Submitted by Bruce Cain, President, Copper Valley Chamber of Commerce RC 10

These comments relate to the new SEG for Copper River Chinook that was discussed at the October work session, and in season harvest monitoring for the in-river fisheries on the Copper River (See proposal 37 from the 2014 proposal book if you want to see what was submitted. It was submitted this cycle as well but was deemed unworthy to be put in the proposal book and discussed.) It also addresses proposal 13, the need to restrict dipnetting from a boat.

Issue 1. Chinook SEG:

1. The 18,500 SEG is too low to sustain the Chinook run in the Copper River system (a 24,000 square mile watershed) and will lead to a complete run failure and possibly extinction.
2. Recommended: Put it back to the pre 2003 goal of 28,000-55,000. This level maintained a healthy return for many years. We have seen a declining overall Chinook return ever since the goal was lowered to 24,000 in 2003. Lowering it further to 18,500 is malfeasant. (see point #1)

Issue 2. In river fishery management.

1. The department doesn't have the capacity to determine if any escapement goal on the Copper River system has been met, not met or exceeded AND NEEDS TO DEVELOP A SYSTEM TO DO SO.
    a. The old aerial count index and trend system is no longer used so there is no way to tell if the spawning bed escapement returns are going up or down.
    b. The new system of subtracting in river harvest from entry into the river to determine spawning escapement, MUST HAVE ACCURATE IN RIVER IN SEASON HARVEST DATA IN ORDER TO WORK.
2. The new system could be very effective if the department would implement a robust in season daily harvest reporting program for the in river fisheries.
    a. The system to measure entry into the river is world class.
        i. Miles Lake Sonar measures total salmon. The total count and error rate has been checked with a 4 year mark recapture study. It has been operating for decades. This is as good as it gets for counting salmon in turbid water.
        ii. The Native Village of Eyak mark recapture program measures the Chinook entry into the river. This number coupled with the Miles Lake data gives managers an excellent number to work with for entry into the river of Sockeye and Chinook.
    b. There is no method for in season reporting of the in river fisheries. So there is no way to accurately measure or assess spawning bed escapement in season by subtraction of the harvest from the river entry numbers.
    c. The department has discontinued its index flights and most other spawning bed monitoring programs so there is no way to tell spawning escapement from this method.
    d. If a daily reporting system were implemented on the in river fisheries, a very good data set for assessment of run strength, harvest by user group AND spawning bed escapement would be available to managers. This would be very good for all user groups.

Issue 3. Dipnetting from boats is depleting the run.

1. Fish hold in deep water holes on the bottom during high water.
2. They pulse through when the water drops and overwhelm fisheries and natural predators to reach the spawning beds.
3. Jet boat and electronic fish finders make it possible to locate and clean out these areas.
4. When the water drops, no fish are left to go upstream.
5. Fish are going through the sonar counters but are not making it to the spawning beds.
6. This is evidenced by lack of fish walls hitting fish wheels when water drops in recent years and no hatchery brood stock returning to the Gulkana Hatchery and Crosswind systems.

The Details:

1. Spawning bed return indicators that we have are showing serious failure to return. We have very little actual indicators so the ones we have should be taken even more seriously. See attached tables 12-14 and table 17 from the 1985 Prince William Sound Annual Finfish Management Report (pg. 4-7) . The tables provide data from the index stream aerial surveys and historic in river harvest and participation (which was reported and summarized every week). One particular item of note is Sockeye count on Fish Lake the 10 year average is 6,799 (table 12 pg. 4). This is primarily the return from the Gulkana hatchery remote release in Crosswind Lake. Normally PWSAC takes 30 million eggs from the Gulkana hatchery in about 3 weeks and then the rest of the run keeps going. In the last two years the egg take has taken over 2 months. I doubt if even 500 fish would be counted here in 2016 or 2017. This is a double whammy because it is a real run failure on the summit lake and the Crosswind Lake return. This is just a sample on one system. In my opinion, the spawning bed return is not making it in the last two years system wide for both Sockeye and Chinook.

