Northern Economics

Errata

Date: February 3, 2014

To: North Pacific Fishery Management Council and Stakeholders

From: Marcus L. Hartley; Northern Economics

Re: Error in Table 18 on Page 49 of the BSAI Halibut PSC Discussion Paper

An error has been found in Table 18 on Page 49 of "A Quantitative Examination of Halibut Mortality in BSAI Groundfish Fisheries" published in January 2014 by Northern Economics for the NPFMC. There table mis-reports the average halibut bycatch rate over all target fisheries for the Amendment 80 (A80) fleet. The incorrect line is circled below. The correct bycatch rates should be:

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
					Halibut Bycatch Rate %					
All Target Fisheries	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.6**	**0.7**	**0.7**	**0.5**	**0.6**

On the next page of this *errata* is replacement page (front and back) that can be swapped into the original document.

Table 18. Halibut and Target Mortality and Value in the A80 Fishery, 2003-2012

Target	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
					Groundfish Caught in Target Fishery (MT)					
Arrowtooth & Kamchatka	2,732	3,566	5,639	4,505	1,841	16,077	24,070	31,426	27,117	30,200
Pollock	ND	ND	419	175	411	2,956	4,604	5,715	4,128	1,841
All Rockfish	13,013	10,167	8,298	10,207	14,950	15,340	12,897	13,686	22,804	21,262
Atka Mackerel	62,438	64,872	69,673	69,814	67,186	63,595	77,505	76,213	52,634	49,895
Rock Sole	37,240	47,023	41,191	48,511	40,751	63,842	49,396	72,128	69,284	84,025
Flathead Sole	18,883	28,269	23,384	18,885	21,732	27,999	19,510	22,890	7,684	6,134
Pacific Cod	38,903	62,674	40,229	42,859	49,005	5,705	6,731	5,591	3,501	3,725
Yellowfin Sole	104,062	94,132	109,873	99,074	118,286	156,224	130,964	125,490	159,511	146,432
All Target Fisheries	**280,599**	**313,932**	**300,792**	**295,023**	**317,540**	**352,698**	**328,766**	**353,929**	**348,393**	**345,748**
					Halibut Mortality (MT)					
Arrowtooth & Kamchatka	53.2	97.0	200.1	147.0	24.6	128.2	236.6	190.4	261.9	512.8
Pollock	ND	ND	0.4	2.8	8.2	38.6	43.1	68.2	54.3	27.3
All Rockfish	48.4	50.9	13.1	29.0	17.1	41.4	33.1	57.3	93.6	74.6
Atka Mackerel	55.4	56.9	89.0	92.0	198.7	64.7	71.5	54.7	111.4	144.1
Rock Sole	959.3	544.2	780.7	826.1	972.6	651.1	567.3	913.3	466.5	394.6
Flathead Sole	177.1	435.1	241.3	306.5	311.5	233.1	185.9	174.9	68.6	85.3
Pacific Cod	577.2	1160.1	782.3	832.8	613.0	46.0	75.6	34.8	16.8	38.9
Yellowfin Sole	701.0	451.4	590.2	384.9	495.8	858.6	908.8	832.3	793.2	750.6
All Target Fisheries	**2,649**	**2,864**	**2,768**	**2,642**	**2,721**	**2,079**	**2,140**	**2,331**	**1,875**	**2,039**
					Halibut Bycatch Rate (%)					
Arrowtooth & Kamchatka	1.9	2.7	3.5	3.3	1.3	0.8	1.0	0.6	1.0	1.7
Pollock	ND	ND	0.1	1.6	2.0	1.3	0.9	1.2	1.3	1.5
All Rockfish	0.4	0.5	0.2	0.3	0.1	0.3	0.3	0.4	0.4	0.4
Atka Mackerel	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.3
Rock Sole	2.6	1.2	1.9	1.7	2.4	1.0	1.1	1.3	0.7	0.5
Flathead Sole	0.9	1.5	1.0	1.6	1.4	0.8	1.0	0.8	0.9	1.4
Pacific Cod	1.5	1.9	1.9	1.9	1.3	0.8	1.1	0.6	0.5	1.0
Yellowfin Sole	0.7	0.5	0.5	0.4	0.4	0.5	0.7	0.7	0.5	0.5
All Target Fisheries	**0.7**	**0.5**	**0.5**	**0.4**	**0.4**	**0.5**	**0.7**	**0.7**	**0.5**	**0.5**
					Wholesale Value in Target Fishery ($ millions)					

