

Preliminary review of southern BC marine recreational monitoring for 2018. Update Nov30, 2018 W. Luedke

Creel surveys were conducted in marine waters according to risk based on

1. catch of chinook and halibut as determined by previous 3 years average iREC and presented in Table 1.
2. incidence of stocks of concern such as Victoria area fishery
3. inseason management needs such as Barkley Sockeye and Fraser Sockeye
4. fishery importance (usually proximity) to PSC Chinook indicator populations
5. general effort distribution as determined by iREC to cover off species other than chinook and halibut

Table 1. Distribution of catch of chinook in marine waters as a percent of the regional total.

Sum of %Chin			Month													Grand Total
Area	Region	Logistical Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
North Coast	NC	Prince Rupert	0.02%	0.21%	1.75%	1.24%	0.62%	0.23%	0.02%	0.05%	0.01%	0.09%	0.03%	0.04%	4.31%	
		CC	Central Coast	0.02%	0.16%	1.57%	2.06%	1.94%	0.16%	0.02%	0.00%	0.01%	0.00%	0.00%	0.03%	5.98%
	HG	Haida Gwaii	0.01%	0.55%	4.33%	3.69%	4.29%	0.91%	0.01%	0.00%	0.00%	0.14%	0.01%	0.02%	13.96%	
South Coast	JST	Port Hardy	0.02%	0.06%	0.80%	1.86%	1.46%	0.15%	0.01%	0.00%	0.00%	0.14%	0.00%	0.02%	4.52%	
		GST	Victoria	0.36%	0.65%	1.54%	1.95%	3.68%	1.53%	0.39%	0.25%	0.49%	0.71%	0.47%	0.44%	12.47%
			Campbell River	0.18%	0.90%	2.28%	2.05%	2.59%	0.94%	0.08%	0.01%	0.07%	0.22%	0.06%	0.11%	9.49%
			Nanaimo	0.14%	0.86%	0.50%	0.30%	0.47%	0.21%	0.01%	0.00%	0.05%	0.02%	0.06%	0.11%	2.73%
			Sunshine Coast	0.07%	0.42%	0.61%	0.43%	0.33%	0.16%	0.00%	0.00%	0.01%	0.06%	0.01%	0.03%	2.13%
			Vancouver	0.19%	0.41%	0.24%	0.15%	0.63%	0.73%	0.18%	0.02%	0.05%	0.06%	0.06%	0.30%	3.03%
	WC		Barkley	0.10%	0.45%	2.20%	3.70%	6.75%	1.27%	0.01%	0.00%	0.03%	0.04%	0.01%	0.12%	14.68%
			Kyuquot		0.02%	0.37%	1.30%	1.26%	0.09%	0.00%				0.00%	0.02%	3.06%
			Port Alberni	0.02%	0.02%	0.16%	0.28%	1.41%	0.38%	0.00%			0.02%	0.01%	0.01%	2.30%
			Port Renfrew	0.01%	0.09%	0.66%	0.93%	1.33%	0.16%	0.04%	0.00%	0.05%	0.02%	0.01%	0.02%	3.32%
		Tahsis/Nootka	0.01%	0.06%	0.81%	4.80%	5.43%	0.24%	0.05%	0.00%	0.07%	0.00%		0.00%	11.46%	
		Tofino	0.01%	0.13%	0.50%	1.30%	1.20%	0.20%	0.00%	0.00%		0.00%	0.00%	0.05%	3.40%	
		Winter Harbour	0.01%	0.05%	0.59%	1.19%	1.09%	0.08%	0.03%		0.01%	0.00%	0.00%	0.04%	3.08%	
Lower Fraser	LF	Lower Fraser River	0.00%	0.00%	0.00%	0.00%	0.03%	0.03%	0.00%	0.00%	0.01%				0.06%	
Grand Total			1.18%	5.04%	18.92%	27.23%	34.49%	7.45%	0.85%	0.34%	0.87%	1.53%	0.73%	1.38%	100.00%	

Based on available operational funding of \$1.05M creel survey funding was allocated to fishery strata as shown in the following matrix Table 2. This allocation was expected to cover about 87% of the average chinook catch over the last 3 years based on iREC proportions. It also was expected to cover 89% of the halibut fishery and 82% of the total marine effort from all fishery modes (angling, dive, trap, etc.).

Table 2. Creel survey distribution and percent of chinook catch expected to be covered by the creel survey.

