Log Quality Presentation

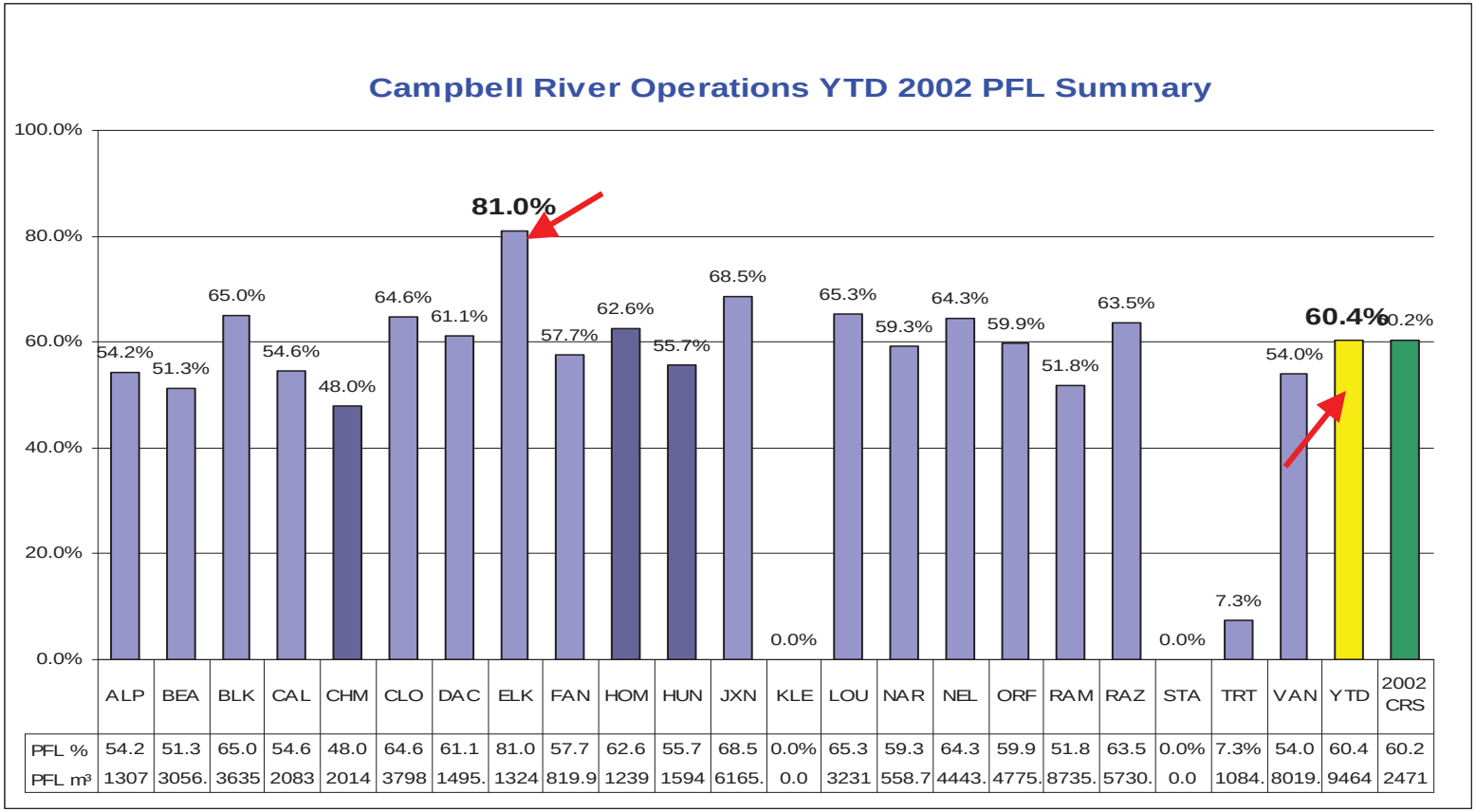
Managing
Log Breakage

Bruce Moran

Log Breakage

- The effects of breakage on preferred lengths
- The effects of breakage on camp production
- The cost of not managing breakage
- How to manage breakage
- The results of one camp's effort to manage breakage

2002 Campbell River Operations Preferred Lengths



	ALP	BEA	BLK	CAL	CHM	CLO	DAC	ELK	FAN	HOM	HUN	JXN	KLE	LOU	NAR	NEL	ORF	RAM	RAZ	STA	TRT	VAN	YTD	2002 CRS
PFL %	54.2	51.3	65.0	54.6	48.0	64.6	61.1	81.0	57.7	62.6	55.7	68.5	0.0%	65.3	59.3	64.3	59.9	51.8	63.5	0.0%	7.3%	54.0	60.4	60.2
PFL m³	1307	3056.	3635	2083	2014	3798	1495.	1324	819.9	1239	1594	6165.	0.0	3231	558.7	4443.	4775.	8735.	5730.	0.0	1084.	8019.	9464	2471

What is the Difference Between Elk Bay and all the Rest….

- ELK is second growth
- Some are old growth…. but some are second growth

- Elk is mostly machine felled
- Some are hand felled…. but some are machine felled

What is the Difference Between Elk Bay and all the Rest….

The terrain is different

- Elk has generally flat unbroken ground
- Some have steep very broken ground… but not all

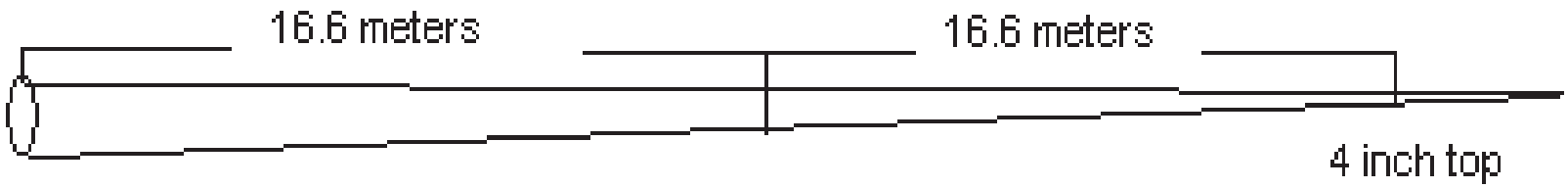
What is the Difference Between Elk Bay and all the Rest….

