



Fisheries and Oceans Canada Recreational Catch Monitoring



Fraser & Marine Approach Salmon Forum
Visions Forum
November 27-29, 2024
Harrison Hot Springs

Presentation Overview

1. Recreational Catch Monitoring Overview – Rob Tadey
2. Creel Surveys & Biological Sampling– Matt Townsend
3. iREC Reporting Program – Rob Houtman
4. "At-sea" Recreational Monitoring - Reference Fishery & Future work
– Rob Tadey



Creel Surveys



What is *Creel*?

creel

/krēl/

noun

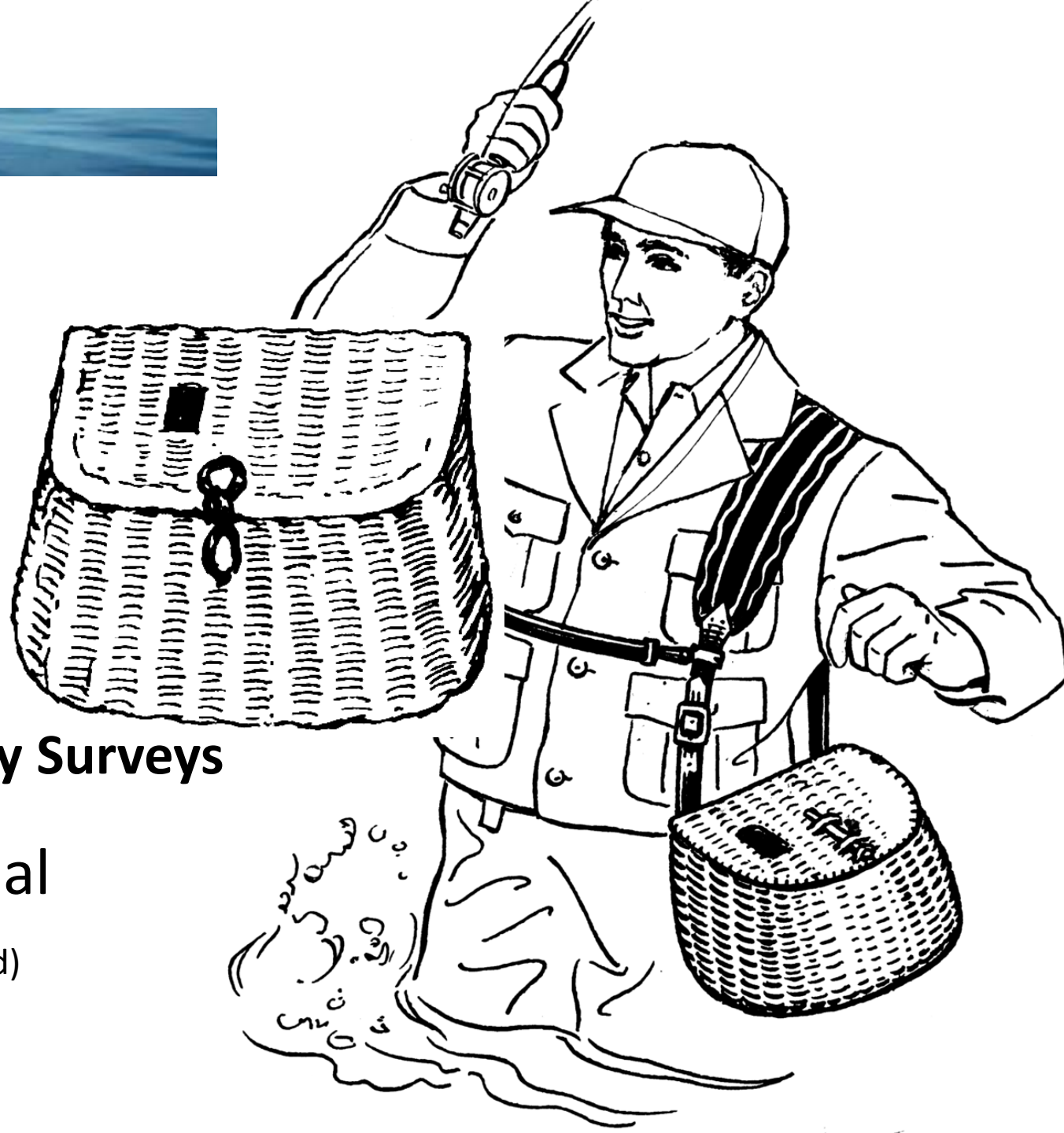
1. a wicker basket for carrying fish.

