### **Halibut DMR Working Group**

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## **Updated DMRs for 2018**

At the upcoming October Council meeting, the Halibut DMR working group will present updated discard mortality rates for in-season management of GOA and BSAI groundfish fisheries in 2018. This year, 2017, is the first year that DMRs developed by the working group were specified for these fisheries. Working group methods transitioned DMR estimates from being based on species composition of the catch to estimates based on vessel / gear operational characteristics causatively linked to halibut mortality. Additionally, DMRs this year were based on 3-year averages to better incentivize improved handling practices rather than the previous approach that used 10-year averages to emphasize stability for the fleet. These changes were presented to the Plan Teams last year in a discussion paper (HDMRWG 2016) and the Teams supported transition to the new approach, as did the SSC and Council.

#### **Recommendation:**

Maintain the new estimation method and apply it to an updated 3-year reference period (2014-2016).

### **Results:**

See Tables 1, 2a, and 2b.

# Notable changes:

•	BSAI NPT CVs	increase 52% to 60%
•	GOA HAL CVs	increase 12% to 17%
•	GOA Rockfish Program (RPP) CVs	decrease 67% to 62%

## Combined groupings due to low sample size:

•	BSAI HAL CVs - 2 vessels observed in 2014-2016.	Combined with GOA
•	GOA NPT CPs - 10 vessels observed in 2014-2016.	Combined with BSAI

## **Future directions:**

- Two-year reference period likely for 2019 (2016-2017)
- IPHC study on HAL release methods
- Increased use of EM, but human observers still provide data for DMRs
- Improved basis studies for DMRs

### **Questions for PTs:**

- Support combined groupings?
- Support reference period?
- Recommend newly estimated DMRs for 2018?

Table 1. Proposed 2018 DMRs and currently specified 2017 DMRs. Green font indicates reduced DMRs and red font indicates increase. DMRs for mothership operations are included under CPs.

			2017			
	Operati	ional Grou	р			
Sector	Region	Gear	Target	Sample Size (Mean Annual N <sub>Viabilities</sub> )	Estimate DMR?	DMR
	PTR		all	4,151	N	100%
	BSAI	NPT	all	1,753	Υ	DMR
	DOAI	HAL	all	11,676	Υ	
СР		POT	all	571	Υ	6%
Cr	GOA	PTR	all	0	N	100%
		NPT	all	196	N	85%
		HAL	all	1,247	Υ	11%
		POT	all	479	Υ	10%
		PTR	all	224	N	100%
	BSAI	NPT	all	2,282	Υ	MR? DMR  N 100% Y 85% Y 8% Y 6% N 100% N 85% Y 11% Y 10% N 100% Y 52% Y 14% Y 6% N 100% Y 67% Y 67% Y 12%
	DJAI	HAL	all	44	Υ	
		POT	all	571	Υ	6%
CV		PTR	all	1	N	100%
		NPT	RPP <sup>e</sup>	547	Υ	67%
	GOA	INPI	non-RPP	547	Υ	65%
		HAL	all	729	Υ	12%
		POT	all	479	Υ	10%

			2018			
	Operati	ional Grou	р	_		
Sector	Region	Gear	Target	Sample Size (Mean Annual N <sub>Viabilities</sub> )	Estimate DMR?	DMR
		PTR	all	3,097	N	100%
	BSAI	NPT	all	2,025	Υ	100% 84% 9% 100% 84% 100% 7% 100% 60% 17% 9%
	<i>B37</i> (1	HAL	all	8,838	Υ	
СР		POT	all	548	Υ	9%
Cr	GOA	PTR	all	0	N	100%
		NPT	all	132	N	84%
		HAL	all	1,493	Υ	10%
		POT	all	602	Υ	7%
		PTR all		151	N	100%
	BSAI	NPT	all	2,456	Υ	MR?  N 100% Y 84% Y 8% Y 9% N 100% N 84% Y 10% Y 7% N 100% Y 7% N 100% Y 17%
	BSAI	HAL	all	36	Υ	
		POT	all	548	Υ	9%
CV		PTR	all	0	N	100%
		NPT	RPP	937	Υ	62%
	GOA	INPI	non-RPP	937	Υ	67%
		HAL	all	1	Υ	17%
		POT	all	602	Υ	7%

 $<sup>^{</sup>m e}$  - 2017 RPP DMR calculated by proxy methods based on catch composition. RPP was directly estimated in 2018

Table 2a. Numbers of vessels, hauls, trips for 2009 – 2016 groundfish operations. Values for pot gear are combined CP/CV.

