

Bristol Bay Sockeye Salmon  
In-season release #8

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# 1 Forecast summary

Given the data to date our forecast for the Bristol Bay sockeye return remains at 35 million. Indications of run strength based on the cumulative daily catch plus escapement to date are similar to the pre-season forecast, but different from the forecasts based solely on the Port Moller cumulative index and age composition (table 1). The Port Moller forecast has increased slightly but the index is still lagging behind recent years (table 2). After several days of relatively low daily catch and escapement, the forecast based on the catch and escapement has come down considerably, but it is still higher than either the preseason forecast or the Port Moller forecast.

Table 1: 2010 FRI in-season forecast (in thousands) summary.

Forecast	Today's forecast	previous forecast
Pre-season forecast	39,724	39,724
Age-specific Port Moller	27,100	25,000
Catch & escapement	44,800	55,000
In-season forecast	35,000	35,000

Table 2: Cumulative FRI Port Moller index (sum of the sockeye catch hour<sup>-1</sup> fished for stations 2 through 12, with interpolations for missing stations) by day and year from 1990-2010 (1990-1999 next page), and total returns.

Date	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	<b>2010</b>
June 10	125	16	37	16	34	44	13	35	13	18	<b>3</b>
June 11	234	25	106	25	70	123	42	60	22	36	<b>36</b>
June 12	468	45	178	45	106	212	51	91	104	98	<b>39</b>
June 13	682	76	243	76	196	242	72	126	210	174	<b>43</b>
June 14	866	157	448	157	294	350	139	171	254	237	<b>93</b>
June 15	1111	258	654	258	422	428	210	201	362	317	<b>127</b>
June 16	1323	511	842	511	584	630	374	278	423	519	<b>178</b>
June 17	1532	621	995	621	781	823	572	388	590	804	<b>208</b>
June 18	1707	710	1129	710	925	1038	740	524	918	981	<b>363</b>
June 19	1947	763	1293	763	1209	1275	1045	594	1178	1263	<b>453</b>
June 20	2288	907	1550	907	1353	1377	1272	674	1579	1535	<b>667</b>
June 21	2551	1073	1764	1073	1671	1565	1562	858	1910	1851	<b>924</b>
June 22	2814	1211	2037	1211	1912	1779	1790	1015	2389	2156	<b>1301</b>
June 23	3238	1547	2371	1547	2052	1990	2272	1240	2761	2429	<b>1572</b>
June 24	3571	1747	2720	1747	2329	2238	2703	1597	3246	2609	<b>1799</b>
June 25	3896	1953	3029	1953	2777	2514	3188	1687	3910	2839	<b>1932</b>
June 26	4160	2087	3329	2087	3196	2866	3670	2068	4344	3567	<b>2093</b>
June 27	4463	2522	3605	2522	3810	3312	3992	2507	5101	4121	<b>2268</b>
June 28	4813	2900	3914	2899	4216	3670	4609	2967	5640	4765	<b>2413</b>
June 29	5102	3264	4196	3263	4578	4060	5164	3239	6040	5400	<b>2541</b>
June 30	5359	3350	4350	3350	4882	4258	5395	3581	6625	6039	<b>2690</b>
July 1	5577	3458	4510	3458	5012	4623	5587	3755	7235	6654	<b>3070</b>
July 2	5781	3622	4665	3622	5283	4895	5955	3969	7870	7019	<b>3351</b>
July 3	5937	3810	4817	3809	5507	5066	6465	4176	8172	7362	<b>3740</b>
July 4	6097	4008	5009	4008	5666	5254	6673	4406	8553	7722	<b>3963</b>
July 5	6279	4237	5175	4237	6028	5503	6965	4607	9019	8037	
July 6	6436	4496	5252	4496	6277	5715	7399	5121	9570	8284	
July 7	6587	4728	5279	4728	6392	5975	7678	5346	9911	8496	
July 8	6690	4933	5323	4934	6504	6246	7991	5592	10156	8675	
July 9	6838	5112	5409	5113	6600	6495	8224	5747	10422	8821	
Total run	30	24	17	27	44	40	44	46	42	40	