an angler's fishing basket

➤ Synonym for **Recreational Fishery Surveys**



Goal: Estimate recreational
fishery catch (harvested & released)





Freshwater Recreational Creel Projects Lower Fraser (Marine to Sawmill Creek)

Lower Fraser Mainstem Pink Opening -

September 1st to September 21st

Nicomén Slough & Norrish Creek (Coho) -

October 1st to December 15th

Chilliwack River (Chinook and Coho) -

September 11th to November 30th





Freshwater Recreational Creel Projects

Mid and Upper Fraser (upstream of Sawmill Creek)

Fraser River

- Sockeye/Pink (not open every year)
- September 11th to November 30th

Thompson River

- Sockeye/Pink/Chinook (not open every year)
- September 10th to 30th

Thompson River

- Chinook Jack
- August 28th to September 22nd

Kamloops Lake

- Chinook
- Sockeye/Pink (not open every year)
- August 28th to September 22nd

South Thompson River

- Chinook
- Sockeye/Pink (not open every year)
- August 16th to September 22nd

Lower Shuswap River/Mabel Lake

- Chinook
- August 16th to September 12th

Quesnel / Horsefly Bay

- Sockeye/Pink (not open every year)
- Mid-August to late September (not every year)

Nechako

- Sockeye (not open every year)
- late August to mid-September

Osoyoos Lake

- Sockeye (not open every year)
- early-August to mid-September





Marine Recreational Creel Projects

South Coast Area (DFO)

- Johnstone Strait and North Island Surveys - PFMA 11, 12, 27, 111 & 127.
- Strait of Georgia - PFMA 13-20, 28 & 29.
- West Coast Vancouver Island – PFMA 20-26 & 121-126

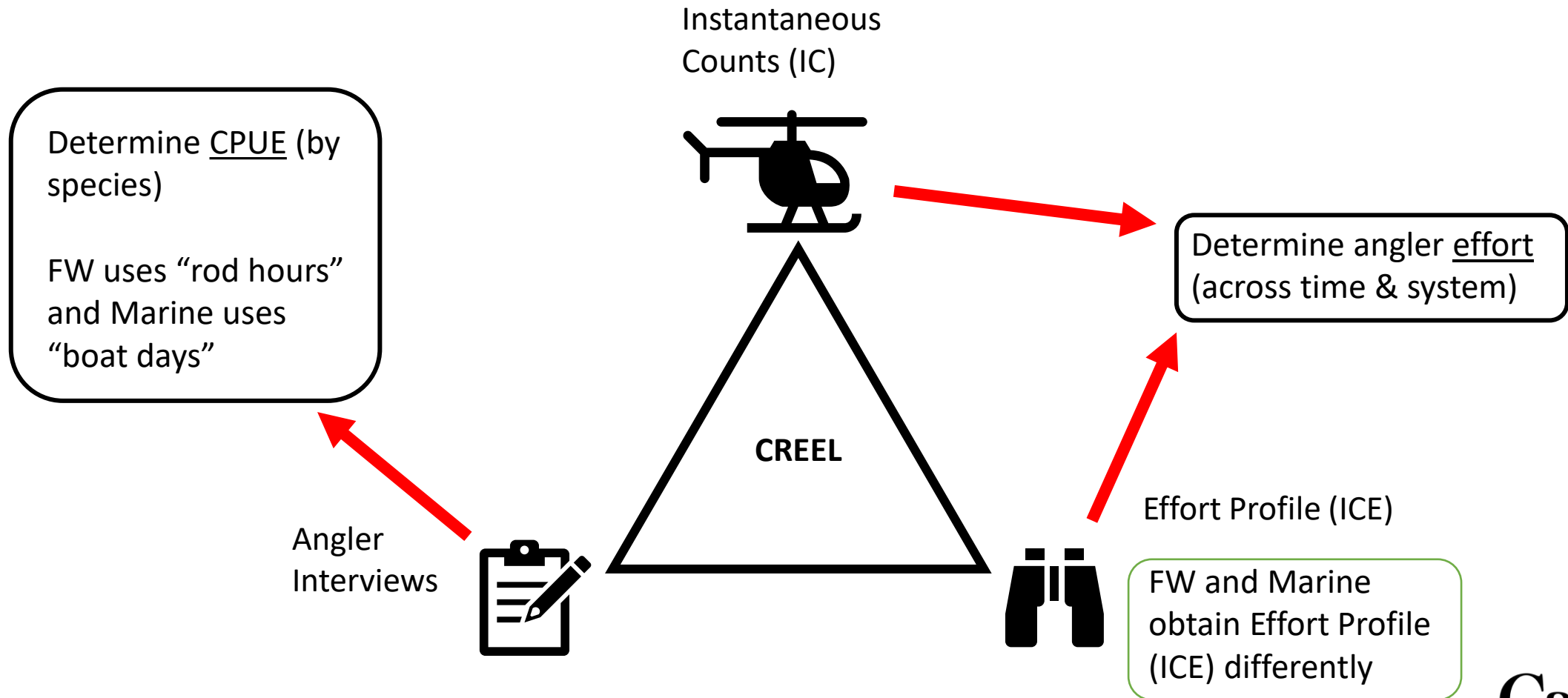
North Coast Creel Survey (Skeena First Nations Stewardship Society)

