,684</b>	<b>1.00</b>	<b>0.00</b>	<b>2,056</b>	<b>2,056</b>



*In the Scenario Results box above, you can see the effect of a change in abundance from 2017 on the PSC Limit and on the directed fishery harvest. It reflects the % change in abundance of either or both surveys and estimated % of PSC Use by sector, which can be changed above. Low TCEY and High TCEY values represent either end of the 95% confidence range of where TCEY may land, given the Setline Index value.*

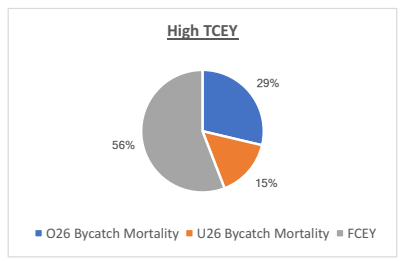
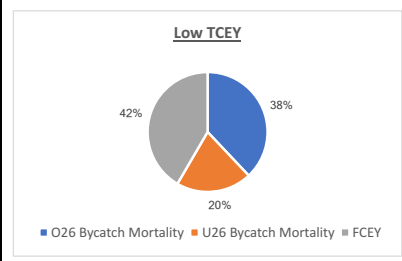
1 **ABM Committee Scenario** 1/23/19 **Primary Decrease**  
 2 *Alternative 3, Option 2 - Area 4 Setline Survey as Primary, EBS Trawl Survey as Secondary*  
 3  
 4 *This spreadsheet can provide different estimates of PSC Limits and associated estimates of impacts based on Alternative 3, Option 2 of the October 2018 Council Motion*  
 5 *All values in the highlighted cells can be modified and may change the resulting ABM PSC Limit*  
 6

Inputs:		Scenario - Change in Abundance from 2017:	
Starting Point	1,958	Setline Survey	-5%
Ceiling	3,515	Trawl Survey	0%
Floor	1,000		
Primary Index - Area 4 Setline Survey		Bycatch Area & Size Composition:	
Standardized Year	2017	% of BSAI Bycatch Mortality in 4CDE	82.1%
Primary Index Reference	7,250	% of 4CDE Bycatch that is O26	65.0%
Primary Index Rate Change	1.0		
Secondary Index - EBS Trawl Survey, Standardized to Mean Value			
Secondary Index Reference	126,684		
Low Threshold	1.00		
High Threshold	1.00		
Low Multiplier on Slope	0.35	Multiplier values closer to zero slow the rate of change	
High Multiplier on Slope	0.35		

Sector	Starting PSC Limit (mt)	ABM PSC Limit (mt)	Change in PSC Limit	Use - % of Limit	PSC Mortality (mt)	Average Use (2016-2018)	Average % Use of Limit
A80	972	923	-5.00%	95%	877	1,290	74%
TLAS	415	394	-5.00%	95%	375	498	67%
Longline	395	376	-5.00%	50%	188	161	23%
CDQ	175	167	-5.00%	95%	158	157	50%
<b>Total</b>	<b>1,958</b>	<b>1,860</b>	<b>-5.00%</b>	<b>86%</b>	<b>1,598</b>	<b>2,106</b>	<b>60%</b>

Area 4CDE, M lbs. net weight	Starting Low TCEY	Low TCEY	% Change	Starting High TCEY	High TCEY	% Change
TCEY	3.22	3.06	-5%	4.49	4.26	-5%
O26 Bycatch Mortality	1.48	1.41	-5%	1.48	1.41	-5%
U26 Bycatch Mortality	0.80	0.76	-5%	0.80	0.76	-5%
Comm. Discard Mortality	0.05	0.05	0%	0.05	0.05	0%
Subsistence	0.06	0.06	0%	0.06	0.06	0%
FCEY	1.63	1.54	-5%	2.89	2.74	-5%