						VESSE	LS					
Sector	Region	Gear	2009	2010	2011	2012	2013	2014	2015	2016	ave 13-15 av	<i>i</i> e 14-16
		PELAGIC	14	14	14	13	14	14	13	14	14	14
CP	DC AI	NON PELAGIC	21	21	22	16	19	20	10	14	16	15
	BSAI	HOOK AND LINE	36	34	29	30	30	29	30	30	30	30
		POT OR TRAP*	16	25	32	27	21	20	24	24	22	23
	GOA	PELAGIC	1	0	0	0	0	0	0	0	0	0
		NON PELAGIC	9	4	8	5	6	2	1	7	3	3
		HOOK AND LINE	17	15	9	5	8	9	8	9	8	9
		POT OR TRAP*	9	11	16	15	26	17	32	37	25	29
		PELAGIC	47	26	28	22	19	17	16	15	17	16
CV	BSAI	NON PELAGIC	27	28	25	35	24	22	34	43	27	33
		HOOK AND LINE	0	0	0	0	5	9	2	8	5	6
		PELAGIC	3	5	1	0	2	0	0	0	1	0
	GOA	NON PELAGIC	32	32	30	36	32	25	24	40	27	30
		HOOK AND LINE	3	2	1	2	23	45	48	42	39	45
	_!	1.1001.71.12 2.112								·-,		
						HAUL	.S					
Sector	Region	Gear	2009	2010	2011	2012	2013	2014	2015	2016	ave 13-15 av	ve 14-16
		PELAGIC	2,067	1,457	1,958	1,175	1,490	1,288	975	891	1,251	1,051
СР	BSAI	NON PELAGIC	1,680	1,717	801	600	892	535	186	881	538	534
		HOOK AND LINE	2,395	2,105	2,499	2,668	3,444	2,986	2,895	2,279	3,108	2,720
		POT OR TRAP*	129	236	348	428	259	264	310		245 278 273	
		PELAGIC	1	0	0	0	0	0	0	0	0	0
		NON PELAGIC	216	170	201	78	167	73	73	1	104	49
	GOA	HOOK AND LINE	218	275	354	80	121	321	321	431	254	358
		POT OR TRAP*	42	40	200	228	163	68	68	210	100	115
		PELAGIC	552	155	407	162	150	146	86	54	127	95
	BSAI	NON PELAGIC	200	411	514	430	459	581	446	652	495	560
		HOOK AND LINE	0	0	0	0	8	19	7	10	11	12
CV		PELAGIC	3	10	1	0	2	0	0	0	1	0
	GOA	NON PELAGIC	374	464	280	506	161	122	96	349	126	189
		HOOK AND LINE	22	27	9	49	200	181	155	127	179	154
		1								,		
						TRIP	S					
Sector	Region	Gear	2009	2010	2011	2012	2013	2014	2015	2016	ave 13-15 av	ve 14-16
	1	PELAGIC	108	97	141	123	134	135	109	144	126	129
	5044	NON PELAGIC	133	134	108	67	93	66	22	96	60	61
	BSAI	HOOK AND LINE	360	301	363	380	515	447	529	496	497	491
		POT OR TRAP*	47	62	87	78	45	52	78	66	58	65
CP		PELAGIC	1	0	0	0	0	0	0	0	0	0
		NON PELAGIC	22	14	18	8	18	12	1	13	10	9
	GOA	HOOK AND LINE	44	50	48	38	28	42	58	42	43	47
		POT OR TRAP*	13	23	51	67	56	31	82	62	56	58
	1	PELAGIC	99	36	58	38	28	25	24	22	26	24
	BSAI	NON PELAGIC	63	89	117	127	129	169	146	162	148	159
		HOOK AND LINE	0	0	0	0	9	18	8	8	12	11
CV		PELAGIC	3	6	1	0	2	0	0	0	1	0
	GOA	NON PELAGIC	120	139	95	171	76	51	50	141	59	81
		HOOK AND LINE	10	14	4	18	99	122	89	80	103	97
	1	THOOK AND LINE	10	17	7	10	99	144	09	00	100	31

Table 2b. Numbers of viabilities and annual DMR estimates for 2009 – 2016 groundfish operations. Shaded cells indicate where DMRs are borrowed due to small sample size (GOA NPT and BSAI HAL) or assumed (Pelagic trawl). Values for pot gear are combined CP/CV.

