

SC/67A/AWMP/04

Precision of 5th percentiles of West Greenland bowhead whales

Anabela Brandao



INTERNATIONAL
WHALING COMMISSION

Precision of 5th percentiles of West Greenland bowhead whales

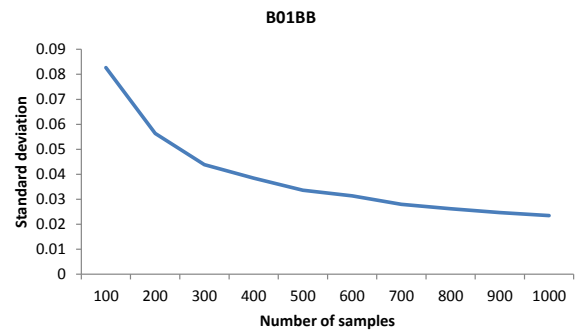
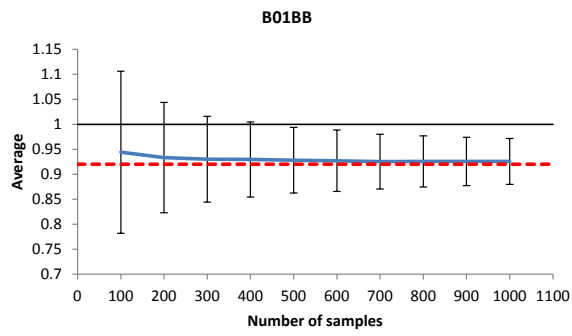
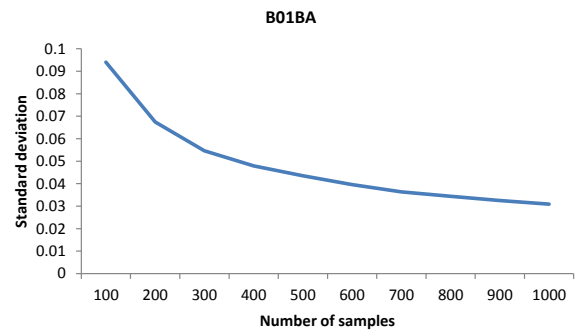
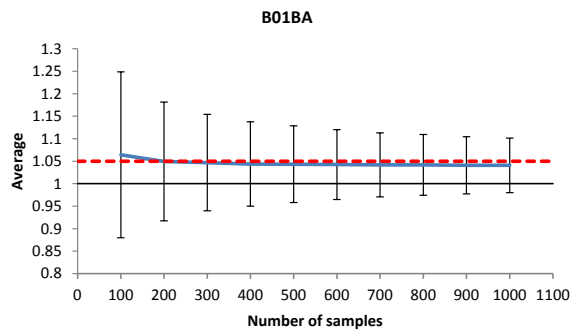
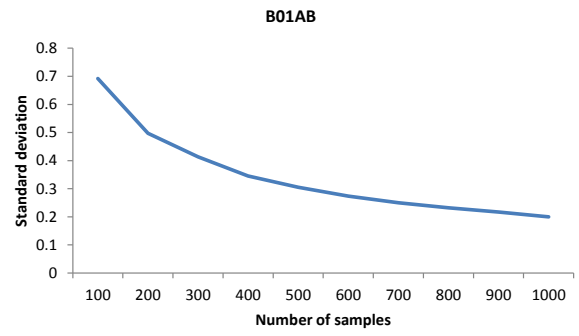