2. The department has stopped rigorous monitoring of index streams and most other verification of spawning bed escapement. See attached table 19-21 and page 92, list of personnel from the 1975 Prince William Sound Annual Finfish Management Report (pg. 8-10). Table 21 (pg 9) shows the index stream aerial data. This is the same as table 12 and 13 in the 1985 report (pg 4 and 5). This index stream data was used as a trend indicator of the success of the spawning bed escapement in the system for many years. Page 92 from the 1975 report (pg. 10) lists staff. Three seasonals worked at the Chitina Station. This was done to monitor the harvest and participation in the Chitina fishery. Harvest was summarized weekly. One seasonal was assigned to the Suslota Weir. The Suslota weir isn't operated any more. One seasonal was assigned to the Gulkana Weir and one to the Tanada Weir. These weirs were discontinued by the department but currently operate with funding from OSM. The bottom line is that we changed the way we monitor spawning bed escapement. It is now a subtraction of in river harvest from the river entry numbers. This means we need to be very diligent with tracking the inriver harvest and in my opinion, we aren't, but could.

3. The inriver harvest and participation is growing in orders of magnitude from previous decades and the management of the fishery has not kept pace with the risk to the resource this creates. Table 19 from the 1975 report (pg. 8) shows that in 1975 the subsistence harvest was 5,626 sockeye and 762 kings for fishwheel and 7,694 sockeye and 943 kings for dipnet. There were

350 fishwheel permits issued and 2,452 dipnet permits issued. Today the allocation for the Chitina personal use fishery is 100,000 to 150,000 sockeye with an additional 61,000 to 82,500 sockeye for the subsistence fishery in the Glennallen Subdistrict and 15,000 sockeye for the sport fishery[1]. In 2015 there were 12,635 Chitina personal use dipnet permits issued and almost 2,000 Glennallen Subdistrict subsistence permits issued. The harvest in 2015 was 225,425 sockeye and 1,525 kings in Chitina and 108,696 sockeye and 2614 kings in the Glennallen Subdistrict.[2] This is orders of magnitude in change with less management effort today than in the 70's. Here is what is happening, and it's going to lead to catastrophic run failure very soon. In addition to the huge increase in participation and harvest, there is also a new way to fish. People have discovered jet boats and fish finders. It used to be that in high water, the fish went to the bottom and waited in the slack water at the bottom of the river in deep holes and back eddies until the water went down. When the water peaked and went down, there was a wall of fish that pulsed through. This filled up fish boxes in the wheels and fish went back in the river. Others got their limit and went home. The majority of the entire fish run blasts through in about 4 days and makes it to the spawning beds in one giant push. This is a natural survival strategy for salmon and it works well on a pretty large scale. However. People with electronic fish finders and jet boats are now able to discover these pockets of holding salmon and make repeated sweeps through these hot spots. Now when the water peaks and drops, no pulse happens. The salmon have already been caught. We have seen this in our wheels during the last two years. We also are seeing it at the Gulkana hatchery brood stock egg take. The fish just haven't shown up on the spawning bed for the last two years. They make it through the sonar counter and disappear. Here is another prediction that I don't want to make, but it's probably true. 2020 and 2021 will be disastrous run failures on the Copper River. The spawning bed return failures have already occurred. If we don't make some changes now, continued run failures will occur indefinitely.

4. In Summary:
    a. Put the SEG for chinook back to 28,000 to 55,000
    b. Implement a solid in season harvest monitoring program for the in-river fisheries on the Copper River so we can get on top of spawning bed escapement.
    c. Restrict dipnetting from boats, it is wiping out the runs by catching all the fish holding in deep water holes during high water.

Thank you for the opportunity to comment.

Sincerely

Bruce Cain, President, Copper Valley Chamber of Commerce.

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[1] Alaska Department of Fish and Game web site.
http://www.adfg.alaska.gov/index.cfm?adfg=PersonalUsebyAreaInteriorChitina.management
[2] October 19, 2017, ADF&G 2017 Copper River Area Update Table 2, 3, 4 and 5

Table 12. Aerial survey indices of sockeye salmon escapement to the Upper Copper River drainage, 1976 - 1985.