Table 2 (continued) – 1990 - 1999 from previous page

Date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	<b>2010</b>
June 10	18	18	65	45	14	130	111	31	23	38	<b>3</b>
June 11	45	45	105	89	23	230	234	76	49	93	<b>36</b>
June 12	88	66	198	157	47	333	291	103	67	146	<b>39</b>
June 13	119	87	307	340	74	522	356	168	107	178	<b>43</b>
June 14	171	134	355	490	124	676	493	231	152	216	<b>93</b>
June 15	249	233	460	687	176	887	596	356	222	268	<b>127</b>
June 16	291	347	588	916	214	1064	829	441	315	315	<b>178</b>
June 17	387	486	676	1178	302	1381	963	507	392	396	<b>208</b>
June 18	519	696	887	1399	427	1637	1152	688	489	567	<b>363</b>
June 19	675	866	1173	1669	539	1812	1279	846	599	741	<b>453</b>
June 20	858	1127	1369	1998	754	2096	1538	980	760	908	<b>677</b>
June 21	979	1508	1681	2444	992	2356	1772	1209	888	1044	<b>924</b>
June 22	1123	1695	1942	2763	1346	2684	1964	1429	1021	1278	<b>1301</b>
June 23	1425	2068	2225	3039	1673	2906	2175	1641	1201	1614	<b>1572</b>
June 24	1754	2236	2496	3560	1948	3219	2492	1824	1348	1990	<b>1799</b>
June 25	2001	2417	2868	4034	2250	3563	2754	2023	1505	2258	<b>1932</b>
June 26	2304	2779	3006	4512	2561	3926	3089	2347	1676	2432	<b>2093</b>
June 27	2914	3009	3257	4959	2900	4326	3342	2662	1904	2883	<b>2268</b>
June 28	3381	3292	3540	5282	3236	4783	3625	2932	2263	3125	<b>2413</b>
June 29	3966	3477	3861	5837	3757	5151	3821	3238	2531	3533	<b>2541</b>
June 30	4402	3717	4258	6266	4130	5594	4120	3432	2865	3847	<b>2690</b>
July 1	4952	3897	4714	6735	4534	6002	4357	3741	3032	4203	<b>3070</b>
July 2	5418	4315	5030	7070	4848	6429	4681	4247	3386	4614	<b>3351</b>
July 3	5964	4523	5376	7298	5349	6724	4938	4410	3615	4955	<b>3740</b>
July 4	6199	4857	5746	7563	5749	7065	5370	4705	3952	5292	<b>3963</b>
July 5	6986	5059	6078	7790	6071	7413	5568	5033	4218	5761	
July 6	7805	5210	6372	7999	6338	7841	5910	5261	4337	6174	
July 7	8652	5399	6632	8107	6622	8098	6028	5436	4571	6459	
July 8	9522	5617	6990	8270	6767	8347	6257	5705	4825	6824	
July 9	10408	5766	7096	8377	6984	8625	6585	5953	5079	7165	
Total run	50	44	48	50	53	64	39	21	20	43	

## 2 Port Moller genetics

The Nushagak and Naknek/Kvichak districts are dominating the genetics at this time. Table 3 shows the district proportions in the Port Moller genetics, the pre-season, and the predicted in-shore stock composition. The predicted in-shore stock composition accounts for the temporal and spatial selectivity of the Port Moller sampling design. Based on a historical comparison of the Port Moller samples and the observed in-shore returns, the Moller sampling design selects for more Ugashik fish compared to other districts, with Naknek/Kvichak being the least selected for.

Table 3: Cumulative Port Moller genetics composition based on most recent samples, and the pre-season and predicted in-shore stock composition.

Date	District				
	Ugashik	Egegik	Nak/Kvi	Nushagak	Togiak
Port Moller	0.07	0.27	0.31	0.35	0.001
Pre-season	0.16	0.26	0.30	0.26	0.02
Predicted in-shore	0.05	0.26	0.39	0.30	0.01

## 3 Catch and escapement to date: a summary by district

Catch and escapement continues to suggest a strong run. While the Ugashik is well ahead of our pre-season forecast, the later arrival timing of this district means small differences in cumulative catch and escapement to date can result in considerable differences in projected run size at this point in time. We expect the Ugashik run to come more in-line with the pre-season forecast as the season progresses.

The following sections give an overview of the age composition and catch plus escapement to date for each district. We provide estimates of run size by district based on average arrival timing, and if the run is one day early or one day late.