- Prince Rupert - PFMA 3 & 4





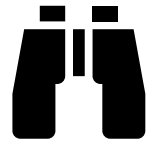
Generating Creel Estimates





Mission Bridge

Periodic Index Count (PIC)



- Visual count of angling activity at **one** site
 - Count is taken **hourly**
- Generates an **effort profile**



Angler Interviews



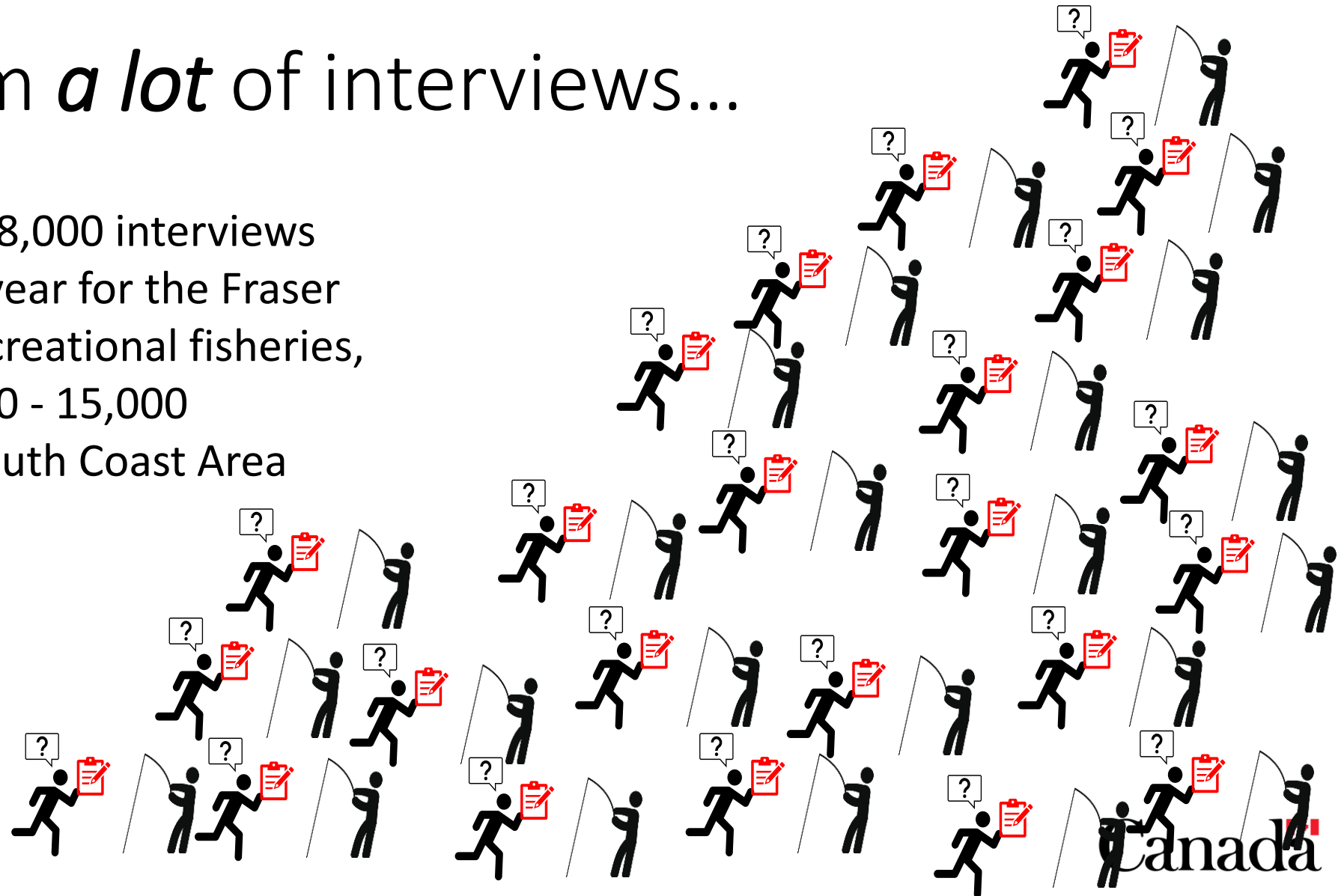
- Verbal in-person interviews with anglers
- Gathers information on:
 - Time spent fishing
 - Catch
- Generates CPUE for different species





We perform *a lot* of interviews...

