

Table 1. Historical summer commercial red king crab fishery economic performance, Norton Sound Section, eastern Bering Sea, 1977-2017. Bold type shows data that are used for the assessment model.

Year	Guideline Harvest Level (lb) <sup>b</sup>	Commercial Harvest (lb) <sup>a, b</sup>		Total Number (Open Access)			Total Pots		ST CPUE		Season Length		Mid-day from July	
		Open Access	CDQ	Number Harvest	Vessels	Permits	Landings	Registered	Pulls	CPUE	SD	Days		Dates
<b>1977</b>	<sup>c</sup>	517.787		<b>195,877</b>	7	7	13		5,457	<b>3.32</b>	<b>0.67</b>	60	<sup>c</sup>	<b>0.049</b>
<b>1978</b>	3,000.000	2,091.961		<b>660,829</b>	8	8	54		10,817	<b>4.72</b>	<b>0.64</b>	60	6/07-8/15	<b>0.142</b>
<b>1979</b>	3,000.000	2,931.672		<b>970,962</b>	34	34	76		34,773	<b>2.89</b>	<b>0.63</b>	16	7/15-7/31	<b>0.088</b>
<b>1980</b>	1,000.000	1,186.596		<b>329,778</b>	9	9	50		11,199	<b>3.11</b>	<b>0.64</b>	16	7/15-7/31	<b>0.066</b>
<b>1981</b>	2,500.000	1,379.014		<b>376,313</b>	36	36	108		33,745	<b>0.87</b>	<b>0.62</b>	38	7/15-8/22	<b>0.096</b>
<b>1982</b>	500.000	228.921		<b>63,949</b>	11	11	33		11,230	<b>0.20</b>	<b>0.61</b>	23	8/09-9/01	<b>0.151</b>
<b>1983</b>	300.000	368.032		<b>132,205</b>	23	23	26	3,583	11,195	<b>0.90</b>	<b>0.64</b>	3.8	8/01-8/05	<b>0.096</b>
<b>1984</b>	400.000	387.427		<b>139,759</b>	8	8	21	1,245	9,706	<b>1.61</b>	<b>0.64</b>	13.6	8/01-8/15	<b>0.110</b>
<b>1985</b>	450.000	427.011		<b>146,669</b>	6	6	72	1,116	13,209	<b>0.50</b>	<b>0.65</b>	21.7	8/01-8/23	<b>0.118</b>
<b>1986</b>	420.000	479.463		<b>162,438</b>	3	3		578	4,284	<b>1.79</b>	<b>0.69</b>	13	8/01-8/25	<b>0.153</b>
<b>1987</b>	400.000	327.121		<b>103,338</b>	9	9		1,430	10,258	<b>0.62</b>	<b>0.63</b>	11	8/01-8/12	<b>0.107</b>
<b>1988</b>	200.000	236.688		<b>76,148</b>	2	2		360	2,350	<b>2.39</b>	<b>0.84</b>	9.9	8/01-8/11	<b>0.110</b>
<b>1989</b>	200.000	246.487		<b>79,116</b>	10	10		2,555	5,149	<b>1.21</b>	<b>0.60</b>	3	8/01-8/04	<b>0.096</b>
<b>1990</b>	200.000	192.831		<b>59,132</b>	4	4		1,388	3,172	<b>1.09</b>	<b>0.67</b>	4	8/01-8/05	<b>0.099</b>
<b>1991</b>	340.000			<b>0</b>	No Summer Fishery									
<b>1992</b>	340.000	74.029		<b>24,902</b>	27	27		2,635	5,746	<b>0.17</b>	<b>0.59</b>	2	8/01-8/03	<b>0.093</b>
<b>1993</b>	340.000	335.790		<b>115,913</b>	14	20	208	560	7,063	<b>0.85</b>	<b>0.35</b>	52	7/01-8/28	<b>0.093</b>
<b>1994</b>	340.000	327.858		<b>108,824</b>	34	52	407	1,360	11,729	<b>0.75</b>	<b>0.34</b>	31	7/01-7/31	<b>0.044</b>
<b>1995</b>	340.000	322.676		<b>105,967</b>	48	81	665	1,900	18,782	<b>0.39</b>	<b>0.34</b>	67	7/01-9/05	<b>0.093</b>
<b>1996</b>	340.000	224.231		<b>74,752</b>	41	50	264	1,640	10,453	<b>0.48</b>	<b>0.35</b>	57	7/01-9/03	<b>0.101</b>
<b>1997</b>	80.000	92.988		<b>32,606</b>	13	15	100	520	2,982	<b>0.79</b>	<b>0.36</b>	44	7/01-8/13	<b>0.074</b>
<b>1998</b>	80.000	29.684	0.00	<b>10,661</b>	8	11	50	360	1,639	<b>0.74</b>	<b>0.37</b>	65	7/01-9/03	<b>0.110</b>
<b>1999</b>	80.000	23.553	0.00	<b>8,734</b>	10	9	53	360	1,630	<b>0.86</b>	<b>0.37</b>	66	7/01-9/04	<b>0.104</b>
<b>2000</b>	336.000	297.654	14.87	<b>111,728</b>	15	22	201	560	6,345	<b>1.17</b>	<b>0.34</b>	91	7/01-9/29	<b>0.126</b>
<b>2001</b>	303.000	288.199	0	<b>98,321</b>	30	37	319	1,200	11,918	<b>0.60</b>	<b>0.34</b>	97	7/01-9/09	<b>0.104</b>
<b>2002</b>	248.000	244.376	15.226	<b>86,666</b>	32	49	201	1,120	6,491	<b>1.16</b>	<b>0.34</b>	77	6/15-9/03	<b>0.060</b>
<b>2003</b>	253.000	253.284	13.923	<b>93,638</b>	25	43	236	960	8,494	<b>0.80</b>	<b>0.34</b>	68	6/15-8/24	<b>0.058</b>
<b>2004</b>	326.500	314.472	26.274	<b>120,289</b>	26	39	227	1,120	8,066	<b>1.20</b>	<b>0.34</b>	51	6/15-8/08	<b>0.033</b>
<b>2005</b>	370.000	370.744	30.06	<b>138,926</b>	31	42	255	1,320	8,867	<b>1.13</b>	<b>0.34</b>	73	6/15-8/27	<b>0.058</b>
<b>2006</b>	454.000	419.191	32.557	<b>150,358</b>	28	40	249	1,120	8,867	<b>1.23</b>	<b>0.34</b>	68	6/15-8/22	<b>0.052</b>
<b>2007</b>	315.000	289.264	23.611	<b>110,344</b>	38	30	251	1,200	9,118	<b>0.97</b>	<b>0.34</b>	52	6/15-8/17	<b>0.036</b>
<b>2008</b>	412.000	364.235	30.9	<b>143,337</b>	23	30	248	920	8,721	<b>1.25</b>	<b>0.34</b>	73	6/23-9/03	<b>0.079</b>
<b>2009</b>	375.000	369.462	28.125	<b>143,485</b>	22	27	359	920	11,934	<b>0.79</b>	<b>0.34</b>	98	6/15-9/20	<b>0.090</b>
<b>2010</b>	400.000	387.304	30	<b>149,822</b>	23	32	286	1,040	9,698	<b>1.14</b>	<b>0.34</b>	58	6/28-8/24	<b>0.074</b>
<b>2011</b>	358.000	373.990	26.851	<b>141,626</b>	24	25	173	1,040	6,808	<b>1.48</b>	<b>0.34</b>	33	6/28-7/30	<b>0.038</b>
<b>2012</b>	465.450	441.080	34.91	<b>161,113</b>	40	29	312	1,200	10,041	<b>1.22</b>	<b>0.34</b>	72	6/29-9/08	<b>0.093</b>
<b>2013</b>	495.600	373.278	18.585	<b>130,603</b>	37	33	460	1,420	15,058	<b>0.63</b>	<b>0.34</b>	74	7/3-9/14	<b>0.110</b>
<b>2014</b>	382.800	360.860	28.148	<b>129,657</b>	52	33	309	1,560	10,127	<b>1.06</b>	<b>0.34</b>	52	6/25-8/15	<b>0.052</b>
<b>2015</b>	394.600	371.520	29.595	<b>144,255</b>	42	36	251	1,480	8,356	<b>1.37</b>	<b>0.34</b>	26	6/29-7/24	<b>0.033</b>
<b>2016</b>	517.200	416.576	3,583	<b>138,997</b>	36	37	220	1,520	8,009	<b>1.20</b>	<b>0.34</b>	25	6/27-7/21	<b>0.025</b>
<b>2017</b>	496.800	411.736	0	<b>135,322</b>	36	36	270	1,640	9,401	<b>1.06</b>	<b>0.34</b>	30	6/26-7/25	<b>0.027</b>
<b>2018</b>	290,282	298,396	0	<b>89,613</b>	34	34	256	1,400	8,797	<b>0.62</b>	<b>0.34</b>	35	6/24-7/29	<b>0.038</b>

