

INTERIOR FRASER STEELHEAD – THOMPSON AND CHILCOTIN

The UFAWU concurs with Area E and D's excellent submissions.

We don't intend to repeat the points made by these advisory committees, they are well researched and well presented.

The Union would like to add the additional points:

1. **Lack of Information made available** The Union finds it hard to make an analysis of any fleet's interception of steelhead since the information on encounter rates, exploitation rates and harvest rates we asked for from DFO and from the Province was not provided. (emails attached)
2. **Science Paper:** At present there is a Recovery Potential Assessment science paper being worked on by DFO. Apparently, it will have information on area harvest rates by fishery, and exploitation rates by gear, as well as an analysis of environmental impacts – freshwater and marine – and genetic implications of rainbow trout. We also assume it will describe the same impacts by other fisheries.
3. **Steelhead mortality rates in commercial fisheries:**
 - a. The COSEWIC report does not indicate how the commercial fleet mortality rates are developed by the Province other than to reference **Bison 2016** and the Province's box-car model. COSEWIC accepts the commercial industry mortality rate of 15-25% reported by Bison, which the Union disputes. It is very unfortunate that DFO did not supply COSEWIC with their mortality rate projections.

Bycatch in the commercial Pacific salmon fisheries is estimated indirectly, using trends and level of encounter rates and fishing mortality rates are estimated with the use of a simulation model (**Bison 2016**). (COSEWIC: Technical Summaries and Supporting Information for Emergency Assessments Steelhead Trout *Oncorhynchus mykiss* (Thompson River and Chilcotin River populations.) John Neilson, Eric Taylor. February 2018. p5)

Bycatch of returning mature fish in purse seine and gillnet fisheries directed at Pacific salmon is a better-quantified threat compared with marine survival. There are no directed commercial fisheries for Steelhead Trout in BC and the sport fishery operates on a catch-and-release basis with closures if in-season abundance estimates are below pre-determined limits. The estimated mortality rate from all bycatch in commercial fisheries is in the range of 15-25% annually (**Bison 2016**). This alone could explain a large proportion of the observed decline in mature individuals. (COSEWIC p8)

We cannot find (Bison 2016) and we cannot find a technical description of the Boxcar model nor the inputs used in this model so we are at a disadvantage and cannot comment on the accuracy of the commercial industry mortality rate of 15-25% used by COSEWIC.

b. In the Report by David Levy and Eric Parkinson in 2014, *Independent Review of the Science and Management of Thompson River Steelhead*, Prepared for the Thompson Steelhead Technical Subcommittee c/o Cook's Ferry Indian Band, Spences Bridge, BC, however, we find contradictory following information:

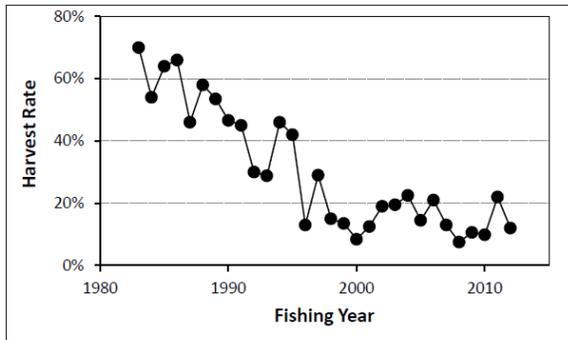


Figure 4.1. Harvest rate of Thompson steelhead. Source: Bison (2013).

Despite these problems, overall harvest rates of Thompson steelhead have dropped dramatically from highs of 70% that were typical of the 1980s to lows near 10% in the last few years (Figure 4.1) largely due to reduced encounter rates. (Levy 2014 p22)

