

Table 1a. Estimated annual total catch (t) of Aleutian Islands golden king crab during 1990–2015, partitioned by source of mortality: retained catch, estimated bycatch of males and females during crab fisheries, and estimated bycatch of males and females during groundfish fisheries. The crab fishery bycatch mortality rate of 0.2 and the groundfish fisheries (in federal reporting areas 541, 542, and 543) bycatch mortality rates of 0.5 for fixed gear and 0.8 for trawl gear were applied. 1990 refers to 1990/91 fishery.

Year	Retained Catch	Bycatch by Fishery Type		Total Catch
		Crab	Groundfish	
1990	3,161	1,254	—	—
1991	3,494	1,021	—	—
1992	2,854	1,187	—	—
1993	2,518	—	3.9	—
1994	3,687	—	1.3	—
1995	3,157	1,093	2.0	4,252
1996	2,638	823	5.0	3,466
1997	2,697	789	0.5	3,486
1998	2,242	670	1.4	2,913
1999	2,648	685	2.9	3,337
2000	2,730	807	1.9	3,539
2001	2,685	625	0.5	3,310
2002	2,478	514	17.5	3,010
2003	2,570	451	20.1	3,041
2004	2,529	392	1.4	2,922
2005	2,504	229	1.8	2,735
2006	2,380	234	17.5	2,638
2007	2,498	275	59.0	2,833
2008	2,576	251	32.9	2,860
2009	2,682	253	16.6	2,951
2010	2,707	247	19.8	2,975
2011	2,705	230	15.5	2,951
2012	2,843	263	9.2	3,115
2013	2,894	287	10.7	3,192
2014	2,771	303	4.9	3,079
2015	2,729	312	32.0	3,073

Table 1b. Time series of annual retained catch (1981–1984 values are in number of crabs and the rest in t), estimated total male catch (weight of crabs on the deck without applying any handling mortality), estimated groundfish fishery discard mortality of males (handling mortality rates of 0.5 for pot gear and 0.8 for trawl gear were applied), and pot fishery effort (number of pot lifts) for the **EAG** golden king crab stock. The crab weights are for the size range ≥ 101 mm CL. NA: no observer sampling to compute catch. The directed fishery data included cost-recovery beginning in 2013. 1981 refers to 1981/82 fishery.

Year	Retained Catch Biomass	Total Catch Biomass (t)	Groundfish Discard Mortality (t)	Pot Fishery Effort (no. pot lifts)
1981	203,968			
1982	529,787			
1983	662,280			
1984	801,100			
1985	2,677			117,718
1986	2,798			155,240
1987	1,882			146,501
1988	2,382			155,518
1989	2,738		0.61	155,262
1990	1,623	1,881	1.97	106,281
1991	2,006	5,899	0.00	133,428
1992	2,102	5,580	1.01	133,778
1993	1,407	NA	0.95	106,890
1994	2,017	2,266	0.29	191,455
1995	2,197	3,734	0.78	177,773
1996	1,605	2,059	0.04	113,460
1997	1,464	2,548	0.10	106,403
1998	1,398	2,797	0.76	83,378
1999	1,321	2,280	0.35	79,129
2000	1,343	2,555	0.47	71,551
2001	1,385	2,097	1.46	62,639
2002	1,228	1,800	0.68	52,042
2003	1,278	1,816	0.43	58,883
2004	1,252	1,619	0.12	34,848
2005	1,253	1,713	0.28	24,569
2006	1,365	1,621	0.70	26,195
2007	1,307	1,790	0.69	22,653
2008	1,396	1,787	0.86	24,466
2009	1,423	1,750	1.14	26,298
2010	1,388	1,719	2.41	25,851
2011	1,418	1,736	1.15	17,915
2012	1,470	1,927	3.60	20,827
2013	1,518	1,818	2.02	21,388
2014	1,524	1,939	2.30	17,002
2015	1,658	2,102	0.19	19,376

Table 2. Time series of nominal annual pot fishery retained, observer retained, and observer total catch-per-unit-effort (CPUE, number of crabs per pot lift), observer sample size (number of sampled pots), and GLM estimated observer CPUE Index for the **EAG** golden king crab stock. Observer retained CPUE includes retained and non-retained legal size crabs.

Year	Pot Fishery Nominal Retained CPUE	Obs. Nominal Retained CPUE	Obs. Nominal Total CPUE	Obs. Sample Size (no.pot lifts)	Obs. CPUE Index
1990	8.90	2.17	13.00	138	
1991	8.20	17.36	36.91	377	
1992	8.36	10.43	38.52	199	
1993	7.79	5.07	20.82	31	
1994	5.89	2.54	12.91	127	
1995	5.89	5.06	16.98	6,388	0.73
1996	6.45	5.17	13.81	8,360	0.76
1997	7.34	7.13	18.25	4,670	0.79
1998	8.88	9.17	25.77	3,616	0.95
1999	8.96	9.25	20.77	3,851	0.88
2000	9.85	9.92	25.39	5,043	0.91
2001	11.66	11.14	22.48	4,626	1.18
2002	12.37	11.99	22.59	3,980	1.26
2003	10.92	11.02	19.43	3,960	1.11
2004	18.30	17.73	28.48	2,206	1.80
2005	25.40	29.44	38.48	1,193	1.02
2006	24.84	25.20	33.52	1,098	0.82
2007	27.95	31.09	40.37	998	0.96
2008	27.26	29.73	38.18	613	0.93
2009	25.85	26.64	35.89	408	0.76
2010	25.96	26.05	36.76	436	0.77
2011	37.33	38.79	51.69	361	1.13
2012	33.02	38.00	47.74	438	1.09
2013	33.67	35.83	46.16	499	1.05
2014	42.29	46.96	60.00	376	1.37
2015	39.18	43.08	58.75	478	1.31

Table 3. Time series of GLM estimated CPUE indices and coefficient of variations (CV) for the fish ticket based retained catch-per-pot lift for the **EAG** golden king crab stock. The GLM was fitted to the 1985/86 to 1998/99 time series of data and used in scenario 4.

Year	CPUE Index	CV
1985/86	1.67	0.05
1986/87	1.22	0.05
1987/88	0.96	0.06
1988/89	1.03	0.05
1989/90	1.04	0.04
1990/91	0.83	0.06
1991/92	0.84	0.06
1992/93	0.93	0.06
1993/94	0.90	0.06
1994/95	0.80	0.07
1995/96	0.77	0.07
1996/97	0.83	0.07
1997/98	1.20	0.05
1998/99	1.36	0.05

Table 4. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 1** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	51				
1986	11	10				
1987	61	54				
1988	352	314				
1989	792	706			9	4
1990	163	145	22	11	13	6
1991	140	125	48	24	NA	NA
1992	49	44	41	20	2	1
1993	340	303	NA	NA	2	1
1994	319	285	34	17	4	2
1995	879	784	1,117	558	5	2
1996	547	488	509	254	4	2
1997	538	480	711	355	8	4
1998	541	483	574	287	15	7
1999	463	413	607	303	14	6
2000	436	389	495	247	16	7
2001	488	435	510	255	13	6
2002	406	362	438	219	15	7
2003	405	361	416	208	17	8
2004	280	250	299	149	10	4
2005	266	237	232	116	12	5
2006	234	209	143	71	14	6
2007	199	178	134	67	17	8
2008	197	176	113	56	15	7
2009	170	152	95	47	16	7
2010	183	163	108	54	26	12
2011	160	143	107	53	13	6
2012	187	167	99	49	18	8
2013	193	172	122	61	17	8
2014	168	150	99	49	16	7
2015	190	169	125	62	9	4

Table 5. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 2** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	50				
1986	11	10				
1987	61	54				
1988	352	311				
1989	792	701			9	4
1990	163	144	22	11	13	6
1991	140	124	48	24	NA	NA
1992	49	43	41	20	2	1
1993	340	301	NA	NA	2	1
1994	319	282	34	17	4	2
1995	879	778	1,117	553	5	2
1996	547	484	509	252	4	2
1997	538	476	711	352	8	4
1998	541	479	574	284	15	7
1999	463	410	607	300	14	6
2000	436	386	495	245	16	7
2001	488	432	510	252	13	6
2002	406	359	438	217	15	7
2003	405	358	416	206	17	8
2004	280	248	299	148	10	4
2005	266	235	232	115	12	5
2006	234	207	143	71	14	6
2007	199	176	134	66	17	8
2008	197	174	113	56	15	7
2009	170	150	95	47	16	7
2010	183	162	108	53	26	12
2011	160	142	107	53	13	6
2012	187	165	99	49	18	8
2013	193	171	122	60	17	8
2014	168	149	99	49	16	7
2015	190	168	125	62	9	4

Table 6. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 3** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	51				
1986	11	10				
1987	61	54				
1988	352	313				
1989	792	704			9	4
1990	163	145	22	12	13	6
1991	140	124	48	25	NA	NA
1992	49	44	41	22	2	1
1993	340	302	NA	NA	2	1
1994	319	284	34	18	4	2
1995	879	782	1,117	592	5	2
1996	547	486	509	270	4	2
1997	538	478	711	377	8	4
1998	541	481	574	304	15	7
1999	463	412	607	321	14	6
2000	436	388	495	262	16	7
2001	488	434	510	270	13	6
2002	406	361	438	232	15	7
2003	405	360	416	220	17	8
2004	280	249	299	158	10	5
2005	266	237	232	123	12	5
2006	234	208	143	76	14	6
2007	199	177	134	71	17	8
2008	197	175	113	60	15	7
2009	170	151	95	50	16	7
2010	183	163	108	57	26	12
2011	160	142	107	57	13	6
2012	187	166	99	52	18	8
2013	193	172	122	65	17	8
2014	168	149	99	52	16	7
2015	190	169	125	66	9	5

Table 7. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 4** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	54				
1986	11	10				
1987	61	58				
1988	352	335				
1989	792	754			9	4
1990	163	155	22	11	13	6
1991	140	133	48	23	NA	NA
1992	49	47	41	20	2	1
1993	340	324	NA	NA	2	1
1994	319	304	34	16	4	2
1995	879	837	1,117	539	5	2
1996	547	521	509	246	4	2
1997	538	512	711	343	8	4
1998	541	515	574	277	15	7
1999	463	441	607	293	14	6
2000	436	415	495	239	16	7
2001	488	465	510	246	13	6
2002	406	387	438	211	15	7
2003	405	386	416	201	17	8
2004	280	267	299	144	10	4
2005	266	253	232	112	12	5
2006	234	223	143	69	14	6
2007	199	190	134	65	17	8
2008	197	188	113	55	15	7
2009	170	162	95	46	16	7
2010	183	174	108	52	26	12
2011	160	152	107	52	13	6
2012	187	178	99	48	18	8
2013	193	184	122	59	17	8
2014	168	160	99	48	16	7
2015	190	181	125	60	9	4

