

# 2022 Management Considerations

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FRP meeting, February 15-18, 2022

## Outline

### Run size forecasts and historical biological data

- Run size
- Area 20 timing
- Spread
- Diversion
- Stock Composition

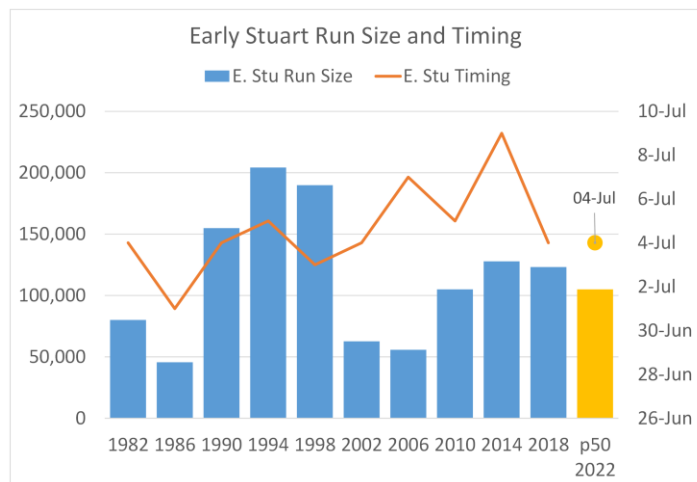
### Preliminary management considerations

- DBEs
- Late-run Delay
- Planning Model Inputs

## Biological Considerations

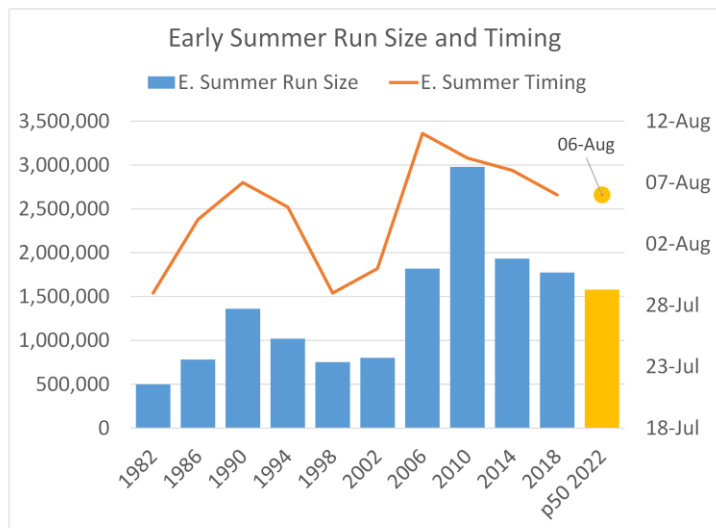
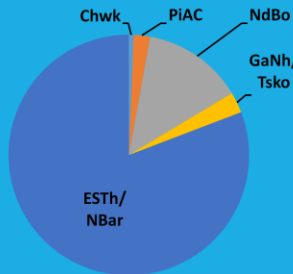
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## Early Stuart



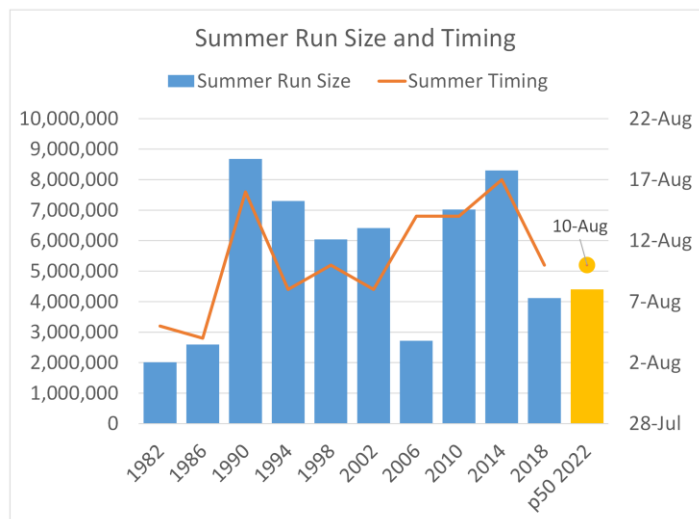
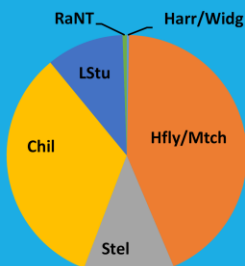
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## Early Summer-run