<sup>a</sup> Deadloss included in total. <sup>b</sup> Millions of pounds. <sup>c</sup> Information not available.

Table 2. Historical winter commercial and subsistence red king crab fisheries, Norton Sound Section, eastern Bering Sea, 1977-2016. Bold typed data are used for the assessment model.

Model Year	Year <sup>a</sup>	Commercial			Subsistence			Total Crab	
		# of Fishers	# of Crab Harvested	Winter <sup>b</sup>	Issued	Permits Returned	Fished	Caught <sup>c</sup>	Retained <sup>d</sup>
<b>1978</b>	1978	37	<b>9,625</b>	1977/78	290	206	149	NA	<b>12,506</b>
<b>1979</b>	1979	1 <sup>f</sup>	<b>221<sup>f</sup></b>	1978/79	48	43	38	NA	<b>224</b>
<b>1980</b>	1980	1 <sup>f</sup>	<b>22<sup>f</sup></b>	1979/80	22	14	9	NA	<b>213</b>
<b>1981</b>	1981	0	<b>0</b>	1980/81	51	39	23	NA	<b>360</b>
<b>1982</b>	1982	1 <sup>f</sup>	<b>17<sup>f</sup></b>	1981/82	101	76	54	NA	<b>1,288</b>
<b>1983</b>	1983	5	<b>549</b>	1982/83	172	106	85	NA	<b>10,432</b>
<b>1984</b>	1984	8	<b>856</b>	1983/84	222	183	143	<b>15,923</b>	<b>11,220</b>
<b>1985</b>	1985	9	<b>1,168</b>	1984/85	203	166	132	<b>10,757</b>	<b>8,377</b>
<b>1986</b>	1985/86	5	<b>2,168</b>	1985/86	136	133	107	<b>10,751</b>	<b>7,052</b>
<b>1987</b>	1986/87	7	<b>1,040</b>	1986/87	138	134	98	<b>7,406</b>	<b>5,772</b>
<b>1988</b>	1987/88	10	<b>425</b>	1987/88	71	58	40	<b>3,573</b>	<b>2,724</b>
<b>1989</b>	1988/89	5	<b>403</b>	1988/89	139	115	94	<b>7,945</b>	<b>6,126</b>
<b>1990</b>	1989/90	13	<b>3,626</b>	1989/90	136	118	107	<b>16,635</b>	<b>12,152</b>
<b>1991</b>	1990/91	11	<b>3,800</b>	1990/91	119	104	79	<b>9,295</b>	<b>7,366</b>
<b>1992</b>	1991/92	13	<b>7,478</b>	1991/92	158	105	105	<b>15,051</b>	<b>11,736</b>
<b>1993</b>	1992/93	8	<b>1,788</b>	1992/93	88	79	37	<b>1,193</b>	<b>1,097</b>
<b>1994</b>	1993/94	25	<b>5,753</b>	1993/94	118	95	71	<b>4,894</b>	<b>4,113</b>
<b>1995</b>	1994/95	42	<b>7,538</b>	1994/95	166	131	97	<b>7,777</b>	<b>5,426</b>
<b>1996</b>	1995/96	9	<b>1,778</b>	1995/96	84	44	35	<b>2,936</b>	<b>1,679</b>
<b>1997</b>	1996/97	2 <sup>f</sup>	<b>83<sup>f</sup></b>	1996/97	38	22	13	<b>1,617</b>	<b>745</b>
<b>1998</b>	1997/98	5	<b>984</b>	1997/98	94	73	64	<b>20,327</b>	<b>8,622</b>
<b>1999</b>	1998/99	5	<b>2,714</b>	1998/99	95	80	71	<b>10,651</b>	<b>7,533</b>
<b>2000</b>	1999/00	10	<b>3,045</b>	1999/00	98	64	52	<b>9,816</b>	<b>5,723</b>
<b>2001</b>	2000/01	3	<b>1,098</b>	2000/01	50	27	12	<b>366</b>	<b>256</b>
<b>2002</b>	2001/02	11	<b>2,591</b>	2001/02	114	61	45	<b>5,119</b>	<b>2,177</b>
<b>2003</b>	2002/03	13	<b>6,853</b>	2002/03	107	70	61	<b>9,052</b>	<b>4,140</b>
<b>2004</b>	2003/04	2 <sup>f</sup>	<b>522<sup>f</sup></b>	2003/04 <sup>h</sup>	96	77	41	<b>1,775</b>	<b>1,181</b>
<b>2005</b>	2004/05	4	<b>2,091</b>	2004/05	170	98	58	<b>6,484</b>	<b>3,973</b>
<b>2006</b>	2005/06	1 <sup>f</sup>	<b>75<sup>f</sup></b>	2005/06	98	97	67	<b>2,083</b>	<b>1,239</b>
<b>2007</b>	2006/07	8	<b>3,313</b>	2006/07	129	127	116	<b>21,444</b>	<b>10,690</b>
<b>2008</b>	2007/08	9	<b>5,796</b>	2007/08	139	137	108	<b>18,621</b>	<b>9,485</b>
<b>2009</b>	2008/09	7	<b>4,951</b>	2008/09	105	105	70	<b>6,971</b>	<b>4,752</b>