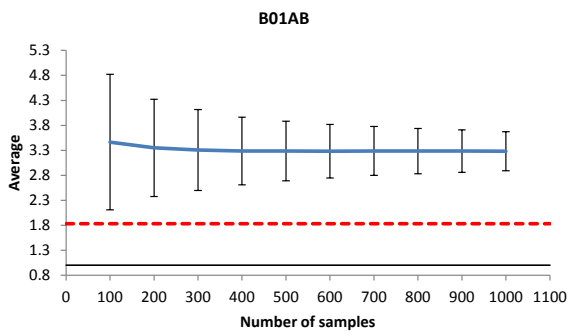
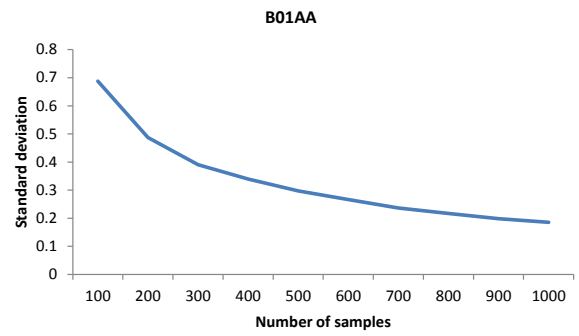
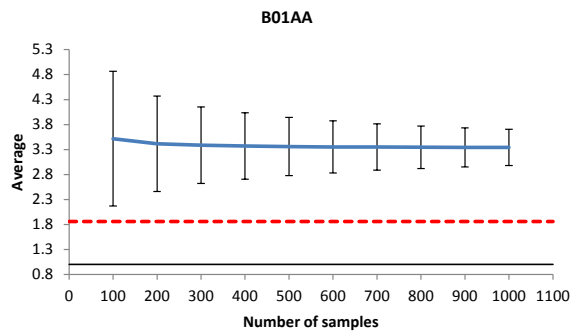
A. Brandão

This paper provides the results of a simulation exercise to determine the precision of the 5th percentile as the number of replicates increases. The plots below show the average with 95% confidence intervals (on the left) and the standard deviation (on the