- The real answer to what Elk Bay did better than any other camp is……

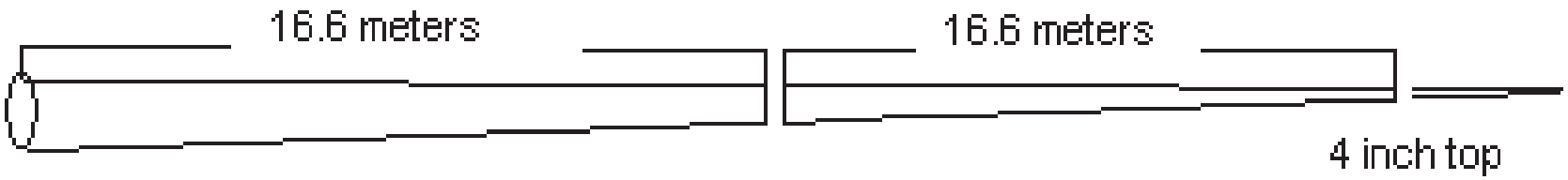
•Manage breakage

How Breakage Affects Preferred Lengths

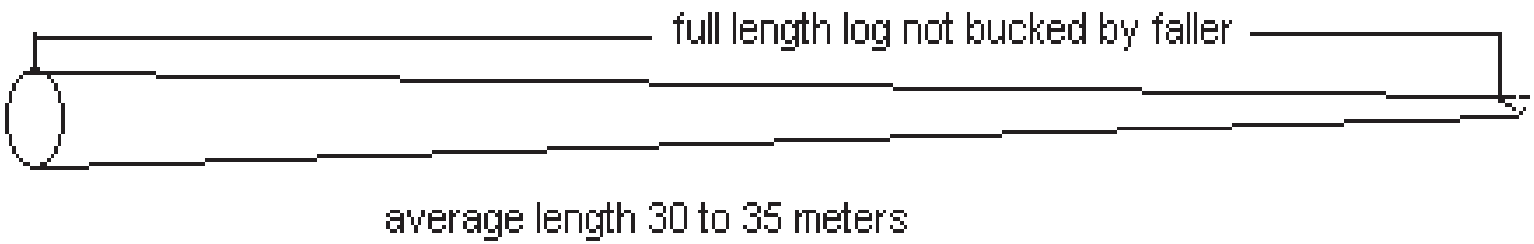
Elk Bay's Procedure at the Stump



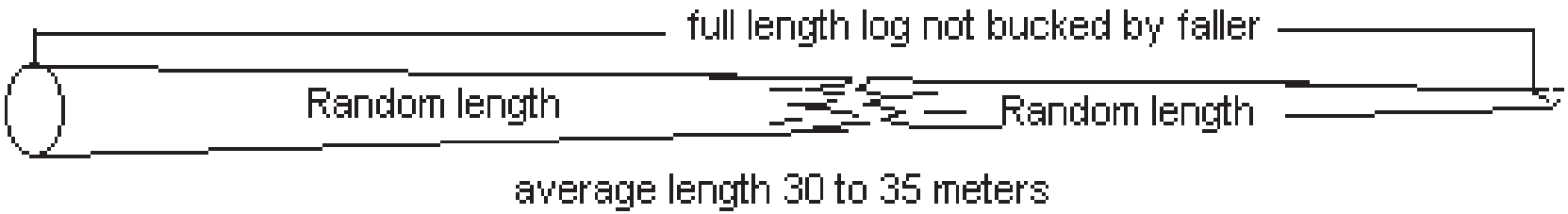
Elk Minimized Secondary Breakage



Other Camps Procedure at the Stump



Breakage Occurring During Yarding



Second Growth Camp

Short Random Length Logs

The Effect of Breakage on Camp Production

- Removing the break has got to be done during one of the following phases in camp
  - Loading
  - Dry land sort
  - Falling

Loading Phase

- At this phase there is the cost of two workers and a log loader
- Time must be spent piling and handling waste

Loading Phase

- Short logs need to be double tiered when being loaded onto the truck
- This slows down the loading process

Loading Phase

- More pieces need to be handled by the loader operator
- This also slows down the loading process

Dry Land Sort Phase

- Not all broken ends are bucked off at the loading phase
- DLS production is reduced

Dry Land Sort Phase

- Waste is a problem to deal with at the DLS phase
- Waste must be burned and the ash hauled away or….
- Waste must hogged

Falling Phase

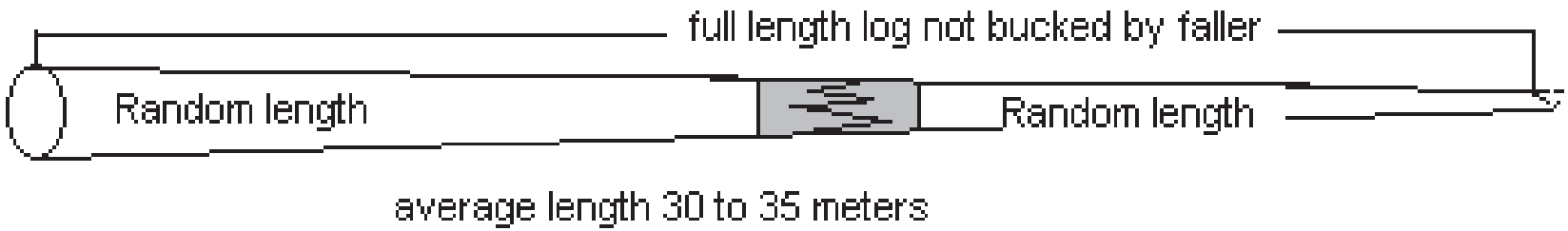
If fallers are asked to buck all logs in order to prevent breakage during yarding

- The amount of volume felled per faller will be reduced

Falling Phase

- The volume of wood lost due to breakage will be reduced

Falling Phase



- For this log the fallers will not be paid for the volume lost due to breakage

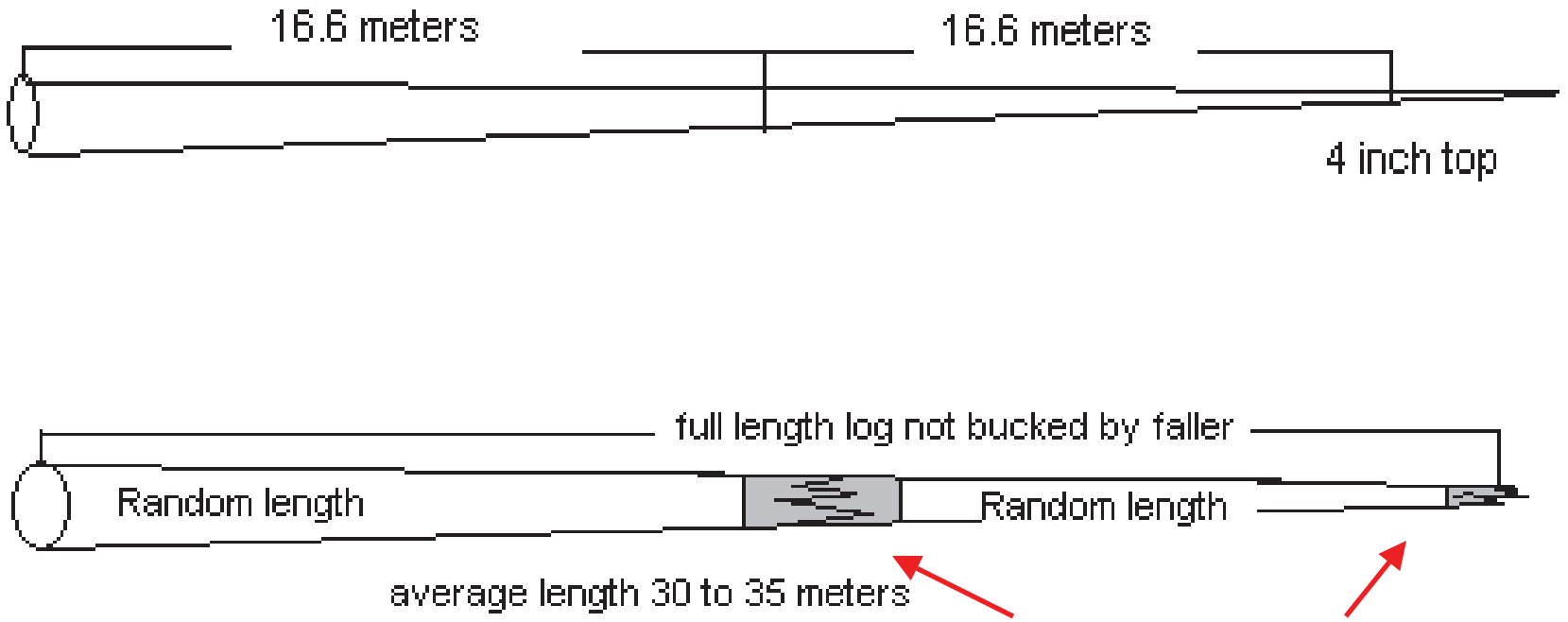
Falling Phase

- Let's say that a falling contractor needs 100m³/man day to cover costs
- In some cases, volume lost due to avoidable falling breakage and secondary breakage is as much as 10%
- This means a faller must fall about 112m³/man day in order to cover his costs

Falling Phase

- What if he fell only 105m³ per day
- But he was able to reduce the volume of avoidable breakage from 10% to 2%
- He would be able to cover his costs by increasing the volume that would be recovered from the block

