



South Coast Assessment Bulletin
Creel Survey – Program Overview
Recreational Fishery South Coast Tidal Waters
18 July 2023

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 assessment bulletin, creel survey” is helpful to find these bulletins.

This first bulletin of 2023 provides a brief background of the DFO South Coast Creel Survey, an overview of methods, a description of how results are presented, and a summary of work underway to improve our estimates of recreational catch in the future.

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 1970s and early 1980s, 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 Johnstone Strait (1998). The objectives of the creel survey have also expanded to include estimates for all recreationally caught fin fish: five species of Pacific salmon, Halibut, Lingcod, and many other 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 to estimate size, age, stock distribution, marine survival rates, and fishery harvest rates. 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 interviews at the dock and aerial surveys of fishing effort, to estimate recreational effort and catch (Figure 1). Anglers are interviewed at the end of fishing trips to provide catch numbers by species and approximate fishing times and areas. Aerial surveys from chartered aircraft provide counts of recreational boats fishing (fishing effort) at the time of the flight. Fishing start and end times obtained during angler interviews allow expansion of the aerial boat counts to estimate the number of boats fishing per day. The average daily estimate for each month is then expanded to calculate the total number of boats fishing for the month (total effort). Finally, the total effort is multiplied by the average catch by species to estimate the total catch for the month.

The SCCS uses a stratified random sampling design for angler interviews and aerial counts to reduce bias in the recreational catch and effort estimates. The estimates are stratified by day type (weekday vs. weekend), location (a total of 143 ‘creel sub-areas’ across the SCCS study area), and time (month and time of the day).

Please consult Sturhahn and Nagtegaal (2001), English et al. (2002), and Korman et al. (2005) for more detailed methodologies.

Creel surveys are active during the peak seasons of recreational angling in various locations. The time and area coverage of the SCCS varies from year to year in response to program refinement and fiscal constraints. In 2023, surveys in the Strait of Juan de Fuca (Sheringham to Cadboro points; portions of Pacific Fishery Management Areas [PFMAs] 19 and 20) operate March to October. Surveys in the Strait of Georgia (PFMA 13 to 18, 28, and 29) are active April to October. West Coast of Vancouver Island surveys are active from June through September (PFMA 21 to 24, 121 to 124, and a portion of 20), June 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, and 111).

Results

Monthly estimates of total effort and catch by species are reported by PFMA. These estimates, along with information regarding creel survey activity, are distributed to interested stakeholders via monthly bulletins June through September. The bulletins are e-mailed to a list of stakeholders and are available electronically from the Fisheries and Oceans Science Library ([link previous](#)). They are distributed about two weeks after the end of the month to allow time for data entry, analysis, and bulletin preparation. For example, the annual July creel bulletins are typically circulated around 15 August.

Program Improvements

Starting in 2010, DFO has worked with the Sports Fishing Institute (SFI), local lodges, guides, and Avid Anglers to incorporate paper and electronic logbook data collected by experienced fishers in selected South Coast areas. Logbook participants provide catch and release information as well as associated biological data and samples including



submission of heads from adipose-clipped Chinook and Coho to the Salmonid Head Recovery Program (SHRP). The Avid Angler program in the Strait of Georgia now has over 200 registered anglers. We thank all logbook participants for volunteering their time to improve catch monitoring information.

The Internet Recreational Effort and Catch (iREC) Reporting Program was initiated in 2012 to provide comprehensive recreational effort and catch monitoring for all areas and months including those not covered by the SCCS. In this program, adult B.C. tidal water sport fishing licence holders report their fishing effort and catch, as well as that for any accompanying juvenile fishers, for an assigned reporting period. The reported effort and catch data are expanded to estimate total effort and catch by all fishers with a license which is valid during the reporting month. Where sufficient data exist, the total catch estimates are calibrated to reduce reporting biases by comparing iREC and corresponding SCCS estimates. We report the calibrated catch estimates of Chinook, Coho, and Halibut from iREC in the final bulletin each year for the peak fishing season April-September when and where the SCCS program was not run. These estimates are footnoted as 'In-Fill'.

Contacts

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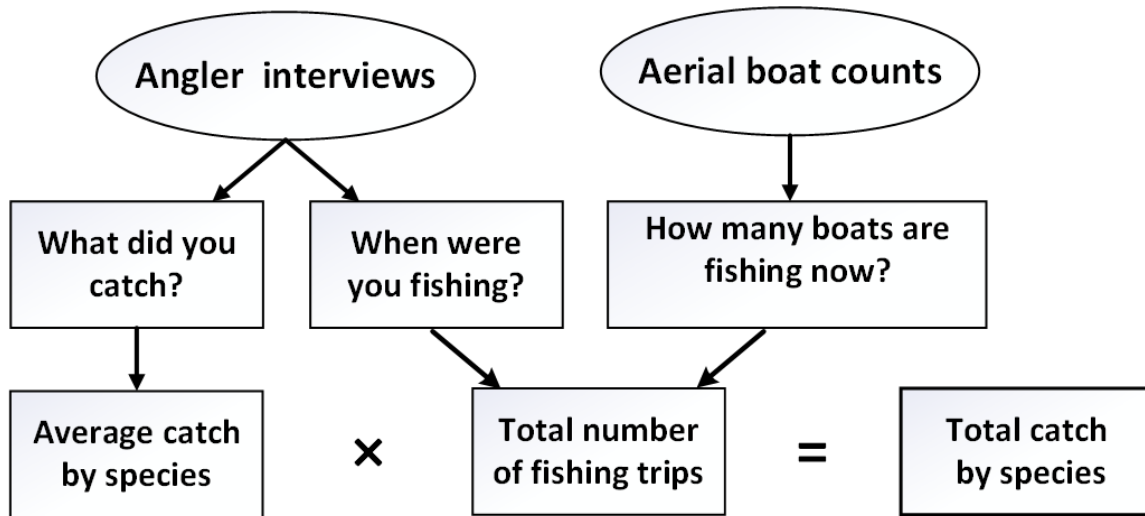


Figure 1. Overview of the South Coast Creel Survey estimate procedure. Data from angler interviews and aerial surveys of the number of recreational boats fishing are used to estimate both average catch by species per recreational boat trip and the number of boat trips. These estimates are stratified 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

- English, K. K., G. F. Searing and D. A. Nagtegaal 2002. Review of the Strait of Georgia Recreational Creel Survey, 1983 - 1999. Canadian Technical Report of Fisheries and Aquatic Sciences No. 2414
- Korman, J., D. A. Nagtegaal and K. Hein 2005. Evaluation of alternate analytical procedures and variance components for Strait of Georgia creel census catch and effort data. Canadian Technical Report of Fisheries and Aquatic Sciences No. 2580.
- Sturhahn, J. C. and D. A. Nagtegaal 2001. Proceedings of the 2000 Creel Workshop. Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2558.