right) of the 5th percentile for various number of draws sampled with replacement from 1000 values of the conservation performance statistic of the relative increase of the 1+ population (D10) over 1000 simulations.

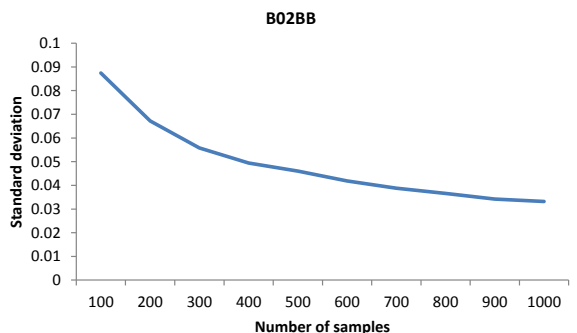
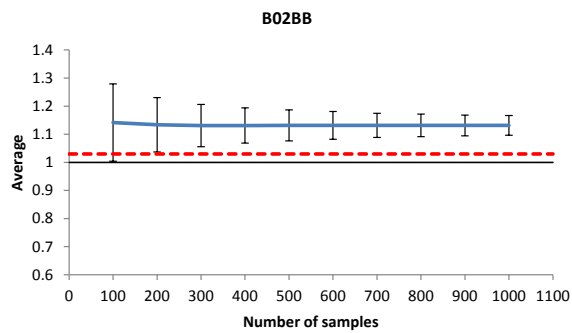
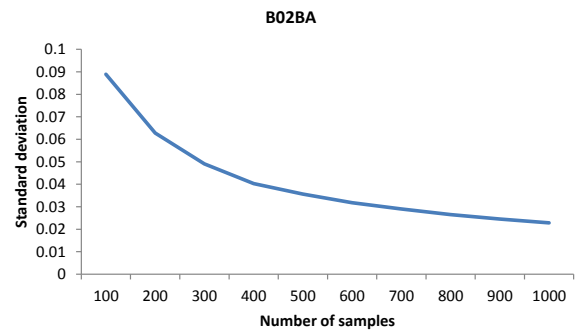
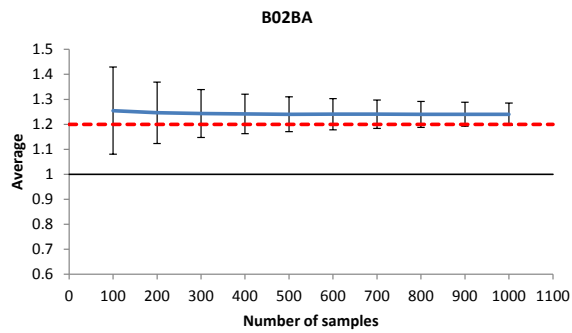