<b>2010</b>	2009/10	10	<b>4,834</b>	2009/10	125	123	85	<b>9,004</b>	<b>7,044</b>
<b>2011</b>	2010/11	5	<b>3,365</b>	2010/11	148	148	95	<b>9,183</b>	<b>6,640</b>
<b>2012</b>	2011/12	35	<b>9,157</b>	2011/12	204	204	138	<b>11,341</b>	<b>7,311</b>
<b>2013</b>	2012/13	26	<b>22,639</b>	2012/13	149	148	104	<b>21,524</b>	<b>7,622</b>
<b>2014</b>	2013/14	21	<b>14,986</b>	2013/14	103	103	75	<b>5,421</b>	<b>3,252</b>
<b>2015</b>	2014/15	44	<b>41,062</b>	2014/15	155	153	107	<b>9,840</b>	<b>7,651</b>
<b>2016</b>	2015/16	25	<b>29,792</b>	2015/16	139	97	64	<b>6,468</b>	<b>5,340</b>
<b>2017</b>	2017	43	<b>26,008</b>	2017	163	163	109	<b>7,185</b>	<b>6,039</b>
<b>2018</b>	2018	28	<b>9,180</b>	2018	123	120	82	<b>5,767</b>	<b>4,424</b>

a Prior to 1985 the winter commercial fishery occurred from January 1 - April 30. As of March 1985, fishing may occur from November 15 - May 15.

b The winter subsistence fishery occurs during months of two calendar years (as early as December, through May).

c The number of crab actually caught; some may have been returned.

d The number of crab retained is the number of crab caught and kept.

f Confidentiality was waived by the fishers.

h Prior to 2005, permits were only given out of the Nome ADF&G office. Starting with the 2004-5 season, permits were given out in Elim, Golovin, Shaktoolik, and White Mountain.

Table 3. Summary of triennial trawl survey Norton Sound male red king crab abundance estimates (CL  $\geq$  64mm) . Trawl survey abundance estimate is based on 10 $\times$ 10 nm<sup>2</sup> grid, except for 2010 and 2017 (20 $\times$ 20 nm<sup>2</sup>). Bold typed data are used for the assessment model.

Year	Dates	Survey Agency	Survey method	Total surveyed stations	Survey coverage		Abundance	
					Stations w/ NSRKC	n mile <sup>2</sup> covered	$\geq$ 74 mm (1982-1991)	$\geq$ 64 mm (1996- 2007)
							CV	
1976	9/02 – 9/25	NMFS	Trawl	103	62	10260	<b>4247.5</b>	<b>0.31</b>
1979	7/26 - 8/05	NMFS	Trawl	85	22	8421	<b>1417.2</b>	<b>0.20</b>
1980	7/04 - 7/14	ADFG	Pots				2092.3	N/A
1981	6/28 - 7/14	ADFG	Pots				2153.4	N/A
1982	7/06 - 7/20	ADFG	Pots				1140.5	N/A
1982	9/05 - 9/11	NMFS	Trawl	58	37	5721	<b>2791.7</b>	<b>0.29</b>
1985	7/01 - 7/14	ADFG	Pots				2320.4	0.083
1985	9/16 -10/01	NMFS	Trawl	78	49	7688	<b>2306.3</b>	<b>0.25</b>
1988	8/16 - 8/30	NMFS	Trawl	78	41	7721	<b>2263.4</b>	<b>0.29</b>
1991	8/22 - 8/30	NMFS	Trawl	52	38	5183	<b>3132.5</b>	<b>0.43</b>
1996	8/07 - 8/18	ADFG	Trawl	50	30	4938	<b>1283.0</b>	<b>0.25</b>
1999	7/28 - 8/07	ADFG	Trawl	52	31	5221	<b>2608.0</b>	<b>0.24</b>
2002	7/27 - 8/06	ADFG	Trawl	57	37	5621	<b>2056.0</b>	<b>0.36</b>
2006	7/25 - 8/08	ADFG	Trawl	114	45	10008	<b>3336.0</b>	<b>0.39</b>
2008	7/24 - 8/11	ADFG	Trawl	86	44	7330	<b>2894.2</b>	<b>0.31</b>
2010 <sup>a</sup>	7/27 - 8/09	NMFS	Trawl	35	15	5841	<b>1980.1</b>	<b>0.44</b>
2011	7/18 - 8/15	ADFG	Trawl	65	34	6447	<b>3209.3</b>	<b>0.29</b>
2014	7/18 - 7/30	ADFG	Trawl	47	34	4700	<b>5934.6</b>	<b>0.47</b>
2017	7/28 - 8/08	ADFG	Trawl	60	41	6000	<b>1762.1</b>	<b>0.22</b>
2017	8/18 - 8/29	NMFS	Trawl	35	18	5841	<b>1035.8</b>	<b>0.40</b>
2018	7/22 - 7/29	ADFG	Trawl	60	34	6000	<b>1108.9</b>	<b>0.25</b>