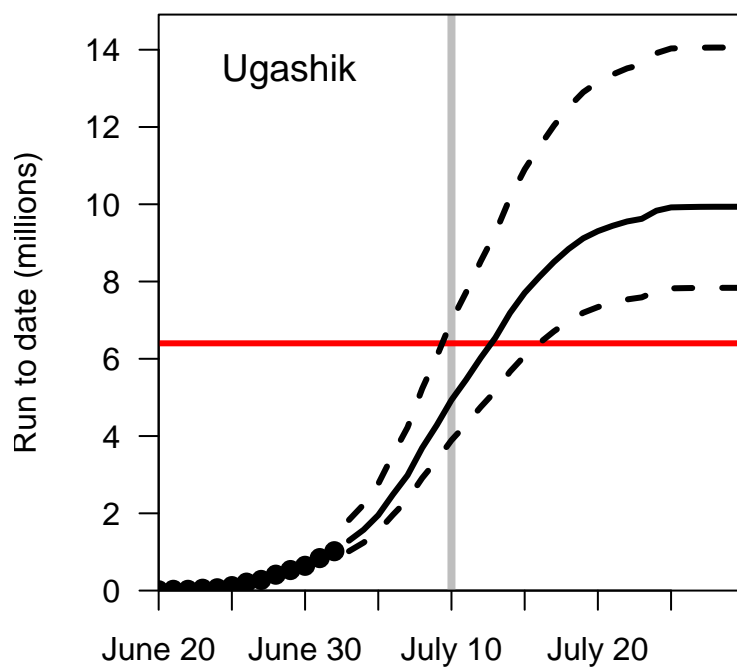
### 3.1 Ugashik

Based on the catch plus escapement to date, the Ugashik district is ahead of our pre-season forecast (figure 1), but this difference is unlikely to remain. We are not seeing the 1.2s in the catch that we had anticipated in our pre-season forecast (table 4). When the 1.2s fail to appear in the catch in any district it could be due to the fact that there are no 1.2s, or that they are escaping through the nets in the districts. We will know more when age composition from the Ugashik escapement become available.

Table 4: Pre-season and in-season (based on catch and escapement) age composition for the Ugashik district. The Port Moller age composition is an aggregate sample of all of the fish caught in the test fishery. The Port Moller age composition has also been changed to account for the size selectivity of test fishery net.

Sampling location	Age			
	1.2	1.3	2.2	2.3
Preseason	0.55	0.2	0.14	0.12
Catch and esc.	0.11	0.54	0.19	0.15
Port Moller	0.36	0.42	0.16	0.07

Figure 1: Observed cumulative catch plus escapement to date for the Ugashik district (black dots). The solid black line is the projected cumulative run for 2010 assuming normal run timing. The upper and lower dashed lines are the projected cumulative run, assuming the run is one day late or one day early, respectively. The vertical grey line is the average mid-point of the run, and the horizontal red line is the pre-season forecast.



## 3.2 Egegik

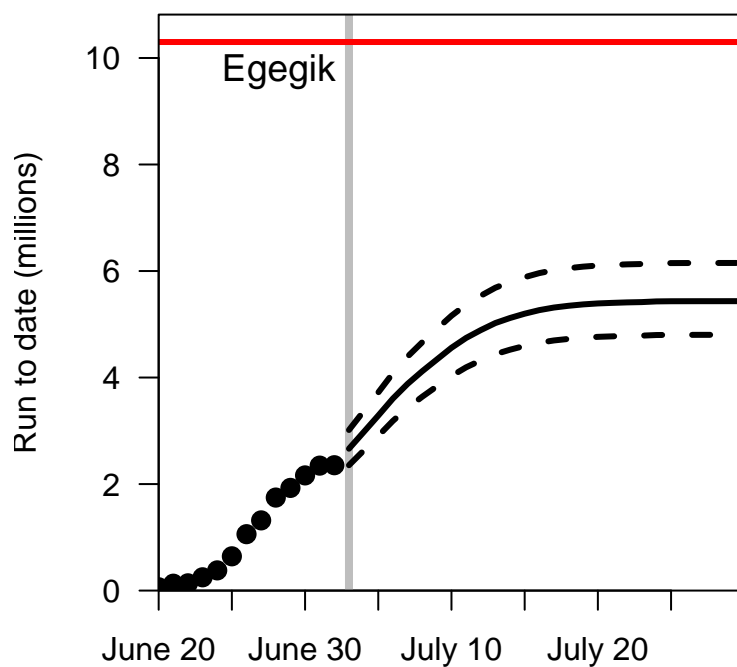
Egegik is falling behind the pre-season forecast (figure 2). The age composition appears similar to our pre-season forecast with exception of the 2.3s (table 5). There was increased uncertainty about the 3.8 million preseason forecast for Egegik 2.3s given that the 2.3 returns have only approach 4 million once in the last ten years.

Table 5: Pre-season and in-season (based on catch and escapement) age composition for the Egegik district. The Port Moller age composition is an aggregate sample of all of the fish caught in the test fishery. The Port Moller age composition has also been changed to account for the size selectivity of test fishery net.

Sampling location	Age			
	1.2	1.3	2.2	2.3
Preseason	0.11	0.13	0.39	0.37
Catch and esc.	0.12	0.20	0.45	0.22
Port Moller	0.36	0.42	0.16	0.07



Figure 2: Observed cumulative catch plus escapement to date for the Egegik district (black dots). The solid black line is the projected cumulative run for 2010 assuming normal run timing. The upper and lower dashed lines are the projected cumulative run, assuming the run is one day late or one day early, respectively. The vertical grey line is the average mid-point of the run, and the horizontal red line is the pre-season forecast.