Area	Region	Logistical Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Grand Total	
North Coast	NC	Prince Rupert	-	-	1.75%	1.24%	0.62%	-	-	-	-	-	-	-	3.61%	
	CC	Central Coast	-	-	1.57%	2.06%	1.94%	-	-	-	-	-	-	-	5.58%	
	HG	Haida Gwaii	-	-	4.33%	3.69%	4.29%	0.91%	-	-	-	-	-	-	13.22%	
South Coast	JST	Port Hardy	-	-	0.80%	1.86%	1.46%	-	-	-	-	-	-	-	4.12%	
		Campbell River	-	-	1.54%	1.95%	3.68%	1.53%	0.39%	-	-	-	-	-	9.09%	
	GST	Nanaimo	-	-	2.28%	2.05%	2.59%	0.94%	-	-	-	-	-	-	7.85%	
		Sunshine Coast	-	-	-	0.30%	0.47%	-	-	-	-	-	-	-	0.76%	
		Vancouver	-	-	0.61%	0.43%	0.33%	0.16%	-	-	-	-	-	-	1.53%	
			Victoria	0.19%	0.41%	0.24%	0.15%	0.63%	0.73%	0.18%	-	-	-	-	0.30%	2.83%
			Port Renfrew	-	-	2.20%	3.70%	6.75%	-	-	-	-	-	-	-	12.65%
	WC	Barkley	-	-	0.37%	1.30%	1.26%	0.09%	-	-	-	-	-	-	-	3.01%
		Port Alberni	-	-	0.16%	0.28%	1.41%	0.38%	-	-	-	-	-	-	-	2.22%
		Tofino	-	-	0.66%	0.93%	1.33%	0.16%	-	-	-	-	-	-	-	3.08%
		Tahsis/Nootka	-	-	0.81%	4.80%	5.43%	0.24%	-	-	-	-	-	-	-	11.28%
Kyuquot		-	-	0.50%	1.30%	1.20%	-	-	-	-	-	-	-	-	3.00%	
		Winter Harbour	-	-	0.59%	1.19%	1.09%	-	-	-	-	-	-	-	2.87%	
Grand Total			0.19%	0.41%	18.42%	27.23%	34.46%	5.12%	0.57%	0.00%	0.00%	0.00%	0.00%	0.30%	86.71%	

Calibrated iREC is used to 'infil' the blank strata for some species. For halibut the creel survey total is expanded to a total regional based on iREC percentages. For chinook only strata from June through September are 'infilled' using ratios of creel survey results / iREC results from adjacent fishery strata. Methods for infilling other fishery strata such as October through May for chinook are being developed.

iREC also operated during 2018. Data are not available at this time due to issues with the analysis program. The iARC survey of licence holders catch for the entire year will be implemented in April 2019.

The creel survey in southern BC marine waters included 38 observers at docks and marinas around Vancouver Island, the Vancouver waterfront, and the Sunshine Coast. These observers interviewed and observed catch from 15,404 fishing trips (Table 3). In addition DFO received catch reports from over 5,200 logbook trips from guides and lodges in southern BC. Some areas such as Kyuquot were based on logbooks only with

verification of logs and biological sampling being conducted at the docks. The preliminary estimate of boat trips is about 225,000 in southern BC marine waters within the coverage of the creel survey. This suggests data from about 9% of the overall effort was used to estimate catch.

Table 3. Creel survey observer based interviews / creel checks by month in southern BC marine waters in 2018.

Fishery Strata	2	3	4	5	6	7	8	9	10	Grand Total
2018	69	571	286	334	1766	4764	6105	1305	204	15404
Johnstone Strait					447	1065	1101			2613
Campbell River						68	894	429		1391
Georgia Strait		270	100		424	771	1024	385	92	3066
Juan de Fuca	69	301	186	334	278	413	409	342	112	2444
Renfrew/Swiftsure					164	375	338	32		909
Barkley Sound					269	500	812	117		1698
Clayoquot Sound					82	47	42			171
Nootka Sound					26	1112	1074			2212
Quatsino					76	413	411			900
Grand Total	69	571	286	334	1766	4764	6105	1305	204	15404

A very preliminary estimate of total chinook catch in southern BC marine recreational fisheries is 160,000 compared to an estimated 196,000 in 2017. In the Strait of Georgia (PFMA 13-19, 28,29) the preliminary and likely minimum estimate of chinook catch for 2018 during the June to September period when restrictions were implemented is about 42,000 compared to about 62,000 in 2017 (from table 4 below; only for surveyed strata in Table 2 plus reported logs from non-surveyed strata). For the June to September period only the difference is 40,000 chinook in 2018 compared to 54,000 chinook in 2017.