Falling Phase

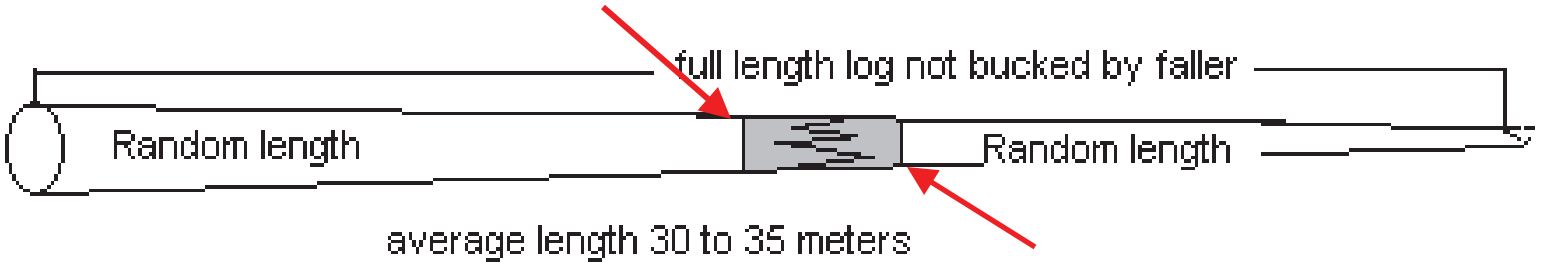


The Cost of Not Managing Breakage

Breakage Study

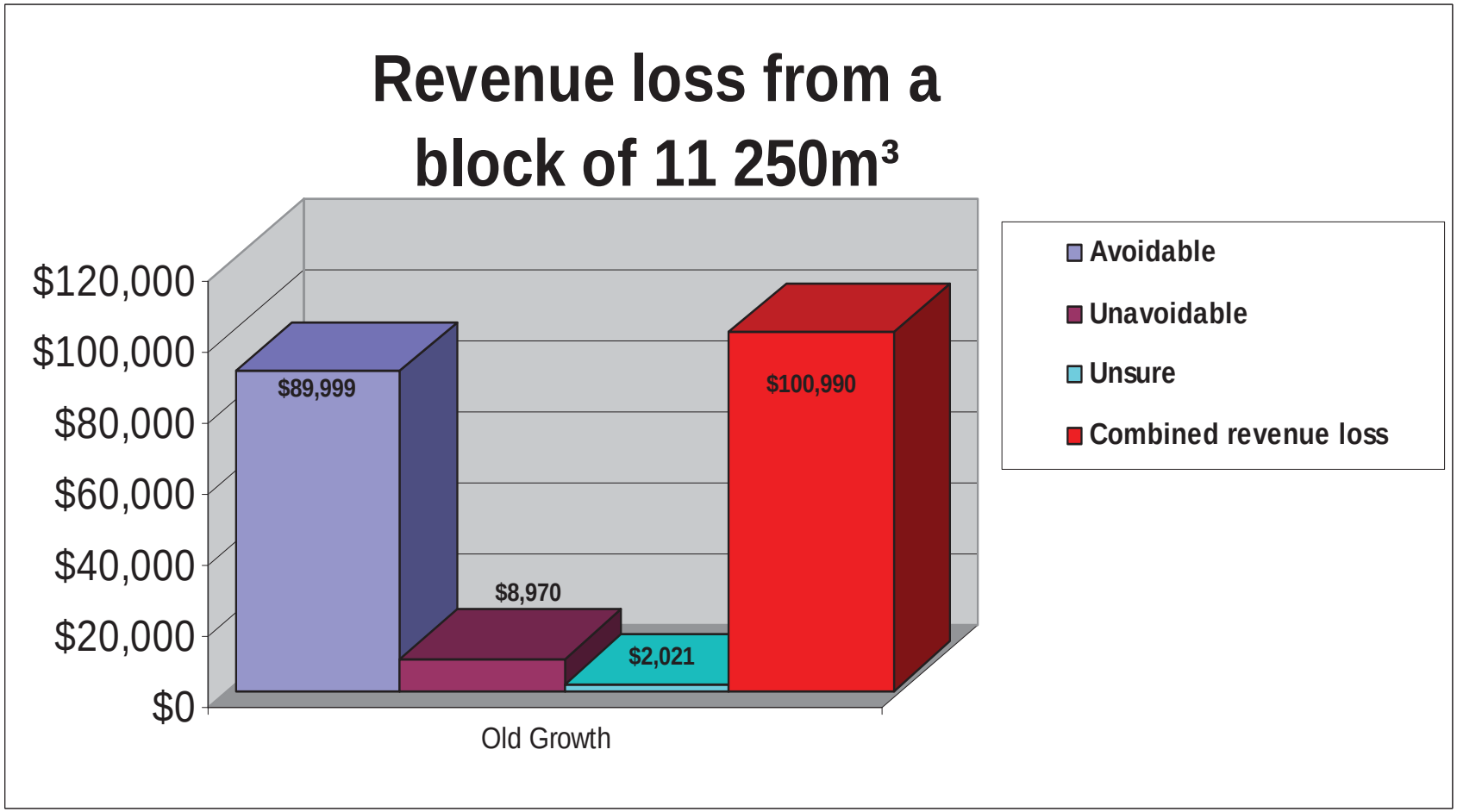
- In June 2003 we did a study on breakage
- The purpose was to discover how much revenue was being lost due to falling breakage
- We also wanted to discover if there was some volume lost that could have been avoided

Breakage Study

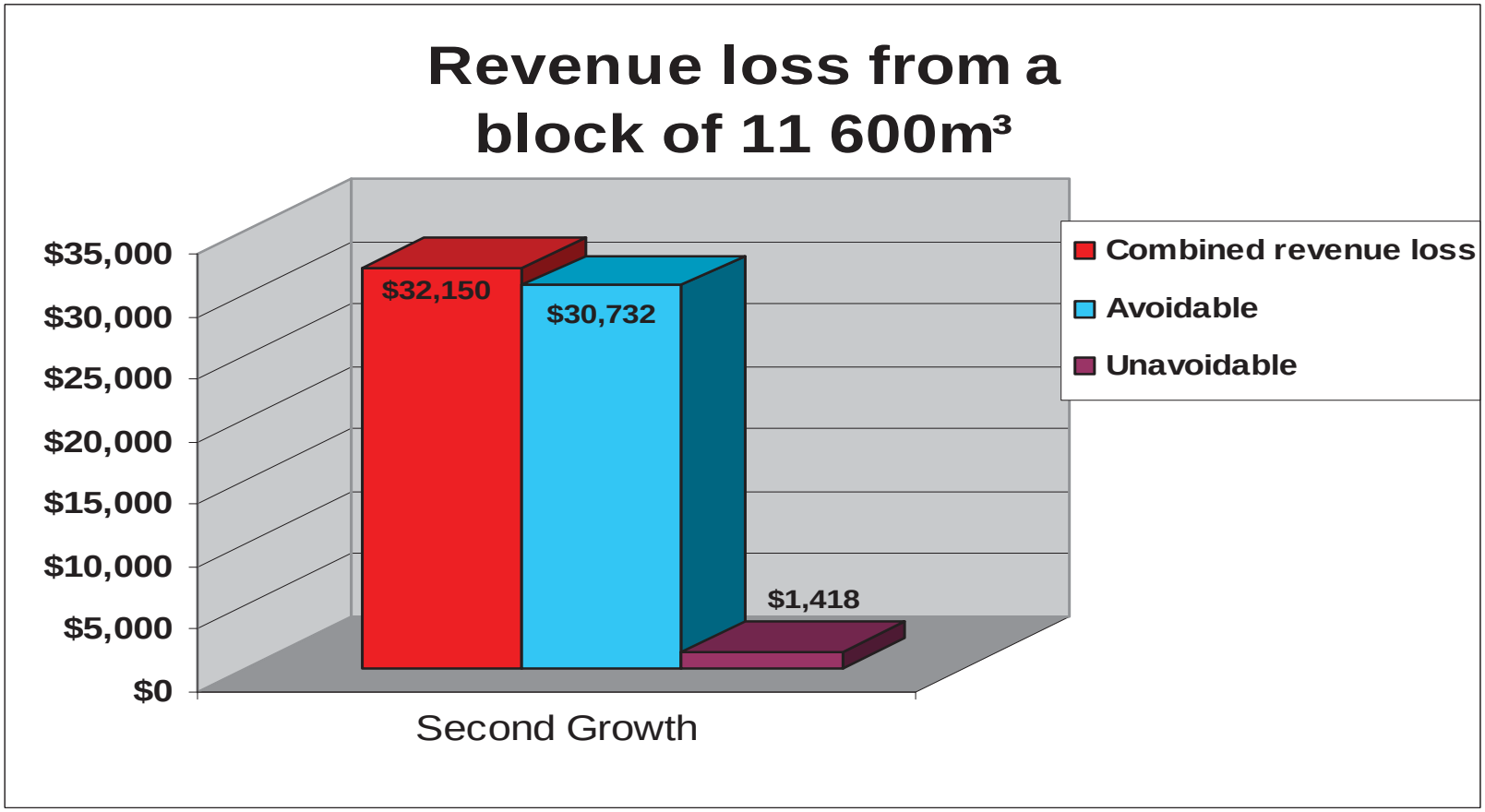


1. Assessed the overall quality of the log lay out
2. We looked at the way the faller tried to avoid breaking the tree when it fell
3. We looked at if the shatter and break was removed

Results of Study
Old Growth



Results of Study
Second Growth



How to Manage Breakage

1. Give the fallers time to do a quality job
2. Be very clear what level of quality is expected by the falling contractor
3. Focus on keeping the falling contractor accountable for poor quality
4. Report regularly on the performance of the falling crew