Table 8. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 5** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	50				
1986	11	10				
1987	61	53				
1988	352	308				
1989	792	692			9	4
1990	163	143	22	11	13	6
1991	140	122	48	24	NA	NA
1992	49	43	41	21	2	1
1993	340	297	NA	NA	2	1
1994	319	279	34	17	4	2
1995	879	769	1,117	567	5	2
1996	547	478	509	258	4	2
1997	538	470	711	361	8	4
1998	541	473	574	291	15	7
1999	463	405	607	308	14	6
2000	436	381	495	251	16	7
2001	488	427	510	259	13	6
2002	406	355	438	222	15	7
2003	405	354	416	211	17	8
2004	280	245	299	152	10	4
2005	266	233	232	118	12	5
2006	234	205	143	73	14	6
2007	199	174	134	68	17	8
2008	197	172	113	57	15	7
2009	170	149	95	48	16	7
2010	183	160	108	55	26	12
2011	160	140	107	54	13	6
2012	187	164	99	50	18	8
2013	193	169	122	62	17	8
2014	168	147	99	50	16	7
2015	190	166	125	63	9	4

Table 9. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 6** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	51				
1986	11	10				
1987	61	55				
1988	352	315				
1989	792	708			9	4
1990	163	146	22	11	13	6
1991	140	125	48	24	NA	NA
1992	49	44	41	20	2	1
1993	340	304	NA	NA	2	1
1994	319	285	34	17	4	2
1995	879	786	1,117	550	5	2
1996	547	489	509	251	4	2
1997	538	481	711	350	8	4
1998	541	484	574	283	15	7
1999	463	414	607	299	14	6
2000	436	390	495	244	16	7
2001	488	437	510	251	13	6
2002	406	363	438	216	15	7
2003	405	362	416	205	17	8
2004	280	250	299	147	10	4
2005	266	238	232	114	12	5
2006	234	209	143	70	14	6
2007	199	178	134	66	17	8
2008	197	176	113	56	15	7
2009	170	152	95	47	16	7
2010	183	164	108	53	26	12
2011	160	143	107	53	13	6
2012	187	167	99	49	18	8
2013	193	173	122	60	17	8
2014	168	150	99	49	16	7
2015	190	170	125	62	9	4

Table 10. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 9** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	51				
1986	11	10				
1987	61	54				
1988	352	314				
1989	792	706			9	4
1990	163	145	22	11	13	6
1991	140	125	48	24	NA	NA
1992	49	44	41	20	2	1
1993	340	303	NA	NA	2	1
1994	319	285	34	17	4	2
1995	879	784	1,117	558	5	2
1996	547	488	509	254	4	2
1997	538	480	711	355	8	4
1998	541	483	574	287	15	7
1999	463	413	607	303	14	6
2000	436	389	495	247	16	7
2001	488	435	510	255	13	6
2002	406	362	438	219	15	7
2003	405	361	416	208	17	8
2004	280	250	299	149	10	4
2005	266	237	232	116	12	5
2006	234	209	143	71	14	6
2007	199	178	134	67	17	8
2008	197	176	113	56	15	7
2009	170	152	95	47	16	7
2010	183	163	108	54	26	12
2011	160	143	107	53	13	6
2012	187	167	99	49	18	8
2013	193	172	122	61	17	8
2014	168	150	99	49	16	7
2015	190	169	125	62	9	4

Table 11. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 10** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	51				
1986	11	10				
1987	61	54				
1988	352	314				
1989	792	706			9	4
1990	163	145	22	11	13	6
1991	140	125	48	24	NA	NA
1992	49	44	41	20	2	1
1993	340	303	NA	NA	2	1
1994	319	284	34	17	4	2
1995	879	783	1,117	558	5	2
1996	547	487	509	254	4	2
1997	538	479	711	355	8	4
1998	541	482	574	287	15	7
1999	463	413	607	303	14	6
2000	436	389	495	247	16	7
2001	488	435	510	255	13	6
2002	406	362	438	219	15	7
2003	405	361	416	208	17	8
2004	280	250	299	149	10	4
2005	266	237	232	116	12	5
2006	234	209	143	71	14	6
2007	199	177	134	67	17	8
2008	197	176	113	56	15	7
2009	170	152	95	47	16	7
2010	183	163	108	54	26	12
2011	160	143	107	53	13	6
2012	187	167	99	49	18	8
2013	193	172	122	61	17	8
2014	168	150	99	49	16	7
2015	190	169	125	62	9	4

Table 12. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 11** model fit to **EAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	57	51				
1986	11	10				
1987	61	54				
1988	352	314				
1989	792	706			9	4
1990	163	145	22	11	13	6
1991	140	125	48	24	NA	NA
1992	49	44	41	20	2	1
1993	340	303	NA	NA	2	1
1994	319	284	34	17	4	2
1995	879	783	1,117	558	5	2
1996	547	487	509	254	4	2
1997	538	479	711	355	8	4
1998	541	482	574	287	15	7
1999	463	413	607	303	14	6
2000	436	389	495	247	16	7
2001	488	435	510	255	13	6
2002	406	362	438	219	15	7
2003	405	361	416	208	17	8
2004	280	250	299	149	10	4
2005	266	237	232	116	12	5
2006	234	209	143	71	14	6
2007	199	177	134	67	17	8
2008	197	176	113	56	15	7
2009	170	152	95	47	16	7
2010	183	163	108	54	26	12
2011	160	143	107	53	13	6
2012	187	167	99	49	18	8
2013	193	172	122	61	17	8
2014	168	150	99	49	16	7
2015	190	169	125	62	9	4

Table 13. Parameter estimates and coefficient of variations (CV) with the 2015 MMB (MMB on 15 Feb 2016) for scenarios 1, 2, 3, and 4 for the golden king crab data from the EAG, 1985/86–2015/16. Recruitment and fishing mortality deviations and initial size frequency determination parameters were omitted from this list.

Parameter	Scenario 1		Scenario 2		Scenario 3		Scenario 4		Limits
	Estimate	CV	Estimate	CV	Estimate	CV	Estimate	CV	
log_ω ₁ (growth incr. intercept)	2.54	0.01	2.54	0.01	2.54	0.01	2.54	0.01	1.0, 4.5
ω ₂ (growth incr. slope)	-8.24	0.21	-8.24	0.21	8.37	0.21	-7.65	0.23	-12.0,-5.0
log_a (molt prob. slope)	-2.52	0.02	-2.52	0.02	2.49	0.02	-2.56	0.03	-4.61,-1.39
log_b (molt prob. L50)	4.95	0.001	4.95	0.001	4.95	0.001	4.95	0.001	3.869,5.05
σ (growth variability std)	3.68	0.03	3.68	0.03	3.68	0.03	3.69	0.03	0.1,12.0
log_total sel deltaθ, 1985–94							2.98	0.05	0,4.4
log_total sel deltaθ, 1985–04 or 1995–04	3.36	0.02	3.37	0.02	3.35	0.02	3.48	0.02	0.,4.4
log_total sel deltaθ, 2005-15	2.99	0.03	2.98	0.03	2.94	0.03	3.01	0.03	0.,4.4
log_ret. sel deltaθ, 1985-15	1.85	0.02	1.85	0.02	1.85	0.02	1.86	0.02	0.,4.4
log_maturity delta_mat	3.80	0.48	3.80	0.48	3.80	0.48	3.80	0.48	0,4.4
log_maturity mat ₅₀	4.71	0.04	4.71	0.04	4.71	0.04	4.71	0.04	4.4,4.85
log_tot sel θ ₅₀ , 1985–94							4.85	0.004	4.0,5.0
log_tot sel θ ₅₀ , 1985–04 or 1995–04	4.84	0.002	4.84	0.003	4.84	0.002	4.87	0.004	4.0,5.0
log_tot sel θ ₅₀ , 2005-15	4.92	0.002	4.92	0.002	4.91	0.002	4.93	0.002	4.0,5.0
log_ret. sel θ ₅₀ , 1985-15	4.91	0.0003	4.91	0.0003	4.91	0.0003	4.91	0.0003	4.0,5.0
log_β _r (rec.distribution par.)	-1.08	0.18	-1.06	0.19	1.06	0.18	-1.05	0.20	-12.0, 12.0
Logq1 (catchability 1985-94)							-0.68	0.13	-9.0, 2.25
logq2 (catchability 1995-04)	-0.63	0.12	-0.66	0.14	-0.59	0.13	-0.46	0.26	-9.0, 2.25
logq3 (catchability 2005-15)	-1.07	0.12	-1.09	0.13	-1.25	0.11	-0.97	0.15	-9.0, 2.25
log_mean_rec (mean rec.)	0.96	0.05	0.96	0.05	1.00	0.05	0.93	0.05	0.01, 5.0
log_mean_Fpot (Pot fishery F)	-1.11	0.06	-1.12	0.07	1.21	0.06	-1.04	0.08	-15.0, -0.01
log_mean_Fground (GF byc. F)	-9.35	0.10	-9.35	0.10	9.43	0.10	-9.30	0.10	-15.0, -1.6
σ _e ² (observer CPUE additional var)	0.018	0.38	0.02	0.37	0.024	0.39	0.018	0.38	0.0, 0.15
σ _e ² (fishery CPUE additional var)	0.052	0.42			0.038	0.43	0.051	0.43	0.0,1.0
2015 MMB	10,597	0.32	10,749	0.32	11,605	0.32	10,036	0.32	

Table 14. Parameter estimates and coefficient of variations (CV) with the 2015 MMB (MMB on 15 Feb 2016) for scenarios 5, 6, 9, 10, and 11 for the golden king crab data from the **EAG**, 1985/86–2015/16. Recruitment and fishing mortality deviations and initial size frequency determination parameters were omitted from this list.

Parameter	Scenario 5		Scenario 6		Scenario 9		Scenario 10		Scenario 11		Limits
	Estimate	CV	Estimate	CV	Estimate	CV	Estimate	CV	Estimate	CV	
log_ω ₁ (growth incr. intercept)	2.54	0.01	2.54	0.01	2.54	0.01	2.54	0.01	2.54	0.01	1.0, 4.5
ω ₂ (growth incr. slope)	-8.31	0.21	-8.12	0.21	-8.24	0.21	-8.25	0.21	-8.25	-0.21	-12.0,-5.0
log_a (molt prob. slope)	-2.48	0.02	-2.55	0.02	-2.52	0.02	-2.52	0.02	-2.52	-0.02	-4.61,-1.39
log_b (molt prob. L50)	4.95	0.001	4.95	0.001	4.95	0.001	4.95	0.001	4.95	0.001	3.869,5.05
σ (growth variability std)	3.68	0.03	3.68	0.03	3.68	0.03	3.68	0.03	3.68	0.03	0.1,12.0
log_total sel deltaθ, 1985-04	3.38	0.02	3.34	0.02	3.36	0.02	3.37	0.02	3.37	0.02	0,4.4
log_total sel deltaθ, 2005-15	2.98	0.03	3.00	0.03	2.99	0.03	2.99	0.03	2.99	0.03	0,4.4
log_ret. sel deltaθ, 1985-15	1.85	0.02	1.86	0.02	1.85	0.02	1.85	0.02	1.85	0.02	0,4.4
log_maturity delta_mat	3.80	0.48	3.80	0.48			3.80	0.48			0,4.4
log_maturity mat ₅₀	4.71	0.04	4.71	0.04			4.71	0.04			4.4,4.85
log_tot sel θ ₅₀ , 1985-04	4.83	0.002	4.85	0.002	4.84	0.002	4.84	0.002	4.84	0.002	4.0,5.0
log_tot sel θ ₅₀ , 2005-15	4.92	0.002	4.93	0.002	4.92	0.002	4.92	0.002	4.92	0.002	4.0,5.0
log_ret. sel θ ₅₀ , 1985-15	4.91	0.0003	4.91	0.0003	4.91	0.0003	4.91	0.0003	4.91	0.0003	4.0,5.0
log_β _r (rec.distribution par.)	-1.07	0.19	-1.09	0.18	-1.08	0.18	-1.08	0.19	-1.08	-0.19	-12.0, 12.0
logq2 (catchability 1985-04)	-0.56	0.13	-0.71	0.11	-0.63	0.12	-0.62	0.12	-0.62	-0.12	-9.0, 2.25
logq3 (catchability 2005-15)	-1.02	0.12	-1.11	0.12	-1.07	0.12	-1.06	0.12	-1.06	-0.12	-9.0, 2.25
log_mean_rec (mean rec.)	0.72	0.06	1.22	0.04	0.96	0.05	0.94	0.05	0.94	0.05	0.01, 5.0
log_mean_Fpot (Pot fishery F)	-1.06	0.06	-1.17	0.06	-1.11	0.06	-1.11	0.06	-1.11	-0.06	-15.0, -0.01
log_mean_Fground (GF byc. F)	-9.24	0.10	-9.48	0.10	-9.35	0.10	-9.34	0.10	-9.34	-0.10	-15.0, -1.6
σ _e ² (observer CPUE additional var)	0.017	0.37	0.020	0.40	0.018	0.38	0.018	0.38	0.018	0.38	0.0, 0.15
σ _e ² (fishery CPUE additional var)	0.051	0.42	0.052	0.43	0.052	0.42	0.052	0.42	0.052	0.42	0.0,1.0
2015 MMB	9,676	0.31	11,711	0.32	12,051	0.15	10,518	0.32	11,959	0.15	