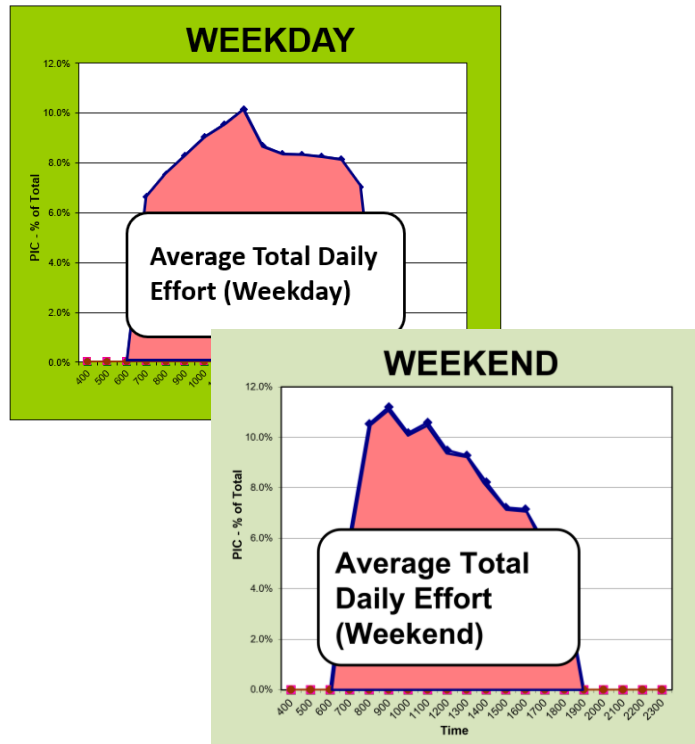
An average about 18,000 interviews are collected each year for the Fraser River watershed recreational fisheries, and between 10,000 - 15,000 interviews in the South Coast Area tidal waters.