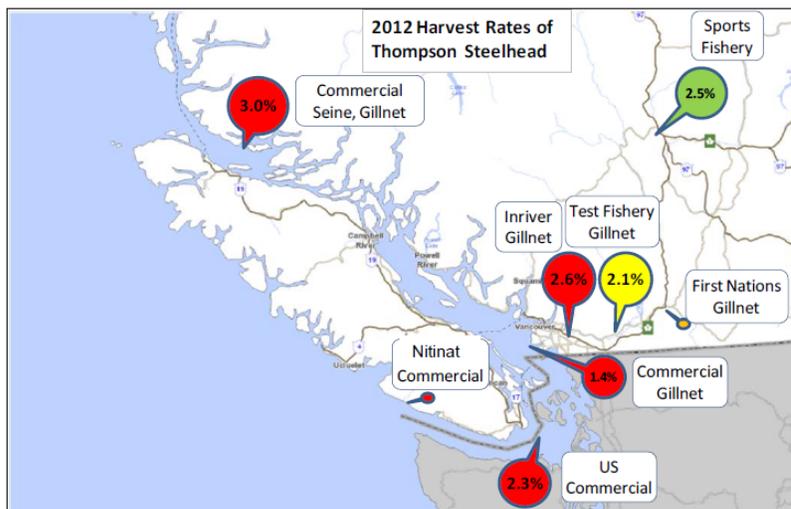


Figure 4.4. Harvest rates of Thompson steelhead during 2012 in fisheries that intercept them on their return from the open ocean. Source: Bison (2013); DFO test fishery http://www.ops2.pac.dfo-mpo.gc.ca/fos2_Internet/Testfish/rptdtfdparm.cfm?fsub_id=227.

Interception rates in Canadian fisheries in Johnstone Strait, Georgia Strait, Juan de Fuca Strait and the Fraser River, as well as American fisheries in Juan de Fuca Strait have steadily declined from rates as high as 70% in the early 1980s to rates of **less than 10% at present. This includes commercial, First Nation, test-fishing and sports fishery mortalities.** (Levy 2014 p25) (UFAWU-Unifor emphasis)

It is most confusing: are the 15-25% mortality rates for the commercial fishery only, used by COSEWIC, accurate, or is the less than 10% mortality rate for all fisheries, used by Levy, accurate?

c. DFO's paper *Proposed 2018 Fisheries Management Measures to Support Recovery of Interior Fraser River Steelhead* 22-March-2018, is just as confusing.

Assuming average run timing and migration speed for the IFR steelhead return, the length of the closure required to protect a 90% of the steelhead migration is approximately four weeks with the peak at around Oct 11th at Albion. (DFO Mar22/18 p1)

DFO biologists have developed a model that can estimate the probability that a specified window closure period will protect a given portion of the IFR Steelhead return using our current estimates of variability in peak timing, spread, and migration speed for this stock. Outcomes from this model (shown in Table 2), indicate that the closure dates identified in Table 1 will protect at least 80% of the IFR steelhead return 74 years out of 100. (DFO Mar22/18 p2)

Is DFO's rolling closure plan to protect 80% or 90% of the steelhead? What data is being used for this model – like the Province's model, the data being used to create the models is not being shared with the commercial fleet.

d. **The Certification Unit Profile (CUP) for Fraser River chum salmon**, written by S. Grant and G. Pestal of the Fisheries & Aquaculture Management Branch Department of Fisheries and Oceans, includes information about stock status, management reference points, management approach for chum fisheries for the MSC certification process. The report provides a table which shows that since 1990, the median harvest rates of Johnstone Straits fisheries are 8%, Nitinat fisheries have a Fraser chum HR of 0%, and the Fraser commercial fishery median harvest rate is 4%. As these harvest rates are described as % of total run, we can add them together for a total median commercial harvest rate of 12%. This report only includes harvests to 2006. Since then, fisheries have been more restrictive, which would have the impacting of reducing them even further.

Harvest rates by area (% of total run, rounded)

		Areas 11 to 13	Area 14	Areas 20 & 21	Areas 7 & 7a	Areas 4b, 5, 6c	Fraser
All Years	Min	0%	0%	0%	0%	0%	1%
	Median	17%	0%	0%	3%	0%	9%
	Max	62%	5%	5%	27%	0%	42%
Before 1990	Min	4%	0%	0%	0%	0%	3%
	Median	22%	0%	1%	5%	0%	16%
	Max	62%	5%	5%	27%	0%	42%
Since 1990	Min	0%	0%	0%	0%	0%	1%
	Median	8%	0%	0%	3%	0%	4%
	Max	28%	4%	0%	9%	0%	9%

(Fraser River chum salmon Grant, S. and G. Pestal. 2009. *Certification Unit Profile: Fraser River Chum Salmon*. Can. Man. Rep. Fish. Aquat. Sci. p 36)

If we assume that steelhead co-migrate with Fraser chum and are caught at the same rate, this information from the report to the MSC suggests that the goal of reducing the impacts on steelhead to protect 90% of the steelhead has already occurred. As well, the mortality rate on co-migrating Fraser steelhead will be less than on Fraser chum (at a median of 12%) for two reasons: not all of the co-migrating steelhead will be Chilcotin or Thompson as other steelhead migrate at the same time, and all of the chum are harvested, while steelhead are released alive, reducing the commercial mortality rate on steelhead as compared to chum.