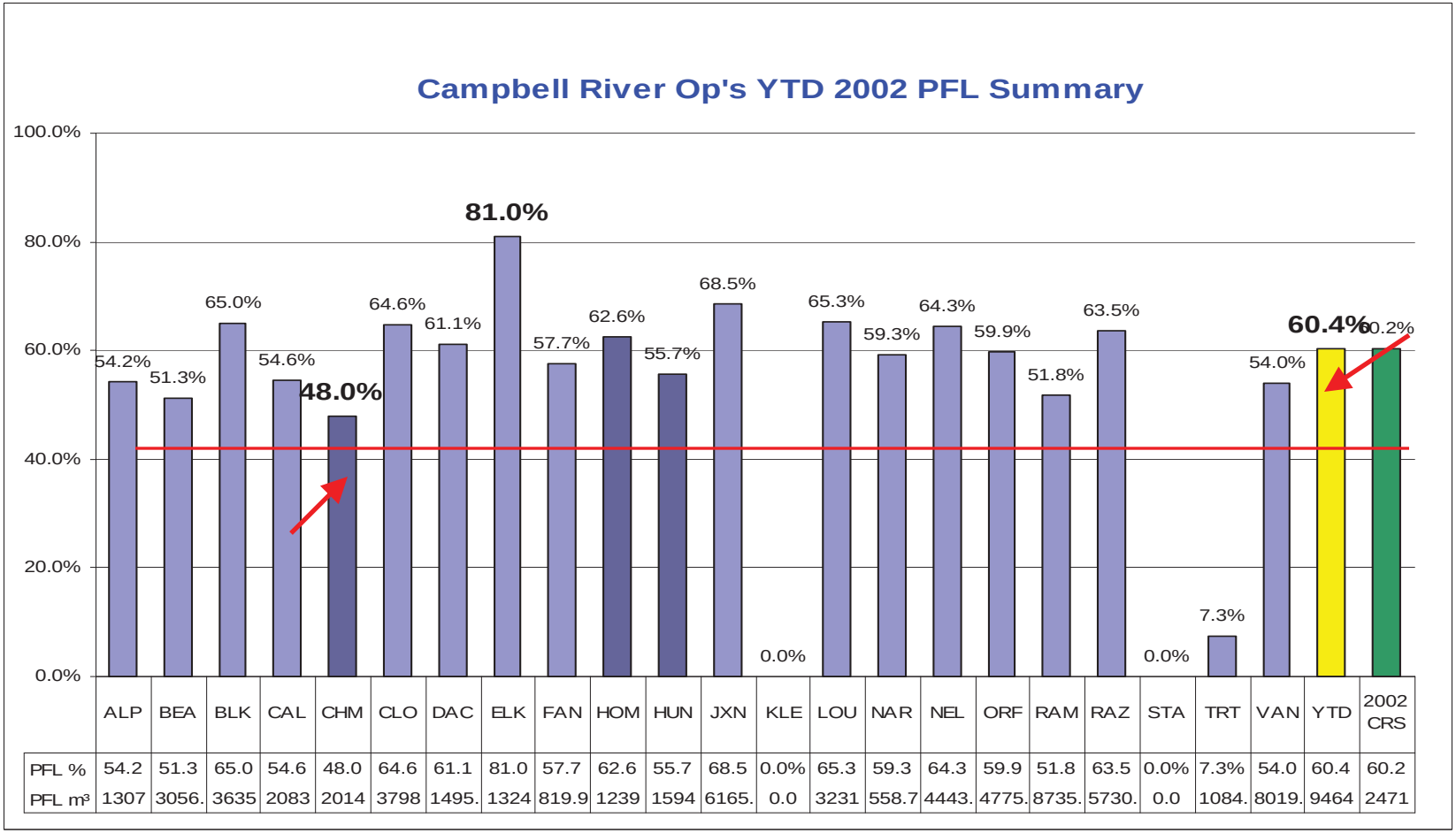
How to Manage Breakage

The most important factor in managing breakage is……..

5. **The support of management**

“What quality control can do in a shout, the managers can do in a whisper”

The Results of One Camp's Effort to Manage Breakage



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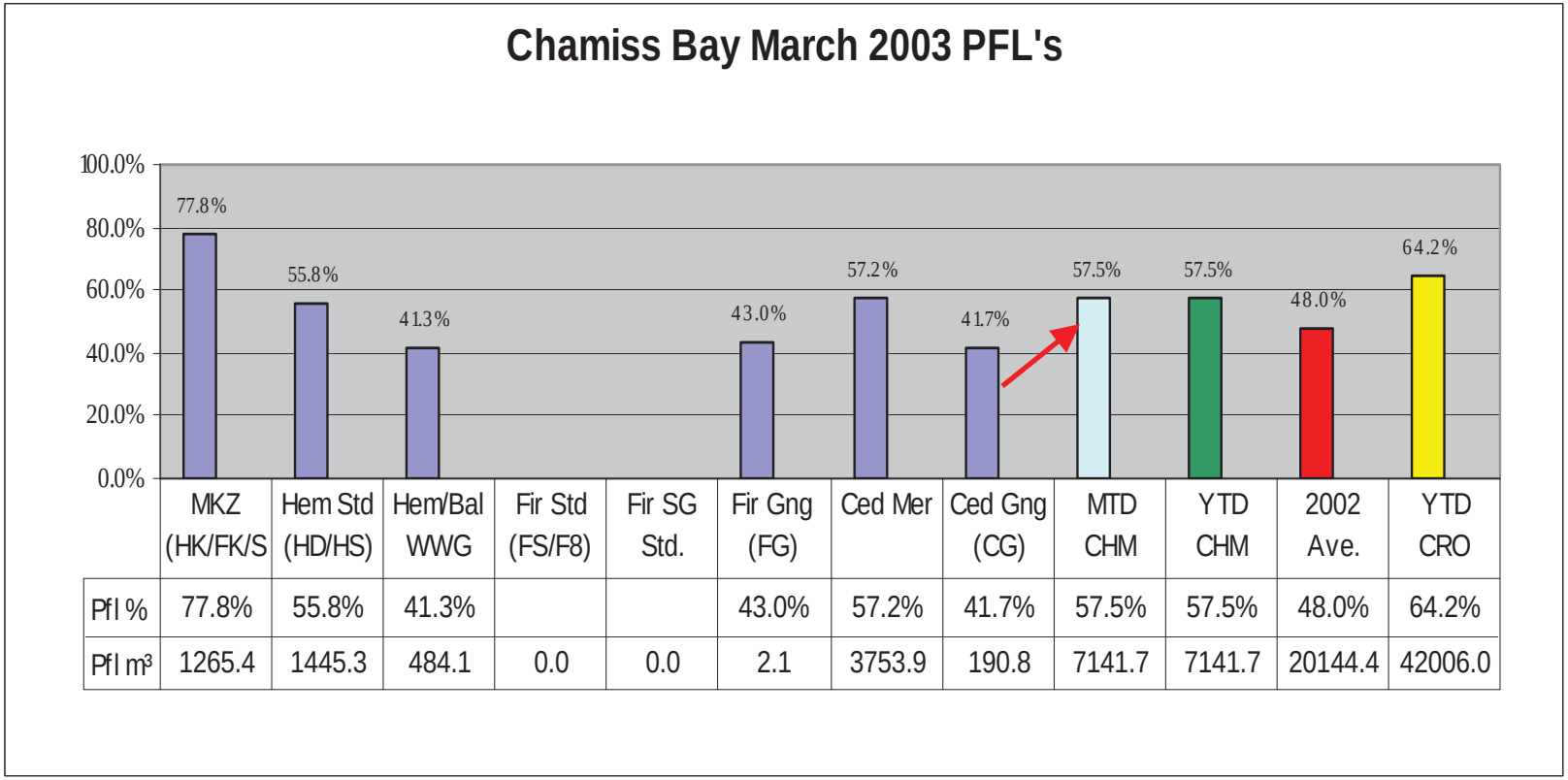

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Pfl %	77.8%	55.8%	41.3%			43.0%	57.2%	41.7%	57.5%	57.5%	48.0%	64.2%
Pfl m^3	1265.4	1445.3	484.1	0.0	0.0	2.1	3753.9	190.8	7141.7	7141.7	20144.4	42006.0