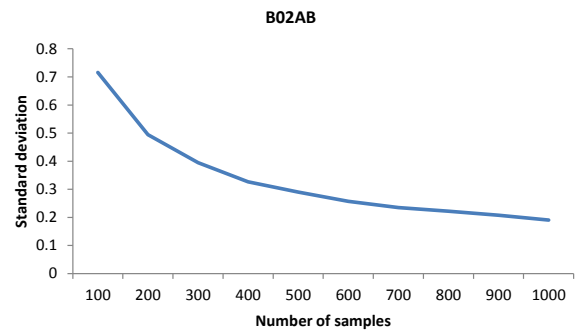
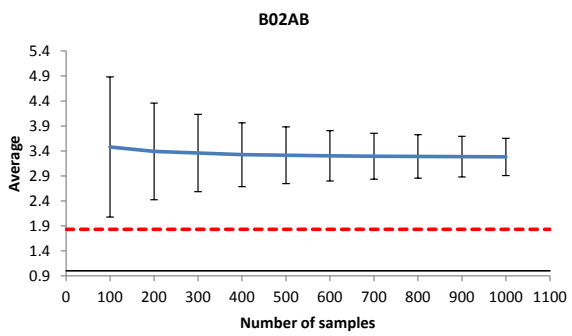
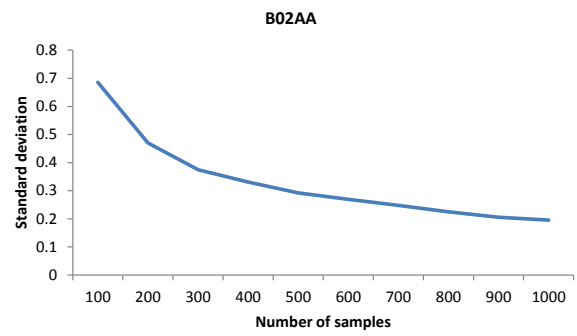
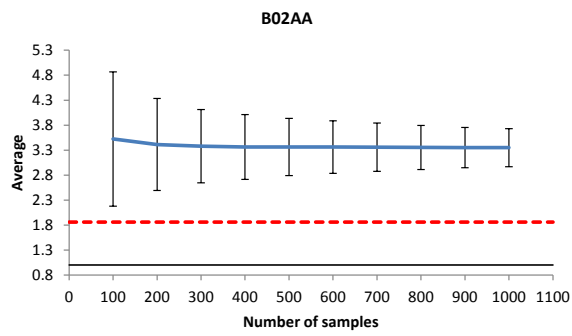
The plots showing the average of the 5th percentile also show a horizontal line at 1 (the continuous line) and a horizontal line at the value obtain by the recommended *SLA* (the dashed line). Results are shown for the bowhead whale evaluation trials under the recommended *SLA*.