Recommendation: Neither the province nor the federal government has been forthcoming with information needed to have a real discussion on steelhead protection in the commercial fishery. The information provided above is conflicting, to say the least. Therefore, The UFAWU-Unifor strongly recommends that no decision on any commercial interception fisheries be made until information on encounter, harvest, exploitation and mortality rates is made available to the fleet and a discussion on this information occurs with advisors. We further recommend that no decision be made until industry has had a chance to review the Recovery Potential Assessment science paper.

4. The Report by David Levy and Eric Parkinson in 2014, ***Independent Review of the Science and Management of Thompson River Steelhead***, describe the Thompson steelhead population as being limited because of poor rearing habitat in the Thompson. Maximum Steelhead juvenile production remains constant at spawning levels above 500 steelhead:

Juvenile assessments undertaken by the B.C. Fish and Wildlife Branch, coupled with annual escapement monitoring, provide a basis for steelhead productivity analysis. Parr populations in the Thompson and its tributaries have shown only minor variations between years (between 217,000-307,000 parr) despite 4-fold differences in spawner density (approximately 500-2000 spawners). It follows that a freshwater population bottleneck may be suppressing the ability of the steelhead population to increase. (Levy, D.A. and E. Parkinson. 2014. *Independent review of the science and management of Thompson River steelhead*. Prepared for Thompson Steelhead Technical Subcommittee c/o Cook's Ferry Indian Band, Spences Bridge, BC. P iii)

Parr-adult stock recruitment analysis (Figure 4.12) suggests that Thompson River freshwater habitat currently limits steelhead production. Across 3 tributaries and in the Thompson aggregate population, the stock-recruitment relationships asymptote at relatively low adult densities, implying that parr production stays the same over a range of around 500 – 2000 spawners. (Levy/Parkinson 2014 p37)

Limitations on parr production in freshwater have persisted over time. Additional data collected by BC MOE between 2001-2011 (Figure 4.13), suggests that parr production is largely insensitive to spawner population sizes above 500. Additional spawners above this number appear to have little influence on parr production. The smolt output was largely stable over this time period even at spawner densities as low as 500-600. (Levy/Parkinson 2014 p38)

During 2001-2008, total parr standing stock (age-1 and age-2 parr combined) for the study area as a whole averaged 270,000 fish, and varied only moderately between years (217,000-307,000 parr). (Levy/Parkinson 2014 p36)

This report also states that the Limit Reference Point for the Thompson stock is 431. (Levy p 31) Although not explicitly stated, one might assume that this is the lowest number of spawners that would produce 270,000 parr, however, this may not be accurate as fewer steelhead spawners could conceivably still produce a survival of 279,000 parr. In fact, the LRP might be better expressed as number of parr, since that seems to be the limiting factor. Other than the Levy paper, we find no references to this in the COSEWIC technical information or the IFMP.

We cannot find a similar report for the Chilcotin Steelhead, but the ***1985 Steelhead Stock Monitoring Report- Chilcotin Steelhead Stock Monitoring file 0140-5*** by D.Dedger also suggested a habitat bottleneck for parr production.

Recommendation: The Union understands that the current spawning population forecast for the Thompson watershed is 177 mature adults, 40% of the lower reference point as in Levi above, but if the Thompson River stock is parr limited, then it a better solution may be to resolve that bottleneck instead of trying to reduce the commercial fleets' tiny steelhead mortality.

5. **Other fisheries:** if the goal is to reduce the interception and mortality of Interior Fraser Steelhead, then other fisheries must also be engaged.