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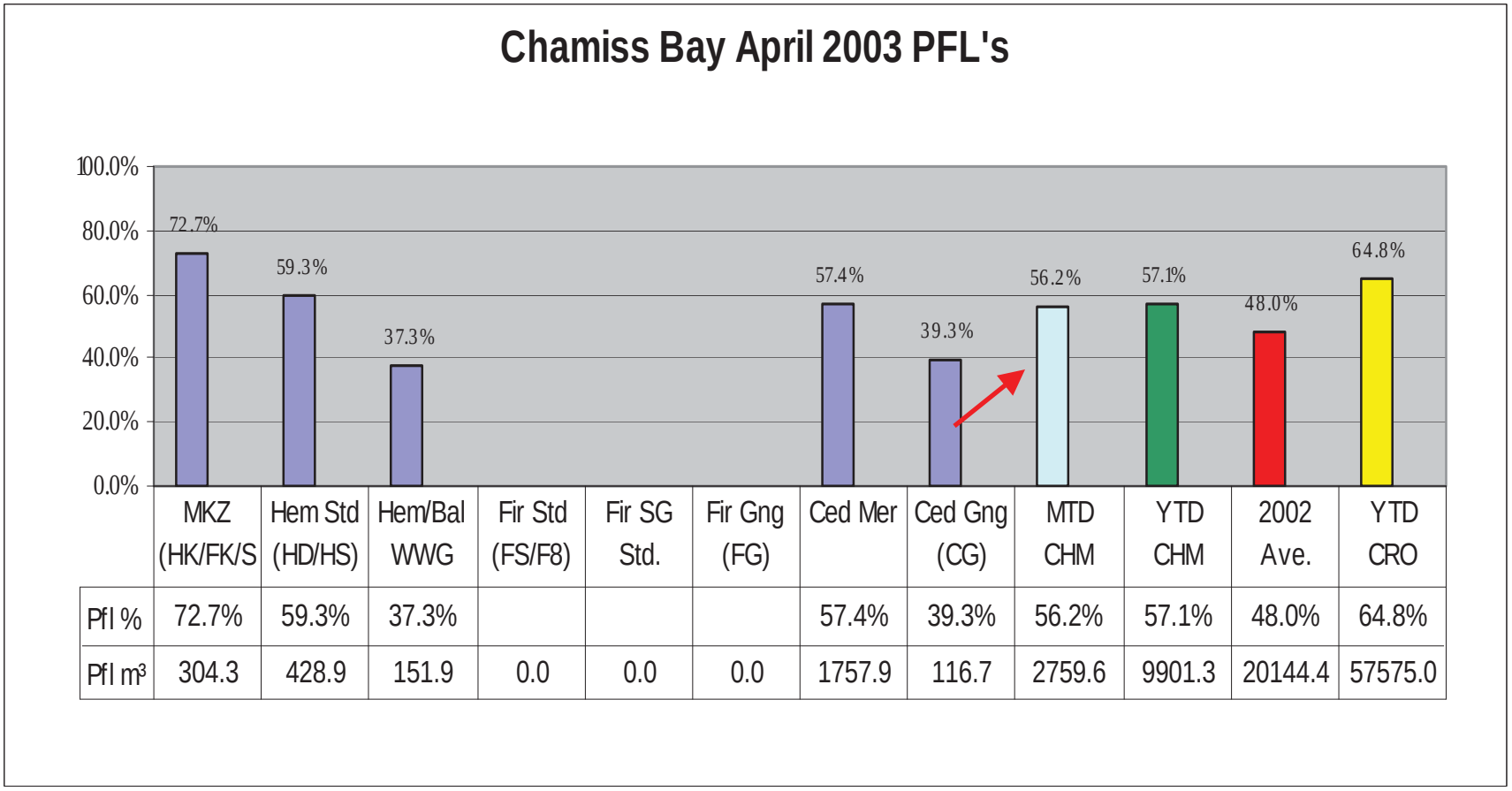

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Pfl %	72.7%	59.3%	37.3%				57.4%	39.3%	56.2%	57.1%	48.0%	64.8%
Pfl m³	304.3	428.9	151.9	0.0	0.0	0.0	1757.9	116.7	2759.6	9901.3	20144.4	57575.0

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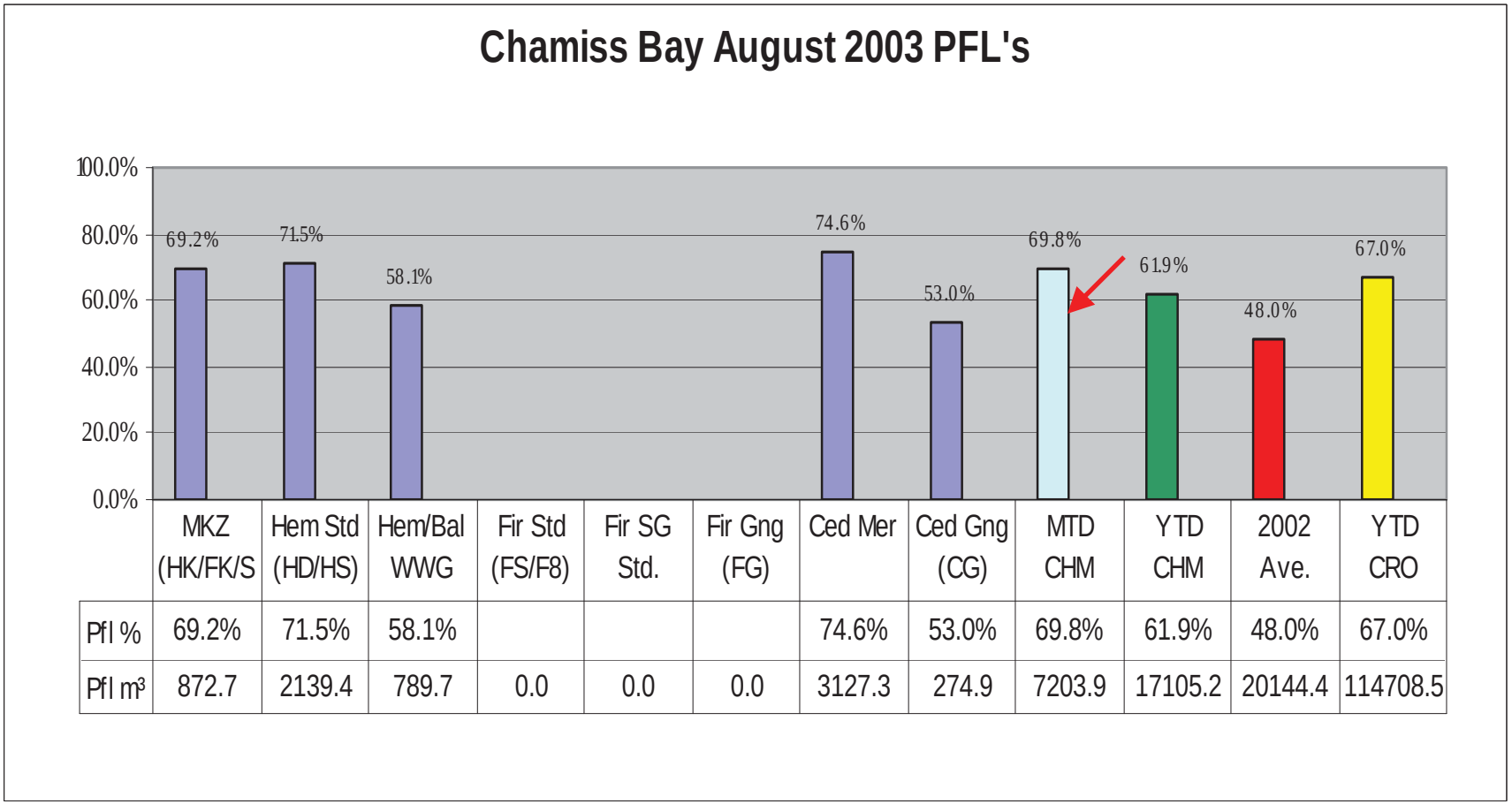

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Pfl %	69.2%	71.5%	58.1%				74.6%	53.0%	69.8%	61.9%	48.0%	67.0%
Pfl m³	872.7	2139.4	789.7	0.0	0.0	0.0	3127.3	274.9	7203.9	17105.2	20144.4	114708.5