A description of the evaluation trials is given in the Appendix.

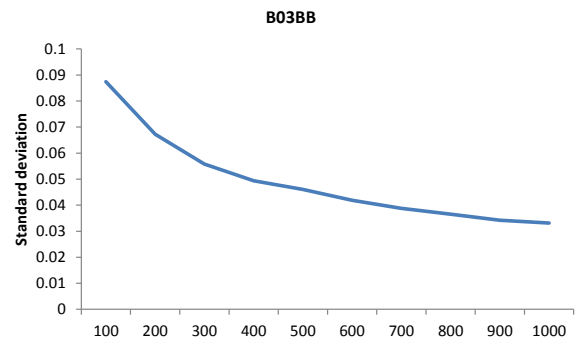
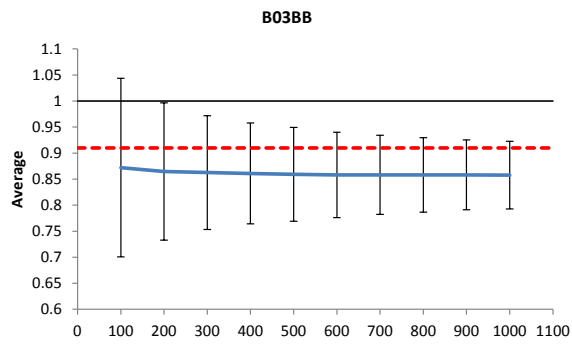
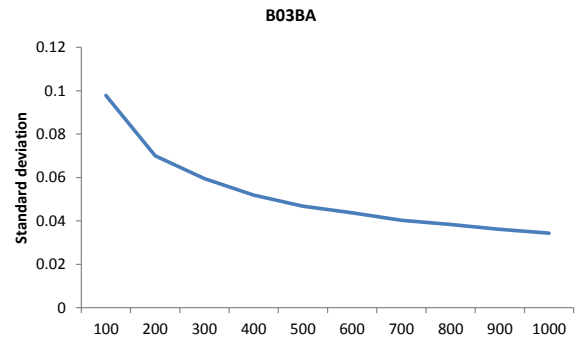
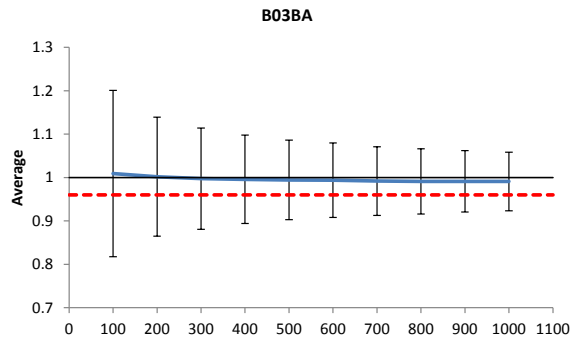
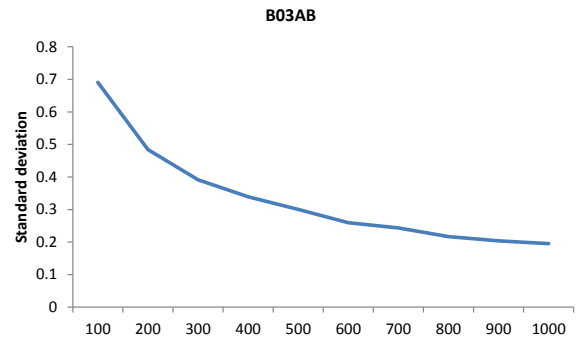
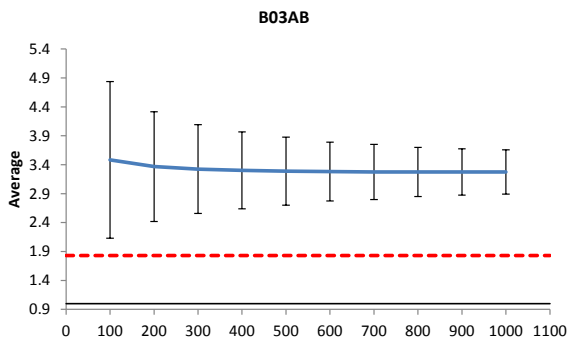
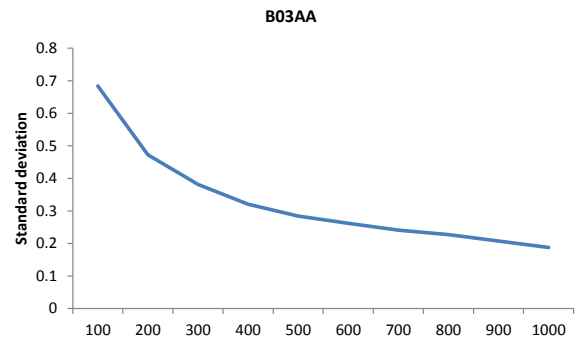