Table 15. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 1** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=18,488$ $MMB_{35}=6,276$			
1985	1.77			9,843	0.06
1986	1.06	6,617	0.28	8,359	0.04
1987	4.45	6,412	0.26	6,535	0.04
1988	4.08	6,102	0.31	5,424	0.05
1989	1.91	5,118	0.34	4,880	0.07
1990	2.95	5,376	0.32	4,537	0.06
1991	3.94	5,515	0.32	4,785	0.06
1992	2.34	5,275	0.33	4,533	0.05
1993	2.10	5,444	0.32	4,627	0.05
1994	2.63	5,087	0.31	5,065	0.04
1995	2.49	4,536	0.32	4,546	0.04
1996	2.40	4,645	0.32	3,919	0.04
1997	3.29	5,006	0.32	4,075	0.05
1998	3.03	5,475	0.32	4,213	0.05
1999	3.27	6,176	0.32	4,703	0.06
2000	3.09	6,809	0.32	5,419	0.06
2001	2.34	7,183	0.31	6,139	0.06
2002	3.07	7,711	0.30	6,783	0.07
2003	2.62	8,037	0.30	7,203	0.07
2004	2.22	8,186	0.30	7,578	0.08
2005	3.38	8,470	0.29	7,881	0.08
2006	2.60	8,602	0.29	7,867	0.08
2007	2.46	8,689	0.30	8,103	0.09
2008	4.19	9,164	0.29	8,324	0.09
2009	2.81	9,473	0.30	8,337	0.10
2010	2.66	9,698	0.30	8,887	0.10
2011	3.56	10,031	0.29	9,338	0.10
2012	3.50	10,362	0.30	9,448	0.10
2013	2.91	10,530	0.30	9,699	0.10
2014	3.25	10,697	0.31	10,057	0.11
2015	2.84	10,597	0.32	10,205	0.13
2016	2.61	10,533	0.32		

Table 16. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 2** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=18,610$ $MMB_{35}=6,329$			
1985	1.69			9,908	0.06
1986	1.03	6,590	0.28	8,403	0.04
1987	4.29	6,315	0.26	6,523	0.04
1988	4.30	6,034	0.31	5,368	0.05
1989	1.87	5,056	0.34	4,759	0.07
1990	2.92	5,323	0.32	4,461	0.07
1991	3.99	5,481	0.32	4,741	0.06
1992	2.34	5,255	0.33	4,490	0.05
1993	2.07	5,427	0.33	4,602	0.05
1994	2.61	5,065	0.31	5,055	0.04
1995	2.46	4,502	0.32	4,534	0.04
1996	2.40	4,605	0.32	3,894	0.05
1997	3.34	4,980	0.32	4,036	0.05
1998	3.06	5,472	0.32	4,173	0.06
1999	3.31	6,202	0.32	4,689	0.06
2000	3.13	6,868	0.32	5,437	0.07
2001	2.37	7,270	0.32	6,189	0.07
2002	3.12	7,827	0.30	6,866	0.08
2003	2.64	8,171	0.30	7,313	0.08
2004	2.24	8,330	0.30	7,715	0.08
2005	3.40	8,618	0.29	8,031	0.09
2006	2.62	8,750	0.30	8,019	0.09
2007	2.49	8,836	0.30	8,252	0.10
2008	4.22	9,315	0.29	8,472	0.10
2009	2.84	9,630	0.30	8,485	0.10
2010	2.69	9,857	0.30	9,040	0.10
2011	3.59	10,194	0.29	9,496	0.10
2012	3.54	10,533	0.30	9,610	0.11
2013	2.93	10,702	0.31	9,866	0.11
2014	3.25	10,862	0.31	10,230	0.12
2015	2.84	10,749	0.32	10,378	0.13
2016	2.61	10,639	0.32		

Table 17. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 3** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year *y*. Mature male biomass for fishing year *y* was estimated on February 15 of year *y*+1, after the year *y* fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=19,355$ $MMB_{35}=6,546$			
1985	1.80			9,911	0.06
1986	1.07	6,628	0.28	8,375	0.04
1987	4.41	6,403	0.26	6,536	0.04
1988	4.08	6,088	0.31	5,423	0.05
1989	1.89	5,094	0.34	4,875	0.07
1990	3.00	5,362	0.32	4,527	0.06
1991	3.92	5,499	0.32	4,759	0.06
1992	2.45	5,295	0.33	4,522	0.05
1993	2.17	5,505	0.32	4,628	0.05
1994	2.71	5,202	0.31	5,104	0.04
1995	2.61	4,722	0.32	4,643	0.04
1996	2.54	4,905	0.32	4,081	0.05
1997	3.53	5,374	0.32	4,309	0.05
1998	3.29	5,979	0.32	4,533	0.06
1999	3.56	6,835	0.32	5,151	0.06
2000	3.39	7,632	0.32	6,026	0.07
2001	2.58	8,143	0.31	6,914	0.07
2002	3.33	8,786	0.30	7,720	0.07
2003	2.80	9,179	0.30	8,260	0.08
2004	2.37	9,356	0.30	8,725	0.08
2005	3.61	9,664	0.29	9,064	0.09
2006	2.81	9,812	0.29	9,045	0.09
2007	2.68	9,916	0.30	9,290	0.10
2008	4.43	10,415	0.28	9,526	0.10
2009	2.95	10,721	0.30	9,555	0.10
2010	2.81	10,924	0.30	10,132	0.10
2011	3.75	11,233	0.29	10,565	0.11
2012	3.63	11,530	0.30	10,634	0.11
2013	3.00	11,644	0.31	10,858	0.12
2014	3.38	11,759	0.31	11,178	0.13
2015	2.95	11,605	0.32	11,260	0.15
2016	2.70	11,291	0.32		

Table 18. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with coefficient of variation (CV) for **scenario 4** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=17,962$ $MMB_{35}=6,106$			
1985	1.70			9,775	0.06
1986	1.01	8,751	0.26	8,377	0.04
1987	4.39	6,674	0.28	6,586	0.04
1988	3.80	6,464	0.26	5,472	0.05
1989	1.82	6,082	0.31	4,879	0.07
1990	3.17	5,051	0.34	4,442	0.07
1991	3.60	5,360	0.32	4,655	0.06
1992	2.15	5,449	0.32	4,479	0.05
1993	2.14	5,146	0.33	4,517	0.05
1994	2.53	5,291	0.32	4,861	0.04
1995	2.41	4,908	0.31	4,330	0.04
1996	2.31	4,330	0.32	3,700	0.05
1997	3.14	4,401	0.33	3,822	0.06
1998	2.90	4,701	0.32	3,912	0.06
1999	3.11	5,098	0.33	4,320	0.07
2000	3.01	5,717	0.33	4,954	0.07
2001	2.26	6,294	0.32	5,591	0.08
2002	3.03	6,633	0.32	6,191	0.08
2003	2.55	7,162	0.31	6,610	0.08
2004	2.10	7,497	0.30	7,003	0.08
2005	3.32	7,646	0.30	7,328	0.09
2006	2.52	7,940	0.29	7,320	0.09
2007	2.37	8,076	0.30	7,550	0.09
2008	4.12	8,160	0.30	7,776	0.10
2009	2.69	8,642	0.29	7,794	0.10
2010	2.59	8,936	0.30	8,329	0.10
2011	3.48	9,155	0.31	8,767	0.10
2012	3.40	9,489	0.30	8,882	0.10
2013	2.83	9,817	0.30	9,132	0.11
2014	3.13	9,983	0.31	9,481	0.12
2015	2.75	10,141	0.31	9,634	0.13
2016	2.54	10,036	0.32		

Table 19. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 5** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year *y*. Mature male biomass for fishing year *y* was estimated on February 15 of year *y*+1, after the year *y* fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=20,065$ $MMB_{35}=6,783$			
1985	1.52			9,377	0.05
1986	0.90	6,213	0.28	7,976	0.04
1987	3.94	6,019	0.26	6,242	0.04
1988	3.56	5,694	0.30	5,211	0.05
1989	1.64	4,737	0.34	4,686	0.07
1990	2.57	4,993	0.32	4,315	0.06
1991	3.42	5,093	0.32	4,566	0.06
1992	2.02	4,851	0.33	4,313	0.05
1993	1.82	5,053	0.32	4,370	0.04
1994	2.26	4,707	0.31	4,818	0.03
1995	2.13	4,145	0.32	4,321	0.04
1996	2.04	4,229	0.32	3,683	0.04
1997	2.76	4,516	0.32	3,815	0.04
1998	2.52	4,901	0.32	3,920	0.05
1999	2.71	5,506	0.32	4,336	0.05
2000	2.53	6,054	0.31	4,974	0.05
2001	1.93	6,400	0.31	5,612	0.06
2002	2.52	6,897	0.30	6,192	0.06
2003	2.11	7,207	0.30	6,605	0.07
2004	1.78	7,368	0.30	6,975	0.07
2005	2.72	7,625	0.28	7,272	0.07
2006	2.08	7,738	0.29	7,277	0.08
2007	1.99	7,829	0.29	7,480	0.08
2008	3.38	8,228	0.28	7,682	0.09
2009	2.27	8,510	0.30	7,694	0.09
2010	2.15	8,741	0.30	8,183	0.09
2011	2.90	9,064	0.29	8,615	0.09
2012	2.86	9,391	0.29	8,749	0.09
2013	2.36	9,585	0.30	9,007	0.10
2014	2.61	9,764	0.30	9,374	0.11
2015	2.24	9,676	0.31	9,555	0.13
2016	2.06	9,857	0.31		