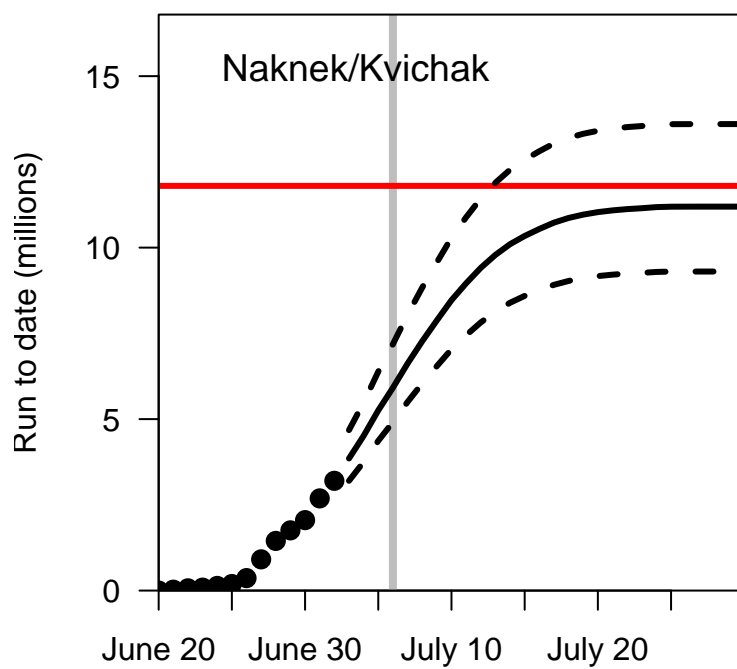
### 3.3 Naknek/Kvichak

The cumulative catch plus escapement to date for the Naknek/Kvichak district coincides with our pre-season forecast (figure 3). We expect the age composition to change toward a higher proportion of 1.2 in the coming days due to increasing numbers of later arriving Kvichak fish. Our Kvichak pre-season forecast was 47% 1.2, and the fish currently being caught in the Kvichak section of the Naknek/Kvichak district are running 38% 1.2. This is catch only and the proportion should increase as escapement age composition become available. There is also a high proportion of 1.2 fish in initial estimates of Naknek escapement (34% versus our preseason forecast of 18%), but again this may be due to smaller fish getting passed the commercial nets and the sample of fish that have been aged is very small.

Table 6: Pre-season and in-season (based on catch and escapement) age composition for the Naknek/Kvichak district. The Port Moller age composition is an aggregate sample of all of the fish caught in the test fishery. The Port Moller age composition has also been changed to account for the size selectivity of test fishery net.

Sampling location	Age			
	1.2	1.3	2.2	2.3
Preseason	0.32	0.39	0.16	0.13
Catch and esc.	0.34	0.32	0.23	0.09
Port Moller	0.36	0.42	0.16	0.07

Figure 3: Observed cumulative catch plus escapement to date for the Naknek/Kvichak district (black dots). The solid black line is the projected cumulative run for 2010 assuming normal run timing. The upper and lower dashed lines are the projected cumulative run, assuming the run is one day late or one day early, respectively. The vertical grey line is the average mid-point of the run, and the horizontal red line is the pre-season forecast.



### 3.4 Nushagak

Based on the catch and escapement to date, the Nushagak district is ahead of the preseason forecast (Figure 4). The Nushagak produced a near record return of 1.1 jacks last year and this has materialized into a strong 1.2 return this year (table 7). We would expect the total proportion of 1.2 for the district to increase as a disproportionate number of 1.2 escape the fishery and move past the counting towers.

Table 7: Pre-season and in-season (based on catch and escapement) age composition for the Naknek/Kvichak district. The Port Moller age composition is an aggregate sample of all of the fish caught in the test fishery. The Port Moller age composition has also been changed to account for the size selectivity of test fishery net.

Sampling location	Age			
	1.2	1.3	2.2	2.3
Preseason	0.51	0.47	0.01	0.01
Catch and esc.	0.42	0.57	0	0
Port Moller	0.36	0.42	0.16	0.07

Figure 4: Observed cumulative catch plus escapement to date for the Nushagak district (black dots). The solid black line is the projected cumulative run for 2010 assuming normal run timing. The upper and lower dashed lines are the projected cumulative run, assuming the run is one day late or one day early, respectively. The vertical grey line is the average mid-point of the run, and the horizontal red line is the pre-season forecast.