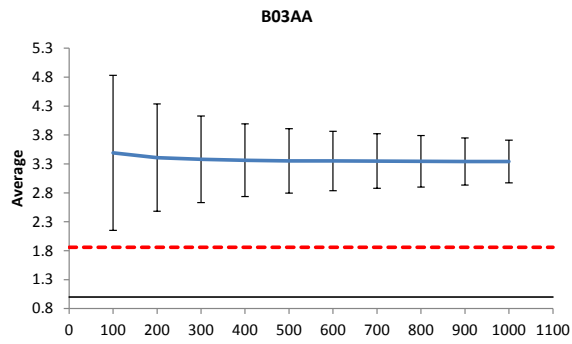
B01 trials



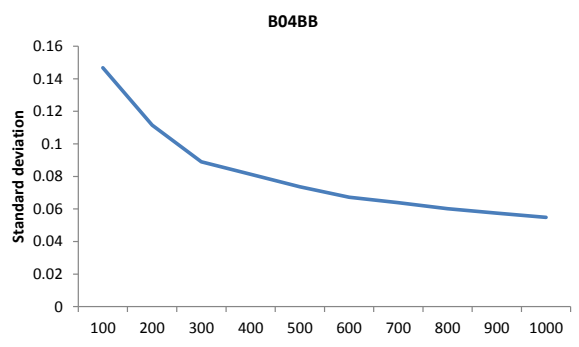
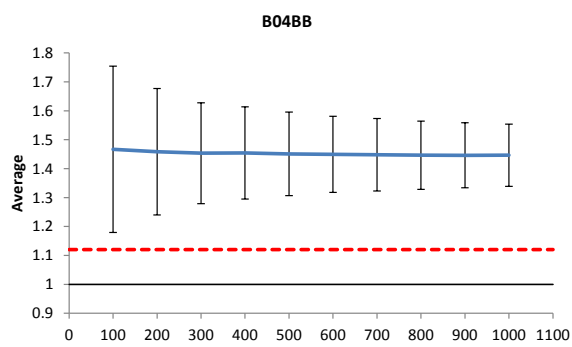
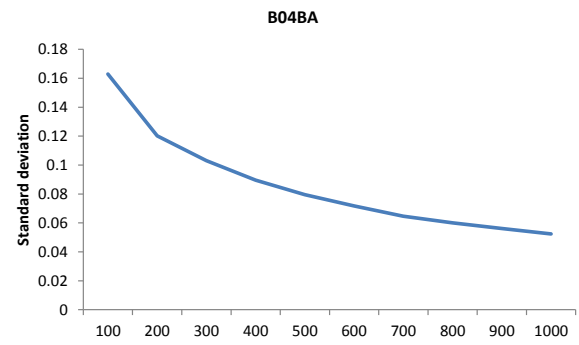
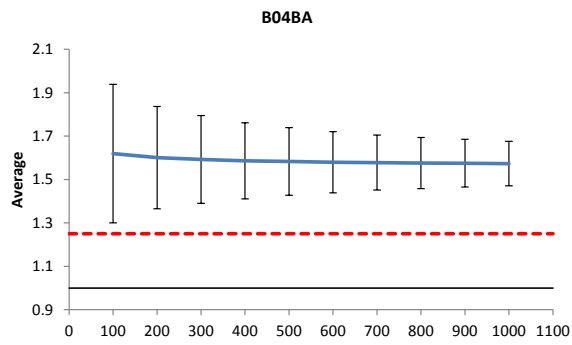
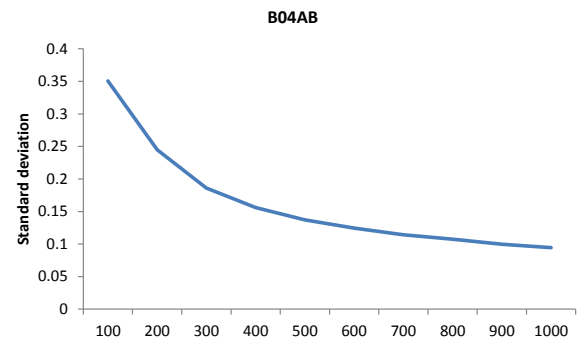
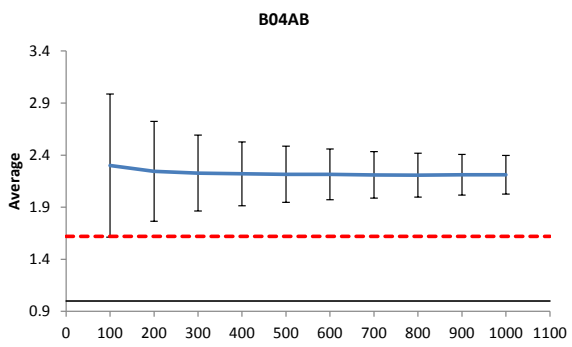
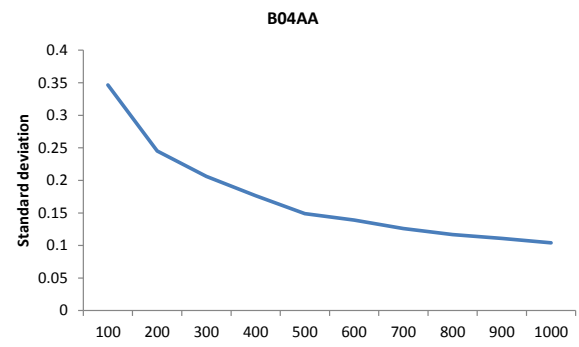
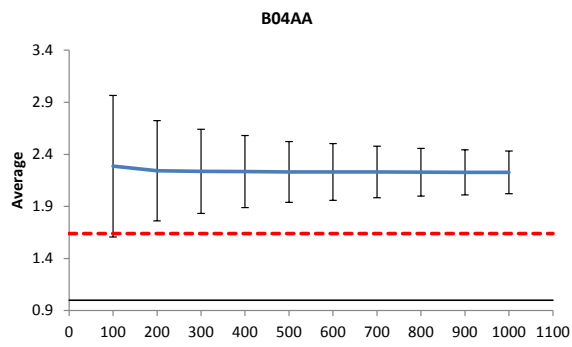
B02 trials