Table 20. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 6** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=17,523$ $MMB_{35}=5,996$			
1985	2.14			10,515	0.06
1986	1.28	7,188	0.28	8,905	0.05
1987	5.17	6,962	0.27	6,949	0.05
1988	4.82	6,676	0.31	5,723	0.05
1989	2.29	5,654	0.34	5,156	0.07
1990	3.49	5,911	0.32	4,855	0.07
1991	4.70	6,105	0.32	5,094	0.06
1992	2.80	5,866	0.33	4,840	0.05
1993	2.50	5,990	0.32	4,984	0.05
1994	3.18	5,624	0.31	5,407	0.04
1995	3.04	5,099	0.32	4,860	0.04
1996	2.95	5,250	0.32	4,255	0.05
1997	4.11	5,728	0.32	4,449	0.05
1998	3.81	6,322	0.32	4,640	0.06
1999	4.15	7,162	0.32	5,239	0.06
2000	3.93	7,909	0.32	6,068	0.07
2001	2.96	8,306	0.32	6,899	0.07
2002	3.88	8,855	0.30	7,618	0.08
2003	3.40	9,184	0.30	8,027	0.08
2004	2.89	9,300	0.30	8,388	0.08
2005	4.37	9,617	0.29	8,680	0.09
2006	3.39	9,765	0.30	8,630	0.09
2007	3.19	9,836	0.30	8,903	0.10
2008	5.39	10,411	0.29	9,142	0.10
2009	3.63	10,748	0.30	9,147	0.10
2010	3.43	10,949	0.31	9,769	0.10
2011	4.51	11,277	0.30	10,235	0.10
2012	4.41	11,594	0.30	10,304	0.10
2013	3.72	11,710	0.31	10,528	0.11
2014	4.18	11,844	0.31	10,852	0.12
2015	3.70	11,711	0.32	10,944	0.13
2016	3.39	11,359	0.33		

Table 21. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 9** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=20,164$ $MMB_{35}=6,879$			
1985	1.77			9,843	0.06
1986	1.06	7,556	0.04	8,359	0.04
1987	4.45	6,924	0.05	6,535	0.04
1988	4.08	7,067	0.05	5,424	0.05
1989	1.91	6,288	0.06	4,880	0.07
1990	2.95	6,251	0.05	4,537	0.06
1991	3.94	6,349	0.04	4,785	0.06
1992	2.34	6,373	0.04	4,533	0.05
1993	2.10	6,439	0.03	4,627	0.05
1994	2.63	5,884	0.04	5,065	0.04
1995	2.49	5,317	0.04	4,546	0.04
1996	2.40	5,457	0.04	3,919	0.04
1997	3.29	5,774	0.05	4,075	0.05
1998	3.03	6,436	0.05	4,213	0.05
1999	3.27	7,208	0.06	4,703	0.06
2000	3.09	7,955	0.06	5,419	0.06
2001	2.34	8,408	0.07	6,139	0.06
2002	3.07	8,800	0.07	6,783	0.07
2003	2.62	9,232	0.07	7,203	0.07
2004	2.22	9,379	0.08	7,578	0.08
2005	3.38	9,520	0.08	7,881	0.08
2006	2.60	9,870	0.08	7,867	0.08
2007	2.46	9,927	0.09	8,103	0.09
2008	4.19	10,257	0.09	8,324	0.09
2009	2.81	10,946	0.09	8,337	0.10
2010	2.66	11,107	0.09	8,887	0.10
2011	3.56	11,310	0.10	9,338	0.10
2012	3.50	11,773	0.10	9,448	0.10
2013	2.91	12,044	0.11	9,699	0.10
2014	3.25	12,119	0.13	10,057	0.11
2015	2.84	12,051	0.15	10,205	0.13
2016	2.61	11,910	0.17		

Table 22. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 10** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=18,591$ $MMB_{35}=6,313$			
1985	1.75			9,800	0.06
1986	1.04	6,580	0.28	8,323	0.04
1987	4.40	6,376	0.26	6,508	0.04
1988	4.03	6,065	0.31	5,404	0.05
1989	1.88	5,083	0.34	4,862	0.07
1990	2.91	5,341	0.32	4,517	0.06
1991	3.89	5,477	0.32	4,765	0.06
1992	2.31	5,237	0.33	4,513	0.05
1993	2.07	5,409	0.32	4,604	0.05
1994	2.59	5,052	0.31	5,043	0.04
1995	2.46	4,500	0.32	4,525	0.04
1996	2.36	4,607	0.32	3,897	0.04
1997	3.24	4,961	0.32	4,051	0.05
1998	2.98	5,421	0.32	4,186	0.05
1999	3.22	6,113	0.32	4,669	0.06
2000	3.03	6,739	0.32	5,378	0.06
2001	2.30	7,111	0.31	6,091	0.06
2002	3.02	7,637	0.30	6,729	0.07
2003	2.57	7,961	0.30	7,149	0.07
2004	2.18	8,112	0.30	7,524	0.08
2005	3.32	8,394	0.29	7,827	0.08
2006	2.55	8,525	0.29	7,815	0.08
2007	2.42	8,612	0.30	8,048	0.09
2008	4.11	9,080	0.29	8,268	0.09
2009	2.76	9,387	0.30	8,281	0.10
2010	2.62	9,614	0.30	8,825	0.10
2011	3.50	9,945	0.29	9,275	0.10
2012	3.44	10,278	0.29	9,388	0.10
2013	2.86	10,448	0.30	9,640	0.10
2014	3.19	10,617	0.31	9,999	0.11
2015	2.78	10,518	0.32	10,151	0.13
2016	2.56	10,475	0.32		

Table 23. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 11** for golden king crab in the **EAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=20,262$ $MMB_{35}=6,894$			
1985	1.75			9,800	0.06
1986	1.04	7,512	0.04	8,323	0.04
1987	4.40	6,885	0.05	6,508	0.04
1988	4.03	7,025	0.05	5,404	0.05
1989	1.88	6,246	0.06	4,862	0.07
1990	2.91	6,211	0.05	4,517	0.06
1991	3.89	6,306	0.04	4,765	0.06
1992	2.31	6,327	0.04	4,513	0.05
1993	2.07	6,397	0.03	4,604	0.05
1994	2.59	5,845	0.04	5,043	0.04
1995	2.46	5,276	0.04	4,525	0.04
1996	2.36	5,413	0.04	3,897	0.04
1997	3.24	5,722	0.05	4,051	0.05
1998	2.98	6,374	0.05	4,186	0.05
1999	3.22	7,136	0.06	4,669	0.06
2000	3.03	7,874	0.06	5,378	0.06
2001	2.30	8,323	0.07	6,091	0.06
2002	3.02	8,715	0.07	6,729	0.07
2003	2.57	9,145	0.07	7,149	0.07
2004	2.18	9,293	0.08	7,524	0.08
2005	3.32	9,434	0.08	7,827	0.08
2006	2.55	9,780	0.08	7,815	0.08
2007	2.42	9,837	0.09	8,048	0.09
2008	4.11	10,162	0.09	8,268	0.09
2009	2.76	10,844	0.09	8,281	0.10
2010	2.62	11,008	0.09	8,825	0.10
2011	3.50	11,212	0.10	9,275	0.10
2012	3.44	11,675	0.10	9,388	0.10
2013	2.86	11,948	0.11	9,640	0.10
2014	3.19	12,026	0.13	9,999	0.11
2015	2.78	11,959	0.15	10,151	0.13
2016	2.56	11,840	0.17		

Table 24. Negative log-likelihood values of the fits for scenarios (Sc) 1 (base), 2 (drops retained catch CPUE), 3 (includes 1991-1994 observer CPUE), 4 (three catchability and total selectivity parameter sets), 5 (low bracketing value of M), 6 (high bracketing value of M), 9 (knife-edge maturity), 10 (EAG only data based M), and 11 (EAG only data based M with knife-edge maturity) for golden king crab in the EAG. Differences in likelihood values are given for scenarios with the same number of data points (base) and free parameters. Likelihood components with zero entry in the entire rows are omitted. RetdcatchB= retained catch biomass.

Likelihood Component	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5	Sc 6	Sc 9	Sc 10	Sc11	Sc3- Sc 1	Sc 5 - Sc 1	Sc 6 - Sc 1	Sc 10 - Sc 1	Sc 11 - Sc 9
Number of free parameters	139	138	139	142	139	139	137	139	137					
Data	base	base	base	base	base	base	base	base	base					
Retlencomp	-1152.09	-1151.47	-1150.71	-1164.02	-1148.80	-1152.06	-1152.09	-1151.96	-1151.96	1.38	3.29	0.03	0.13	0.13
Totalencomp	-1201.41	-1199.97	-1213.01	-1194.82	-1204.80	-1198.51	-1201.41	-1201.65	-1201.65	-11.6	-3.39	2.9	-0.24	-0.24
Observer cpue	-11.92	-11.86	-5.96	-12.21	-12.62	-10.93	-11.92	-11.99	-11.99	5.96	-0.7	0.99	-0.07	-0.07
RetdcatchB	7.08	6.85	7.46	7.14	7.22	6.94	7.08	7.09	7.09	0.38	0.14	-0.14	0.01	0.01
TotalcatchB	20.12	19.99	20.30	20.47	20.14	20.14	20.12	20.12	20.12	0.18	0.02	0.02	0.00	0.00
GdiscdcatchB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rec_dev	5.77	6.10	6.13	5.83	7.50	5.20	5.77	5.86	5.86	0.36	1.73	-0.57	0.09	0.09
Pot F_dev	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Gbyc_F_dev	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
Tag	2690.70	2690.59	2690.35	2688.91	2690.67	2690.72	2690.70	2690.70	2690.70	-0.35	-0.03	0.02	0.00	0.00
Fishery cpue	-0.52	-	-2.54	-0.68	-0.57	-0.45	-0.52	-0.52	-0.52	-2.02	-0.05	0.07	0.00	0.00
Maturity	0.17	0.17	0.17	0.17	0.17	0.17	-	0.17	-	0.00	0.00	0.00	0.00	-
Total	357.95	360.43	352.23	350.83	358.96	361.25	357.78	357.87	357.70	-5.72	1.01	3.3	-0.08	-0.08

Table 25. Time series of annual retained catch (1981–1984 values are in number of crabs and the rest in t), estimated total male catch (weight of crabs on the deck without applying any handling mortality), estimated groundfish fishery discard mortality of males (handling mortality rates of 0.5 for pot gear and 0.8 for trawl gear were applied), and pot fishery effort (number of pot lifts) for the **WAG** golden king crab stock. The crab weights are for the size range ≥ 101 mm CL. NA: no observer sampling to compute catch.

