



## **South Coast Assessment Bulletin Creel Survey – Program Overview Recreational Fishery South Coast Tidal Waters**

**18 July 2019**

### **Introduction**

Fisheries and Oceans Canada (DFO) estimates recreational angling catches in Southern British Columbia marine waters using a creel survey. Creel survey catch estimates are generated monthly and reported to DFO fishery managers, the Sports Fishing Advisory Board (SFAB), and recreational anglers via bulletins that are available on the Federal Science Library catalogue:

<http://science-libraries.canada.ca/eng/home/>

The search term “South Coast Creel Bulletin” is helpful to find the bulletins

This first bulletin of 2019 provides a brief background of the DFO South Coast Creel Survey, an overview of methods, a description of how results are presented as well as a summary of work underway to improve our estimates of recreational catch.

### **Creel Survey Background**

Early in the development of recreational fisheries in B.C., catch estimates were generated based on the observations of Fishery Officers. With the rapid expansion of recreational fisheries in the late 1970’s and early 1980’s, a more consistent and accurate method to estimate recreational catch was required. Comprehensive marine creel surveys in B.C. began in 1980. The first B.C. marine creel survey was developed to estimate the catch of chinook and coho salmon in Strait of Georgia recreational fisheries. Over time, the geographic scope of the South Coast Creel Survey (SCCS) has expanded to include Barkley Sound and Alberni Inlet (1984), the entire West Coast of Vancouver Island (1991) and most recently Johnstone Strait (1998). The objectives of the creel survey have also expanded to include estimates for all recreationally caught fin fish, including: five species of Pacific salmon, Halibut, Lingcod, many groundfish species (including rockfishes, flatfishes and others). In addition, the SCCS now collects information on the recreational harvest of shellfish. The SCCS provides biological samples from salmon and lingcod for age and stock determinations, estimates of the retained catch and releases of marked and unmarked salmon for the analysis of coded wire tags and provides data for assessment of exploitation rates, marine survival rates and stock distribution. In addition, SCCS data are used to evaluate conservation based recreational management measures such as time and area closures, and size and species retention limits.

### **Methods**

The SCCS combines angler surveys and aerial boat counts to estimate recreational catch. Anglers are interviewed at the end of fishing trips to provide both average catch by species and average fishing times, while the aerial counts from chartered aircraft capture



‘instantaneous’ snapshots of the number of recreational boats fishing at the time of the flight. The fishing times obtained through angler interviews are used to generate a daily profile of fishing activity which is used to expand the ‘instantaneous’ aerial counts of boats fishing to an estimate of the total number of boats fishing that day. In the most basic sense, the estimate of the number of boats fishing is multiplied by the average catch by species to estimate the total catch by species on that day (Figure 1).

By adopting a stratified random sampling design for angler interviews and aerial counts, we obtain unbiased estimates of daily catch rate that are expanded to generate monthly estimates. The estimates are stratified by day type (weekday vs. weekend), location (a total of 143 ‘creel sub-areas’ across the entire SCCS study area) and time (monthly and time of the day).

Creel surveys are active during the peak season of recreational angling and vary in duration depending on location. The spatial and temporal coverage of the SCCS can vary year to year in response to budgetary constraints. In 2019, surveys in the Strait of Juan de Fuca (Sheringham to Cadboro points; portions of Pacific Fishery Management Areas (PFMA 19 and 20) operate April to September. Surveys in the Strait of Georgia (PFMA 13 to 18, 28 and 29) are variably active June to September. West coast of Vancouver Island surveys are active mid June through mid September (PFMA 21 to 24, 121 to 124 and a portion of 20), July through mid September (PFMA 25 and 125) or June through August (PFMA 26, 27, 126 and 127). North island surveys are active June through August (PFMA 11, 12).

Considerable review and improvement of the statistical methodologies used to generate the estimates have occurred (Sturhahn and Nagtegaal 2001; English et al. 2002; Korman et al. 2005), and summaries of past estimates have been published (Hardie et al. 2000; Lewis 2004; Zetterberg et al. 2009; Carter and Zetterberg 2010).

## Results

Monthly estimates of total effort and catch by species are reported by Pacific Fishery Management Area. These estimates, along with information regarding creel survey activity, are distributed to interested stakeholders during the peak recreational fishing season (June through August) via bulletin. Monthly bulletins are e-mailed to a circulation list of stakeholders and are available electronically to interested parties on the Fisheries and Oceans *ExtraNet* (link previous). The bulletins are distributed about two weeks after the end of the month to allow time for data entry, analysis and bulletin preparation. For example, the July 2019 bulletin is expected to be circulated on or about 15 August 2019.