Table 5.1. Steelhead releases in 2013 pink and chum fisheries in the Lower Fraser and approach areas. Source: Marla Maxwell, DFO

Fishing Area	Date	Opening Duration	Harvest of Target Species	Steelhead Reported as Released
Area E commercial	Oct. 24-25	24h	93,000 chum	22
Area B pink demo	Sep. 1-10; Sep. 17-18	11d	1.5 million pink	39
Area B chum demo	Oct. 17	24h	6,535 chum	1
FN EO and demo	Sep. 10-29 (pink); Oct. 21 and Nov.6 (chum)	19d (pink) + 2d (chum)	112,401 chum	232

David Levy and Eric Parkinson in 2014, *Independent Review of the Science and Management of Thompson River Steelhead*, P 47

The First Nations' Economic Opportunity and Demonstration Fisheries also harvest chum and co-migrating steelhead and reported catching 232 steelhead according to the above table.

6. **Rainbow trout:** Mr. Barry Crow chair of the Area D Harvest Committee has provided DFO with much information about interactions between rainbow trout and steelhead salmon. Dr. Levy supplied a whole appendix with information specifically about Thompson steelhead and rainbow inter-relationships. (Levy, D.A. and E. Parkinson. 2014. *Independent review of the science and management of Thompson River steelhead*. Prepared for Thompson Steelhead Technical Subcommittee c/o Cook's Ferry Indian Band, Spences Bridge, BC. Appendix 1: Interactions between Steelhead and Rainbow Trout p67)

Levy concludes that more investigation is needed to understand the relationship between rainbow trout and steelhead, both from the likelihood of helping to increase steelhead, the likelihood of steelhead remaining in fresh water as rainbow trout, and whether removals in a sports fishery targeting rainbow trout would negatively impact the steelhead stock.

These are very important findings for the present review since they suggest that rainbow and steelhead in the Thompson River are members of a reproductively mixed population. It is necessary to consider rainbow trout and steelhead as a single interbreeding unit with strong biological linkages that influence the relative abundance of steelhead in the Thompson River. (Levy Appendix 1 p72)

Recommendation: The Union recommends that DFO engage with the Province to better understand the relationships between rainbow trout and steelhead in the Thompson and Chilcotin systems and to investigate rainbow trout sport fisheries that may be harvesting juvenile steelhead in a rainbow trout fishery.

7. **Selective Fisheries:** DFO does not seem to have a consistent methodology to account for selective harvesting.

Gillnetters have the most selective gear. They can both avoid catching steelhead and successfully live release incidentally caught steelhead.

In non-river fisheries, drop weedlines have been introduced in order to avoid steelhead. Every study undertaken has shown that steelhead differentially swim in the top of the water column and a 1.2 metre drop weedline lowers interceptions dramatically. If another species is used as a proxy to establish an

encounter rate (harvest rate), or if catches from a gillnet test boat not using a drop weedline are being used to set harvest rates, those rates must be lowered by the figure of at least 50% to account for the effect of the drop weedline in outside fisheries. See Steven Cox- Rogers, DFO North Coast Stock Assessment 2007 ***Brief comment on the structure of the current Skeena management model and some of its key inputs*** for tables of the results of numerous weedline tests done coastwide.

Weedlines are accepted by DFO as successful methods to avoid steelhead which is why they are used in all ocean fisheries that may encounter steelhead (outside Skeena, Dean, Johnstone Straits, Nitinat)

Revival boxes combined with short sets increase the survivability of steelhead dramatically. The 2007 paper by Steven Cox Rogers referenced above explains the results of the test fisheries on the Skeena; gillnet selective fishery mortality rates have been reduced as low as 7.6% - 17.7% for steelhead and from 15.6% - 26.4% for coho (Cox-Rogers 2007 p 15) if short sets (20 minute soak time) and half nets are used along with laminar flow revival boxes.

According to Dr. Levy, in "the IFMP, DFO utilizes a post-release mortality rate of 60% for salmon by catch (e.g. coho) in commercial gillnet fisheries and this figure is likely applicable for Thompson steelhead" (Levy 2014 p17). This may explain some of the disconnect between the Provincial calculations of steelhead harvest rates and fishermen's. There is little reason for the Fraser river gillnetter to have a higher mortality rate than that of the Skeena – particularly as many Area E gillnetters also fish in Area C on the Skeena and were instrumental in developing the successful release techniques there.

DFO north coast uses a 26% mortality rate for coho intercepted in sockeye targeted gillnet selective fisheries - short set (20 min soak time)/ short net / daylight only and revival boxes) - in the river environment.