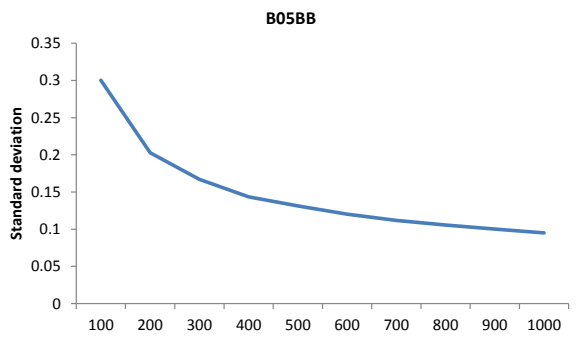
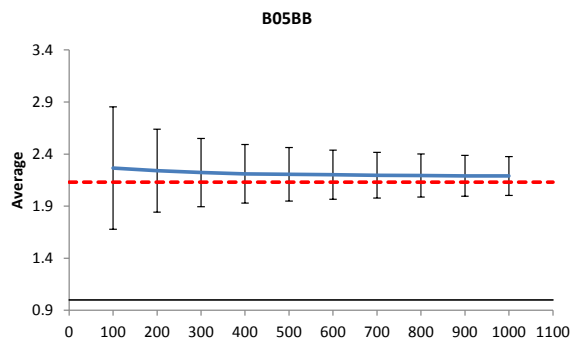
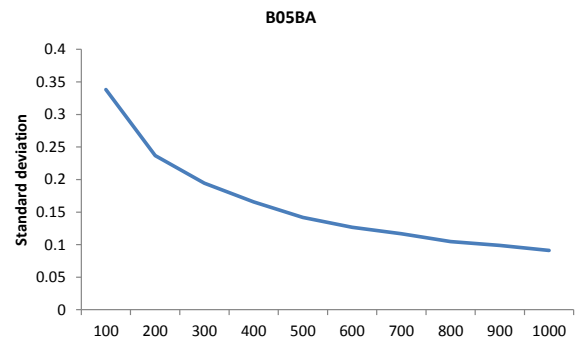
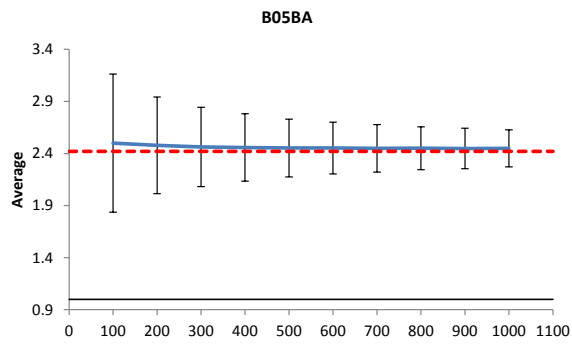
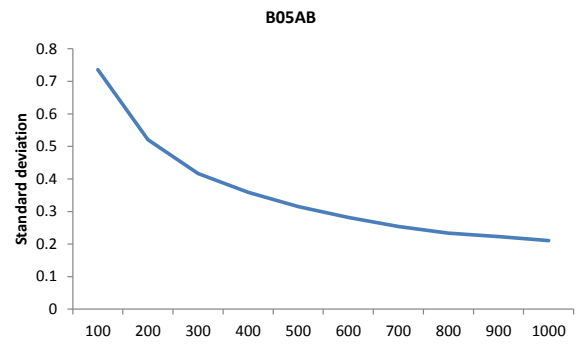
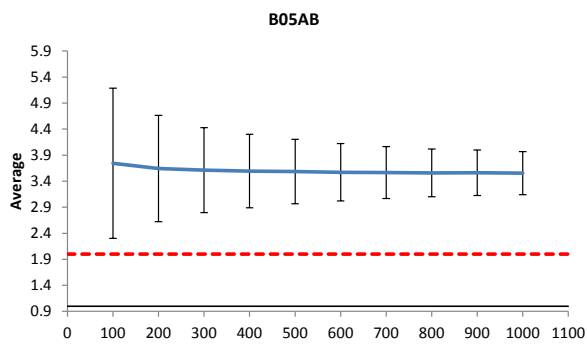
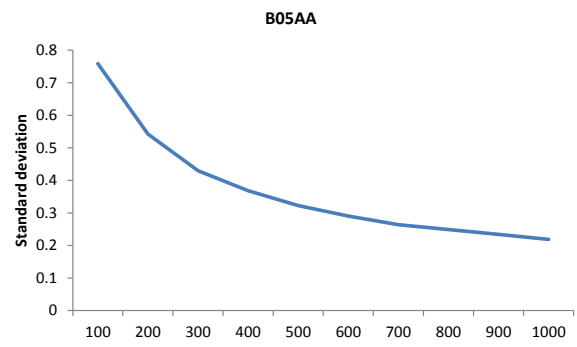
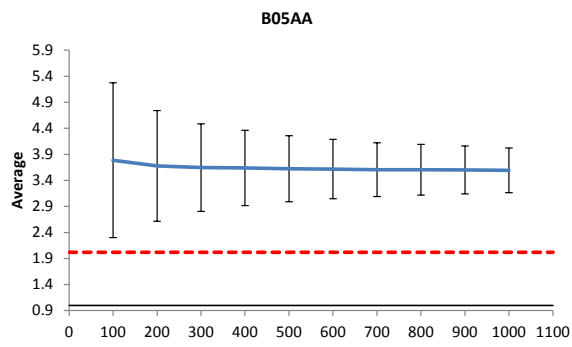
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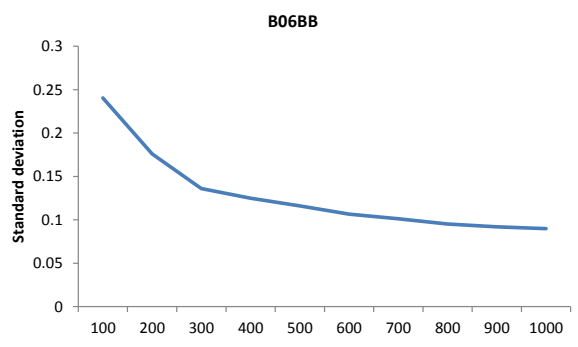