Year	Retained Catch Biomass	Total Catch Biomass (t)	Ground-fish Discard Mortality (t)	Pot Fishery Effort (no. pot lifts)
1981	38,436			
1982	1,114,351			
1983	1,288,357			
1984	188,782			
1985	1,996			118,563
1986	4,200			277,780
1987	2,496			160,229
1988	2,441			166,409
1989	3,028		0.08	202,541
1990	1,621	3,684	0.57	108,533
1991	1,347	2,565	0.03	101,429
1992	1,019	1,517	0.43	69,443
1993	661	2,814	0.00	127,764
1994	1,606	4,942	0.12	195,138
1995	1,178	2,128	0.71	115,248
1996	1,223	1,763	1.03	99,267
1997	1,055	1,793	0.37	86,811
1998	926	1,085	1.85	35,975
1999	1,227	2,087	1.42	107,040
2000	1,369	2,228	0.80	101,239
2001	1,275	2,133	0.43	105,512
2002	1,207	1,889	0.92	78,979
2003	1,238	1,855	0.31	66,236
2004	1,254	1,874	0.95	56,846
2005	1,223	1,772	3.43	30,116
2006	1,041	1,539	2.27	26,870
2007	1,222	1,602	1.50	29,950
2008	1,199	1,721	6.43	26,200
2009	1,324	1,666	4.30	26,489
2010	1,328	1,579	2.47	29,994
2011	1,323	1,506	2.24	26,326
2012	1,395	1,812	3.73	32,716
2013	1,431	1,891	3.85	41,835
2014	1,248	1,583	2.45	41,548
2015	1,166	1,548	1.43	41,108

Table 26. Time series of nominal annual pot fishery retained, observer retained, and observer total catch-per-unit-effort (CPUE, number of crabs per pot lift), observer sample size (number of sampled pots), and GLM estimated observer CPUE Index for the **WAG** golden king crab stock. Observer retained CPUE includes retained and non-retained legal size crabs.

Year	Pot Fishery Nominal Retained CPUE	Obs. Nominal Retained CPUE	Obs. Nominal Total CPUE	Obs. Sample Size (no.pot lifts)	Obs. CPUE Index
1990	6.98	11.83	26.67	340	
1991	7.43	7.78	19.17	857	
1992	5.90	6.39	16.83	690	
1993	4.43	6.54	17.23	174	
1994	4.08	6.71	19.23	1,270	
1995	4.65	4.96	14.28	5,598	1.17
1996	6.07	5.42	13.54	7,194	0.95
1997	6.56	6.52	15.03	3,985	0.96
1998	11.40	9.41	23.09	1,876	1.07
1999	6.32	5.93	14.49	4,523	0.91
2000	6.97	6.40	16.64	4,740	0.85
2001	6.51	5.99	14.66	4,454	0.83
2002	8.42	7.47	17.37	2,509	0.92
2003	10.22	9.29	18.17	3,334	1.16
2004	12.06	11.14	22.45	2,619	1.27
2005	21.23	23.89	36.23	1,365	1.18
2006	19.64	24.01	33.47	1,183	1.10
2007	20.05	21.04	32.46	1,082	1.00
2008	22.43	24.57	38.16	979	1.15
2009	23.72	26.55	34.08	892	1.23
2010	20.88	22.35	29.05	867	1.08
2011	23.40	23.79	31.13	837	1.11
2012	20.57	22.82	30.76	1,109	1.07
2013	16.42	16.96	25.01	1,223	0.81
2014	15.29	15.28	22.67	1,137	0.72
2015	14.71	15.74	22.14	1,296	0.74

Table 27. Time series of GLM estimated CPUE indices and coefficient of variations (CV) for the fish ticket based retained catch-per-pot lift for the **WAG** golden king crab stock. The GLM was fitted to the 1985/86 to 1998/99 time series of data.

Year	CPUE Index	CV
1985	2.02	0.03
1986	1.72	0.03
1987	1.21	0.04
1988	1.35	0.03
1989	1.14	0.03
1990	0.87	0.04
1991	0.72	0.06
1992	0.72	0.06
1993	0.68	0.08
1994	0.82	0.05
1995	0.88	0.05
1996	0.84	0.04
1997	0.77	0.04
1998	1.05	0.04

Table 28. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 1** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	23				
1986	23	12				
1987	8	4				
1988	286	144				
1989	513	258			7	5
1990	205	103	190	93	6	5
1991	102	51	104	51	1	1
1992	76	38	94	46	3	2
1993	378	190	62	30	NA	NA
1994	367	185	119	58	2	2
1995	705	355	907	443	5	4
1996	817	412	1,061	519	8	6
1997	984	496	1,116	545	6	5
1998	613	309	638	312	14	11
1999	915	461	1,155	565	18	14
2000	1,029	518	1,205	589	11	8
2001	898	452	975	477	11	8
2002	628	316	675	330	16	12
2003	688	347	700	342	8	6
2004	449	226	488	239	9	7
2005	337	170	220	108	6	5
2006	337	170	321	157	14	11
2007	276	139	257	126	17	13
2008	318	160	258	126	19	15
2009	362	182	292	143	24	18
2010	328	165	222	109	13	10
2011	295	149	252	123	14	11
2012	288	145	241	118	18	14
2013	327	165	236	115	17	13
2014	305	154	219	107	18	14
2015	287	145	243	119	10	8

Table 29. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 2** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	23				
1986	23	12				
1987	8	4				
1988	286	144				
1989	513	258			7	5
1990	205	103	190	88	6	5
1991	102	51	104	48	1	1
1992	76	38	94	44	3	2
1993	378	190	62	29	NA	NA
1994	367	184	119	55	2	2
1995	705	354	907	421	5	4
1996	817	410	1,061	492	8	6
1997	984	494	1,116	518	6	5
1998	613	308	638	296	14	11
1999	915	459	1,155	536	18	14
2000	1,029	517	1,205	559	11	8
2001	898	451	975	453	11	8
2002	628	315	675	313	16	12
2003	688	345	700	325	8	6
2004	449	225	488	227	9	7
2005	337	169	220	102	6	5
2006	337	169	321	149	14	11
2007	276	139	257	119	17	13
2008	318	160	258	120	19	14
2009	362	182	292	136	24	18
2010	328	165	222	103	13	10
2011	295	148	252	117	14	11
2012	288	145	241	112	18	14
2013	327	164	236	110	17	13
2014	305	153	219	102	18	14
2015	287	144	243	113	10	8

Table 30. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 3** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	23				
1986	23	12				
1987	8	4				
1988	286	146				
1989	513	262			7	5
1990	205	105	190	92	6	5
1991	102	52	104	50	1	1
1992	76	39	94	45	3	2
1993	378	193	62	30	NA	NA
1994	367	188	119	58	2	2
1995	705	360	907	438	5	4
1996	817	418	1,061	513	8	6
1997	984	503	1,116	539	6	5
1998	613	313	638	308	14	11
1999	915	468	1,155	558	18	14
2000	1,029	526	1,205	582	11	8
2001	898	459	975	471	11	8
2002	628	321	675	326	16	12
2003	688	352	700	338	8	6
2004	449	230	488	236	9	7
2005	337	172	220	106	6	5
2006	337	172	321	155	14	11
2007	276	141	257	124	17	13
2008	318	163	258	125	19	15
2009	362	185	292	141	24	18
2010	328	168	222	107	13	10
2011	295	151	252	122	14	11
2012	288	147	241	116	18	14
2013	327	167	236	114	17	13
2014	305	156	219	106	18	14
2015	287	147	243	117	10	8

Table 31. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 4** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	24				
1986	23	12				
1987	8	4				
1988	286	150				
1989	513	268			7	5
1990	205	107	190	80	6	5
1991	102	53	104	44	1	1
1992	76	40	94	40	3	2
1993	378	198	62	26	NA	NA
1994	367	192	119	50	2	2
1995	705	369	907	384	5	4
1996	817	427	1,061	449	8	6
1997	984	515	1,116	472	6	5
1998	613	321	638	270	14	11
1999	915	479	1,155	489	18	14
2000	1,029	538	1,205	510	11	8
2001	898	470	975	413	11	8
2002	628	329	675	286	16	12
2003	688	360	700	296	8	6
2004	449	235	488	206	9	7
2005	337	176	220	93	6	5
2006	337	176	321	136	14	11
2007	276	144	257	109	17	13
2008	318	166	258	109	19	14
2009	362	189	292	124	24	18
2010	328	172	222	94	13	10
2011	295	154	252	107	14	11
2012	288	151	241	102	18	14
2013	327	171	236	100	17	13
2014	305	160	219	93	18	14
2015	287	150	243	103	10	8

Table 32. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 5** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	23				
1986	23	12				
1987	8	4				
1988	286	143				
1989	513	257			7	5
1990	205	103	190	94	6	5
1991	102	51	104	51	1	1
1992	76	38	94	46	3	2
1993	378	190	62	31	NA	NA
1994	367	184	119	59	2	2
1995	705	354	907	447	5	4
1996	817	410	1,061	523	8	6
1997	984	493	1,116	551	6	5
1998	613	307	638	315	14	11
1999	915	459	1,155	570	18	14
2000	1,029	516	1,205	594	11	9
2001	898	450	975	481	11	9
2002	628	315	675	333	16	12
2003	688	345	700	345	8	6
2004	449	225	488	241	9	7
2005	337	169	220	109	6	5
2006	337	169	321	158	14	11
2007	276	138	257	127	17	13
2008	318	159	258	127	19	15
2009	362	182	292	144	24	19
2010	328	164	222	110	13	10
2011	295	148	252	124	14	11
2012	288	144	241	119	18	14
2013	327	164	236	116	17	13
2014	305	153	219	108	18	14
2015	287	144	243	120	10	8

Table 33. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 6** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	22				
1986	23	11				
1987	8	4				
1988	286	143				
1989	513	256			7	5
1990	205	102	190	92	6	4
1991	102	51	104	50	1	1
1992	76	38	94	46	3	2
1993	378	188	62	30	NA	NA
1994	367	183	119	58	2	1
1995	705	351	907	440	5	4
1996	817	407	1,061	514	8	6
1997	984	490	1,116	541	6	4
1998	613	305	638	309	14	10
1999	915	456	1,155	560	18	13
2000	1,029	513	1,205	584	11	8
2001	898	448	975	473	11	8
2002	628	313	675	327	16	12
2003	688	343	700	339	8	6
2004	449	224	488	236	9	7
2005	337	168	220	107	6	4
2006	337	168	321	156	14	10
2007	276	138	257	125	17	13
2008	318	158	258	125	19	14
2009	362	180	292	142	24	18
2010	328	163	222	108	13	10
2011	295	147	252	122	14	10
2012	288	144	241	117	18	13
2013	327	163	236	114	17	13
2014	305	152	219	106	18	13
2015	287	143	243	118	10	7

Table 34. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 9** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	23				
1986	23	12				
1987	8	4				
1988	286	144				
1989	513	258			7	5
1990	205	103	190	93	6	5
1991	102	51	104	51	1	1
1992	76	38	94	46	3	2
1993	378	190	62	30	NA	NA
1994	367	185	119	58	2	2
1995	705	355	907	443	5	4
1996	817	412	1,061	519	8	6
1997	984	496	1,116	545	6	5
1998	613	309	638	312	14	11
1999	915	461	1,155	565	18	14
2000	1,029	518	1,205	589	11	8
2001	898	452	975	477	11	8
2002	628	316	675	330	16	12
2003	688	347	700	342	8	6
2004	449	226	488	239	9	7
2005	337	170	220	108	6	5
2006	337	170	321	157	14	11
2007	276	139	257	126	17	13
2008	318	160	258	126	19	15
2009	362	182	292	143	24	18
2010	328	165	222	109	13	10
2011	295	149	252	123	14	11
2012	288	145	241	118	18	14
2013	327	165	236	115	17	13
2014	305	154	219	107	18	14
2015	287	145	243	119	10	8

Table 35. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 10** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	23				
1986	23	12				
1987	8	4				
1988	286	144				
1989	513	258			7	5
1990	205	103	190	93	6	5
1991	102	51	104	51	1	1
1992	76	38	94	46	3	2
1993	378	190	62	30	NA	NA
1994	367	185	119	58	2	2
1995	705	355	907	443	5	4
1996	817	411	1,061	518	8	6
1997	984	495	1,116	545	6	5
1998	613	309	638	311	14	11
1999	915	461	1,155	564	18	14
2000	1,029	518	1,205	588	11	8
2001	898	452	975	476	11	8
2002	628	316	675	329	16	12
2003	688	346	700	342	8	6
2004	449	226	488	238	9	7
2005	337	170	220	107	6	5
2006	337	170	321	157	14	11
2007	276	139	257	125	17	13
2008	318	160	258	126	19	14
2009	362	182	292	142	24	18
2010	328	165	222	108	13	10
2011	295	148	252	123	14	11
2012	288	145	241	118	18	14
2013	327	165	236	115	17	13
2014	305	154	219	107	18	14
2015	287	144	243	119	10	8

Table 36. The initial input number of days/trips and stage-2 effective sample sizes iteratively estimated by Francis method for retained, total, and groundfish discard catch size compositions of golden king crab for **scenario 11** model fit to **WAG** data. NA: not available.