Seiners cannot avoid steelhead by use of avoidance techniques so will catch many more steelhead than gillnetters as they will indiscriminately capture all species in the area of their set. However, once 'caught', seiners can successfully release steelhead, when the catch is brailed, with as low as a 1.4% mortality rate for steelhead (and a 1.8% - 2.6% mortality rate for coho). The north coast DFO attaches a mortality rate of 5% - 10%, dependent upon area fished.

Trollers have not shown that they can avoid steelhead, but they also have little record of catching steelhead and so have little in the way of release statistics. Trollers have a low mortality rate ascribed to their bycatch releases in the IFMP (10%) and should not be impacted by the rolling closures due to their encounter rates and low mortality release rates. However, to note, there are no restrictions on recreational marine fisheries for steelhead and no statistics on encounters or releases.

Recommendation: UFAWU-Unifor recommends that DFO use more accurate information on gillnet, seine and troll mortality rates. All three gear types have long histories of selective harvesting tests and demonstration fisheries. More realistic rates should be applied than those in the IFMP which are much higher than tests and demonstration fisheries have shown.

Nitinat fishery:

Area E Harvest Committee has put together an excellent submission on the Nitinat fishery. Suffice it to say that the fishery has already been shaped to avoid steelhead, and of the very few steelhead that may be caught, the tools to revive the fish and release it alive.

According to DFO March 22 *Proposed 2018 Fisheries Management Measures to Support Recovery of Interior Fraser River Steelhead*, the rolling fishery closure would begin September 18 and conclude on October 14. According to the chart shown above from page 36 in the *Chum MSC certification report: Fraser River chum salmon Certification Unit Profile: Fraser River Chum Salmon*. Grant, S. and G. Pestal. 2009. Can. Man. Rep. Fish. Aquat. Sci., Nitinat fisheries pre-1990 caught 1% of the Fraser chum and between 1990 and 2006, zero percent. If Fraser chum is a proxy for interior Fraser Steelhead, the harvest rate on IFS should also be zero. Especially if the fishery has been shaped to avoid steelhead so that the encounter of a steelhead would be even less likely. As the Area E submission points out, the fishing area has been changed to avoid steelhead areas and the gillnet fishery uses 1.2 metre drop weedlines which avoid at least 50% of the few steelhead that may stray into the smaller area, and revival boxes which have a good success rate in enhancing live release of any caught steelhead. The total steelhead mortality rate must be less than 0.5% (50% * 0.05%) using Fraser chum as a substitute.

In the map of harvest rates from Levy 2014 p35, shown above in 3b, the interception rates are so low at Nitinat, he does not attribute any number. The harvest rate must be less than 1.4% as this is the lowest ascribed value on the map.

The 2017 fishery plan said that there are no fisheries prior to week 10/1 due to IFS concerns. In week 10/1 the fishery is limited to a maximum fishery of 1 day if there is in excess than 75 boats in Area 21 only, with mandatory weedlines and mandatory revival boxes. In week 10/2, the last week of the 'rolling closure' for the Nitinat area, if escapements are very large, there will be a possible fishery exceeding 2 days. Seine fisheries do not usually start until week 10/3, after the rolling closure date.

The description of the fishery from the PACIFIC SALMON COMMISSION JOINT CHUM TECHNICAL COMMITTEE 2014 POST SEASON SUMMARY REPORT TCCHUM (18) – 01 February 2018 (p19) is as follows:

In addition to concerns over catch of non-WCVI Chum salmon, early season opportunities are constrained by concerns over bycatch of Interior Fraser River Steelhead (Thompson River) and passing stocks of Coho salmon. Since 1995, these bycatch concerns in the commercial Nitinat fishery have been addressed by:

