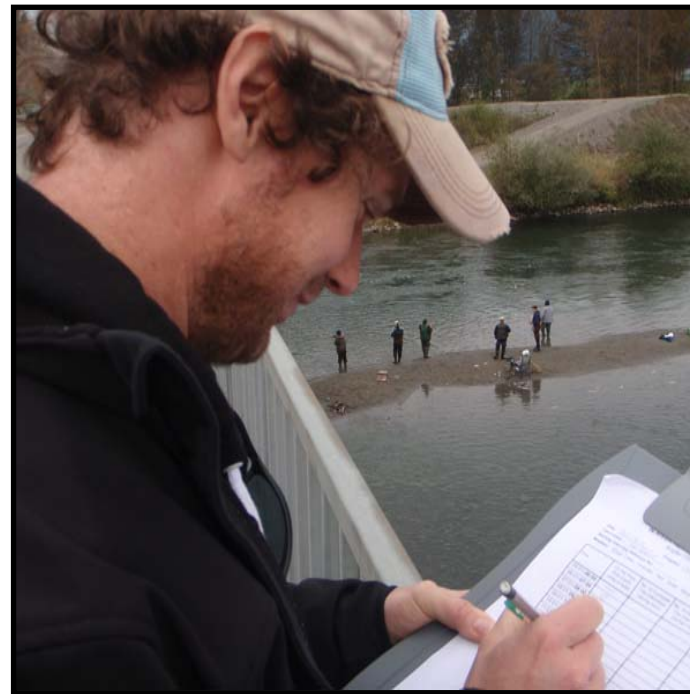




Fraser Stock Assessment Lower Fraser Area Recreational Fishery Assessments



Program Biologists:
Joe Tadey & Jason Mahoney



Program Technician:
Jason Evans



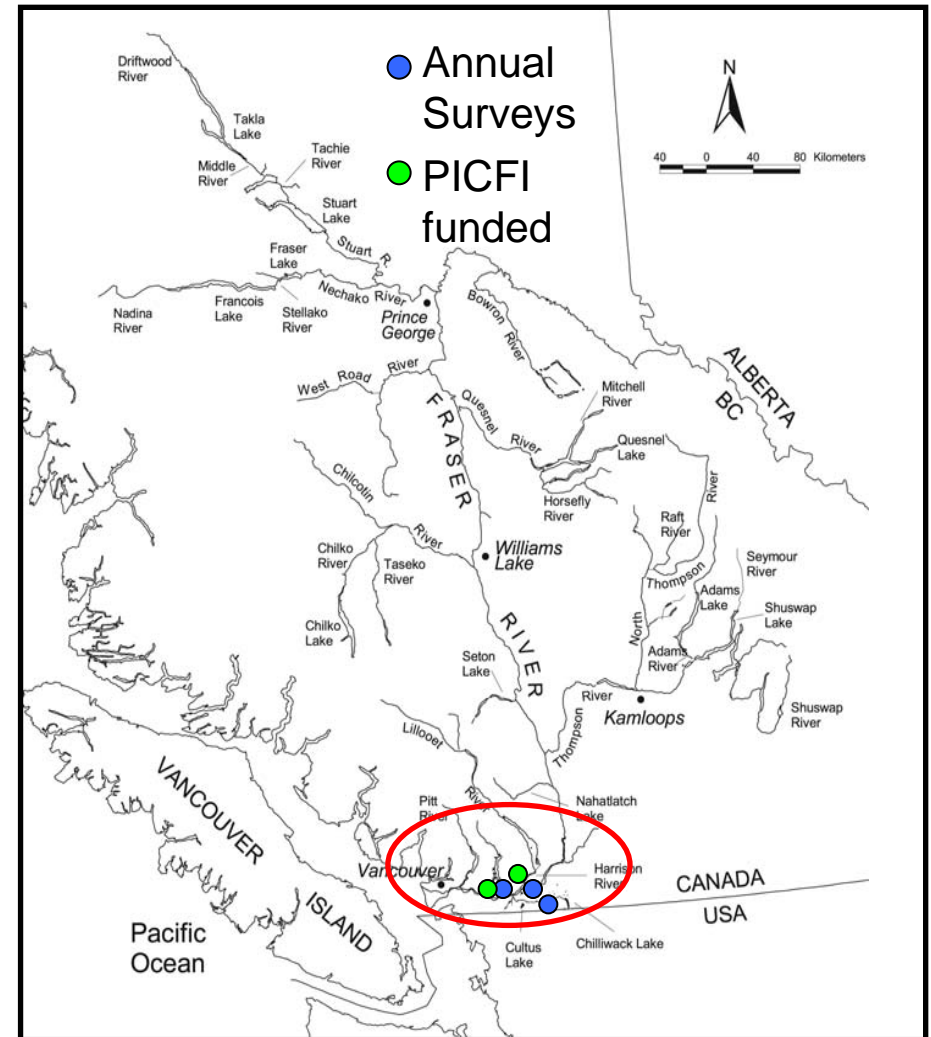
Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Fraser Stock Assessment conducts annual **Creel Surveys** in the Lower Fraser River on the:

- Nicomen Slough/Norrish Creek system (Coho)
- Chilliwack River (Chinook)
- Fraser River mainstem (Sockeye/Chinook)

Additional PICFI funded **Creel Surveys**:

- Harrison River (in 2009)
- Stave River (in 2010)

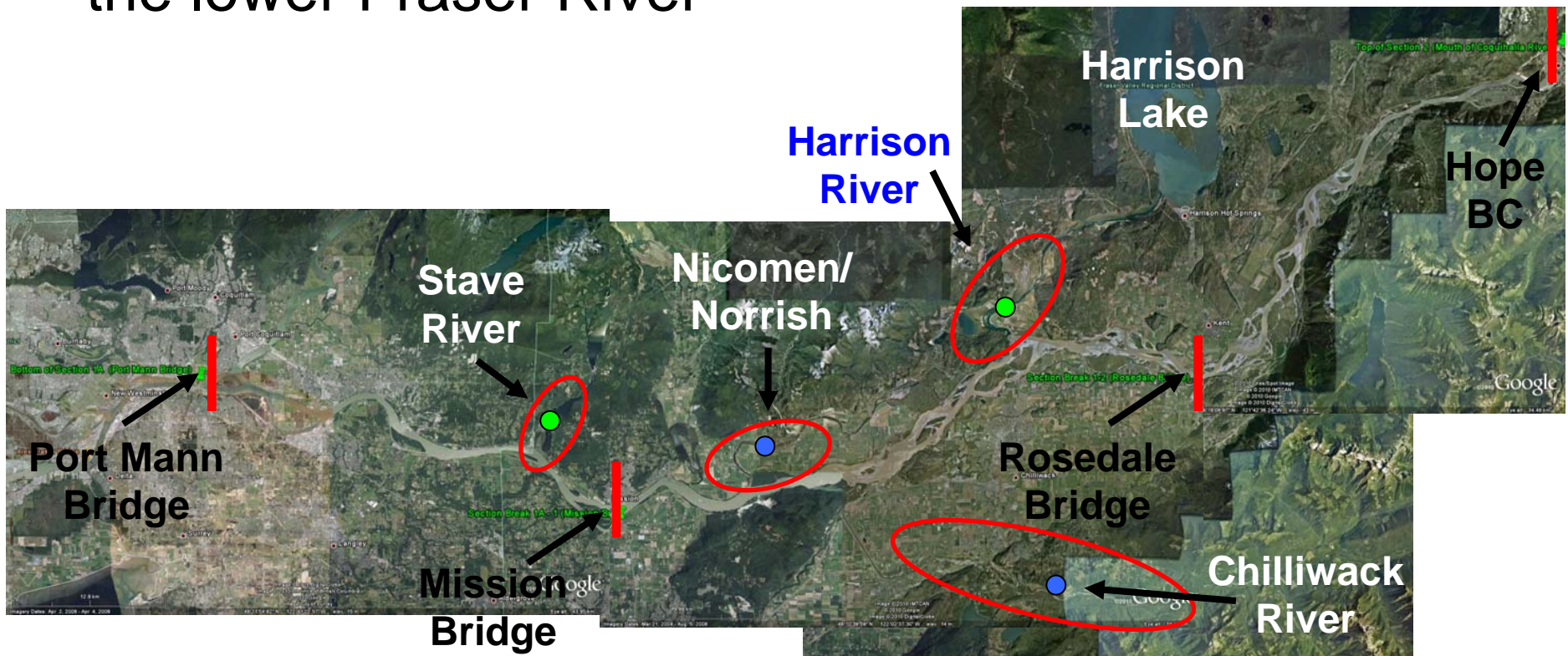




Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Creel Survey locations in the lower Fraser River

- Annual Surveys
- PICFI funded





Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Goals of the Lower Fraser **Creel Surveys** are to:

1. Provide estimates of:
 - harvest
(by species & AFC status)
 - angler effort
 - releases
(by species & AFC status)
2. Collect information on:
 - target species
 - gear/method used
3. Facilitate collection of biological samples
 - scales, heads, tags





Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

1. What kind of catch “monitoring” program is in place in the Lower Fraser Area?

The projects conducted in our Program are based on a **survey type** of assessment ([Creel Survey](#)) where we:

- sample only a portion of the catch and effort and estimate the total fishery catch and effort from this sample.