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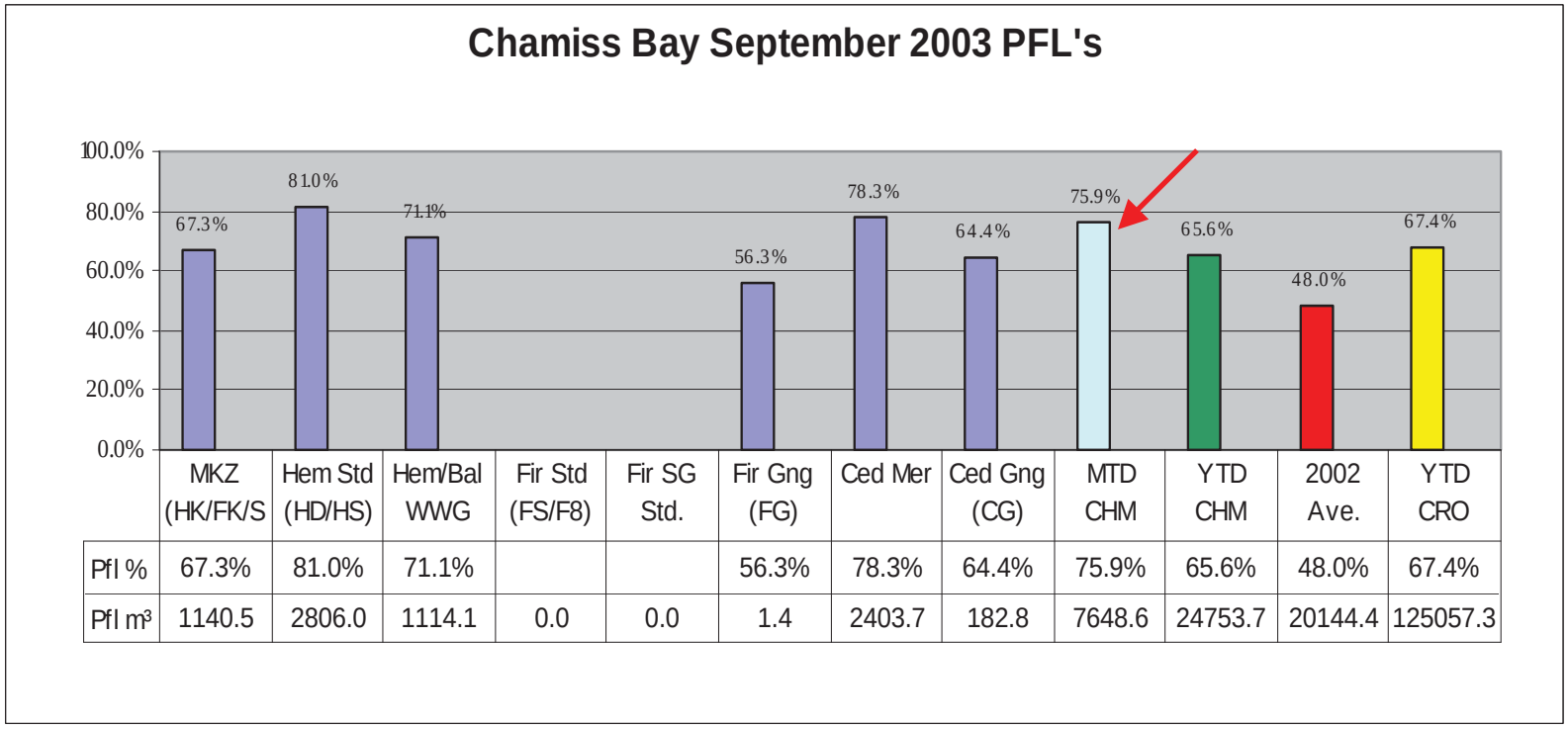

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Pfl %	67.3%	81.0%	71.1%			56.3%	78.3%	64.4%	75.9%	65.6%	48.0%	67.4%
Pfl m³	1140.5	2806.0	1114.1	0.0	0.0	1.4	2403.7	182.8	7648.6	24753.7	20144.4	125057.3

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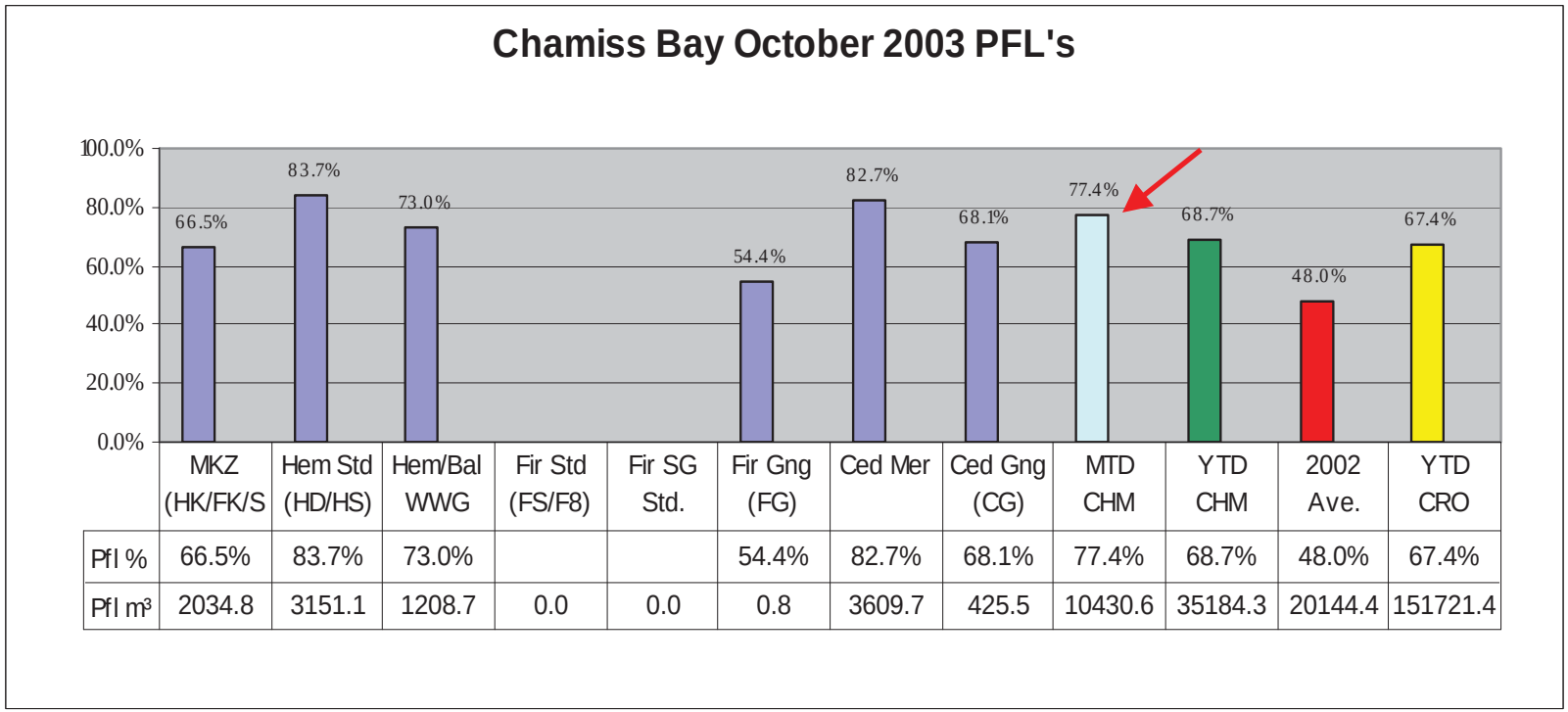

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Pfl %	66.5%	83.7%	73.0%			54.4%	82.7%	68.1%	77.4%	68.7%	48.0%	67.4%
Pfl m³	2034.8	3151.1	1208.7	0.0	0.0	0.8	3609.7	425.5	10430.6	35184.3	20144.4	151721.4