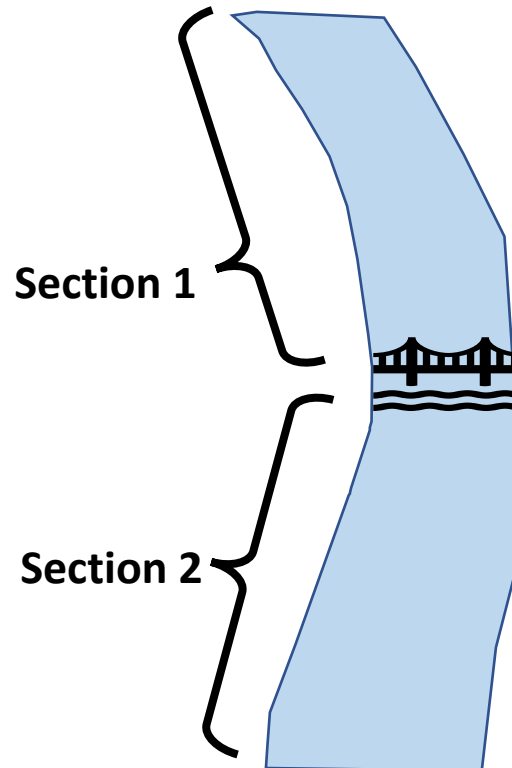


Stratifications

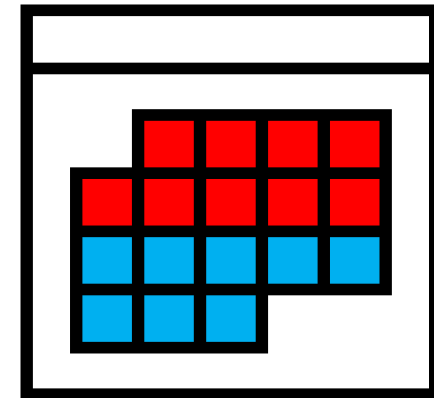
- Day Types



- Spatial Sections



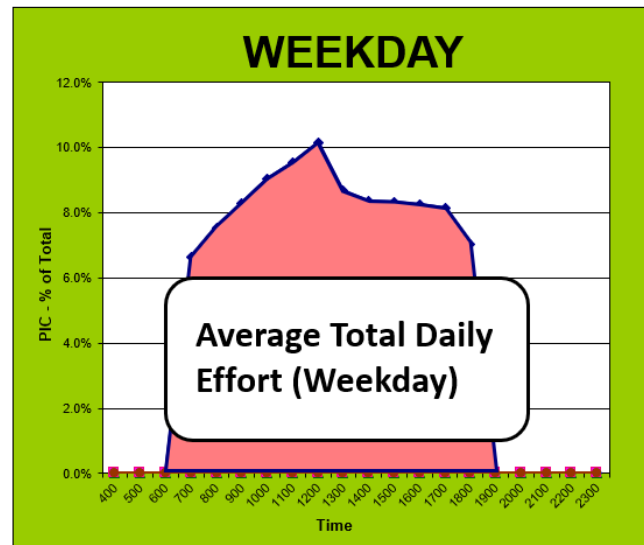
- Estimation Periods





Estimated Effort

- Calculate total estimated effort



number of
weekdays

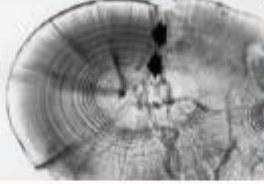


**Total estimated
weekday effort**



OTOLITHS

Otoliths are calcium carbonate structures that grow as a salmon does. DFO creates unique markings on otoliths by manipulating water temperatures during rearing in hatcheries that can then be examined under a microscope to determine origin of a fish.



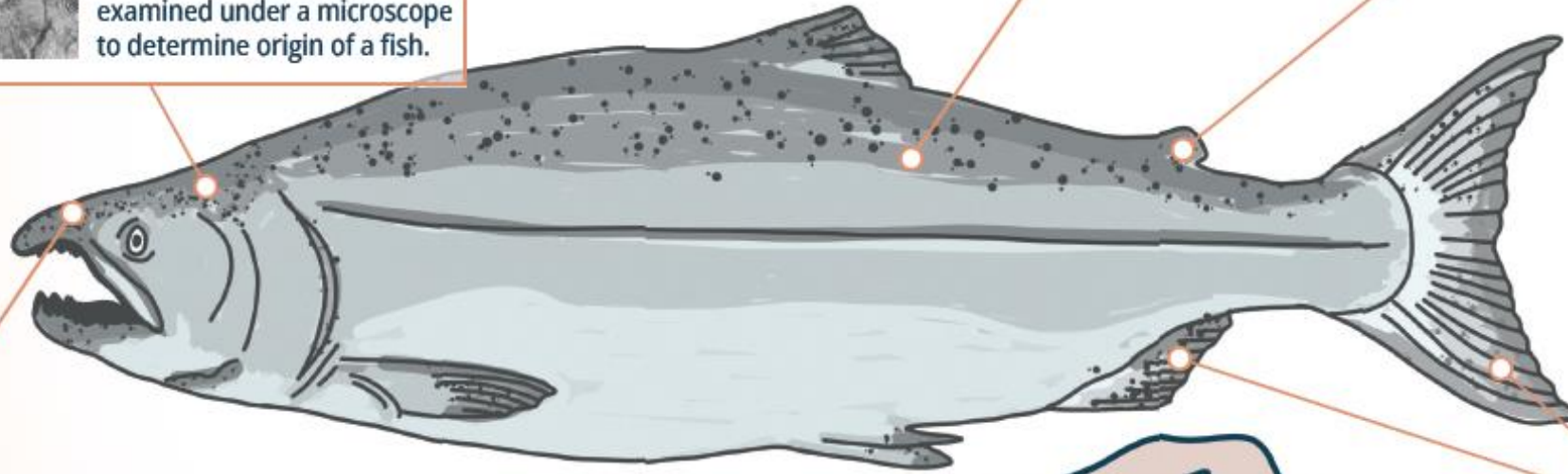
SCALES

Scales grow proportionally as a fish ages, and can be non-lethally sampled from a fish to determine age. This is our most common way of ageing salmon.



ADIPOSE FIN STATUS

Absence of the adipose fin indicates a hatchery origin fish. Currently, only some salmon stocks are adipose-clipped in BC.



DNA SAMPLE

A piece of tissue can be used to examine DNA, such as a non-lethal fin clip. DNA is another way we can determine where a wild or hatchery origin fish is from.



1.1 mm



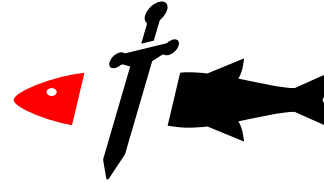
CODED WIRE TAG (CWT)

A CWT numeric code tells us precisely where and when a hatchery fish was reared and released.