Table 4. Summer commercial retained catch length-shell compositions.

Year	Sample	New Shell								Old Shell							
		64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+
1977	1549	0	0	0	0.00	0.42	0.34	0.08	0.05	0	0	0	0.00	0.06	0.04	0.01	0.00
1978	389	0	0	0	0.01	0.19	0.47	0.26	0.04	0	0	0	0.00	0.01	0.01	0.01	0.00
1979	1660	0	0	0	0.03	0.23	0.38	0.26	0.07	0	0	0	0.00	0.03	0.00	0.00	0.01
1980	1068	0	0	0	0.00	0.10	0.31	0.37	0.18	0	0	0	0.00	0.00	0.01	0.02	0.01
1981	1784	0	0	0	0.00	0.07	0.15	0.28	0.23	0	0	0	0.00	0.00	0.05	0.12	0.09
1982	1093	0	0	0	0.04	0.19	0.16	0.22	0.29	0	0	0	0.00	0.01	0.02	0.03	0.03
1983	802	0	0	0	0.04	0.41	0.36	0.06	0.03	0	0	0	0.00	0.04	0.01	0.02	0.02
1984	963	0	0	0	0.10	0.42	0.28	0.06	0.01	0	0	0	0.01	0.07	0.05	0.01	0.00
1985	2691	0	0	0.00	0.06	0.31	0.37	0.15	0.02	0	0	0	0.00	0.03	0.03	0.01	0.00
1986	1138	0	0	0	0.03	0.36	0.39	0.12	0.02	0	0	0	0.00	0.02	0.04	0.02	0.00
1987	1985	0	0	0	0.02	0.18	0.29	0.27	0.11	0	0	0	0.00	0.03	0.06	0.03	0.01
1988	1522	0	0.00	0	0.02	0.20	0.30	0.18	0.04	0	0	0	0.01	0.06	0.10	0.07	0.02
1989	2595	0	0	0	0.01	0.16	0.32	0.17	0.05	0	0	0	0.00	0.06	0.12	0.09	0.02
1990	1289	0	0	0	0.01	0.14	0.35	0.26	0.07	0	0	0	0.00	0.04	0.07	0.05	0.01
1991																	
1992	2566	0	0	0	0.02	0.20	0.27	0.14	0.09	0	0	0	0.00	0.08	0.13	0.06	0.02
1993	17804	0	0	0	0.01	0.23	0.39	0.23	0.03	0	0	0	0.00	0.02	0.04	0.03	0.01
1994	404	0	0	0	0.02	0.09	0.08	0.07	0.02	0	0	0	0.02	0.19	0.25	0.20	0.05
1995	1167	0	0	0	0.04	0.26	0.29	0.15	0.05	0	0	0	0.01	0.05	0.07	0.06	0.01
1996	787	0	0	0	0.03	0.22	0.24	0.09	0.05	0	0	0	0.01	0.12	0.14	0.08	0.02
1997	1198	0	0	0	0.03	0.37	0.34	0.10	0.03	0	0	0	0.00	0.06	0.04	0.03	0.01
1998	1055	0	0	0	0.03	0.23	0.24	0.08	0.03	0	0	0	0.02	0.11	0.14	0.08	0.03
1999	562	0	0	0	0.06	0.29	0.24	0.18	0.09	0	0	0	0.00	0.02	0.05	0.04	0.00
2000	17213	0	0	0	0.02	0.30	0.39	0.11	0.02	0	0	0	0.00	0.05	0.07	0.04	0.01
2001	20030	0	0	0	0.02	0.22	0.37	0.21	0.07	0	0	0	0.00	0.02	0.05	0.02	0.01
2002	5219	0	0	0	0.04	0.23	0.28	0.25	0.07	0	0	0	0.00	0.03	0.04	0.03	0.01
2003	5226	0	0	0	0.02	0.37	0.32	0.12	0.03	0	0	0	0.00	0.02	0.05	0.05	0.01
2004	9606	0	0	0	0.01	0.38	0.39	0.11	0.03	0	0	0	0.00	0.03	0.03	0.01	0.01
2005	5360	0	0	0	0.00	0.25	0.47	0.16	0.02	0	0	0	0.00	0.02	0.05	0.02	0.01
2006	6707	0	0	0	0.00	0.18	0.35	0.17	0.02	0	0	0	0.00	0.05	0.14	0.07	0.01
2007	6125	0	0	0	0.01	0.36	0.34	0.14	0.03	0	0	0	0.00	0.02	0.06	0.03	0.01
2008	5766	0	0	0	0.00	0.35	0.35	0.06	0.01	0	0	0	0.00	0.09	0.09	0.04	0.01
2009	6026	0	0	0	0.01	0.34	0.33	0.11	0.02	0	0	0	0.00	0.08	0.08	0.02	0.01
2010	5902	0	0	0	0.01	0.39	0.36	0.10	0.01	0	0	0	0.00	0.05	0.05	0.02	0.00
2011	2552	0	0	0	0.00	0.32	0.40	0.12	0.02	0	0	0	0.00	0.06	0.06	0.02	0.00
2012	5056	0	0	0	0.00	0.24	0.46	0.18	0.02	0	0	0	0.00	0.03	0.04	0.02	0.00
2013	6072	0	0	0	0.00	0.24	0.37	0.24	0.06	0	0	0	0.00	0.01	0.04	0.02	0.00
2014	4682	0	0	0	0.01	0.28	0.24	0.18	0.07	0	0	0	0.00	0.04	0.09	0.07	0.02
2015	4173	0	0	0	0.01	0.48	0.28	0.10	0.03	0	0	0	0.00	0.02	0.03	0.03	0.01
2016	1543	0	0	0	0.00	0.25	0.47	0.16	0.03	0	0	0	0.00	0.02	0.02	0.03	0.01
2017	3412	0	0	0	0.00	0.18	0.39	0.21	0.03	0	0	0	0.01	0.03	0.12	0.05	0.01
2018	2609	0	0	0	0.00	0.11	0.32	0.32	0.08	0	0	0	0	0.01	0.08	0.08	0.02