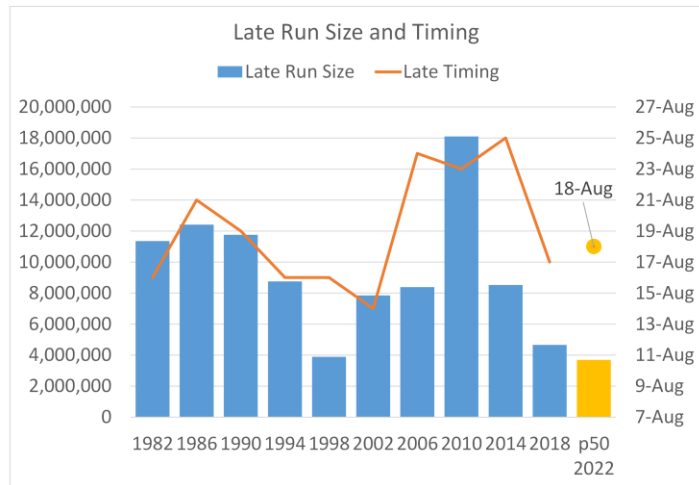
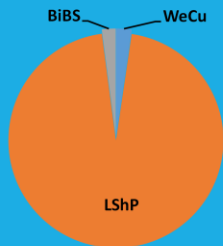
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## Summer-run



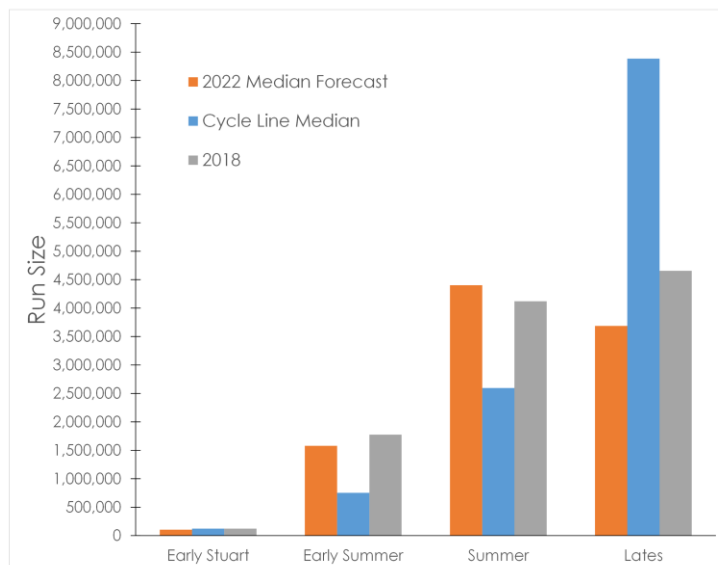
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## Late-run



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## Run Size Forecasts by Sockeye Management Group



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## 2022 Sockeye migration timing, diversion rate and spread