Year	Initial Input Retained Days Sample Size (no)	Stage-2 Retained Effective Sample Size (no)	Initial Input Total Days Sample Size (no)	Stage-2 Total Effective Sample Size (no)	Initial Input Groundfish Trip Sample Size (no)	Stage-2 Groundfish Effective Sample Size (no)
1985	45	23				
1986	23	12				
1987	8	4				
1988	286	144				
1989	513	258			7	5
1990	205	103	190	93	6	5
1991	102	51	104	51	1	1
1992	76	38	94	46	3	2
1993	378	190	62	30	NA	NA
1994	367	185	119	58	2	2
1995	705	355	907	443	5	4
1996	817	411	1,061	518	8	6
1997	984	495	1,116	545	6	5
1998	613	309	638	311	14	11
1999	915	461	1,155	564	18	14
2000	1,029	518	1,205	588	11	8
2001	898	452	975	476	11	8
2002	628	316	675	329	16	12
2003	688	346	700	342	8	6
2004	449	226	488	238	9	7
2005	337	170	220	107	6	5
2006	337	170	321	157	14	11
2007	276	139	257	125	17	13
2008	318	160	258	126	19	14
2009	362	182	292	142	24	18
2010	328	165	222	108	13	10
2011	295	148	252	123	14	11
2012	288	145	241	118	18	14
2013	327	165	236	115	17	13
2014	305	154	219	107	18	14
2015	287	144	243	119	10	8

Table 37. Parameter estimates and coefficient of variations (CV) with the 2015 MMB (MMB on 15 Feb 2016) for scenarios 1, 2, 3, and 4 for the golden king crab data from the **WAG**, 1985/86–2015/16. Recruitment and fishing mortality deviations and initial size frequency determination parameters were omitted from this list.

Parameter	Scenario 1		Scenario 2		Scenario 3		Scenario 4		Limits
	Estimate	CV	Estimate	CV	Estimate	CV	Estimate	CV	
log_ω ₁ (growth incr. intercept)	2.54	0.01	2.54	0.01	2.54	0.01	2.55	0.01	1.0, 4.5
ω ₂ (growth incr. slope)	-7.82	0.22	-7.68	0.22	-7.81	0.22	-8.17	0.21	-12.0,-5.0
log_a (molt prob. slope)	-2.62	0.03	-2.64	0.03	-2.62	0.03	-2.54	0.03	-4.61,-1.39
log_b (molt prob. L50)	4.95	0.001	4.95	0.001	4.95	0.001	4.96	0.001	3.869,5.05
σ (growth variability std)	3.69	0.03	3.69	0.03	3.69	0.03	3.68	0.03	0.1,12.0
log_total sel deltaθ, 1985–94							3.34	0.05	0,4.4
log_total sel deltaθ, 1985–04 or 1995–04	3.39	0.01	3.40	0.01	3.39	0.01	3.42	0.02	0.,4.4
log_total sel deltaθ, 2005-15	2.88	0.03	2.91	0.03	2.89	0.03	2.89	0.03	0.,4.4
log_ret. sel deltaθ, 1985-15	1.78	0.02	1.78	0.02	1.78	0.02	1.77	0.02	0.,4.4
log_maturity delta_mat	3.80	0.48	3.80	0.48	3.80	0.48	3.80	0.48	0,4.4
log_maturity mat ₅₀	4.71	0.04	4.71	0.04	4.71	0.04	4.71	0.04	4.4,4.85
log_tot sel θ ₅₀ , 1985–94							4.77	0.01	4.0,5.0
log_tot sel θ ₅₀ , 1985–04 or 1995–04	4.87	0.002	4.87	0.002	4.87	0.002	4.88	0.003	4.0,5.0
log_tot sel θ ₅₀ , 2005-15	4.90	0.002	4.90	0.002	4.90	0.002	4.90	0.002	4.0,5.0
log_ret. sel θ ₅₀ , 1985-15	4.92	0.0002	4.92	0.0002	4.92	0.0002	4.92	0.0002	4.0,5.0
log_β _r (rec.distribution par.)	-1.03	0.16	-1.03	0.17	-1.03	0.16	-0.97	0.18	-12.0, 12.0
Logq1 (catchability 1985-94)							-0.37	0.15	-9.0, 2.25
logq2 (catchability 1995-04)	-0.09	0.76	0.04	2.15	-0.06	1.22	0.20	0.42	-9.0, 2.25
logq3 (catchability 2005-15)	-0.48	0.21	-0.43	0.24	-0.48	0.21	-0.38	0.26	-9.0, 2.25
log_mean_rec (mean rec.)	0.79	0.06	0.80	0.06	0.79	0.06	0.75	0.06	0.01, 5.0
log_mean_Fpot (Pot fishery F)	-0.73	0.09	-0.72	0.09	-0.73	0.09	-0.71	0.09	-15.0, -0.01
log_mean_Fground (GF byc. F)	-8.44	0.11	-8.42	0.11	-8.44	0.11	-8.33	0.11	-15.0, -1.6
σ _e ² (observer CPUE additional var)	0.021	0.37	0.018	0.38	0.021	0.36	0.016	0.38	0.0, 0.15
σ _e ² (fishery CPUE additional var)	0.016	0.65			0.021	0.70	0.002	0.91	0.0,1.0
2015 MMB	4,332	0.35	4,228	0.35	4,334	0.35	3,865	0.35	

Table 38. Parameter estimates and coefficient of variations (CV) with the 2015 MMB (MMB on 15 Feb 2016) for scenarios 5, 6, 9, 10, and 11 for the golden king crab data from the **WAG**, 1985/86–2015/16. Recruitment and fishing mortality deviations and initial size frequency determination parameters were omitted from this list.

Parameter	Scenario 5		Scenario 6		Scenario 9		Scenario 10		Scenario 11		Limits
	Estimate	CV	Estimate	CV	Estimate	CV	Estimate	CV	Estimate	CV	
log_ω ₁ (growth incr. intercept)	2.54	0.01	2.54	0.01	2.54	0.01	2.54	0.01	2.54	0.01	1.0, 4.5
ω ₂ (growth incr. slope)	-7.90	0.21	-7.71	0.22	-7.82	0.22	-7.80	0.22	-7.80	0.22	-12.0,-5.0
log_a (molt prob. slope)	-2.59	0.03	-2.64	0.03	-2.62	0.03	-2.62	0.03	-2.62	0.03	-4.61,-1.39
log_b (molt prob. L50)	4.95	0.001	4.95	0.001	4.95	0.001	4.95	0.001	4.95	0.001	3.869,5.05
σ (growth variability std)	3.69	0.03	3.69	0.03	3.69	0.03	3.69	0.03	3.69	0.03	0.1,12.0
log_total sel deltaθ, 1985-04	3.42	0.01	3.37	0.01	3.39	0.01	3.39	0.01	3.39	0.01	0,4.4
log_total sel deltaθ, 2005-15	2.89	0.03	2.88	0.03	2.88	0.03	2.88	0.03	2.88	0.03	0,4.4
log_ret. sel deltaθ, 1985-15	1.77	0.02	1.78	0.02	1.78	0.02	1.78	0.02	1.78	0.02	0,4.4
log_maturity delta_mat	3.80	0.48	3.80	0.48			3.80	0.48			0,4.4
log_maturity mat ₅₀	4.71	0.04	4.71	0.04			4.71	0.04			4.4,4.85
log_tot sel θ ₅₀ , 1985-04	4.86	0.002	4.87	0.002	4.87	0.002	4.87	0.002	4.87	0.002	4.0,5.0
log_tot sel θ ₅₀ , 2005-15	4.89	0.002	4.90	0.002	4.90	0.002	4.90	0.002	4.90	0.002	4.0,5.0
log_ret. sel θ ₅₀ , 1985-15	4.91	0.0002	4.92	0.0002	4.92	0.0002	4.92	0.0002	4.92	0.0002	4.0,5.0
log_β _r (rec.distribution par.)	-1.02	0.17	-1.03	0.16	-1.03	0.16	-1.03	0.16	-1.03	0.16	-12.0, 12.0
logq2 (catchability 1985-04)	-0.04	1.82	-0.15	0.45	-0.09	0.76	-0.10	0.68	-0.10	0.68	-9.0, 2.25
logq3 (catchability 2005-15)	-0.42	0.23	-0.55	0.20	-0.48	0.21	-0.49	0.21	-0.49	0.21	-9.0, 2.25
log_mean_rec (mean rec.)	0.58	0.07	1.03	0.05	0.79	0.06	0.83	0.05	0.83	0.05	0.01, 5.0
log_mean_Fpot (Pot fishery F)	-0.69	0.09	-0.79	0.09	-0.73	0.09	-0.74	0.09	-0.74	0.09	-15.0, -0.01
log_mean_Fground (GF byc. F)	-8.34	0.11	-8.56	0.11	-8.44	0.11	-8.46	0.11	-8.46	0.11	-15.0, -1.6
σ _e ² (observer CPUE additional var)	0.020	0.37	0.023	0.37	0.021	0.37	0.021	0.37	0.021	0.37	0.0, 0.15
σ _e ² (fishery CPUE additional var)	0.020	0.65	0.013	0.64	0.016	0.65	0.016	0.65	0.016	0.65	0.0,1.0
2015 MMB	3,824	0.35	4,999	0.35	5,005	0.17	4,438	0.35	5,128	0.17	