AFC Head collection



- Coded-wire tags provide valuable information about Abundance, Distribution and Survival.
- Provides information for planning of next year's fishing season.
- Run timing in salt and freshwater areas.
- Provides data for Chinook and Coho management.
- First Nations and Recreational Anglers participation.





DFO Pacific Region's internet Recreational Effort and Catch ("iREC") Reporting Program

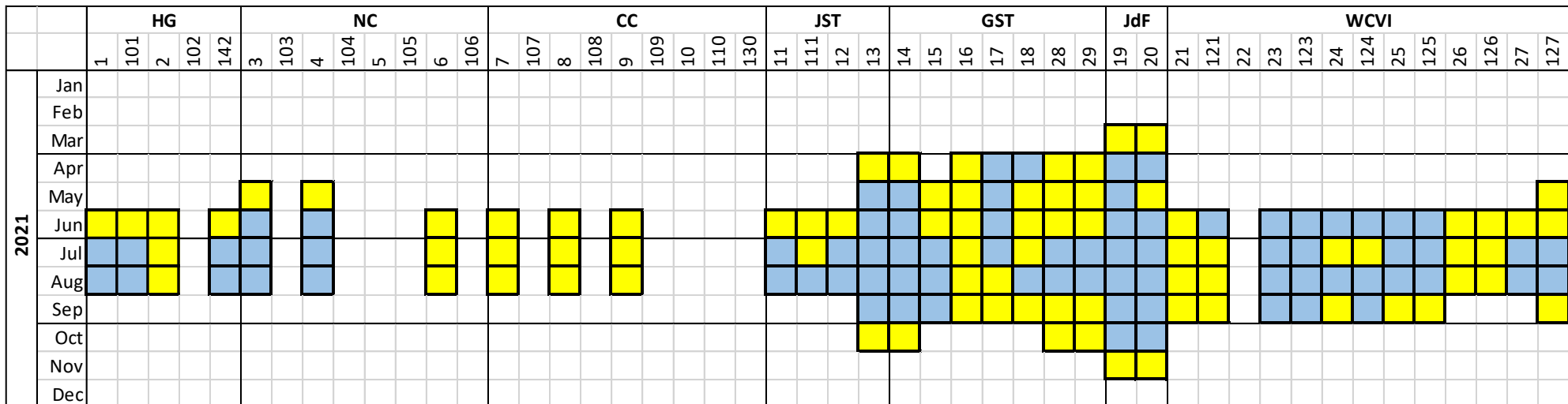




The *iREC* Reporting Program

WHY? Conventional Recreational Catch Monitoring Programs provide incomplete coverage

- Coverage shown is only for finfish caught by angling from boat.
- Lack of coverage due to cost and design challenges with conducting a survey when fishing effort is very low or variable.