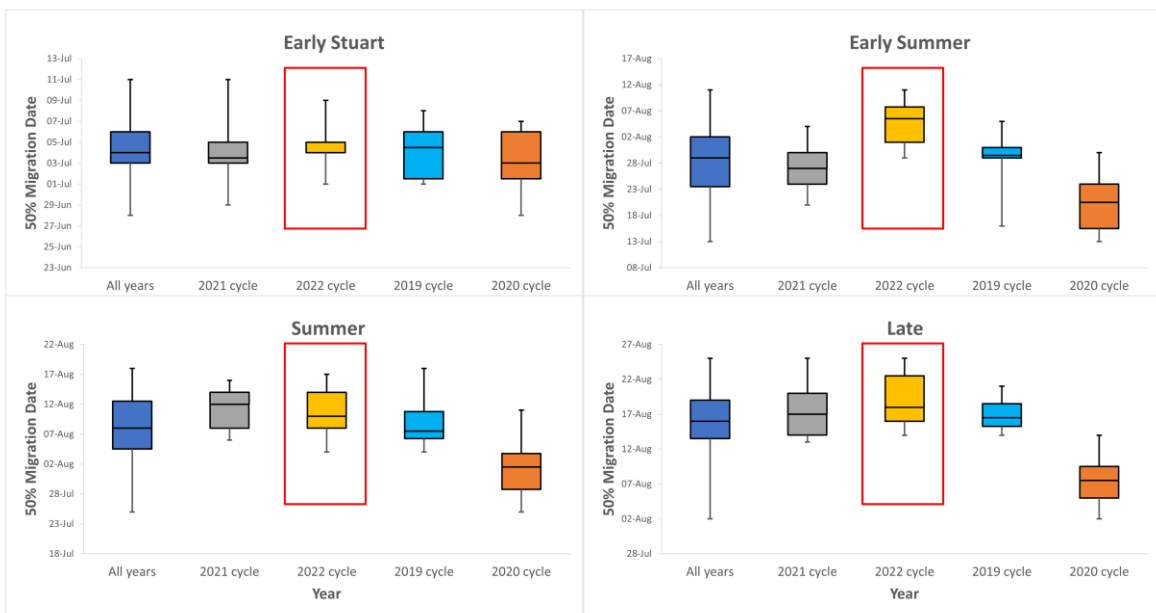
### Timing and Diversion Rate

- Timing estimates based on:
  - All years, or
  - All years, excluding 2020 cycle, or
  - Cycle line median
- Diversion rate based on recent median (1994-present)

### Spread (number of days of migration)

- Estimated using the same years as for timing

## Timing Boxplots – Sockeye Management Groups



## Marine Timing Forecast

Group	2022 median timing forecast	Data used to predict timing
<b>Early Stuart</b>	<b>04-Jul</b>	<b>All years</b>
<b>Early Summer</b>	<b>06-Aug</b>	
Early Summers excl. ESTh	28-Jul	All years excl. 2020 cycle
Early South Thompson (ESTh)	08-Aug	Cycle line median
<b>Summer</b>	<b>10-Aug</b>	
Harrison	06-Aug	All years excl. 2020 cycle
Late Stuart, Stellako	09-Aug	All years excl. 2020 cycle Cycle line median
Chilko, Quesnel	11-Aug	All years excl. 2020 cycle
Raft, North Thompson	18-Aug	All years excl. 2020 cycle
<b>Late</b>	<b>18-Aug</b>	
Birkenhead, Big Silver	19-Aug	Cycle line median
Late Shuswap, Portage Weaver, Cultus	18-Aug	Cycle line median All years excl. 2020 cycle

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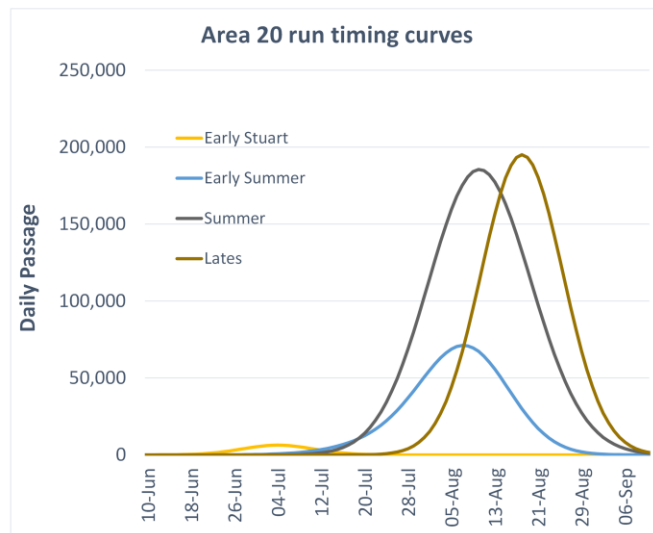
## Forecast of spread of the run

Number of days to encompass 95% run

Group	2022 median spread forecast	Data used to predict timing
<b>Early Stuart</b>	<b>26</b>	<b>All years</b>
<b>Early Summer</b>	<b>38</b>	
Early Summers excl. ESTh	39	All years excl. 2020 cycle
Early South Thompson (ESTh)	31	Cycle line median
<b>Summer</b>	<b>37</b>	
Harrison	40	All years excl. 2020 cycle
Late Stuart, Stellako	35	All years excl. 2020 cycle Cycle line median
Chilko, Quesnel	38	All years excl. 2020 cycle
Raft, North Thompson	40	All years excl. 2020 cycle
<b>Late</b>	<b>30</b>	
Birkenhead, Big Silver	32	Cycle line median
Late Shuswap, Portage Weaver, Cultus	30	Cycle line median All years excl. 2020 cycle