Location	Yearly Survey Indices										10 Year Average
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
Salmon Creek	300	275	50	450	1,500	250	850	1,550	1,350	575	715
Tonsina Lake	900	432	4	775	650	1,725	1,700	2,850	975	0	1,001
Mahlo Creek	600	5,200	300	450	1,000	1,800	3,300	2,400	4,300	575	1,993
St. Anne Creek	1,700	7,000	1,150	730	5,000	4,700	8,800	9,700	10,300	1,250	5,033
Mendeltna Creek	900	3,900	725	350	1,125	4,830	400	2,850	1,900	2,300	1,928
Keg Creek	125	725	1,050	1,300	2,335	320	495	620	2,505	825	1,030
Dickey Lake	0	650	75	13	250	20	410	135	105	290	195
Swede Lake	10	750	80	155	400	450	1,400	550	2,400	250	645
Paxson Lake Outlet	2,800	3,800	2,500	1,900	3,800	1,500	3,800	3,300	4,100	3,600	3,110
Paxson Inlet to Mud Creek	4,200	6,000	2,700	5,400	8,200	2,200	1,150	7,500	15,700	7,500	6,055
Mud Creek and Lake	1,100	650	150	460	740	810	1,900	470	270	200	675
Mud Creek to Summit Lake	1,900	5,900	800	2,600	3,075	3,400	17,400	5,700	9,600	8,150	5,853
Fish Lake	900	8,000	2,650	1,700	3,175	8,800	22,560	5,500	10,950	3,750	6,799
Bad Crossing #1 and #2	16	8,400	600	650	75	15,000	4,550	2,000	760	1,125	3,318
Fish Creek - Mentasta	250	6,900	1,300	350	900	10,500	1,700	900	900	1,800	2,550
Mentasta Lake	600	3,500	3,600	2,500	3,200	7,400	3,250	6,800	4,850	3,850	3,955
Suslota Lake	100	300	1,200	1,000	1,700	300	1,800	5,600	700	2,200	1,490
Tanada Lake	6,100	9,100	2,625	5,175	13,700	11,200	11,680	10,900	16,100	5,600	9,218
Long Lake	2,450	877	1,425	3,100	2,650	1,325	1,700	5,600	1,360	0	2,049
Tana River	25	404	504	465	2,130	290	1,100	2,485	3,665	1,145	1,221
Totals	24,976	72,763	23,488	29,523	55,605	76,820	89,945	77,410	92,790	44,985	58,831

Table 13. Aerial survey indices of chinook salmon escapement to the Copper River drainage, 1976 - 1985.

Survey Location	Yearly Survey Indices										10 Year Average
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
East Fork Chistochina River	289	132	137	810	575	120	1,260	575	577	360	484
Gulkana River	777	1,090	921	1,380	718	754	1,656	931	2,189	321	1,074
Mendeltna Creek	35	73	52	5	3	51	70	12	26	26	35
Kiana Creek	37	91	125	279	247	191	200	166	382	91	181
St. Anna Creek	15	10	24	16	8	19	35	87	89	15	32
Manker Creek	6	15	20	16	35	23	49	141	264	22	59
Grayling Creek	17	48	92	153	66	107	127	287	279	58	123
Little Tonsina River	98	35	285	285	70	191	440	330	568	203	251
Indian River	61	20	9	29	24	20	179	41	17	14	41
Total without interpolated counts	1,335	1,446	1,665	2,973	1,746	712	4,016	2,570	4,391	1,110	2,196
Counts Missing		2				2					
Total with interpolated counts	1,335	1,514	1,665	2,973	1,746	1,476	4,016	2,570	4,391	1,110	2,280

Table 14. Prince William Sound Area subsistence fisheries catch, 1985.

Area	Number Permits	Gear	King	Sockeye	Coho	Other[1]	Total
Upper Copper River	4,153	Dip Net	1,218	28,297	331	10	29,856
Upper Copper River	533	Fishwheel	455	22,191	213	18	22,877
Copper River Flats	94	Gill Net	88	261	83	1	433
Prince William Sound[2]	17	Gill Net	1	27	16	40	84
	4	Purse Seine					
	1	Set Net					
TOTAL	4,802		1,762	50,776	643	69	53,250

1 Includes catches from pink and chum salmon, whitefish, steelhead, cutthroat, Dolly Varden, lamprey, lingcod and grayling.

2 Catch is from 6 gill net fishermen, 9 gillnet fishermen did not fish, two were unsuccessful, 4 purse seine fishermen & 1 set net fisherman did not fish.

Table 17. Copper River subsistence and personal use fisheries data, 1965-1985.