Total estimated catch by species is shown in Table 5.

Table 4. Chinook salmon catch (marked and unmarked) in southern BC marine recreational fishery as estimated by creel survey plus logs in some areas; June through September. Some areas are incomplete such as Area 15 and 16, which are logbook entries only. Catch in areas with no creel survey will be estimated using infill procedures.

Sum of ESTIMA DISPOSITIO		YEAR				
Kept						
PFMA		2014	2015	2016	2017	2018
PFMA 11		3,362	2,435	4,033	4,540	4,686
PFMA 12		5,976	9,596	4,703	9,338	8,463
PFMA 13		23,864	39,949	19,237	23,069	21,781
PFMA 14		9,684	6,731	5,531	11,842	5,977
PFMA 15		960	5,761	4,704	5,141	1,924
PFMA 16		599	2,832	3,499	2,128	292
PFMA 17		7,727	5,353	5,963	3,719	2,535
PFMA 18		467	2,522	502	2,102	471
PFMA 28		766	2,322	1,905	2,093	569
PFMA 29		2,186	6,316	3,214	8,582	3,842
PFMA 19		2,246	6,907	3,397	3,858	4,733
PFMA 20		18,049	34,463	19,672	25,352	28,230
PFMA 21		134	2,816	1,372	656	1,128
PFMA 23		18,360	15,494	14,558	22,304	23,589
PFMA 24		3,029	710	1,081	2,410	3,538
PFMA 25		15,524	19,706	7,486	17,041	9,073
PFMA 26		326	521	1,443	3,462	4,477
PFMA 27		2,880	2,346	2,402	3,611	2,521
PFMA 121		9,622	8,118	9,802	14,300	9,109
PFMA 123		9,298	14,418	6,424	13,432	14,495
PFMA 124		11,488	7,292	11,512	5,150	3,716
PFMA 125		4,434	2,473	4,129	4,118	906
PFMA 126		4,891	5,387	4,328	6,824	2,653
PFMA 127		4,313	3,805	1,298	1,906	1,140
Grand Total		160,185	208,273	142,195	196,978	159,848

Table 5. Preliminary estimate of kept catch by species in the southern BC recreational fishery, from creel survey in fishery strata shown in Table 2 plus logs.

Sum of ESTIMATE	YEAR					
SPECIES		2014	2015	2016	2017	2018
CHINOOK SALMON		160,185	208,273	142,195	196,978	159,848
COHO SALMON		96,719	59,438	46,101	50,811	72,781
SOCKEYE SALMON		133,238	93,661	53,069	11,710	67,693
CHUM SALMON		760	3,105	2,527	2,698	472
PINK SALMON		24,024	123,796	5,238	31,605	4,863
LINGCOD		29,443	33,130	30,402	38,203	23,773
PACIFIC HALIBUT		32,495	26,342	23,484	24,804	21,232
ROCKFISHES		9,829	10,778	3,776	2,629	2,372
BLACK ROCKFISH		7,633	8,734	9,350	9,983	12,419
QUILLBACK ROCKFISH		5,254	8,308	10,829	13,849	7,617
COPPER ROCKFISH		4,192	9,044	6,232	11,107	7,995
VERMILION ROCKFISH		513	2,619	1,466	4,242	3,322
CANARY ROCKFISH		1,661	2,272	2,745	3,005	3,148
YELLOWEYE ROCKFISH		6,338	10,167	10,826	12,266	1,356
CHINA ROCKFISH		586	601	1,423	613	1,028
CABEZON		1,121	1,148	483	1,065	825
TIGER ROCKFISH		46	185	291	498	359
REDSTRIPE ROCKFISH		79	162	99	448	481
BROWN IRISH LORD		39			77	12
WIDOW ROCKFISH		4	73	45	8	78
DEACON ROCKFISH				20	31	13
DUSKY ROCKFISH				6	6	35
ROSETHORN ROCKFISH		6	2		16	
ROUGHEYE ROCKFISH					10	
SHORTRAKER ROCKFISH					14	
GREENSTRIPED ROCKFISH				170	15	
SILVERGRAY ROCKFISH		11	2	11	27	
Grand Total		514,176	601,840	350,788	416,718	391,722