Table 5. Winter commercial catch length-shell compositions.

Year	Sample	New Shell								Old Shell							
		64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+
2016	1016	0	0	0	0.03	0.45	0.31	0.03	0.00	0	0	0	0.01	0.09	0.04	0.02	0.01
2017	540	0	0	0	0.00	0.20	0.30	0.13	0.02	0	0	0	0.00	0.08	0.19	0.06	0.02
2018	401	0	0	0	0.00	0.11	0.25	0.27	0.05	0	0	0	0	0.04	0.16	0.10	0.02

Table 6. Summer Trawl Survey length-shell compositions.

Year	Survey	Sample	New Shell								Old Shell							
			64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+
1976	NMFS	1326	0.01	0.02	0.10	0.19	0.34	0.18	0.02	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.01	0.01
1979	NMFS	220	0.01	0.01	0.00	0.02	0.05	0.05	0.03	0.01	0.01	0.00	0.01	0.04	0.14	0.40	0.19	0.03
1982	NMFS	327	0.22	0.07	0.16	0.23	0.17	0.03	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.02	0.03
1985	NMFS	350	0.11	0.11	0.19	0.17	0.16	0.06	0.01	0.00	0.00	0.00	0.00	0.02	0.05	0.08	0.05	0.01
1988	NMFS	366	0.16	0.19	0.12	0.13	0.11	0.06	0.03	0.00	0.00	0.00	0.01	0.01	0.03	0.07	0.05	0.03
1991	NMFS	340	0.18	0.08	0.02	0.03	0.06	0.03	0.01	0.01	0.03	0.06	0.02	0.08	0.16	0.14	0.09	0.02
1996	ADFG	269	0.29	0.21	0.13	0.09	0.05	0.00	0.00	0.01	0.00	0.00	0.03	0.03	0.04	0.04	0.04	0.03
1999	ADFG	283	0.03	0.01	0.10	0.29	0.26	0.13	0.03	0.01	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.00
2002	ADFG	244	0.09	0.12	0.14	0.11	0.02	0.03	0.02	0.01	0.01	0.03	0.07	0.10	0.09	0.09	0.05	0.02
2006	ADFG	373	0.18	0.26	0.21	0.11	0.06	0.04	0.02	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.01	0.00
2008	ADFG	275	0.12	0.15	0.21	0.11	0.10	0.03	0.02	0.01	0.00	0.01	0.04	0.06	0.08	0.01	0.04	0.00
2010	NMFS	69	0.01	0.04	0.06	0.17	0.06	0.03	0.00	0.00	0.00	0.03	0.09	0.20	0.19	0.07	0.03	0.01
2011	ADFG	315	0.13	0.11	0.09	0.11	0.18	0.14	0.03	0.01	0.00	0.00	0.01	0.02	0.09	0.04	0.03	0.00
2014	ADFG	387	0.08	0.15	0.24	0.18	0.09	0.02	0.01	0.01	0.00	0.00	0.03	0.10	0.05	0.04	0.01	0.00
2017	ADFG	116	0.14	0.12	0.05	0.09	0.10	0.04	0.00	0.00	0.01	0.02	0.02	0.02	0.07	0.18	0.04	0.00
2017	NMFS	58	0.09	0.10	0.14	0.05	0.05	0.05	0.05	0.03	0.03	0.00	0.03	0.05	0.03	0.19	0.05	0.03
2018	ADFG	73	0.37	0.10	0.11	0.03	0.01	0.03	0.04	0.01	0	0.07	0.01	0.04	0.03	0.03	0.10	0.03

Table 7. Winter pot survey length-shell compositions.