Table 39. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 1** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year *y*. Mature male biomass for fishing year *y* was estimated on February 15 of year *y*+1, after the year *y* fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=13,306$ $MMB_{35}=4,722$			
1985	4.14			8,743	0.10
1986	3.74	7,099	0.31	8,312	0.08
1987	2.86	6,462	0.33	5,949	0.07
1988	1.98	5,518	0.33	5,614	0.05
1989	2.64	3,914	0.34	4,990	0.04
1990	2.06	3,580	0.34	3,181	0.06
1991	1.65	3,364	0.34	2,923	0.05
1992	2.19	3,571	0.33	2,873	0.05
1993	1.71	4,022	0.32	2,999	0.05
1994	2.07	3,467	0.32	3,566	0.03
1995	2.01	3,439	0.33	2,901	0.04
1996	1.84	3,434	0.33	2,852	0.04
1997	1.97	3,531	0.33	2,901	0.04
1998	2.02	3,817	0.32	2,989	0.04
1999	2.40	3,880	0.32	3,271	0.04
2000	2.70	4,034	0.33	3,213	0.04
2001	2.77	4,428	0.33	3,243	0.04
2002	2.72	4,943	0.33	3,609	0.05
2003	1.92	5,204	0.33	4,172	0.05
2004	2.48	5,455	0.31	4,703	0.06
2005	2.50	5,710	0.31	4,908	0.07
2006	2.70	6,200	0.30	5,094	0.07
2007	1.88	6,288	0.31	5,537	0.07
2008	1.62	6,162	0.30	5,849	0.06
2009	2.07	5,903	0.29	5,896	0.06
2010	1.75	5,580	0.29	5,512	0.06
2011	1.27	5,089	0.30	5,191	0.06
2012	2.06	4,667	0.29	4,838	0.06
2013	2.26	4,392	0.31	4,215	0.07
2014	1.54	4,230	0.34	3,764	0.09
2015	2.27	4,332	0.35	3,781	0.13
2016	2.21	4,990	0.36		

Table 40. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) CV for **scenario 2** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=13,158$ $MMB_{35}=4,685$			
1985	3.19			10,255	0.09
1986	3.83	7,527	0.29	9,478	0.06
1987	2.68	6,632	0.31	6,477	0.06
1988	1.94	5,548	0.32	5,814	0.05
1989	2.80	3,929	0.33	5,030	0.05
1990	2.09	3,615	0.34	3,147	0.06
1991	1.66	3,423	0.34	2,927	0.06
1992	2.02	3,590	0.33	2,921	0.06
1993	1.69	4,007	0.32	3,064	0.05
1994	2.05	3,412	0.32	3,574	0.04
1995	1.97	3,356	0.33	2,846	0.04
1996	1.81	3,335	0.33	2,770	0.04
1997	1.95	3,421	0.33	2,800	0.04
1998	1.98	3,696	0.32	2,875	0.04
1999	2.35	3,744	0.32	3,149	0.04
2000	2.63	3,873	0.33	3,084	0.04
2001	2.70	4,237	0.33	3,092	0.05
2002	2.68	4,728	0.33	3,424	0.05
2003	1.93	4,988	0.33	3,952	0.06
2004	2.46	5,246	0.32	4,465	0.06
2005	2.48	5,511	0.31	4,682	0.07
2006	2.68	6,009	0.31	4,885	0.07
2007	1.88	6,111	0.31	5,340	0.07
2008	1.61	6,003	0.31	5,662	0.06
2009	2.06	5,761	0.29	5,726	0.06
2010	1.73	5,452	0.29	5,365	0.06
2011	1.25	4,971	0.30	5,060	0.06
2012	2.03	4,553	0.29	4,719	0.06
2013	2.24	4,279	0.31	4,104	0.07
2014	1.54	4,124	0.34	3,651	0.09
2015	2.25	4,228	0.35	3,664	0.12
2016	2.22	4,914	0.36		

Table 41. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 3** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year *y*. Mature male biomass for fishing year *y* was estimated on February 15 of year *y*+1, after the year *y* fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=13,317$ $MMB_{35}=4,724$			
1985	4.10			8,799	0.11
1986	3.69	7,104	0.31	8,359	0.08
1987	2.86	6,448	0.32	5,972	0.07
1988	1.99	5,497	0.33	5,605	0.05
1989	2.72	3,915	0.34	4,964	0.04
1990	2.10	3,603	0.34	3,156	0.06
1991	1.63	3,398	0.34	2,928	0.05
1992	2.15	3,600	0.33	2,909	0.05
1993	1.69	4,038	0.32	3,042	0.05
1994	2.07	3,470	0.32	3,594	0.03
1995	2.00	3,433	0.33	2,905	0.04
1996	1.84	3,425	0.33	2,846	0.04
1997	1.97	3,520	0.33	2,890	0.04
1998	2.02	3,807	0.32	2,977	0.04
1999	2.40	3,870	0.32	3,259	0.04
2000	2.70	4,023	0.33	3,203	0.04
2001	2.77	4,417	0.33	3,231	0.05
2002	2.73	4,933	0.33	3,595	0.05
2003	1.93	5,199	0.33	4,159	0.06
2004	2.48	5,454	0.31	4,693	0.06
2005	2.50	5,711	0.31	4,903	0.07
2006	2.70	6,200	0.31	5,094	0.07
2007	1.88	6,287	0.31	5,539	0.07
2008	1.61	6,160	0.30	5,849	0.06
2009	2.07	5,900	0.29	5,894	0.06
2010	1.75	5,577	0.29	5,509	0.06
2011	1.26	5,085	0.30	5,187	0.06
2012	2.06	4,664	0.29	4,834	0.06
2013	2.27	4,391	0.31	4,211	0.07
2014	1.54	4,232	0.34	3,761	0.09
2015	2.27	4,334	0.35	3,780	0.13
2016	2.21	4,993	0.36		

Table 42. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) CV for **scenario 4** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=12,936$ $MMB_{35}=4,659$			
1985	3.66			9,110	0.06
1986	4.83	7,086	0.30	8,597	0.05
1987	3.02	6,534	0.32	5,980	0.06
1988	2.31	5,748	0.32	5,855	0.04
1989	2.36	4,079	0.32	5,401	0.04
1990	1.85	3,623	0.33	3,631	0.05
1991	1.60	3,304	0.32	3,262	0.05
1992	1.90	3,357	0.31	3,022	0.05
1993	1.74	3,740	0.31	3,007	0.04
1994	1.92	3,075	0.32	3,433	0.03
1995	1.81	2,958	0.33	2,675	0.04
1996	1.83	2,947	0.33	2,551	0.04
1997	1.75	3,017	0.33	2,547	0.04
1998	1.85	3,274	0.32	2,650	0.04
1999	2.13	3,274	0.33	2,914	0.04
2000	2.37	3,334	0.34	2,814	0.04
2001	2.51	3,639	0.34	2,783	0.05
2002	2.59	4,115	0.33	3,058	0.05
2003	1.96	4,428	0.33	3,551	0.05
2004	2.31	4,721	0.32	4,082	0.06
2005	2.24	4,980	0.31	4,358	0.06
2006	2.53	5,468	0.31	4,607	0.07
2007	1.85	5,600	0.31	5,048	0.06
2008	1.55	5,530	0.30	5,363	0.06
2009	1.93	5,307	0.29	5,441	0.06
2010	1.73	5,042	0.29	5,091	0.06
2011	1.19	4,600	0.30	4,806	0.06
2012	1.86	4,179	0.29	4,506	0.06
2013	2.15	3,902	0.31	3,901	0.06
2014	1.47	3,758	0.34	3,447	0.08
2015	2.13	3,865	0.35	3,478	0.11
2016	2.12	4,576	0.35		

Table 43. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 5** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year *y*. Mature male biomass for fishing year *y* was estimated on February 15 of year *y*+1, after the year *y* fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=14,656$ $MMB_{35}=5,146$			
1985	3.49			8,621	0.10
1986	3.28	6,634	0.30	8,131	0.08
1987	2.48	6,020	0.32	5,714	0.06
1988	1.71	5,147	0.33	5,364	0.05
1989	2.32	3,602	0.33	4,774	0.04
1990	1.76	3,272	0.34	3,006	0.05
1991	1.40	3,064	0.34	2,749	0.05
1992	1.87	3,255	0.33	2,690	0.05
1993	1.46	3,709	0.32	2,813	0.05
1994	1.78	3,172	0.32	3,378	0.03
1995	1.72	3,137	0.33	2,728	0.03
1996	1.57	3,125	0.33	2,676	0.04
1997	1.70	3,213	0.33	2,714	0.04
1998	1.74	3,495	0.32	2,792	0.04
1999	2.05	3,545	0.32	3,073	0.03
2000	2.29	3,657	0.33	3,021	0.04
2001	2.33	3,988	0.33	3,029	0.04
2002	2.27	4,438	0.33	3,349	0.05
2003	1.59	4,673	0.33	3,856	0.05
2004	2.03	4,884	0.31	4,337	0.05
2005	2.04	5,097	0.31	4,520	0.06
2006	2.22	5,544	0.30	4,677	0.06
2007	1.54	5,642	0.31	5,087	0.06
2008	1.34	5,562	0.30	5,376	0.06
2009	1.73	5,347	0.29	5,442	0.05
2010	1.45	5,070	0.29	5,108	0.05
2011	1.06	4,642	0.30	4,826	0.05
2012	1.72	4,248	0.29	4,512	0.05
2013	1.85	3,952	0.31	3,934	0.06
2014	1.24	3,774	0.34	3,490	0.08
2015	1.86	3,824	0.35	3,468	0.12
2016	1.79	4,547	0.35		

Table 44. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 6** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=12,419$ $MMB_{35}=4,421$			
1985	5.01			9,039	0.10
1986	4.46	7,762	0.32	8,635	0.08
1987	3.40	7,075	0.33	6,284	0.07
1988	2.37	6,026	0.33	5,960	0.05
1989	3.11	4,343	0.34	5,289	0.04
1990	2.51	4,002	0.34	3,422	0.06
1991	2.00	3,775	0.34	3,160	0.06
1992	2.65	4,003	0.33	3,119	0.05
1993	2.07	4,448	0.32	3,248	0.05
1994	2.50	3,874	0.32	3,818	0.04
1995	2.44	3,858	0.33	3,136	0.04
1996	2.24	3,866	0.33	3,093	0.04
1997	2.38	3,974	0.33	3,159	0.04
1998	2.44	4,268	0.32	3,261	0.04
1999	2.92	4,354	0.32	3,544	0.04
2000	3.31	4,572	0.33	3,483	0.04
2001	3.42	5,056	0.33	3,545	0.05
2002	3.39	5,659	0.33	3,977	0.06
2003	2.43	5,948	0.33	4,615	0.06
2004	3.16	6,251	0.31	5,208	0.07
2005	3.20	6,562	0.31	5,432	0.07
2006	3.44	7,111	0.31	5,652	0.08
2007	2.40	7,185	0.31	6,140	0.07
2008	2.04	6,990	0.31	6,486	0.07
2009	2.58	6,668	0.29	6,508	0.06
2010	2.18	6,280	0.29	6,053	0.06
2011	1.58	5,698	0.30	5,679	0.06
2012	2.54	5,238	0.29	5,274	0.07
2013	2.87	4,993	0.31	4,590	0.08
2014	1.96	4,846	0.34	4,127	0.10
2015	2.85	4,999	0.35	4,190	0.13
2016	2.80	5,558	0.36		