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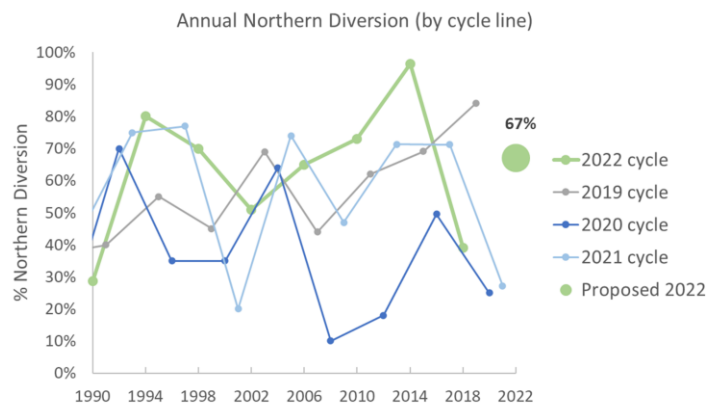
## Marine Run Timing Curves for 2022



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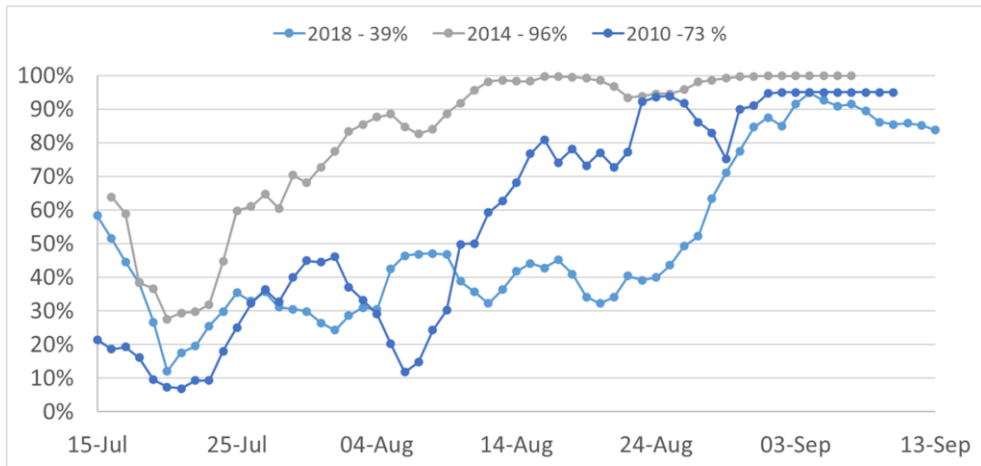
## Annual Diversion Rate

- **Proposed 2022 diversion rate: 67%**
  - All years, excluding 2020 cycle, median since 1998
  - Highly variable over the last few years on this cycle line



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## Historical Sockeye Daily Diversion



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## Preliminary DBE forecasts

	February Planning values	
	<i>pDBE</i>	<i>pMA</i>
<b>Early Stuart*</b>	<b>-0.47</b>	<b>0.89</b>
<b>Dom/SubDom Cycle (2022/2023) Median</b>		
<b>Early Summers</b> <i>*(no weighting due to the low forecasted proportion of Chilliwack and Pitt)</i>	<b>-0.31</b>	<b>0.45</b>
<b>All year median</b>		
<b>Summers</b> <i>( no weighting due to the low forecasted proportion of Harrison)</i>	<b>-0.06</b>	<b>0.06</b>
<b>Dominant Cycle (2022) Median</b>		
<b>Lates</b> <i>(no weighting due to the low forecasted proportion of Birkenhead)</i>	<b>-0.18</b>	<b>0.22</b>

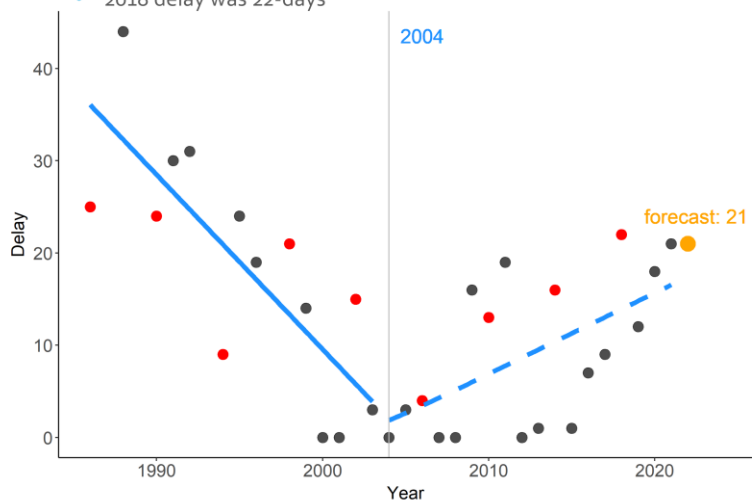
\* The potential impacts of Big Bar have not been incorporated in these estimates. Early Stuart and early timing Early Summer run stocks may however experience increased en route losses if discharge levels early in the season exceed 2021 levels.