Year	CPUE	Sample	New Shell								Old Shell							
			64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+
1981/82	NA	719	0.00	0.10	0.23	0.21	0.07	0.02	0.02	0.00	0.00	0.05	0.11	0.11	0.04	0.02	0.02	0.00
1982/83	24.2	2583	0.03	0.08	0.28	0.28	0.21	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.01
1983/84	24.0	1677	0.01	0.16	0.26	0.23	0.15	0.06	0.01	0.00	0.00	0.00	0.00	0.02	0.06	0.03	0.01	0.01
1984/85	24.5	789	0.02	0.09	0.25	0.35	0.16	0.06	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.00	0.00
1985/86	19.2	594	0.04	0.12	0.17	0.24	0.19	0.08	0.01	0.00	0.00	0.00	0.00	0.01	0.06	0.04	0.01	0.00
1986/87	5.8	144	0.00	0.06	0.15	0.19	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.30	0.11	0.03
1987/88																		
1988/89	13.0	500	0.02	0.13	0.15	0.13	0.19	0.17	0.03	0.00	0.00	0.00	0.00	0.05	0.08	0.03	0.00	0.00
1989/90	21.0	2076	0.00	0.05	0.21	0.26	0.18	0.12	0.06	0.01	0.00	0.00	0.00	0.00	0.03	0.06	0.02	0.00
1990/91	22.9	1283	0.00	0.01	0.09	0.29	0.27	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.12	0.07	0.02
1992/93	5.5	181	0.00	0.01	0.03	0.06	0.13	0.12	0.03	0.00	0.00	0.00	0.00	0.02	0.19	0.27	0.10	0.05
1993/94																		
1994/95	6.2	858	0.01	0.06	0.08	0.10	0.26	0.23	0.07	0.01	0.00	0.00	0.00	0.00	0.03	0.07	0.06	0.02
1995/96	9.9	1580	0.06	0.14	0.20	0.19	0.11	0.07	0.03	0.00	0.00	0.00	0.00	0.01	0.06	0.07	0.03	0.01
1996/97	2.9	398	0.07	0.21	0.22	0.11	0.15	0.11	0.05	0.01	0.00	0.00	0.00	0.00	0.02	0.03	0.01	0.01
1997/98	10.9	881	0.00	0.14	0.41	0.27	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.01
1998/99	10.7	1307	0.00	0.02	0.12	0.36	0.36	0.08	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00
1999/00	6.2	575	0.02	0.09	0.10	0.16	0.33	0.18	0.03	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.01	0.00
2000/01	3.1	44																
2001/02	13.0	828	0.05	0.29	0.26	0.17	0.06	0.06	0.04	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00
2002/03	9.6	824	0.02	0.10	0.22	0.28	0.18	0.06	0.02	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.02
2003/04	3.7	296	0.00	0.02	0.16	0.26	0.32	0.14	0.01	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.02	0.01
2004/05	4.4	405	0.00	0.07	0.14	0.18	0.22	0.19	0.07	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.01	0.00
2005/06	6.0	512	0.00	0.14	0.23	0.21	0.16	0.05	0.02	0.00	0.00	0.00	0.01	0.01	0.02	0.04	0.07	0.03
2006/07	7.3	159	0.07	0.14	0.19	0.35	0.13	0.04	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.04	0.00	0.00
2007/08	25.0	3552	0.01	0.14	0.25	0.17	0.14	0.07	0.01	0.00	0.01	0.04	0.07	0.03	0.03	0.01	0.01	0.00
2008/09	21.9	525	0.00	0.07	0.13	0.35	0.20	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.00	0.00
2009/10	25.3	578	0.01	0.05	0.13	0.21	0.24	0.11	0.02	0.00	0.00	0.00	0.01	0.06	0.10	0.05	0.01	0.00
2010/11	22.1	596	0.02	0.08	0.13	0.20	0.17	0.13	0.05	0.00	0.00	0.00	0.01	0.03	0.11	0.05	0.01	0.00
2011/12	29.4	675	0.03	0.11	0.23	0.19	0.12	0.13	0.04	0.00	0.00	0.00	0.00	0.01	0.05	0.05	0.03	0.00

Table 8. Summer commercial 1987-1994, 2012-2017 observer discards length-shell compositions.

Year Sample	New Shell									Old Shell							
	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	
1987	1146	0.06	0.19	0.32	0.33	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.00
1988	722	0.01	0.04	0.15	0.48	0.14	0.00	0.00	0.00	0.00	0.01	0.03	0.10	0.04	0.00	0.00	0.00
1989	1000	0.07	0.19	0.24	0.22	0.03	0.00	0.00	0.00	0.02	0.03	0.07	0.11	0.03	0.00	0.00	0.00
1990	507	0.08	0.23	0.27	0.27	0.04	0.00	0.00	0.00	0.02	0.02	0.02	0.05	0.01	0.00	0.00	0.00
1992	580	0.11	0.17	0.30	0.29	0.03	0.00	0.00	0.00	0.01	0.02	0.02	0.04	0.01	0.00	0.00	0.00
1994	850	0.07	0.06	0.11	0.15	0.02	0.00	0.00	0.00	0.07	0.07	0.15	0.24	0.05	0.00	0.00	0.00
2012	939	0.21	0.11	0.19	0.32	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00
2013	2617	0.34	0.29	0.16	0.16	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	1755	0.05	0.10	0.26	0.41	0.12	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.01	0.00	0.00	0.00
2015	824	0.01	0.08	0.18	0.44	0.23	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00
2016	426	0.04	0.05	0.17	0.50	0.17	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00
2017	544	0.10	0.16	0.13	0.31	0.26	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
2018	532	0.10	0.17	0.36	0.30	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00

Table 9. Summer commercial 2012-2018 observer total catch length-shell compositions.

Year Sample	New Shell									Old Shell							
	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+	
2012	3055	0.10	0.05	0.08	0.15	0.15	0.17	0.06	0.01	0.00	0.00	0.00	0.03	0.08	0.09	0.03	0.00
2013	4762	0.19	0.16	0.09	0.10	0.16	0.16	0.09	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00
2014	3506	0.02	0.05	0.13	0.22	0.22	0.12	0.08	0.03	0.00	0.00	0.00	0.02	0.03	0.03	0.02	0.01
2015	1671	0.01	0.04	0.09	0.23	0.37	0.14	0.05	0.01	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
2016	2114	0.01	0.01	0.03	0.12	0.29	0.36	0.08	0.02	0.00	0.00	0.00	0.01	0.03	0.03	0.02	0.00
2017	2748	0.02	0.03	0.03	0.06	0.19	0.33	0.18	0.02	0.00	0.00	0.00	0.00	0.02	0.07	0.03	0.01
2018	1628	0.03	0.06	0.12	0.11	0.09	0.17	0.18	0.04	0.00	0.00	0.01	0.01	0.15	0.07	0.08	0.02

Table 10. The number of tagged data released and recovered after 1 year (Y1) – 3 year (Y3) during 1980-1992 and 1993-2017 periods.