Year		Permits Issued			Reported Catch			Reported Catch by Species			Total Catch	
		Dip Net	Fish Wheel	Total	Dip Net	Fish Wheel	Total	Chinook	Sockeye	Coho	Reported	Estimated
1965		982	143	1,125	7,215	5,813	13,028	664	12,760	52	13,476	16,818
1966		1,132	138	1,270	7,452	9,188	16,640	555	16,718		17,273	21,896
1967		1,166	154	1,320	6,146	8,360	14,506	419	14,457		14,876	19,007
1968		1,235	143	1,378	8,040	6,071	14,111	644	14,819	233	15,696	20,283
1969		1,415	167	1,582	18,054	6,220	24,274	719	27,604	224	28,547	29,266
1970		3,220	267	3,487	22,700	9,886	32,586	427	36,500	554	37,481	42,757
1971		4,168	374[1]	4,542	28,115	9,370	37,485	1,363	37,517	363	39,243	48,449
1972		3,485	205	3,690	18,996	7,854	26,850	1,501	26,850	248[2]	28,599	32,468[2]
1973		3,840	305	4,145	16,407	10,943	27,350	1,846	27,350	51[3]	29,247	29,428[3]
1974		3,305	288	3,593	15,143	7,657	22,800	1,141	22,800	163[4]	24,104	26,001[4]
1975		2,452	350	2,802	7,694	5,626	13,320	1,705	13,320		15,025	15,357
1976		2,512	451	2,963	12,130	8,321	20,451	2,017	20,451	17	22,485	23,623
1977		3,526	540	4,066	22,612	12,751	35,363	2,171	35,363	454	37,988	41,815
1978		3,313	392	3,705	12,569	6,638	19,207	2,050	19,207	633	21,890	22,029
1979		2,730	470	3,200	11,887	10,251	22,138	2,372	22,138	705	25,215	30,963
1980		2,804	399	3,203	14,650	9,805	24,455	2,256	21,437	639	24,332	35,081
1981		3,555	523	4,078	28,872	26,924	55,796	1,913	53,008	849	55,770	68,746
1982		5,475	615	6,090	62,614	38,120	100,734	2,532	96,799	1,246	100,577	110,006[5]
1983		6,911	630	7,541	72,257	35,971	108,228	5,421	100,995	1,690	108,106	118,728
1984	s	104	458	562	1,288	20,374	21,662	415	20,999	237	21,651	23,093
	p	5,311	17	5,328	46,018	223	46,241	1,592	44,079	552	46,223	49,940
	s&p	5,415	475	5,890	47,306	20,597	67,903	2,007	65,078	789	67,874	73,033[6]
1985		4,153	533	5,686	29,856	22,877	52,733	1,673	50,488	544	52,705	64,200

1 Last use of Dip Net/Fishwheel combination perits.
2 First issue of permits at Chitina.
3 Last "Blacklist" used.
4 Issue of permits at Chitina and Glennallen only.
5 Return requirement enforced.
6 Through 1/28/85.
s = subsistence
p = personal use
s + p = 1984 total catch

Table 19. Prince William Sound Area subsistence fishery, 1975.

Area	Number Permits Issued	Number Permits Returned	Type of Gear	Catch			
				Sockeye	Kings	Cohos	Other 2/
Upper Copper River	350	259	Fishwheel	5,626	762		20
Upper Copper River	2,452	2,242	Dip Net	7,694	943		13
Copper River Flats	2	2	Gill Net	4			
Prince William Sound	2	2	Gill Net	5			3
Eyak, Bering and McKinley Lakes 3/	6	5	Gill Net				319
TOTAL	2,812	2,510		13,329	1,705		355

1/ Compiled from reports received through June 8, 1976.

2/ Includes pink salmon, whitefish, steelhead, cutthroat, Dolly Varden, lamprey, lingcod and grayling.