			VIABILITIES									
Sector	Region	Gear	2009	2010	2011	2012	2013	2014	2015	2016	ave 13-15	ave 14-16
		PELAGIC	12,098	5,853	8,923	6,613	6,018	4,047	2,389	2,856	4,151	3,097
	BSAI	NON PELAGIC	8,967	7,375	2,363	1,410	2,868	1,928	463	3,685	1,753	2,025
	BOAI	HOOK AND LINE	10,350	9,023	11,477	12,841	15,338	10,332	2,389 2,856 4,151 3,097			
СР		POT OR TRAP*	231	616	1,259	1,502	491	498	723	424	571	548
CF		PELAGIC	1	0	0	0	0	0	0	0	0	0
	GOA	NON PELAGIC	1,170	569	903	591	424	164	1	232	196	132
	GOA	HOOK AND LINE	1,246	1,689	2,112	319	660	1,459	1,621	1,399	1,247	1,493
		POT OR TRAP*	78	179	1,067	1,070	363	179	895	732	479	602
		PELAGIC	1,172	277	1,262	693	316	222	135	97	224	151
	BSAI	NON PELAGIC	765	2,151	2,972	2,228	2,090	2,780	1,977	2,610	2,282	2,456
CV		HOOK AND LINE	0	0	0	0	40	72	20	17	44	36
CV		PELAGIC	4	28	1	0	4	0	0	0	1	0
	GOA	NON PELAGIC	1,783	2,369	1,664	2,882	657	545	440	1,826	547	937
		HOOK AND LINE	90	163	18	147	972	606	4,047     2,389     2,856     4       1,928     463     3,685     1       0,332     9,357     6,825     11       498     723     424       0     0     0       164     1     232       1,459     1,621     1,399     1       179     895     732       222     135     97       2,780     1,977     2,610     2       72     20     17       0     0     0       545     440     1,826	729	590	

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						DMR	Rs					
Sector	Region	Gear	2009	2010	2011	2012	2013	2014	2015	2016	ave 13-15	ave 14-16
		PELAGIC	90.0%	90.0%	89.9%	89.9%	90.0%	90.0%	90.0%	90.0%	100%	100%
СР	BSAI	NON PELAGIC	87.8%	85.9%	83.3%	80.8%	86.8%	86.7%	81.2%	82.7%	85%	84%
	DOAI	HOOK AND LINE	9.7%	8.4%	9.5%	8.8%	9.0%	8.5%	7.9%	7.1%	8%	8%
CD		POT OR TRAP*	8.8%	23.9%	15.7%	12.7%	7.2%	8.4%	6.0%	12.9%	7%	9%
CP		PELAGIC	20.0%	NA	15.7%         12.7%         7.2%         8.4%         6.0%         12.9%         7%         9%           NA         NA         NA         NA         NA         100%         100%           74.7%         84.7%         82.5%         87.4%         90.0%         88.6%         85%         84%           9.1%         12.3%         12.2%         9.5%         10.7%         9.8%         11%         10%							
	GOA	NON PELAGIC	82.3%	85.3%	74.7%	84.7%	82.5%	87.4%	90.0%	88.6%	85%	84%
		HOOK AND LINE	10.0%	8.9%	9.1%	12.3%	12.2%	9.5%	10.7%	9.8%	11%	10%
		POT OR TRAP*	0.0%	7.5%	4.3%	15.6%	16.9%	10.3%	1.6%	9.1%	10%	7%
		PELAGIC	90.0%	85.8%	87.0%	89.9%	88.0%	81.4%	81.2%	79.0%	100%	100%
	BSAI	NON PELAGIC	42.1%	67.4%	62.3%	68.3%	43.8%	51.7%	59.6%	68.8%	52%	60%
		HOOK AND LINE	NA	NA	NA	NA	NA	23.7%	3.5%	90.0% 100% 82.7% 85% 7.1% 8% 12.9% 7% NA 100% 88.6% 85% 9.8% 11% 9.1% 10% 79.0% 100%	17%	
CV		PELAGIC	NA	20.0%	NA	NA	20.0%	NA	NA	NA	100%	100%
	GOA	NON PELAGIC	53.0%	62.4%	52.1%	58.7%	66.1%	65.9%	64.3%	70.5%	65%	67%
	GOA	RPP	NA	62.1%	58.3%	51.4%	63.9%	64.1%	73.3%	48.2%	67%	62%
		HOOK AND LINE	6.9%	9.5%	5.3%	39.0%	13.4%	8.6%	13.9%	27.8%	12%	17%