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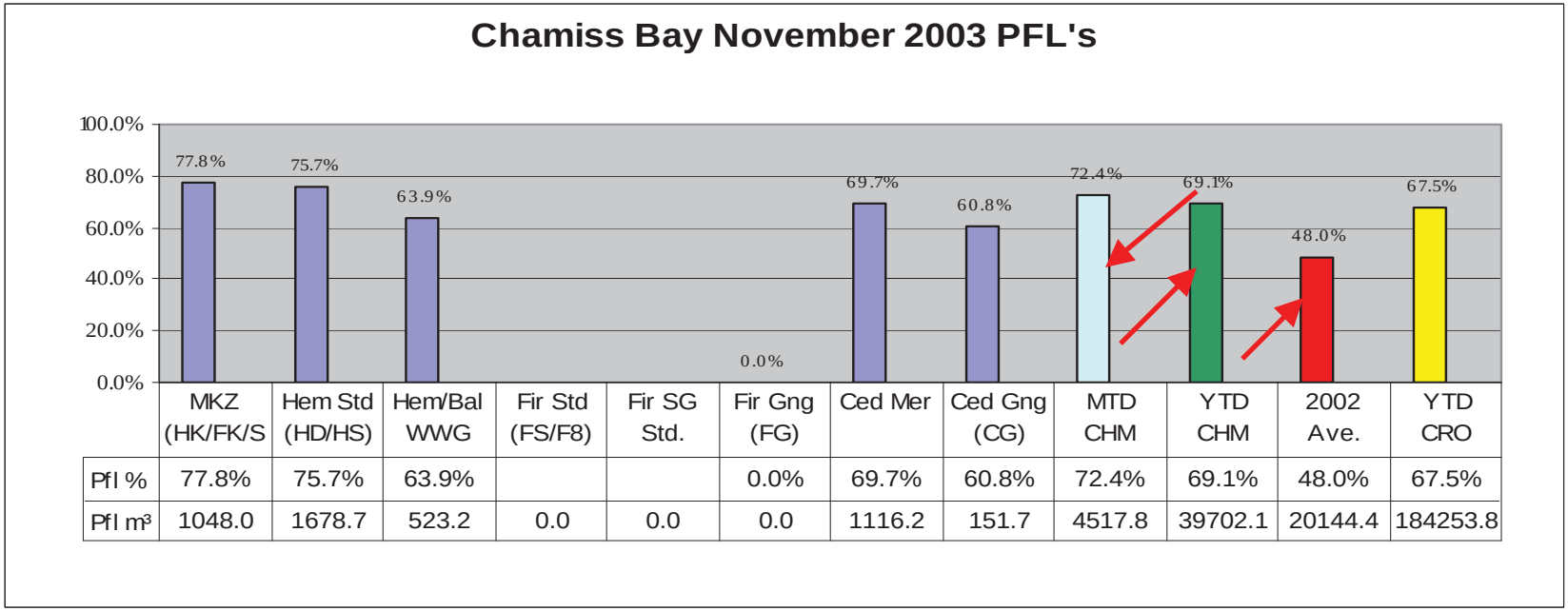

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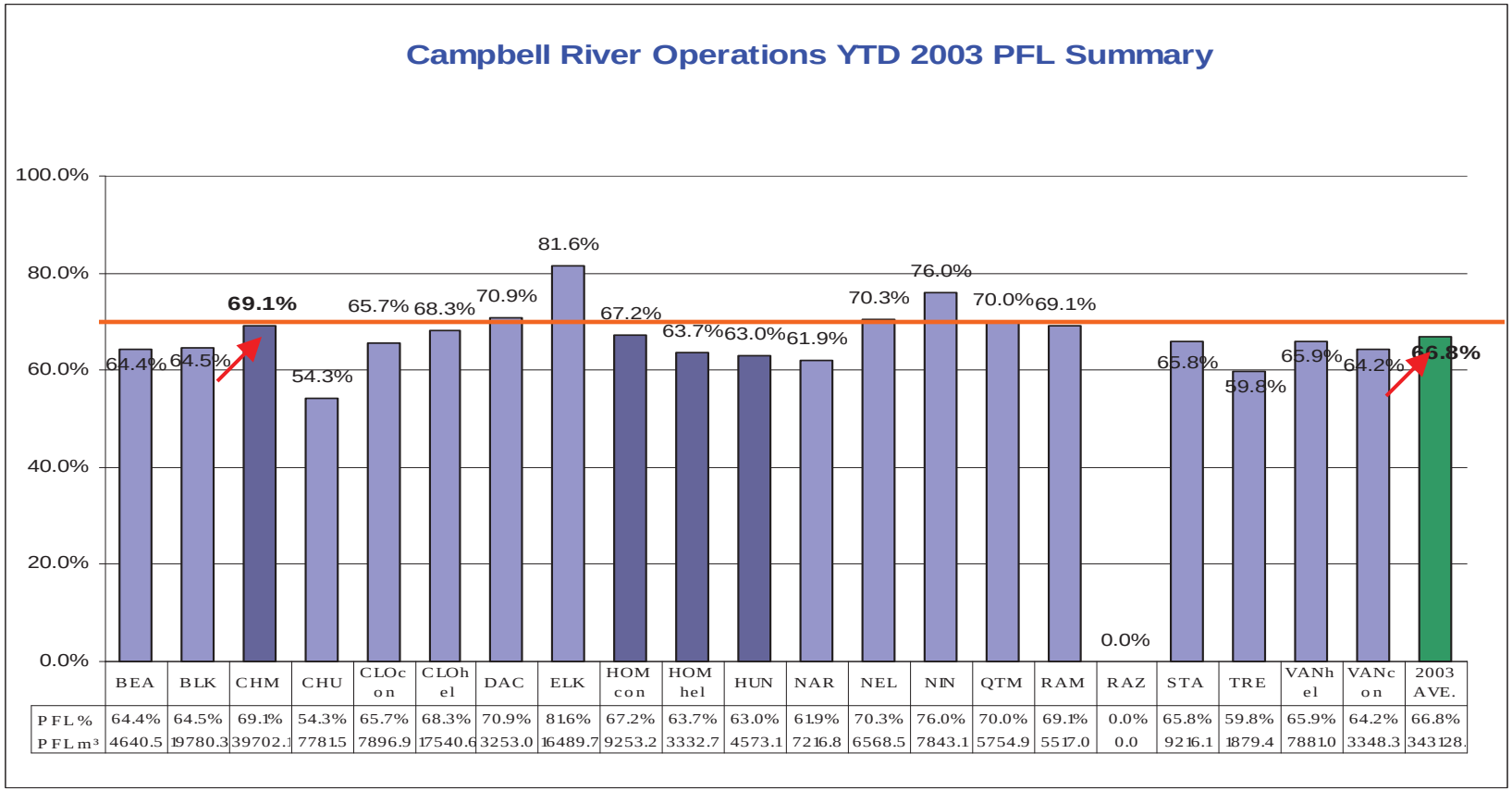
Pfl %	77.8%	75.7%	63.9%			0.0%	69.7%	60.8%	72.4%	69.1%	48.0%	67.5%
Pfl m^3	1048.0	1678.7	523.2	0.0	0.0	0.0	1116.2	151.7	4517.8	39702.1	20144.4	184253.8

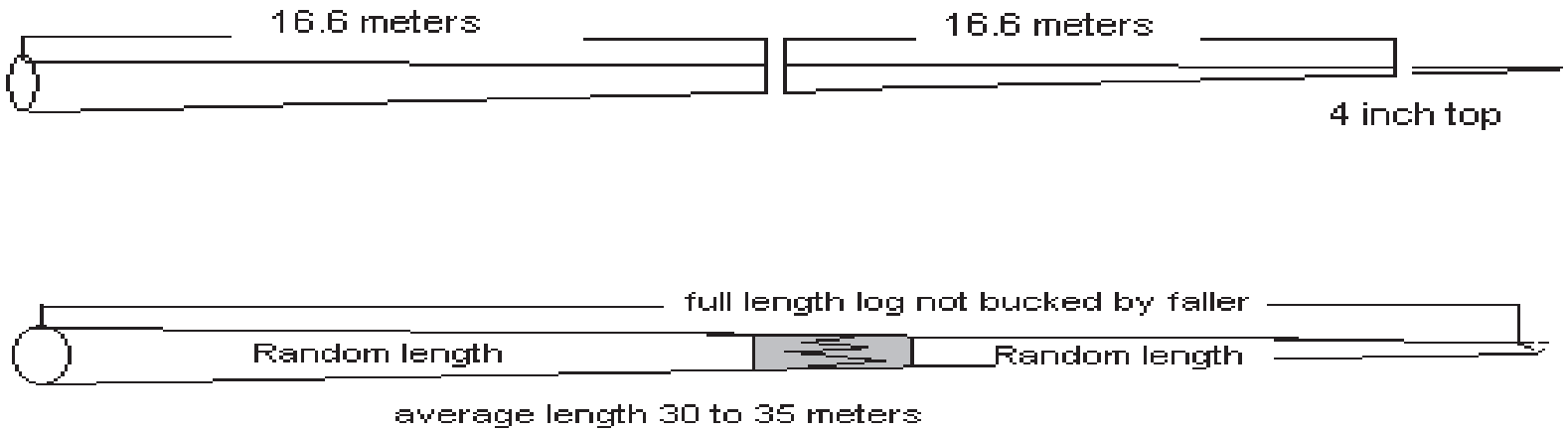
21.1% increase from 2002

2003 Campbell River Preferred Lengths



	BEA	BLK	CHM	CHU	CLOcon	CLOhel	DAC	ELK	HOMcon	HOMhel	HUN	NAR	NEL	NIN	QTM	RAM	RAZ	STA	TRE	VANhel	VANcon	2003 AVE.
PFL%	64.4%	64.5%	69.1%	54.3%	65.7%	68.3%	70.9%	81.6%	67.2%	63.7%	63.0%	61.9%	70.3%	76.0%	70.0%	69.1%	0.0%	65.8%	59.8%	65.9%	64.2%	66.8%
PFL m³	4640.5	19780.3	39702.1	7781.5	7896.9	17540.6	3253.0	16489.7	9253.2	3332.7	4573.1	7216.8	6568.5	7843.1	5754.9	5517.0	0.0	9216.1	1879.4	7881.0	3348.3	343128.