Our projects are **not census** based (like some of the projects in the BCI Area) where the entire fishery is accessed.



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

1. What kind of catch “monitoring” program is in place in the Lower Fraser Area?

The technical name(s) of our **Creel Survey** study design are many:

- an “access point-overflight” study design (Schubert 1992)
- an “access-overflight hybrid” study design (Tallman 2007)
- or “hybrid” study design by some (Schubert 1988)

Our projects use a study design methodology that is:

- peer reviewed
- used throughout the Pacific Region in both recreational and other fishery catch and effort assessments.



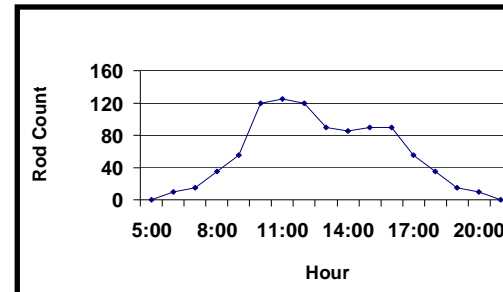
Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

2. What does that mean?

It means the estimation of the catch and effort is based on a combination of:

- an instantaneous effort measurement (a “roving” overflight of the entire study area);
- an angler activity profile (from an “access” point); and
- an estimate of the catch rate (from “access” point interviews).





Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

3. What are some key attributes of the Creel Surveys conducted in the Lower Fraser Area?

Fishery	Study Start	Study End	Target Species	"Importance"	Recent Years Assessed
Chilliwack River	Sep.15	Nov.15	Chinook, Chum Pink	Chinook indicator stock, sig. effort	2010 - 2001, 1999, 1998 1990, 1988 1986, 1985
Nicomen/ Norrish	Early Oct	Nov.30	Coho, Chum	Coho indicator stock	2010 - 2004, 2002, 2001
Lower Fraser River *	May 01	Oct.15	Chinook, Sockeye Chum, Pink	Sig. effort, mixed stock, MRP	2010 - 1995, 1990 - 1984
Harrison River	Sep.01	Dec.15	Chum, Pink Chinook	Before PICFI, last assessed in 2001	2009, 2001, 1998
Stave River	Sep.15	Dec.15	Chum, Pink	Before PICFI, last assessed in 2001	2010, 2001, 1998

* in 2010, the **Lower Fraser River** mainstem study started on Jul.16th;



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

4. Do the Creel Surveys provide adequate coverage?

Information/Data for 2009 Creel Surveys

Fishery	Number of			Effort (in Angler Hours)		
	interviews conducted	IRC's (overflights)	interview sites	from interviews	total estimated	% of total interviewed
Chilliwack River	4,950	17	1 + 2 roving	15,850	222,300	7%
Nicomen/ Norrish	1,200	14	2	3,150	10,950	29%
Fraser River mainstem	7,000	47	3 - 5	33,500	430,000	8%
Harrison River	1,500	24	2 + roving	7,400	27,850	27%



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

4. Do the Creel Surveys provide adequate coverage?

Additionally, coverage can occur in both:

- time (temporally) and
- space (spatially).



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

4. Do the Creel Surveys provide adequate coverage?

Temporal Coverage – Start (Fraser River example)

Historically, the **Creel Survey** begins when the Fraser River is opened to fishing for salmon (even though retention of salmon may be prohibited)

Region 2: Fraser River – Mission to Hope

Period	2007	2008	2009	2010
Opened to fishing for salmon (but closed to the retention of salmon)	n/a	May 01	May 01	n/a
Open to the retention of salmon	May 01	June 16	May 03	July 16
Creel Survey Start	May 01	May 01	May 01	July 16



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

4. Do the Creel Surveys provide adequate coverage?

Temporal Coverage – End (Fraser River example)

Over the last few years, the Lower Fraser River **Creel Survey** has been terminated before the end of the coho fishery.