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## Late-run delay

- **Proposed late-run delay: 21-days**

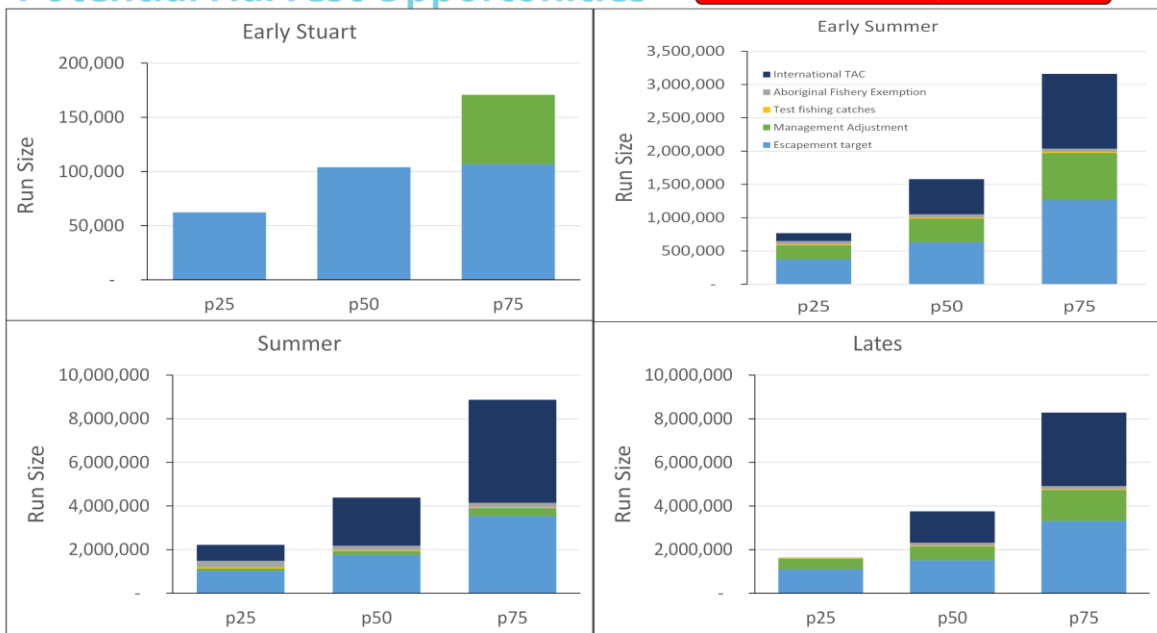
- Given increasing trends in delay over the last 4 years on this cycle-line, used an all-years median as opposed to "post-1996" median
- 2018 delay was 22-days



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## Potential Harvest Opportunities

Based on 2018 escapement Plan



## Preliminary Planning Model Inputs

Based on 2018 escapement Plan

	P50 Forecast	TAM	SET	pMA	MA	Harvestable Surplus <sup>1</sup>	Allowable ER
Early Stuart	105,000	0%	105,000	0.89	93,500	0	10%
Early Summer	1,579,000	60%	631,600	0.45	283,800	663,600	42%
Summer	4,403,000	60%	1,761,200	0.06	112,400	2,529,400	57%
Late	3,688,000	60%	1,475,200	0.22	323,800	1,889,000	51%
Total sockeye	9,775,000		3,973,000			5,092,500	

<sup>1</sup>Harvestable surplus is equal to p50 forecast – SET – MA

## 2022 summary

- Late Shuswap, Quesnel, Chilko and Early South Thompson dominate the return, as is typical on this cycle.
- Early Stuart will likely be managed under a LAER.
- Early Summer run and Summer run stocks are unlikely to be forced into a LAER given the currently assumed preliminary 2018 escapement plan.
- For Late run, the assumed MA may force this group into a LAER for returns below the p50 forecast.
- There will likely be international TAC for Early Summer and Summer-run sockeye, but this is more uncertain for Late run.