* Yellow cells reflect programs that produce incomplete estimates



The iREC Reporting Program

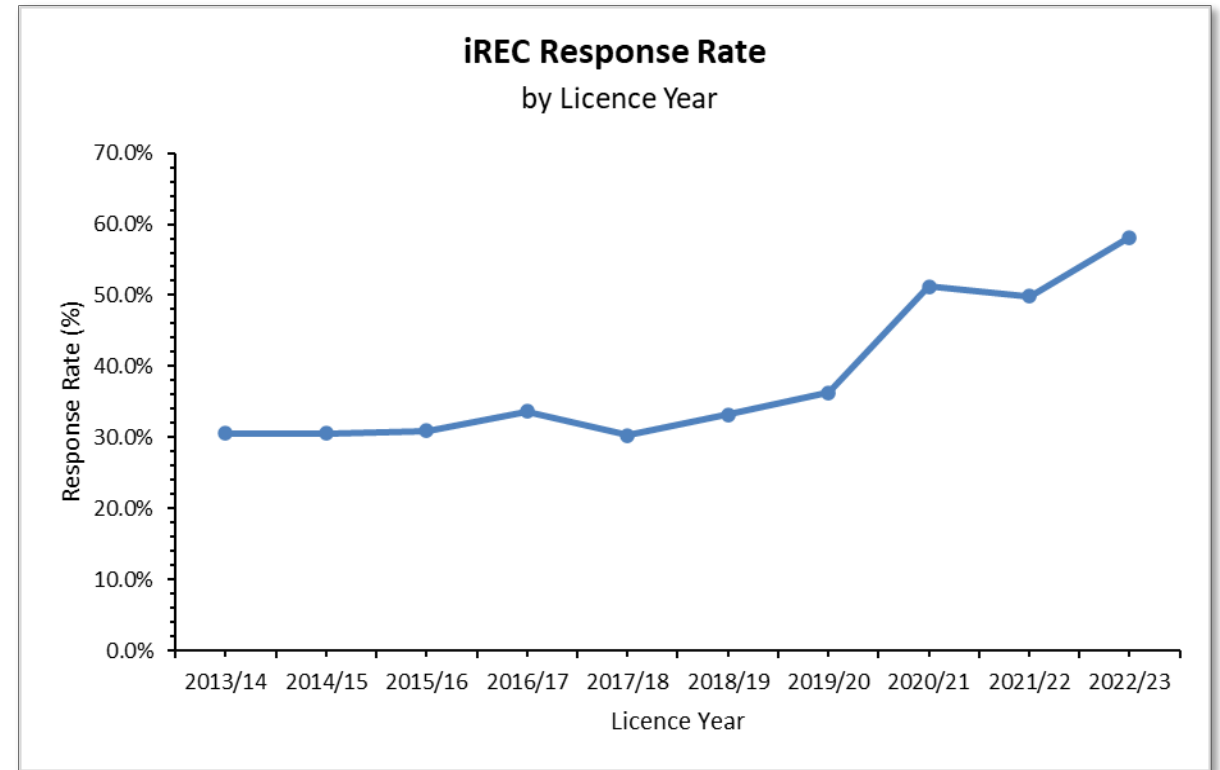
- What: collects kept and released recreational catch information by species (for over 80 species of finfish and shellfish) and effort information for 6 fishing/harvesting methods
- Why: to estimate catches in all areas and all months, which conventional programs have not and probably can not
- Who: all adult licence holders are required to report their fishing activity for each licence they purchase; for annual licences, reporting is only required for one assigned month. Reporting has been mandatory since April 2014.
- How: uses the National Recreational Licensing System database of Pacific Tidal Waters licences as a “Sampling Frame”.
- When: iREC has operated monthly since July 2012.



The *iREC* Reporting Program

Response Rate

- 52% in 2023/24 so far
- Increasing trend since 2018/19
 - iREC info printed on licences since April 2018
- Produces sample sizes that are ‘good’ for common species
- Only include responses confirmed “Complete”