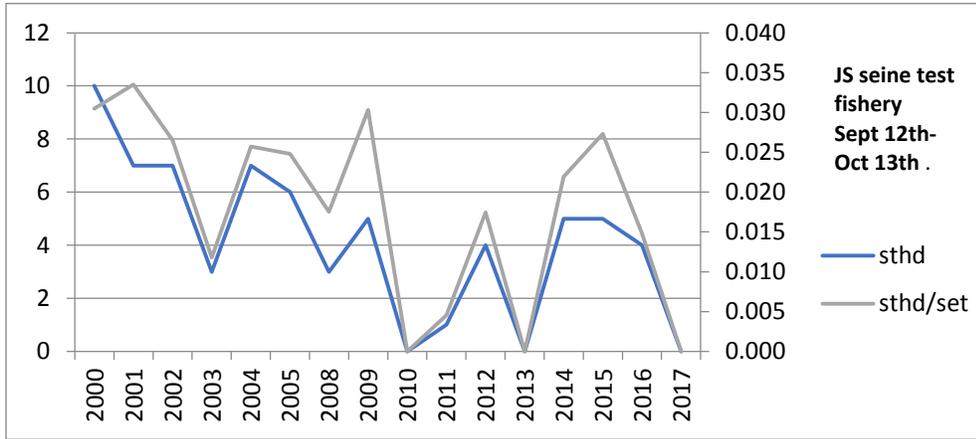
- *delayed opening dates*: the first commercial gill net fishery, if conducted, has been delayed until the beginning of October since 1998;
- *reduced fishing areas*: the traditional fishing area has been reduced to within a one-mile boundary between lines true south from Pachena and Dare Points (a portion of Area 21);
- *increased use of weed lines*: a 1.2m – 2.0m weed line for gill nets; and,
- *species selective fishing techniques*: non-retention of Coho salmon and Steelhead.

Additionally, to reduce bycatch mortality and to improve the quality of catch data, the following measures have been implemented in the Nitinat fisheries:

- *daylight fishing only*: gill net fishery;
- *mandatory functional revival tanks*: in purse seine and gill net fisheries;
- *on-board observers*: portions of purse seine and gill net fleet; and,
- *logbooks and weekly hail-ins*: purse seine and gill net fisheries.

The Union submits that the measures already in force in Nitinat to avoid steelhead, and to live release the few IFS incidentally caught, have reduced the number of steelhead mortalities to where no further closures are necessary.

Johnstone Straits:



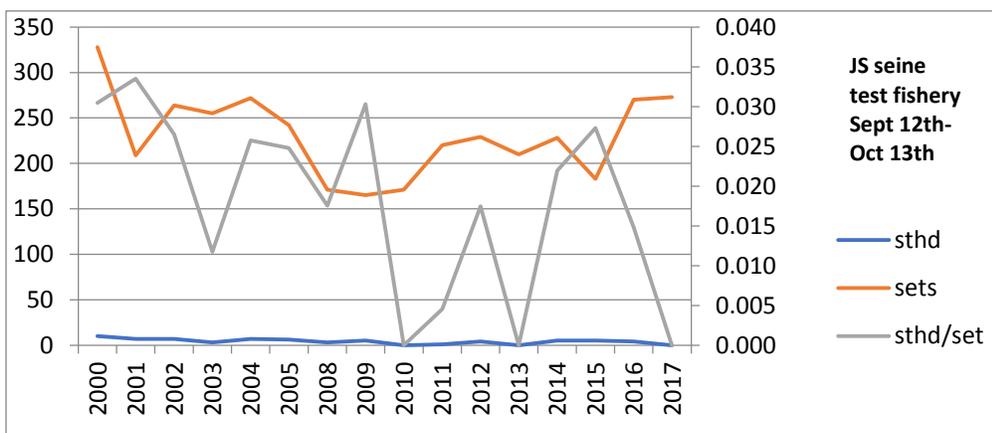
of Steelhead caught in the Johnstone Straits test fishery in the same 1 month period proposed for the rolling closure in Areas 12 &13. 10 steelhead were the maximum caught (in 2000) and zero steelhead were caught in the JS test fishery in 2017.

UFAWU-Unifor chart from PSC JS chum test fishery statistics

The chart below is for the time period as the chart above.