## Method review and improvements

Starting in 2010 we have worked with the Sports Fishing Institute (SFI) to pilot the use of paper and electronic (e-log) logbooks by recreational fishing guides in selected South Coast areas. These logs provide detailed records of fishing trips, catches and associated biological information such as length and weight data. An important component of these programs is to increase the submission of salmon heads from adipose clipped chinook and coho to the Salmonid Head Recovery Program. We would like to thank those lodges



and guides who are participating in the programs for volunteering their time to improve catch monitoring information in these pilot areas.

We continue to work with Sports Fish Advisory Board representatives to make improvements to the estimation of recreational catches more broadly. An example is the current development of an internet-based survey (iREC) of recreational licence holders to collect catch information for both areas and times where current programs do not operate and for modes of recreational harvest not generally captured in current programs - such as shellfish harvest from beaches by hand-picking. In addition, we are working to develop local estimate review processes to improve understanding and transparency with respect to data collection and estimate methods as well as troubleshoot potential issues with estimates.

For additional information on South Coast Creel Survey Programs, please contact:

***Johnstone Strait and North Island Surveys (PFMA's 11, 12, 27, & 127)***

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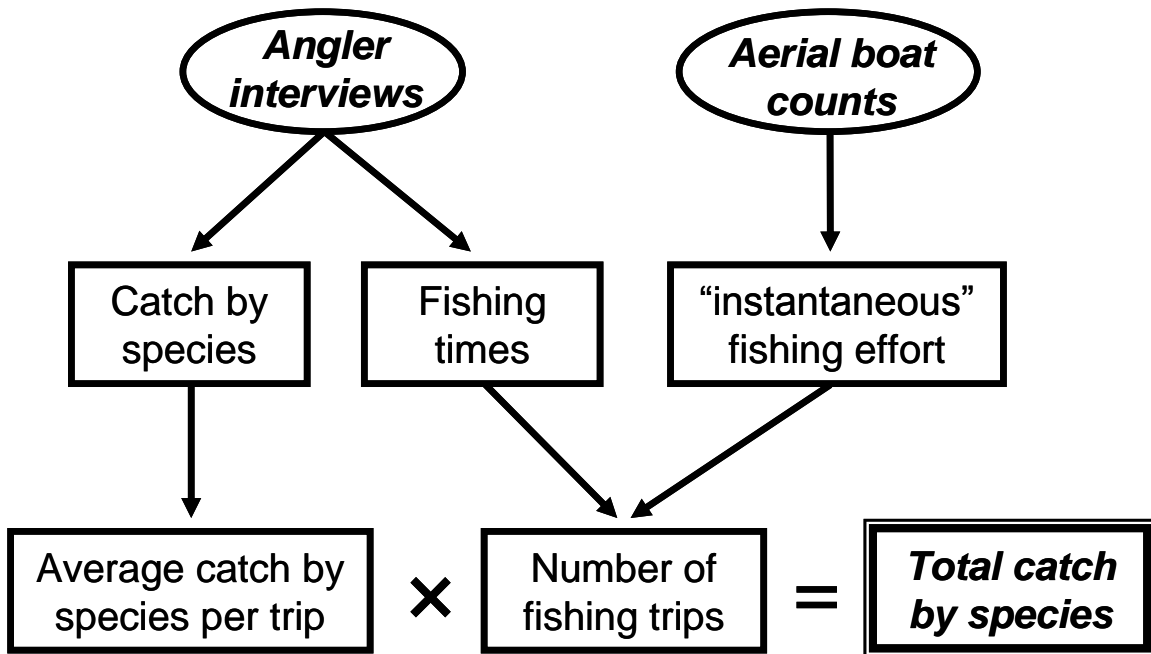


Figure 1. Overview of the South Coast Creel Survey estimate procedure. Data from angler interviews and aerial boat counts are used to estimate both average catch by species per recreational boat trip and the number of boat trips. These estimates are stratified by time (weekday vs. weekend; time of day) and location (creel sub areas) and expanded to generate monthly estimates of recreational fin fish catch for South Coast Pacific Fishery Management Areas.



## References

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