Region 2: Fraser River – Mission to Hope

Period	2007	2008	2009	2010
Closed to the retention of salmon (but opened to fishing for salmon)	n/a	n/a	n/a	n/a
Closed to fishing for salmon	Dec.31	Dec.31	Dec.31	Dec.31 (currently)
Creel Survey End	Nov.30	Oct.15	Oct.15	Oct.15



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

4. Do the Creel Surveys provide adequate coverage?

Spatial Coverage (Fraser River example)

Generally, the **Creel Survey** assesses the fishery:

- between Mission Bridge and the Coquihalla River confluence (near Hope, BC)
- But the survey effort will follow the angling effort (e.g. 2007 high water levels; 2009 Pink fishery)
- Relative to btw Mission and Coquihalla, very little effort occurs in the Fraser Canyon upstream of Hope and during the summer months downstream of Mission.



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

4. Do the Creel Surveys provide adequate coverage?

Spatial Coverage (Fraser River example) continued

Preliminary (Average) Instantaneous Rod Counts (IRC) between Port Mann Bridge and the Coquihalla River confluence, 2010.

Analysis period	Jul. 16 - 31	Aug.	Sep.	Oct. 1 - 15
Number of overflights	4	15	10	6
Average IRC between Port Mann Bridge and Mission Bridge	1	9	12	6
Average IRC between Mission Bridge and Coquihalla River confluence	212	1,044	854	90
% of total IRC between Port Mann and Mission Bridges	0.5%	0.9%	1.4%	6.7%



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

5. How accurate are the Creel Surveys in the LFA?

Below are a few ways in which we stratify the data and analysis to produce an accurate (unbiased) estimate:

1. Random sampling

2. Data verification processes

- Collection
- Entry

3. Day type stratification:

- Weekend (and holidays)
- Weekdays

4. Complete trip interviews

5. Sample all daylight hours

6. Spatial Stratification:

- By river section (e.g. Mission to Rosedale Bridge & Rosedale Bridge to Coquihalla confluence)

6. Temporal Stratification:

- Monthly or bimonthly (usually) or other (e.g. at a regulation change)



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

6. How precise are the Creel Surveys in the LFA?

Since 2007, there have been no precision estimates generated (CREST development).

There are published technical reports with precision estimates for the lower Fraser River Mainstem catch estimates (Schubert 1992; Bratty *et al.* 1998; Walters *et al.* 1998).

Current methods are similar to years when the past survey methodologies were documented.

For the published reports, precision estimates (RSE or %SE) can vary widely but overall average 25%.



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Key questions:

6. How precise are the Creel Surveys in the LFA?

Fraser River Creel Survey

* weekday (n=5): 18%

* weekend (n=2): 89%

Chinook Harvest (adult)

Sockeye Harvest

Year	Harvest Estimate	SE	RSE (%SE)	Harvest Estimate	SE	RSE (%SE)
2007	7,796	704	9%	11	9	82%
2006	17,504	1,310	7%	136,332	20,324	15%
2005	13,038	1,524	12%	42,630	20,776*	49%*
1996	3,061	591	19%	9,371	1,613	17%
1995	5,501	647	12%	6,376	700	11%
1988	2,199	526	24%	204	93	46%
1987	2,112	287	14%	39	23	60%



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Future Works

- Continue to improve awareness of LFA [Creel Surveys](#) and the Sport MRP
- Continue to secure additional funding to survey catch and effort in fisheries that are sporadically assessed (e.g. Stave, Harrison)
- Completion of new data entry, database and analytical packages (CREST)
- Continue to develop the LFA Recreational Fisheries webpage



Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Creel Survey information/estimates for the LFA recreational fisheries can be accessed on the web at:
www.pac.dfo-mpo.gc.ca/fraserriver/recfishery.htm





Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Acknowledgements

2009 & 2010 Creel Team



Biologist:

Jason Mahoney (on acting assignment
to LFA Resource Management)

Senior Technician:

Jason (Jay) Evans

Data Technician:

Tod Gravel, Chris Wilmot

Field Technicians:

Guy Brown, Janet Williams, Treva Peters,
Lambert Head, Elliot Knudson, Tod Gravel
Shea Martinez, Crystal Kulcsar, Jean Jang





Fraser Stock Assessment: Lower Fraser Area Creel Surveys

Thank you for allowing me to present