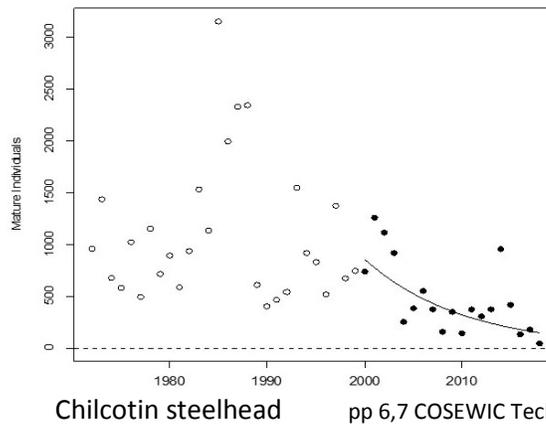
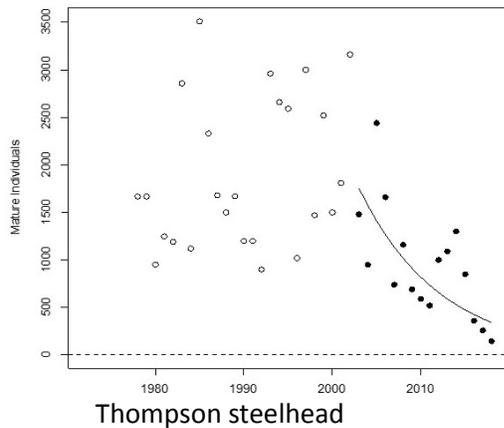
Combined, the two charts show that in the JS seine test fishery over the period of 2000-2007, steelhead numbers in JS have been highly variable. Steelhead per set were above 0.20 steelhead in eight years of the sixteen test years (0.03, 0.33, 0.27, 0.26, 0.25, 0.30, 0.22, 0.27) with corresponding steelhead numbers of (10,7,7, 7,6, 5,5,5), while the number of sets has remained high (328-165)suggesting that the number of sets was not a confounding issue.

In 2010, 2013 and 2017, steelhead captured in the JS seine test during the proposed rolling closure time period was zero even though the set numbers 171, 210, 273 were large. 2009 and 2010 had similar set numbers (165, 171) with far different steelhead per set (0.030, 0.00).

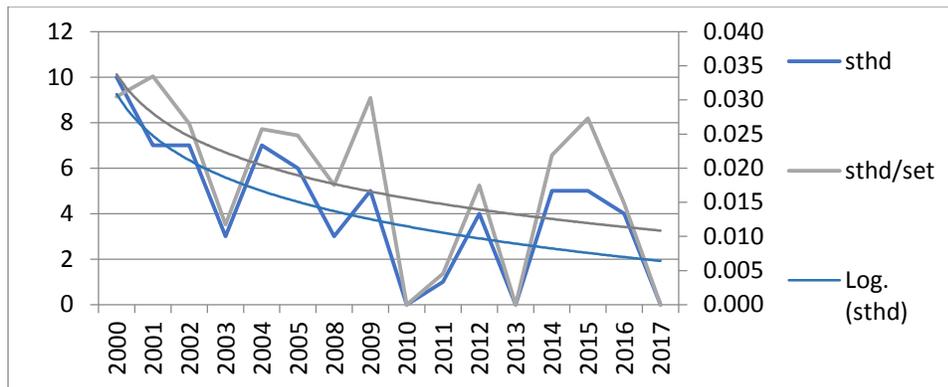


Same time period. The number of sets have remained relatively constant over 17 years. Numbers of steelhead remained low and the steelhead per set has been less than 0.03.

UFAWU-Unifor chart from PSC JS chum test fishery statistics



pp 6,7 COSEWIC Technical 2018



The trend lines match the Chilcotin steelhead trendline. The steelhead catch and steelhead per set both decline as can be expected. The decline in IFS is reflected in JS test fisheries, but as steelhead decline, incidental encounters decline. Total mortalities for the Johnstone Strait fisheries are dependent on steelhead stock status, number of days fished, and capture rates and release mortality.

Gillnets capture fewer steelhead due to drop weedlines (50% avoidance), and with the revival boxes, have a 60% (at least) survival rate on those steelhead caught. Seines capture more steelhead but have lower release mortalities (5- 10%). The net allocation of Johnstone Straits chum is divided 84% seines and 16% gillnets.

Likely due to low harvest rates for the chum fishery (8%) and successful net selective fisheries, Levy 2014 page 25 (above in 3b) shows a harvest rate of 3% on Thompson Steelhead for the total JS fishery.

The JS fishery usually starts at the end of September. In 2017, the seine fisheries took place on October 2 and 16th. The proposed rolling closure would have prohibited the first fishery. In 2017, the first two gillnet fisheries were on October 5-7 and October 10-12. Both would have not taken place under the proposed rolling closure. Only the final fishery of Oct 24-26 would have taken place - well after the peak of the chum return. In 2017, the troll fishery started October 3-12 which would have been prohibited under the rolling closure.