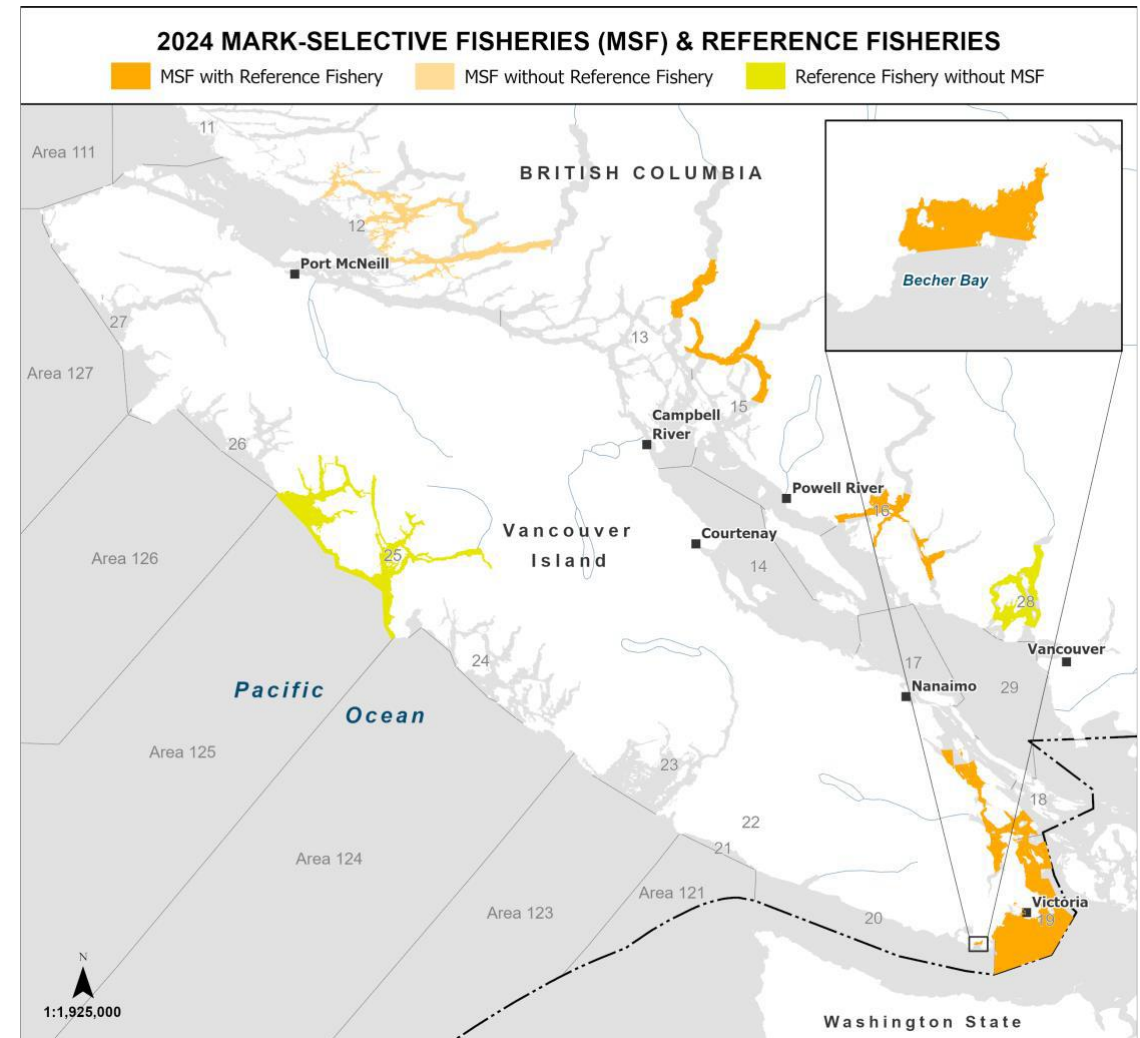
REFERENCE FISHERY MONITORING CHINOOK MARK SELECTIVE FISHERIES





Background

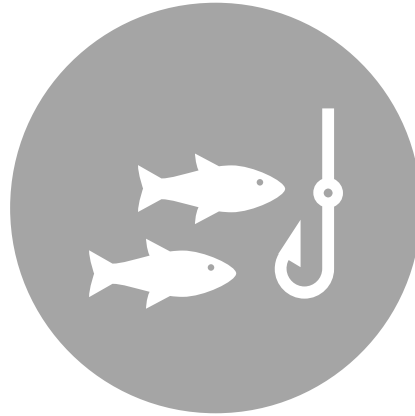
- Chinook recreational fishery closures were implemented to protect stocks of concern (2019)
- Limited Chinook mark-selective fisheries (MSFs) were introduced in 2021
- Additional MSFs were introduced in 2023, and reference fisheries were initiated in all pure MSFs
- Pacific Salmon Strategy Initiative (PSSI) supported enhanced monitoring in 2023 & 2024 by expanding dockside interviews and flights



Chinook Reference Fishery Objectives



INDEPENDENTLY VERIFY AT-SEA
RELEASE ESTIMATES FROM DFO'S
RECREATIONAL CATCH
MONITORING PROGRAM



ESTIMATE PROPORTION OF
"MARKED" CHINOOK (AD FIN
REMOVED)



IDENTIFY STOCK
IN A PURE MSF, NON-MARKED FISH
CANNOT BE OBTAINED DURING
DFO'S DOCKSIDE BIOSAMPLING



Chinook Reference Fishery Methods

- Vessels and guides were chartered to maximize catch per unit effort
- Guides were directed to fish how and where they typically would within a designated MSF to simulate the rec fishery
- Data Collection
 - Adipose fin clip rate
 - Legal and sublegal size
 - Tissue sample for stock ID
 - Scan for PIT tag
 - Fish condition
- 1084 Chinook were sampled in 2023.
- Handling was minimized and all fish were released
- Full 2023 data report available at DFO Library <https://science-catalogue.canada.ca/record=4125419~S6>





How are recreational catch estimates and biological samples used?

Resource Management

- Supports local, Regional and international discussions
- Informs conservation objectives and sustainable harvest opportunities

Technical Working Groups and Committees

- PSC Chinook Technical WG
- Run reconstructions and exploitation rates

Salmonid Enhancement Program

- Total AFC harvest





Future Work

- Coastwide Standardization for recreational monitoring programs
 - Consistent monitoring standards applied throughout the Pacific Region
- Enhance guide reporting.
- Improve communication products:
 - Creel Video
 - Recreational Catch Monitoring Overview (draft provided)
- Update “Best Practices” when releasing fish.
- Explore the use of “apps” as a tool to record fishing activity and support catch reporting (e.g FishingBC app).

THANKS FOR LISTENING!



Photo/Video Credit: Erin Pippus, Matt Townsend, Jason Eames