Year	Setline Index	Standardized Setline	Trawl Index	Standardized Trawl	Slope Modifier	ABM PSC Limit	Without Secondary
1998	18,502	2.552	161,256	1.27	0.10	3,515	3,515
1999	16,201	2.235	129,116	1.02	0.01	3,515	3,515
2000	16,203	2.235	118,677	0.94	-0.02	3,515	3,515
2001	13,780	1.901	141,219	1.11	0.04	3,515	3,515
2002	12,104	1.670	101,706	0.80	-0.07	3,134	3,269
2003	10,866	1.499	132,151	1.04	0.02	2,964	2,935
2004	9,987	1.378	130,075	1.03	0.01	2,716	2,697
2005	9,550	1.317	132,518	1.05	0.02	2,611	2,579
2006	9,802	1.352	155,964	1.23	0.08	2,806	2,647
2007	9,673	1.334	143,903	1.14	0.05	2,706	2,612
2008	10,264	1.416	140,247	1.11	0.04	2,845	2,772
2009	9,834	1.356	168,102	1.33	0.11	2,880	2,656
2010	9,146	1.262	195,535	1.54	0.19	2,843	2,470
2011	8,669	1.196	186,666	1.47	0.17	2,666	2,341
2012	8,403	1.159	189,000	1.49	0.17	2,606	2,269
2013	7,989	1.102	183,989	1.45	0.16	2,468	2,158
2014	7,995	1.103	171,427	1.35	0.12	2,401	2,159
2015	8,130	1.121	172,237	1.36	0.13	2,442	2,196
2016	7,826	1.079	153,704	1.21	0.07	2,260	2,114
2017	7,250	1.000	126,684	1.00	0.00	1,958	1,958
2018	7,141	0.985	NA	NA	NA	NA	1,929
Mean	10,444	1.440	151,709	1.20	0.07	2,956	2,820
<b>Scenario</b>	<b>6,888</b>	<b>0.950</b>	<b>126,684</b>	<b>1.00</b>	<b>0.00</b>	<b>1,860</b>	<b>1,860</b>



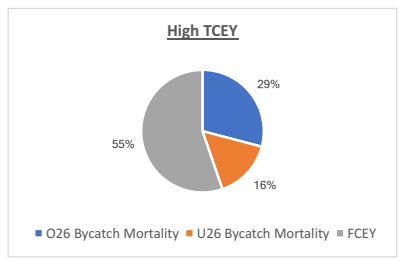
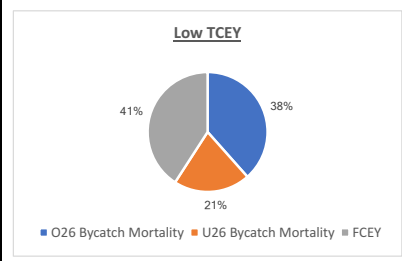
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<b>Inputs:</b>		<b>Scenario - Change in Abundance from 2017:</b>	
Starting Point	1,958	Setline Survey	0%
Ceiling	3,515	Trawl Survey	5%
Floor	1,000		
<b>Primary Index - Area 4 Setline Survey</b>		<b>Bycatch Area &amp; Size Composition:</b>	
Standardized Year	2017	% of BSAI Bycatch Mortality in 4CDE	82.1%
Primary Index Reference	7,250	% of 4CDE Bycatch that is O26	65.0%
Primary Index Rate Change	1.0		
<b>Secondary Index - EBS Trawl Survey, Standardized to Mean Value</b>			
Secondary Index Reference	126,684		
Low Threshold	1.00		
High Threshold	1.00		
Low Multiplier on Slope	0.35	Multiplier values closer to zero slow the rate of change	
High Multiplier on Slope	0.35		

Sector	Starting PSC Limit (mt)	ABM PSC Limit (mt)	Change in PSC Limit	Use - % of Limit	PSC Mortality (mt)	Average Use (2016-2018)	Average % Use of Limit
A80	972	989	1.75%	95%	940	1,290	74%
TLAS	415	422	1.75%	95%	401	498	67%
Longline	395	402	1.75%	50%	201	161	23%
CDQ	175	179	1.75%	95%	170	157	50%
<b>Total</b>	1,958	1,992	1.75%	86%	1,712	2,106	60%

Area 4CDE, M lbs. net weight	Starting Low TCEY	Low TCEY	% Change	Starting High TCEY	High TCEY	% Change
TCEY	3.22	3.22	0%	4.49	4.49	0%
O26 Bycatch Mortality	1.48	1.51	2%	1.48	1.51	2%
U26 Bycatch Mortality	0.80	0.81	2%	0.80	0.81	2%
Comm. Discard Mortality	0.05	0.05	0%	0.05	0.05	0%
Subsistence	0.06	0.06	0%	0.06	0.06	0%
FCEY	1.63	1.61	-2%	2.89	2.87	-1%

Year	Setline Index	Standardized Setline	Trawl Index	Standardized Trawl	Slope Modifier	ABM PSC Limit	Without Secondary
1998	18,502	2.552	161,256	1.27	0.10	3,515	3,515
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2017	7,250	1.000	126,684	1.00	0.00	1,958	1,958
2018	7,141	0.985	NA	NA	NA	NA	1,929
Mean	10,444	1.440	151,709	1.20	0.07	2,956	2,820
<b>Scenario</b>	<b>7,250</b>	<b>1.000</b>	<b>133,018</b>	<b>1.05</b>	<b>0.02</b>	<b>1,992</b>	<b>1,958</b>