Release Length Class	Recap Length Class	1980-1992			1993-2017		
		Y1	Y2	Y3	Y1	Y2	Y3
64 - 73	64 - 73						
64 - 73	74 - 83	1					
64 - 73	84 - 93	1	1		3		
64 - 73	94 - 103		1			5	
64 - 73	104 - 113		1			3	6
64 - 73	114 - 123						7
64 - 73	124 - 133						
64 - 73	134+						
74 - 83	74 - 83						
74 - 83	84 - 93	3			18		
74 - 83	94 - 103	7			15	11	
74 - 83	104 - 113		13		4	79	14
74 - 83	114 - 123		1	2		4	22
74 - 83	124 - 133						2
74 - 83	134+						
84 - 93	84 - 93						
84 - 93	94 - 103	15	1		34	4	1
84 - 93	104 - 113	19	5	1	72	21	11
84 - 93	114 - 123		5	2	7	53	5
84 - 93	124 - 133				1	2	2
84 - 93	134+						
94 - 103	94 - 103	4	1		6	1	
94 - 103	104 - 113	53	5	1	143	20	
94 - 103	114 - 123	31	5	7	77	8	9
94 - 103	124 - 133	2	2	2		11	6
94 - 103	134+				1		
104 - 113	104 - 113	18			57	2	
104 - 113	114 - 123	38	15	3	105	27	3
104 - 113	124 - 133	7	8	4	15	3	8
104 - 113	134+						1
114 - 123	114 - 123	17	2		71	5	
114 - 123	124 - 133	27	10	2	71	31	8
114 - 123	134+	5	1		19	4	3
124 - 133	124 - 133	15			41	6	
124 - 133	134+	10	4	2	15	8	6
134+	134+	15	6	1	11		



Table 11. Summary of initial input parameter values and bounds for a length-based population model of Norton Sound red king crab. Parameters with “log\_” indicate log scaled parameters.

Parameter	Parameter description	Equation Number in Appendix A	Lower	Upper
log_ $q_{1,2}$	Commercial fishery catchability (1977-92, 1993-2017)	(22)	-20.5	20
log_ $N_{76}$	Initial abundance	(1)	2.0	15.0
$R_0$	Mean Recruit	(13)	2.0	12.0
log_ $\sigma_R^2$	Recruit standard deviation	(13)	-40.0	40.0
$a_{1.7}$	Intimal length proportion	(2)	0	10.0
$r_1$	Proportion of length class 1 for recruit	(14)	0	10.0
log_ $\alpha$	Inverse logistic molting parameter	(15)	-5.0	-1.0
log_ $\beta$	Inverse logistic molting parameter	(15)	1.0	5.5
log_ $\phi_{st1}$	Logistic trawl selectivity parameter	(16)	-5.0	1.0
log_ $\phi_{w1}$	Inverse logistic winter pot selectivity parameter	(18)	-5.0	1.0
log_ $\phi_{w2}$	Inverse logistic winter pot selectivity parameter	(18)	0.0	6.0
$Sw_{1,2}$	Winter pot selectivity of length class 1,2	(18)	0.1	1.0
log_ $\phi_1$	Logistic commercial catch selectivity parameter	(17)	-5.0	1.0
log_ $\phi_2$	Logistic commercial catch selectivity parameter	(17)	0.0	6.0
$w_t^2$	Additional variance for standard CPUE	(31)	0.0	6.0
ms	Natural mortality multipliers		0.5	5.0
q	Survey q for NMFS trawl 1976-91	(31)	0.1	1.0
$\sigma$	Growth transition sigma	(19)	0.0	30.0
$\beta_1$	Growth transition mean	(19)	0.0	20.0
$\beta_2$	Growth transition increment	(19)	0.0	20.0

Table 12. Summary of parameter estimates and standard deviations of Norton Sound red king crab. (Base Model 0)

name	Estimate	std.dev
log_q1	-6.965	0.168
log_q2	-6.816	0.109
log_N76	9.029	0.130
R0	6.440	0.081
log_R76	0.013	0.416
log_R77	-0.541	0.370
log_R78	-0.725	0.353
log_R79	0.373	0.315
log_R80	0.500	0.283
log_R81	0.404	0.263
log_R82	0.372	0.314
log_R83	0.540	0.275
log_R84	0.147	0.291
log_R85	0.447	0.276
log_R86	0.061	0.286
log_R87	0.021	0.246
log_R88	0.025	0.258
log_R89	-0.329	0.280
log_R90	-0.276	0.253
log_R91	-0.526	0.285
log_R92	-0.673	0.302
log_R93	-0.577	0.289
log_R94	-0.292	0.257
log_R95	-0.063	0.225
log_R96	0.576	0.217
log_R97	-0.016	0.293
log_R98	-0.624	0.320
log_R99	-0.008	0.310
log_R00	0.311	0.263
log_R01	0.390	0.241
log_R02	-0.005	0.314
log_R03	-0.280	0.330
log_R04	0.300	0.241
log_R05	0.425	0.222
log_R06	0.477	0.243

name	Estimate	std.dev
log_R07	0.540	0.231
log_R08	0.134	0.287
log_R09	-0.367	0.294
log_R10	-0.002	0.253
log_R11	0.282	0.274
log_R12	0.890	0.185
log_R13	-0.196	0.284
log_R14	-0.568	0.294
log_R15	-0.751	0.269
log_R16	-0.389	0.226
log_R17	-0.018	0.275
a1	1.543	4.575
a2	2.316	4.264
a3	3.826	4.069
a4	4.106	4.055
a5	4.325	4.046
a6	3.550	4.075
a7	2.117	4.335
r1	10.000	0.845
r2	9.680	0.863
log_a	-2.645	0.087
log_b	4.824	0.014553
log_φst1	3.145	5183.900
log_φwa	-2.115	0.317
log_φwb	4.798	0.028
Sw1	0.073	0.035
Sw2	0.500	353.550
log_φl	3.795	6501.300
w <sup>2</sup> <sub>t</sub>	0.052	0.016
q	0.766	0.131
σ	3.876	0.216
β <sub>1</sub>	12.301	0.705
β <sub>2</sub>	7.700	0.175
ms78	3.189	0.272

Table 13. Estimated selectivity, mortality, molting probabilities, and proportions of legal crab by length class (mm CL) for Norton Sound male red king crab (Model 0).