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Target	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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Pollock	ND	ND	419	175	411	2,956	4,604	5,715	4,128	1,841
All Rockfish	13,013	10,167	8,298	10,207	14,950	15,340	12,897	13,686	22,804	21,262
Atka Mackerel	62,438	64,872	69,673	69,814	67,186	63,595	77,505	76,213	52,634	49,895
Rock Sole	37,240	47,023	41,191	48,511	40,751	63,842	49,396	72,128	69,284	84,025
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					Halibut Mortality (MT)					
Arrowtooth & Kamchatka	53.2	97.0	200.1	147.0	24.6	128.2	236.6	190.4	261.9	512.8
Pollock	ND	ND	0.4	2.8	8.2	38.6	43.1	68.2	54.3	27.3
All Rockfish	48.4	50.9	13.1	29.0	17.1	41.4	33.1	57.3	93.6	74.6
Atka Mackerel	55.4	56.9	89.0	92.0	198.7	64.7	71.5	54.7	111.4	144.1
Rock Sole	959.3	544.2	780.7	826.1	972.6	651.1	567.3	913.3	466.5	394.6
Flathead Sole	177.1	435.1	241.3	306.5	311.5	233.1	185.9	174.9	68.6	85.3
Pacific Cod	577.2	1160.1	782.3	832.8	613.0	46.0	75.6	34.8	16.8	38.9
Yellowfin Sole	701.0	451.4	590.2	384.9	495.8	858.6	908.8	832.3	793.2	750.6
All Target Fisheries	**2,649**	**2,864**	**2,768**	**2,642**	**2,721**	**2,079**	**2,140**	**2,331**	**1,875**	**2,039**
					Halibut Bycatch Rate (%)					
Arrowtooth & Kamchatka	1.9	2.7	3.5	3.3	1.3	0.8	1.0	0.6	1.0	1.7
Pollock	ND	ND	0.1	1.6	2.0	1.3	0.9	1.2	1.3	1.5
All Rockfish	0.4	0.5	0.2	0.3	0.1	0.3	0.3	0.4	0.4	0.4
Atka Mackerel	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.3
Rock Sole	2.6	1.2	1.9	1.7	2.4	1.0	1.1	1.3	0.7	0.5
Flathead Sole	0.9	1.5	1.0	1.6	1.4	0.8	1.0	0.8	0.9	1.4
Pacific Cod	1.5	1.9	1.9	1.9	1.3	0.8	1.1	0.6	0.5	1.0
Yellowfin Sole	0.7	0.5	0.5	0.4	0.4	0.5	0.7	0.7	0.5	0.5
All Target Fisheries	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.6**	**0.7**	**0.7**	**0.5**	**0.6**
					Wholesale Value in Target Fishery ($ millions)					
Arrowtooth & Kamchatka	2.2	2.7	4.4	3.5	1.4	11.9	17.8	23.3	20.1	22.4
Pollock	ND	ND	0.2	0.1	0.3	1.7	2.6	3.2	2.4	1.0
All Rockfish	12.8	10.0	8.1	10.0	14.7	14.9	12.5	13.3	22.3	20.8
Atka Mackerel	51.7	53.7	57.5	57.6	55.3	52.5	64.1	63.2	42.8	41.1
Rock Sole	37.3	49.4	40.7	46.9	39.9	63.4	49.8	69.5	69.5	86.7
Flathead Sole	18.8	28.2	23.3	18.8	21.6	27.8	19.3	22.5	7.6	6.0
Pacific Cod	52.4	81.4	55.2	57.3	63.5	7.8	9.3	7.8	4.5	5.1
Yellowfin Sole	76.8	69.5	80.9	73.7	89.2	114.1	95.6	90.4	115.7	105.0
All Target Fisheries	**256.5**	**300.0**	**273.6**	**268.9**	**290.6**	**295.6**	**276.3**	**294.0**	**285.3**	**288.9**
					Value per Mortality-Ton ($ thousands/MT))					
Arrowtooth & Kamchatka	40.66	28.19	21.83	23.62	56.34	93.00	75.42	122.54	76.80	43.70
Pollock	ND	ND	630.95	36.75	30.65	44.13	60.43	47.21	43.67	38.26
All Rockfish	263.38	196.06	620.27	345.32	858.43	359.95	378.36	233.01	238.26	279.53
Atka Mackerel	933.58	944.05	645.55	625.88	278.37	810.90	895.66	1,156.45	384.36	285.19
Rock Sole	38.89	90.80	52.18	56.76	40.99	97.31	87.77	76.07	148.96	219.73
Flathead Sole	106.16	64.83	96.40	61.25	69.40	119.05	103.96	128.80	110.30	70.76
Pacific Cod	90.84	70.18	70.60	68.83	103.54	170.05	123.16	224.05	268.27	130.43
Yellowfin Sole	109.62	154.03	137.10	191.42	179.84	132.94	105.20	108.56	145.86	139.85
All Target Fisheries	**96.83**	**104.75**	**98.85**	**101.78**	**106.82**	**142.17**	**129.15**	**126.13**	**152.17**	**141.71**

Note: Cell showing ND cannot be disclosed because of confidentiality.