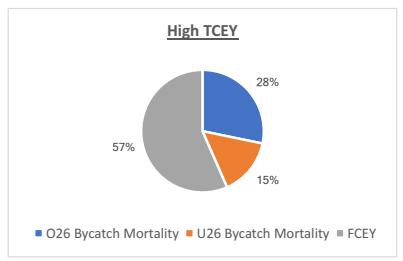
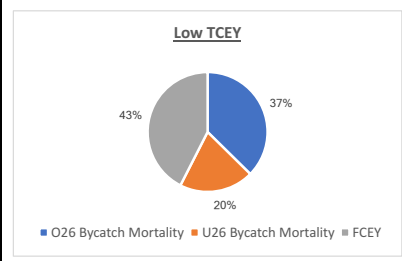
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Inputs:		Scenario - Change in Abundance from 2017:	
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Floor	1,000		
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Standardized Year	2017	% of BSAI Bycatch Mortality in 4CDE	82.1%
Primary Index Reference	7,250	% of 4CDE Bycatch that is O26	65.0%
Primary Index Rate Change	1.0		
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Secondary Index Reference	126,684		
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High Threshold	1.00		
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High Multiplier on Slope	0.35		

Sector	Starting PSC Limit (mt)	ABM PSC Limit (mt)	Change in PSC Limit	Use - % of Limit	PSC Mortality (mt)	Average Use (2016-2018)	Average % Use of Limit
A80	972	955	-1.75%	95%	907	1,290	74%
TLAS	415	408	-1.75%	95%	387	498	67%
Longline	395	389	-1.75%	50%	194	161	23%
CDQ	175	172	-1.75%	95%	164	157	50%
<b>Total</b>	<b>1,958</b>	<b>1,924</b>	<b>-1.75%</b>	<b>86%</b>	<b>1,653</b>	<b>2,106</b>	<b>60%</b>

Area 4CDE, M lbs. net weight	Starting Low TCEY	Low TCEY	% Change	Starting High TCEY	High TCEY	% Change
TCEY	3.22	3.22	0%	4.49	4.49	0%
O26 Bycatch Mortality	1.48	1.46	-2%	1.48	1.46	-2%
U26 Bycatch Mortality	0.80	0.79	-2%	0.80	0.79	-2%
Comm. Discard Mortality	0.05	0.05	0%	0.05	0.05	0%
Subsistence	0.06	0.06	0%	0.06	0.06	0%
FCEY	1.63	1.66	2%	2.89	2.92	1%

Year	Setline Index	Standardized Setline	Trawl Index	Standardized Trawl	Slope Modifier	ABM PSC Limit	Without Secondary
1998	18,502	2.552	161,256	1.27	0.10	3,515	3,515
1999	16,201	2.235	129,116	1.02	0.01	3,515	3,515
2000	16,203	2.235	118,677	0.94	-0.02	3,515	3,515
2001	13,780	1.901	141,219	1.11	0.04	3,515	3,515
2002	12,104	1.670	101,706	0.80	-0.07	3,134	3,269
2003	10,866	1.499	132,151	1.04	0.02	2,964	2,935
2004	9,987	1.378	130,075	1.03	0.01	2,716	2,697
2005	9,550	1.317	132,518	1.05	0.02	2,611	2,579
2006	9,802	1.352	155,964	1.23	0.08	2,806	2,647
2007	9,673	1.334	143,903	1.14	0.05	2,706	2,612
2008	10,264	1.416	140,247	1.11	0.04	2,845	2,772
2009	9,834	1.356	168,102	1.33	0.11	2,880	2,656
2010	9,146	1.262	195,535	1.54	0.19	2,843	2,470
2011	8,669	1.196	186,666	1.47	0.17	2,666	2,341
2012	8,403	1.159	189,000	1.49	0.17	2,606	2,269
2013	7,989	1.102	183,989	1.45	0.16	2,468	2,158
2014	7,995	1.103	171,427	1.35	0.12	2,401	2,159
2015	8,130	1.121	172,237	1.36	0.13	2,442	2,196
2016	7,826	1.079	153,704	1.21	0.07	2,260	2,114
2017	7,250	1.000	126,684	1.00	0.00	1,958	1,958
2018	7,141	0.985	NA	NA	NA	NA	1,929
Mean	10,444	1.440	151,709	1.20	0.07	2,956	2,820
Scenario	7,250	1.000	120,350	0.95	-0.02	1,924	1,958



*In the Scenario Results box above, you can see the effect of a change in abundance from 2017 on the PSC Limit and on the directed fishery harvest. It reflects the % change in abundance of either or both surveys and estimated % of PSC Use by sector, which can be changed above. Low TCEY and High TCEY values represent either end of the 95% confidence range of where TCEY may land, given the Setline Index value.*