Review



- We've talked about how breakage affects preferred lengths

Review

- We’ve talked about the effects of breakage on camp production….
- at the loading phase….

Review

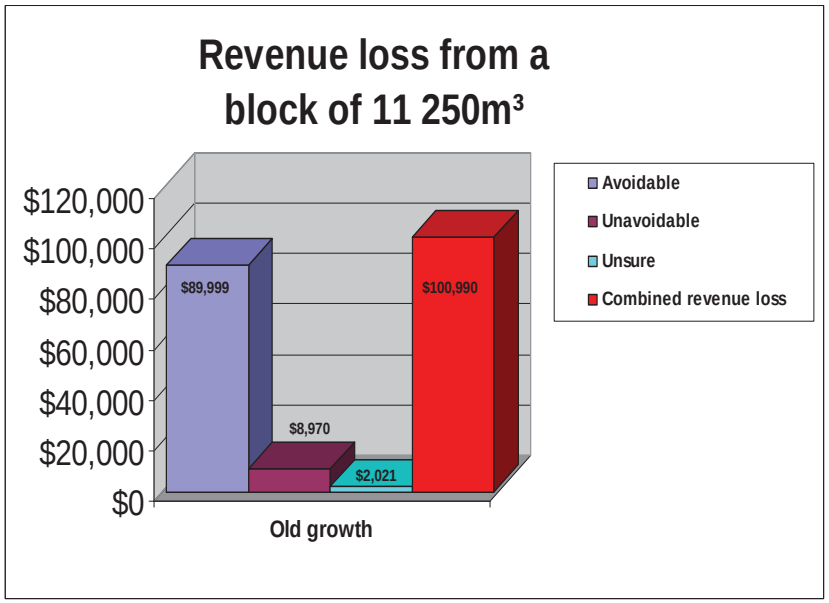
- We’ve talked about the effects of breakage on camp production….
- at the loading phase….
- at the DLS phase….

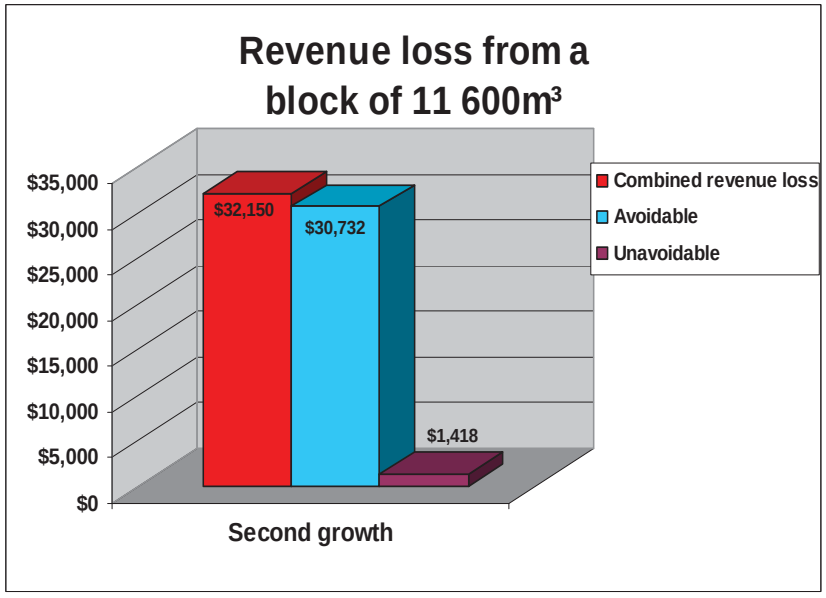
Review

- We’ve talked about the effects of breakage on camp production….
- at the loading phase….
- at the DLS phase….
- at the falling phase….

Review

- We've talked about the costs of not managing breakage





Review
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2. Be very clear with the falling contractor what level of quality is expected
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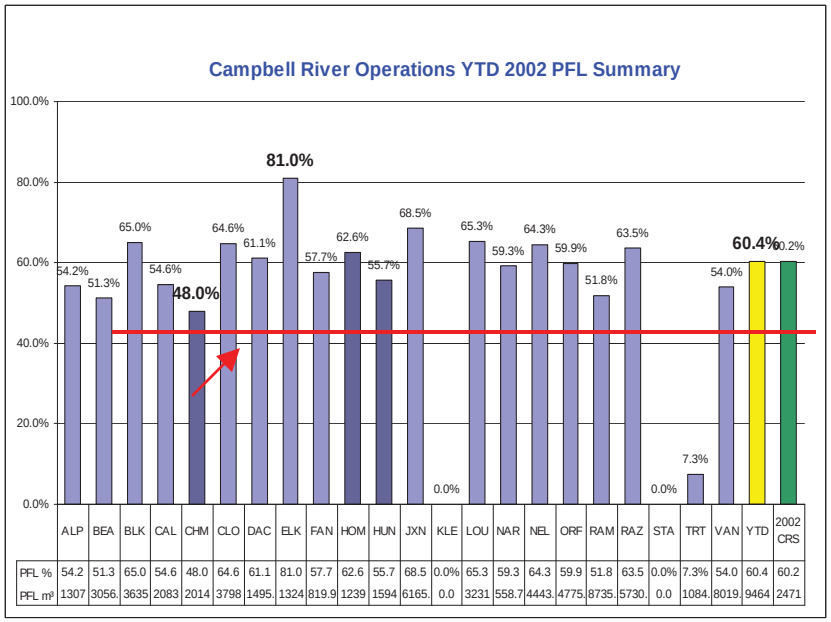
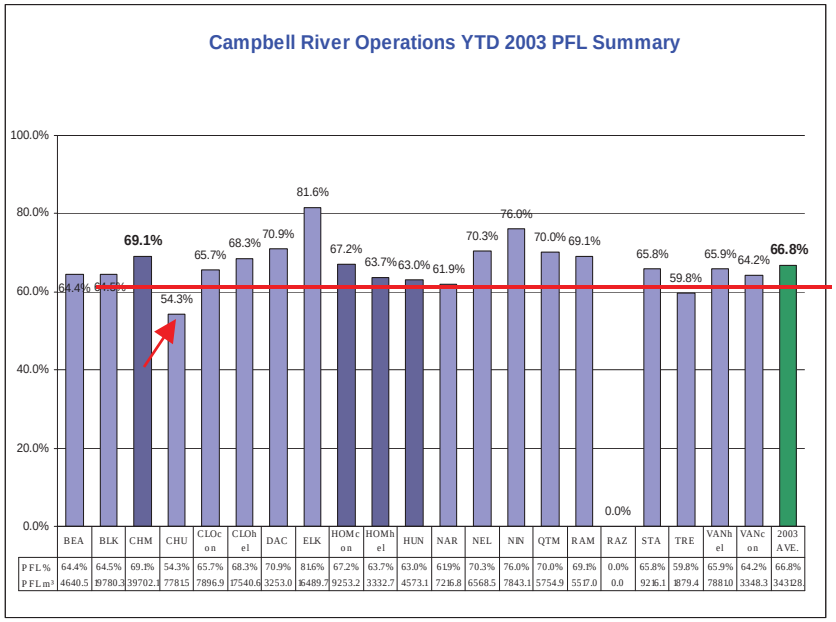
5. The support of management

Review

We've talked about the success of Chamiss Bay





Review

In order to achieve this we need management to

“……Whisper……”