Model 0

Length Class	Legal Proportion	Summer Com Retention (Model 1)	Winter Com Retention (Model 2)	Mean weight (lb)	Natural mortality ( <i>M</i> )	Selectivity			
						Trawl	Winter Pot	Summer Fishery	Molting Probability
64 - 73	0.00	0.00	0.00	0.44	0.18	1.00	0.07	0.15	0.98
74 - 83	0.00	0.00	0.00	0.87	0.18	1.00	0.50	0.38	0.96
84 - 93	0.00	0.00	0.00	1.31	0.18	1.00	0.98	0.68	0.93
94 - 103	0.14	0.08	0.03	1.80	0.18	1.00	0.94	0.88	0.86
104 - 113	0.88	0.86	0.73	2.37	0.18	1.00	0.82	0.96	0.76
114 - 123	1.00	1.00	1.00	3.04	0.18	1.00	0.58	0.99	0.60
124 - 133	1.00	1.00	1.00	3.80	0.57	1.00	0.30	1.00	0.43
134+	1.00	1.00	1.00	4.60	0.57	1.00	0.11	1.00	0.27

Model 1

Length Class	Natural mortality ( <i>M</i> )	Selectivity			
		Trawl	Winter Pot	Summer Fishery	Molting Probability
64 - 73	0.18	1.00	0.07	0.06	0.98
74 - 83	0.18	1.00	0.50	0.21	0.97
84 - 93	0.18	1.00	0.98	0.51	0.93
94 - 103	0.18	1.00	0.94	0.80	0.87
104 - 113	0.18	1.00	0.83	0.94	0.76
114 - 123	0.18	1.00	0.60	0.98	0.61
124 - 133	0.58	1.00	0.30	1.00	0.43
134+	0.58	1.00	0.11	1.00	0.27

Table 14. Estimated molting probability incorporated transition matrix.

Model 0								
Pre-molt Length Class	Post-molt Length Class							
	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+
64 - 73	0.02	0.10	0.79	0.10	0.00	0.00	0.00	0.00
74 - 83		0.04	0.23	0.70	0.03	0.00	0.00	0.00
84 - 93			0.08	0.42	0.50	0.01	0.00	0.00
94 - 103				0.15	0.58	0.27	0.00	0.00
104 - 113					0.29	0.60	0.11	0.00
114 - 123						0.50	0.47	0.03
124 - 133							0.73	0.27
134+								1.00

  

Model 1								
Pre-molt Length Class	Post-molt Length Class							
	64-73	74-83	84-93	94-103	104-113	114-123	124-133	134+
64 - 73	0.02	0.10	0.78	0.09	0.00	0.00	0.00	0.00
74 - 83		0.04	0.26	0.68	0.03	0.00	0.00	0.00
84 - 93			0.07	0.44	0.48	0.00	0.00	0.00
94 - 103				0.15	0.58	0.26	0.00	0.00
104 - 113					0.29	0.60	0.11	0.00
114 - 123						0.51	0.47	0.03
124 - 133							0.73	0.27
134+								1.00

Table 15. Annual abundance estimates (million crab) and mature male biomass (Feb 01) (MMB, million lb) for Norton Sound red king crab estimated by a length-based analysis from 1976 to 2018.

Year	Abundance			Legal ( $\geq 104$ mm)				MMB	
	Recruits	Total ( $\geq 64$ mm)	Mature ( $\geq 94$ mm)	Abundance	S.D	Biomass	S.D	Biomass	S.D.
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988									
1989									
1990									
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
2007									
2008									
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Table 16. Summary of catch and estimated discards (million lb) for Norton Sound red king crab. Assumed average crab weight is 2.0 lb for winter subsistence catch and 1.0 lb for Winter subsistence discards. Summer and winter commercial discards were estimated from the model.

Year	Summer Com	Winter Com	Winter Sub	Modeled Discards Summer	Discards Winter Sub	Modeled Discards Winter com	Total	Catch/MMB
1977	0.52	0.000	0.000		0.000			
1978	2.09	0.024	0.025		0.008			
1979	2.93	0.001	0.000		0.000			
1980	1.19	0.000	0.000		0.000			
1981	1.38	0.000	0.001		0.000			
1982	0.23	0.000	0.003		0.001			
1983	0.37	0.001	0.021		0.006			
1984	0.39	0.002	0.022		0.005			
1985	0.43	0.003	0.017		0.002			
1986	0.48	0.005	0.014		0.004			
1987	0.33	0.003	0.012		0.002			
1988	0.24	0.001	0.005		0.001			
1989	0.25	0.000	0.012		0.002			
1990	0.19	0.010	0.024		0.004			
1991	0	0.010	0.015		0.002			
1992	0.07	0.021	0.023		0.003			
1993	0.33	0.005	0.002		0.000			
1994	0.32	0.017	0.008		0.001			
1995	0.32	0.022	0.011		0.002			
1996	0.22	0.005	0.003		0.001			
1997	0.09	0.000	0.001		0.001			
1998	0.03	0.002	0.017		0.012			
1999	0.02	0.007	0.015		0.003			
2000	0.3	0.008	0.011		0.004			
2001	0.28	0.003	0.001		0.000			
2002	0.25	0.007	0.004		0.003			
2003	0.26	0.017	0.008		0.005			
2004	0.34	0.001	0.002		0.001			
2005	0.4	0.006	0.008		0.003			
2006	0.45	0.000	0.002		0.001			
2007	0.31	0.008	0.021		0.011			
2008	0.39	0.015	0.019		0.009			
2009	0.4	0.012	0.010		0.002			
2010	0.42	0.012	0.014		0.002			
2011	0.4	0.009	0.013		0.003			
2012	0.47	0.025	0.015		0.004			
2013	0.35	0.061	0.015		0.014			
2014	0.39	0.035	0.007		0.002			
2015	0.40	0.099	0.019		0.005			
2016	0.42	0.080	0.011		0.001			
2017	0.41	0.078	0.012		0.001			
2018	0.30	0.029	0.008		0.002			