If the harvest rate on Thompson steelhead is 3% (Levy 2014 p26); on a run size of 500 steelhead, 3% would be fifteen steelhead. On a return of 230, as predicted for 2018, 3% is seven steelhead. Are seven steelhead worth the effective closure of the Johnstone Straits chum fishery? The Union believes that the cost in way of lost harvest and earnings to fishermen, shoreworkers and their communities is far too high.

Fraser River:

The Fraser River gillnet fishery is always portrayed as the worst 'killer of steelhead'. However, in 2017 there were only 22 hours of fishing, eleven on October 24th and a further eleven hours on October 27th. The rolling closure would have prohibited the first opening. The Albion test net only caught 5 steelhead in 2017, demonstrating the poor steelhead return. In 2017, the test net did not catch one steelhead on the days of, or around, the commercial gillnet chum fishery.

Each 11 hour fishery was conducted with half nets (100 fathoms instead of the regular 200 fathoms) and short sets (maximum soak time of thirty minutes) and a revival box with a laminar water flow. The river gillnetter cannot 'avoid' steelhead with a deep weedline because in a river steelhead are spread through the water column. The selective strategy adopted by Fraser river gillnetters is the same as for the Skeena river gillnetters, short set times, aided by short nets, and revival boxes to assist in the resuscitation of a lethargic or apparently dead fish. On the Skeena, as shown in the Cox-Rogers 2006 paper, steelhead mortality rates can be as low as 7.6 -17.7%. DFO attributes a 40% steelhead mortality rate in their Skeena river management model for steelhead and a 26% mortality rate for coho.

A twenty two hour fishery with a steelhead mortality rate of 40% (higher than that actually experienced on the Skeena) on a handful of steelhead bycatch, is very small indeed. If all steelhead entered the Fraser river in a 27 day period between September 28th and October 24th (22 hours out of 648 hours) the gillnet fishery would be 3.4% of the time period and would intercept 3.4% of the steelhead. If the steelhead mortality rate was 40%, the Fraser gillnet harvest rate would be 1.36%. The Grant, S. and G. Pestal. 2009. *Fraser River Chum Salmon Certification Unit Profile: Fraser River Chum Salmon*. Can. Man. Rep. Fish. Aquat. Sci. reports on page 36 that the Fraser river gillnet harvest rate on the co-migrating chum stocks is 4%. If steelhead were caught at the same rate, with a 40% mortality, the Fraser river gillnet steelhead harvest rate would be 1.6%

Levy 2014 assigns harvest rate of 2.6% to the Fraser gillnetter, almost the same as the 2.1% attached to the Albion test fishery.

As Area E Harvest Committee pointed out, the price to pay for the closure of even one gillnet fishery (out of two) is too high to pay to save fewer than 2 steelhead (return of 230) or 4 on a return of 500.

Conclusion:

In conclusion, with steelhead numbers so small, with each one of the three impacting fisheries (Nitinat seine and gillnet; Johnstone Straits seine, gillnet and troll; and Fraser River gillnet) making such a small discrete contribution toward a total commercial harvest rate well below 10%, it is difficult to see how reducing any one fishery will have a positive impact on steelhead returns. But closing fisheries during the rolling closure period as proposed will have a disproportionate impact on fishermen and industry workers, most who are struggling to make ends meet.

If fishing time is cut in half or more, as the result of the rolling closure, not only will the economic impacts be severe, we will have only contributed around 3.5% more steelhead to the spawning grounds. On 177 fish, that would be around six more Thompson steelhead and at a 58 Chilcotin return, it would add two. It would make much more sense to spend some of the money that would be lost to the economy from a chum closure on an emergency hatchery contribution, a sealion/seal cull (as proposed in Washington to protect chinook and steelhead stocks there), and an enhancement of parr habitat.

DFO has asked us to consider the questions:

1. Does the proposed plan provide the appropriate level of protection for Interior Fraser River Steelhead?
2. Should selective fishing for salmon be permitted during the steelhead window closure? If so, what fisheries / gears should be considered?
3. Are there additional measures that should be considered?

The UFAWU-Unifor has answered all three questions in our submission.

Joy Thorkelson
UFAWU-Unifor

April 23, 2018