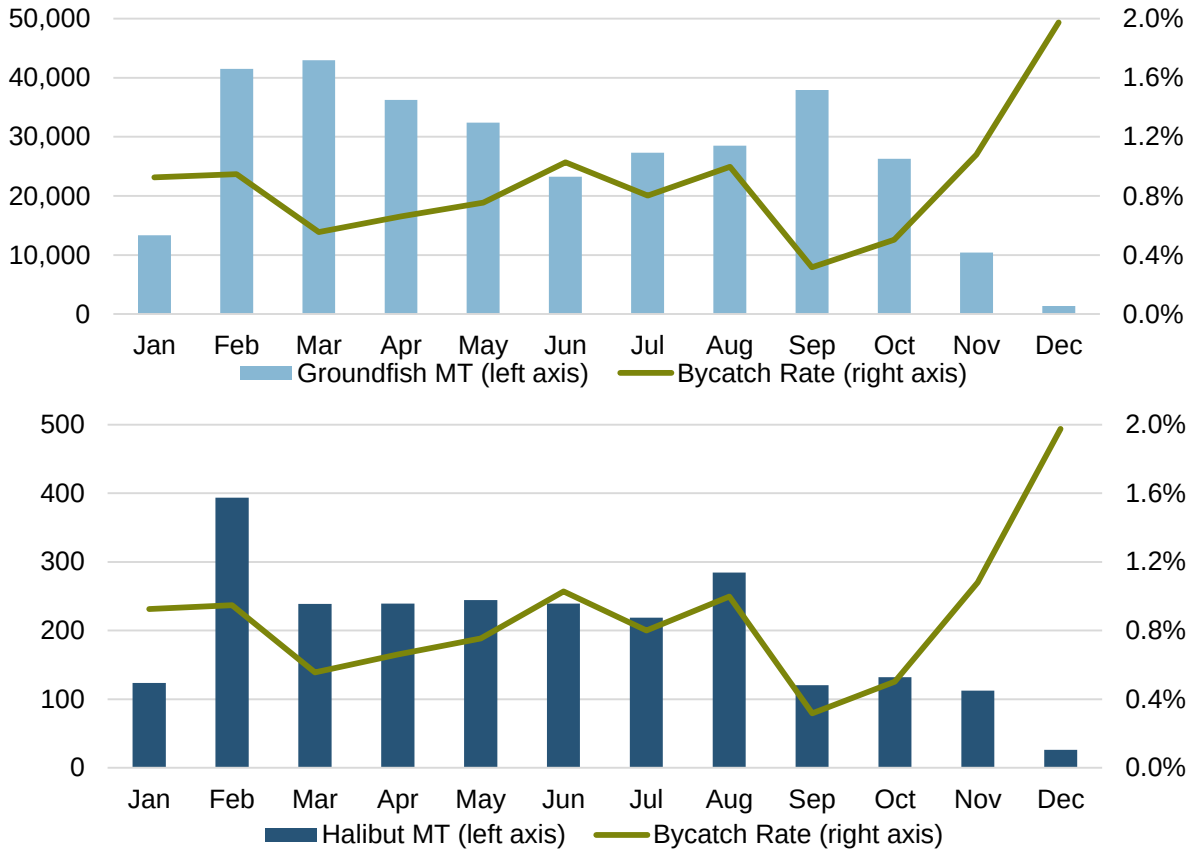
Source: Developed by Northern Economics based on CAS and COAR data from AKFIN.

4.4.1 Monthly Variation of Halibut Bycatch Rates in the A80-CP Target Fisheries

Figure 38 is a two-chart figure showing monthly variations of groundfish harvests, halibut mortality, and bycatch rates over all of the A80 target fisheries from 2003–2012. In the figure, the upper chart shows average groundfish landings by month with an overlay of the average bycatch rate. The lower chart in the figure shows average halibut mortality by month and also contains that same overlay of average monthly halibut bycatch rates. The aggregate data shown in Figure 38 are useful as an overview of the halibut bycatch of the A80-CP sector, but tend to mask the dynamics of the multispecies fisheries in which the sector is engaged. Figure 39 through Figure 42, which show similar charts for each of the major target fisheries of the A80-CP sector (including previously presented charts for pollock, Pacific cod, and yellowfin sole), provide additional details on the monthly averages.

Over the 10-year period from 2003–2012 average groundfish harvests were highest in February and March. Halibut mortality was also substantially higher in February than in any other month. Halibut mortality drops off considerably in March and then stays relatively stable through July. Because groundfish harvests tend to drop off from April–June, bycatch rates climb steadily. Groundfish harvests begin to increase again in July and reach a high-point in September, a month in which halibut mortality has been quite low. Groundfish harvest drop off in October and November and are generally very low in December. Halibut mortality declines less on a percentage basis than groundfish harvests from October through December, which causes bycatch rates to increase to their highest level during the year.

Figure 38. Aggregate A80-CP Monthly Groundfish Harvest, Halibut Mortality and Bycatch Rates, 2003-2012



Source: Developed by Northern Economics based on CAS and COAR data from AKFIN.