3/ Whitefish permits

Table 21. Estimated spawning escapement of sockeye and king salmon to upper Copper River, 1975. 1/

Location	Sockeye	King
Bremner River		
Peninsula Lake	0	
Salmon Creek	0	
Steam Boat Lake	0	
Tiekel River Lake	0	
Swan Lake		
Tonsina River		
Lower Tonsina Creek	324	
Little Tonsina River	0	132
Tonsina Lake 3/	250	
Grayling Creek		
Klutina River	3,000	
Manker Creek		
Mahlo Creek	314	
Hallet Slough	30	
Curtis Creek	0	
St. Anne Creek	499	
Tazlina River		
Tazlina Lake		
Kiana Creek		
Mendeltna Creek	325	
Gulkana River		
West Fork	0	627
Moose Creek	0	0
Keg Creek	256	1
Middle Fork	200	91
Dickey Lake	25	
Swede Lake	6	
Hungry Hollow Creek	0	0
East Fork to Paxson Lake	550	22
Paxson Lake	0	0
Paxson Lake Inlet	150	
Paxson Lake to Mud Creek	2,100	
Mud Creek	400	
Mud Creek to Summit Lake	1,200	
Fish Lake	2,800	
Summit Lake	0	0
Gunn Creek	79	
Chistochina River		
East Fork	0	71
Eagle Creek	0	9
Mankomen Lake	0	0
Slana River		
Mentasta Lake	450	
Fish Creek	200	
Bad Crossing #1	0	
Bad Crossing #2	5	
Bone Creek		
Suslota Lake	0	

Table 21, cont. Estimated spawning escapement of sockeye and king salmon to upper Copper River, 1975. 1/

Location	Sockeye	King
Indian River		
Porcupine Creek		6
Sinona Creek		
Ahtel Creek		
Tanada Creek		4
Tanada Lake		
Copper Creek		
Copper Lake		
Lakina River		
Long Lake	375	
Nizina River		
Spruce Point Creek		
Clear Creek	0	
Tana River		
Tana River Clear Channels	0	
Tana Lake Inlet	0	
West Fork (Clear Channels)	60	

1/ Escapement refers to peak survey.

9

PERSONNEL

The Commercial Fisheries Division employed eight permanent employees and twenty-seven seasonal employees in 1975. Following is a list of personnel, general duty assignments and dates of employment.

Permanent Employees

Ralph B. Pirtle	Area Management Biologist
Peter J. Fridgen	Assistant Area Management Biologist
Michael McCurdy	Research Biologist, Project Leader
Kenneth Roberson	Research Biologist, Project Leader
John M. Jackson	Fisheries Technician IV
Robert Zorich	Fisheries Biologist
Jeannette Bailey	Clerk - Stenographer
Janice Shaw	Clerk Typist

Seasonal Employees

George Addington	Eshamy Weir Station	6/2 - 8/21
Mark Chihuly	* Martin Lake Weir	5/5 - 8/8
Dorothy Cottle	* Chitina Station	5/28 - 8/8
Karen Crandall	* Glennallen Office	12/16 - 12/31
Donald DeArmoun	* Tanada Lake Weir	6/12 - 8/1
Terry Ellison	* Tokun Lake Weir	4/18 - 8/15
Joan Forshaug	* Suslota Lake Weir	5/28 - 8/8
Theadore Fortier	* Incubation Box - Ten Mile Lake Weir	5/5 - 9/10
Jonathan Fosse	Coghill River Weir	6/2 - 7/21
Craig Gardner	* Incubation Box - Ten Mile Lake Weir	6/16 - 9/16
Maria Gavino	* Fishwheel Surveys	6/5 - 8/15
Theresa Gurske	Fish Ticket Statistician	4/16 - 11/28
Debra Hart	* Chitina Station	6/9 - 8/8
Russell Holder	* Tokun Lake Weir	5/27 - 8/5
Alan Kimker	Herring, Shellfish, Salmon	4/1 - 12/31
Carol King	Crab, Herring, Clam, Fish Sampling	3/13 - 9/12
Coleen Lambert	* Glennallen Office	1/1 - 1/15
Susan Lambert	* Glennallen Office	6/2 - 8/21
Tom Maroney	* Tanada Lake Weir	6/9 - 8/1
Gina McBride	Cordova Office	5/27 - 6/27
Robert McLeod	* Suslota Lake Weir	5/27 - 8/8
Peter McNair	* Gulkana River Weir	6/12 - 8/1
Mark Miller	Eshamy Weir Station	6/2 - 8/21
Susan Mitchell	* Chitina Station	5/28 - 8/8
Ronald Nagy	Coghill River Weir	6/9 - 6/28
Paul Saunders	Coghill River Weir	7/16 - 8/26
Calvin Ward	* Martin Lake Weir	5/19 - 10/15

* Projects under the supervision of Kenneth Roberson.

10/10