Table 45. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 9** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year y. Mature male biomass for fishing year y was estimated on February 15 of year y+1, after the year y fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=14,528$ $MMB_{35}=5,137$			
1985	4.14			8,743	0.10
1986	3.74	8,346	0.05	8,312	0.08
1987	2.86	7,724	0.04	5,949	0.07
1988	1.98	6,628	0.04	5,614	0.05
1989	2.64	4,607	0.05	4,990	0.04
1990	2.06	4,312	0.05	3,181	0.06
1991	1.65	4,060	0.05	2,923	0.05
1992	2.19	4,177	0.04	2,873	0.05
1993	1.71	4,763	0.03	2,999	0.05
1994	2.07	4,064	0.04	3,566	0.03
1995	2.01	4,067	0.04	2,901	0.04
1996	1.84	4,085	0.04	2,852	0.04
1997	1.97	4,162	0.04	2,901	0.04
1998	2.02	4,487	0.04	2,989	0.04
1999	2.40	4,534	0.04	3,271	0.04
2000	2.70	4,734	0.04	3,213	0.04
2001	2.77	5,233	0.05	3,243	0.04
2002	2.72	5,848	0.05	3,609	0.05
2003	1.92	6,206	0.06	4,172	0.05
2004	2.48	6,323	0.06	4,703	0.06
2005	2.50	6,630	0.06	4,908	0.07
2006	2.70	7,175	0.06	5,094	0.07
2007	1.88	7,370	0.06	5,537	0.07
2008	1.62	7,141	0.05	5,849	0.06
2009	2.07	6,723	0.05	5,896	0.06
2010	1.75	6,420	0.05	5,512	0.06
2011	1.27	5,893	0.06	5,191	0.06
2012	2.06	5,292	0.07	4,838	0.06
2013	2.26	5,061	0.09	4,215	0.07
2014	1.54	5,021	0.13	3,764	0.09
2015	2.27	5,005	0.17	3,781	0.13
2016	2.21	5,814	0.19		

Table 46. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 10** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year *y*. Mature male biomass for fishing year *y* was estimated on February 15 of year *y*+1, after the year *y* fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq}=13,112$ $MMB_{35}=4.647$			
1985	4.28			8,780	0.10
1986	3.85	7,201	0.31	8,357	0.08
1987	2.95	6,558	0.33	6,000	0.07
1988	2.04	5,598	0.33	5,668	0.05
1989	2.71	3,981	0.34	5,037	0.04
1990	2.13	3,646	0.34	3,218	0.06
1991	1.70	3,428	0.34	2,960	0.05
1992	2.26	3,638	0.33	2,912	0.05
1993	1.76	4,089	0.32	3,039	0.05
1994	2.14	3,531	0.32	3,606	0.03
1995	2.08	3,505	0.33	2,938	0.04
1996	1.90	3,501	0.33	2,890	0.04
1997	2.03	3,600	0.33	2,941	0.04
1998	2.08	3,887	0.32	3,032	0.04
1999	2.48	3,953	0.32	3,313	0.04
2000	2.79	4,117	0.33	3,255	0.04
2001	2.87	4,525	0.33	3,289	0.05
2002	2.82	5,054	0.33	3,665	0.05
2003	2.00	5,320	0.33	4,241	0.06
2004	2.58	5,579	0.31	4,782	0.06
2005	2.60	5,843	0.31	4,991	0.07
2006	2.81	6,342	0.31	5,182	0.07
2007	1.96	6,428	0.31	5,633	0.07
2008	1.68	6,292	0.31	5,950	0.06
2009	2.15	6,022	0.29	5,993	0.06
2010	1.81	5,690	0.29	5,598	0.06
2011	1.32	5,184	0.30	5,268	0.06
2012	2.13	4,756	0.29	4,907	0.06
2013	2.36	4,487	0.31	4,275	0.07
2014	1.60	4,328	0.34	3,822	0.09
2015	2.36	4,438	0.35	3,847	0.13
2016	2.30	5,081	0.36		

Table 47. Annual abundance estimates of model recruits (millions of crabs), legal male biomass (t) with coefficient of variations (CV), and mature male biomass (t) with CV for **scenario 11** for golden king crab in the **WAG**. Legal male biomass was estimated on July 1 (start of fishing year) of fishing year *y*. Mature male biomass for fishing year *y* was estimated on February 15 of year *y*+1, after the year *y* fishery total catch removal. Recruits estimates for 1961 to 2016 are restricted to 1985–2016. Equilibrium MMB_{eq} and MMB_{35} are also listed.

Year	Recruits to the Model (≥ 101 mm CL)	Mature Male Biomass (≥ 121 mm CL)	CV	Legal Male Biomass (≥ 136 mm CL)	CV
		$MMB_{eq} = 14,340$ $MMB_{35} = 5,099$			
1985	4.28			8,780	0.10
1986	3.85	8,472	0.05	8,357	0.08
1987	2.95	7,840	0.04	6,000	0.07
1988	2.04	6,724	0.04	5,668	0.05
1989	2.71	4,685	0.05	5,037	0.04
1990	2.13	4,389	0.05	3,218	0.06
1991	1.70	4,136	0.05	2,960	0.05
1992	2.26	4,255	0.04	2,912	0.05
1993	1.76	4,842	0.03	3,039	0.05
1994	2.14	4,138	0.04	3,606	0.03
1995	2.08	4,143	0.04	2,938	0.04
1996	1.90	4,163	0.04	2,890	0.04
1997	2.03	4,242	0.04	2,941	0.04
1998	2.08	4,568	0.04	3,032	0.04
1999	2.48	4,617	0.04	3,313	0.04
2000	2.79	4,829	0.05	3,255	0.04
2001	2.87	5,345	0.05	3,289	0.05
2002	2.82	5,976	0.05	3,665	0.05
2003	2.00	6,343	0.06	4,241	0.06
2004	2.58	6,465	0.06	4,782	0.06
2005	2.60	6,783	0.06	4,991	0.07
2006	2.81	7,340	0.06	5,182	0.07
2007	1.96	7,535	0.06	5,633	0.07
2008	1.68	7,293	0.06	5,950	0.06
2009	2.15	6,860	0.05	5,993	0.06
2010	1.81	6,547	0.06	5,598	0.06
2011	1.32	6,005	0.06	5,268	0.06
2012	2.13	5,393	0.07	4,907	0.06
2013	2.36	5,168	0.10	4,275	0.07
2014	1.60	5,136	0.13	3,822	0.09
2015	2.36	5,128	0.17	3,847	0.13
2016	2.30	5,922	0.20		

Table 48. Negative log-likelihood values of the fits for scenarios (Sc) 1 (base), 2 (drops retained catch CPUE), 3 (includes 1991-1994 observer CPUE), 4 (three catchability and total selectivity parameter sets), 5 (low bracketing value of M), 6 (high bracketing value of M), 9 (knife-edge maturity), 10 (WAG only data based M), and 11 (WAG only data based M with knife-edge maturity) for golden king crab in the **WAG**. Differences in likelihood values are given for scenarios with the same number of data points (base) and free parameters. Likelihood components with zero entry in the entire rows are omitted. RetdcatchB= retained catch biomass.

Likelihood Component	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5	Sc 6	Sc 9	Sc 10	Sc 11	Sc 3 – Sc 1	Sc 5 – Sc 1	Sc 6 – Sc 1	Sc 10 – Sc 1	Sc 11 – Sc 9
Number of free parameters	139	138	139	142	139	139	137	139	137					
Data	base	base	base	base	base	base	base	base	base					
Retlencomp	-1103.6	-1106.21	-1106.66	-1113.50	-1102.73	-1101.23	-1103.60	-1103.42	-1103.42	-3.06	0.87	2.37	0.18	0.18
Totallcomp	-1347.65	-1342.09	-1345.97	-1333.15	-1349.49	-1346.04	-1347.65	-1347.34	-1347.34	1.68	-1.84	1.61	0.31	0.31
Observer cpue	-10.48	-12.22	-12.22	-13.04	-11.09	-9.71	-10.48	-10.36	-10.36	-1.74	-0.61	0.77	0.12	0.12
RetdcatchB	4.76	5.47	4.92	4.86	4.79	4.74	4.76	4.75	4.75	0.16	0.03	-0.02	-0.01	-0.01
TotalcatchB	43.03	43.59	43.24	34.40	43.18	42.71	43.03	42.99	42.99	0.21	0.15	-0.32	-0.04	-0.04
GdiscdcatchB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rec_dev	4.59	4.25	4.57	5.22	5.13	4.48	4.59	4.54	4.54	-0.02	0.54	-0.11	-0.05	-0.05
Pot_F_dev	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00
Gbyc_F_dev	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00
Tag	2692.35	2692.91	2692.40	2698.88	2692.25	2692.23	2692.35	2692.34	2692.34	0.05	-0.1	-0.12	-0.01	-0.01
Fishery cpue	-7.96	-	-6.43	-18.11	-6.63	-9.29	-7.96	-8.20	-8.20	1.53	1.33	-1.33	-0.24	-0.24
Maturity	0.17	0.17	0.17	0.17	0.17	0.17	-	0.17	-	0.00	0.00	0.00	0.00	-
Total	275.26	285.93	274.08	265.78	275.65	278.13	275.10	275.54	275.37	-1.18	0.39	2.87	0.28	0.27

Table 49. Predicted total catch OFL (t), $B_{35\%}$, and terminal MMB ratio for various scenarios for **EAG** and **WAG**, respectively. Sc = scenario; $MMB_{2015} / MMB_{initial}$ = ratio of terminal MMB relative to initial MMB (= MMB_{1960}).

Sc	EAG			WAG			$M\text{ yr}^{-1}$	Remarks
	Tier 3 Total Catch OFL (t)	$B_{35\%}$ (t)	$MMB_{2015} / MMB_{initial}$	Tier 3 Total Catch OFL (t)	$B_{35\%}$ (t)	$MMB_{2015} / MMB_{initial}$		
1	3,986	6,430	0.57	1,298	4,633	0.33	0.224	Base scenario: 1960 equilibrium initial size composition, 1995/96–2015/16 observer CPUE, 1985/86–1998/99 Fishery CPUE, time period for mean R calculation for equilibrium initial abundance and B_{MSY} reference point calculations 1987–2012, maturity curve, Francis re-weighting,
2	4,025	6,491	0.58	1,255	4,581	0.32	0.224	Dropped Fishery CPUE
3	4,373	6,721	0.60	1,298	4,638	0.33	0.224	Added 1991/92–1994/95 observer CPUE
4	3,765	6,256	0.56	1,109	4,475	0.30	0.224	Three catchability and asymptotic total selectivity for 1985/86–1994/95, 1995/96–2004/05, and 2005/06–2015/16
5	2,914	6,987	0.48	836	5,060	0.26	0.189	Low bracketing value of M : [$=M*\exp(-1.96*SE_M)$]
6	5,562	6,117	0.67	1,972	4,329	0.40	0.266	High bracketing value of M : [$=M*\exp(+1.96*SE_M)$]
7	3,986	6,164	0.57	1,225	5,010	0.33	0.224	B_{MSY} reference points based on average recruitment for 1982–2016
8	3,986	6,391	0.57	1,301	4,617	0.33	0.224	B_{MSY} reference points based on average recruitment for 1996–2016
9	4,486	7,048	0.60	1,532	5,040	0.34	0.224	Knife-edge maturity 111 mm CL
9**	-	-	-	1,561	4,507	0.34	0.224	Knife-edge maturity 111 mm CL; B_{MSY} reference points based on average recruitment for 1993–1997
10	3,881	6,471	0.57	1,413	4,558	0.34		Individual M estimates: WAG: 0.231, EAG: 0.221
11	4,387	7,066	0.59	1,640	5,001	0.36		Knife-edge maturity 111 mm CL; Individual M estimates: WAG: 0.231, EAG: 0.221.