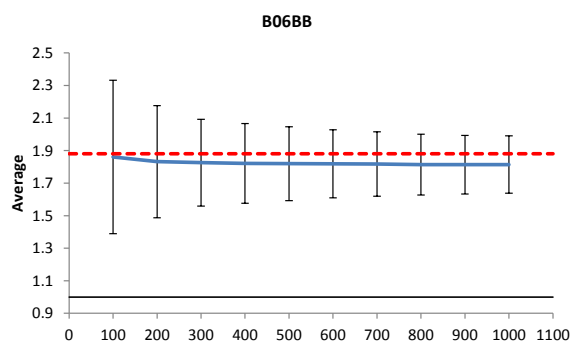
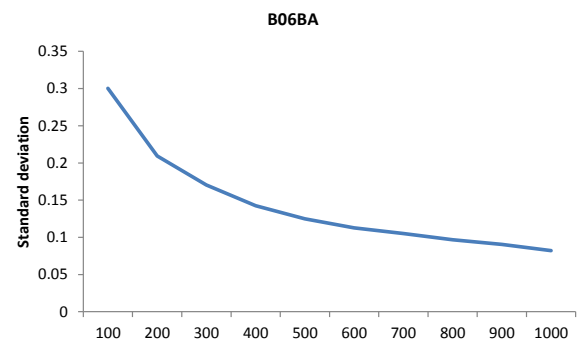
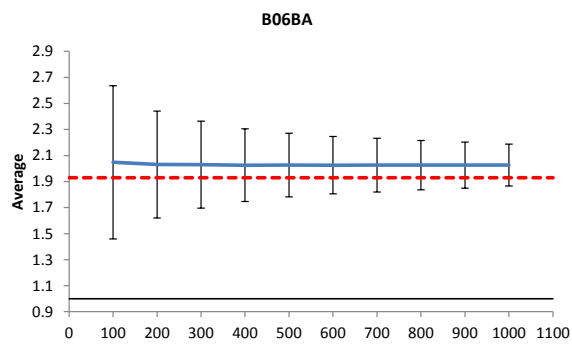
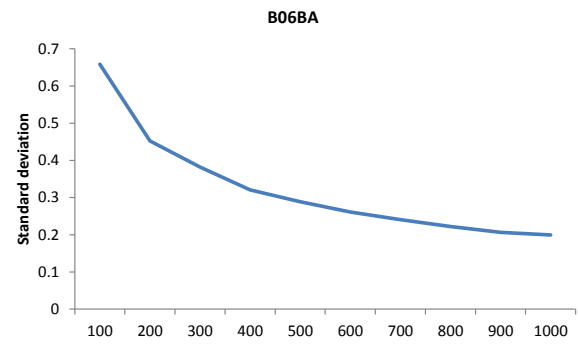
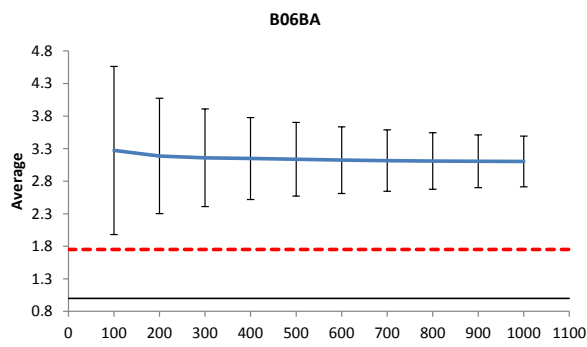
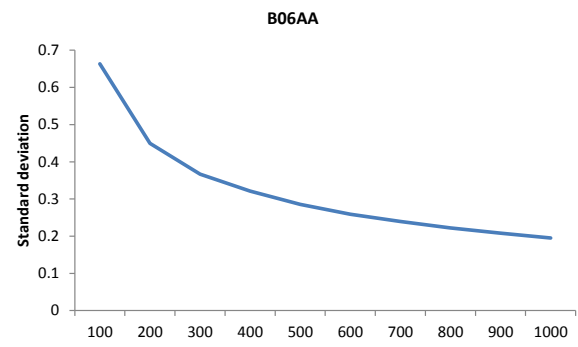
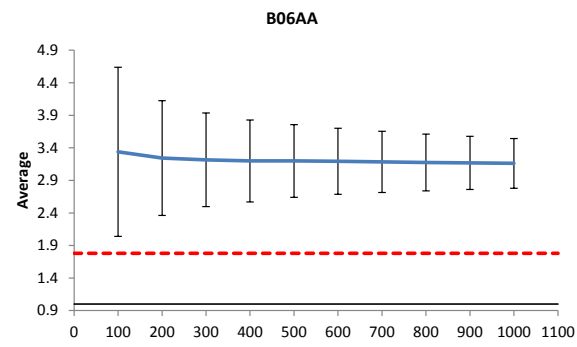
B04 trials



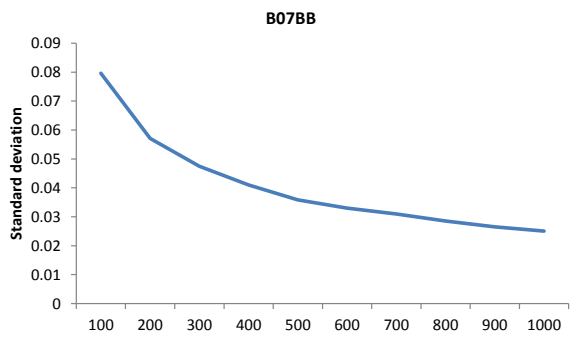
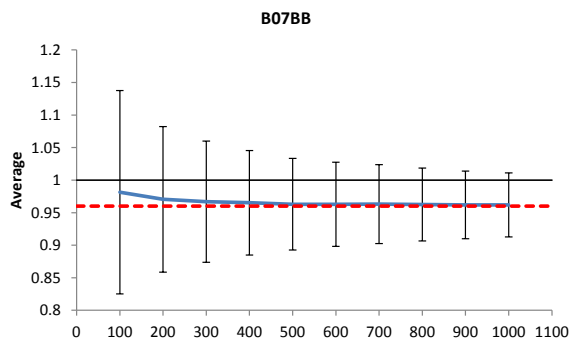
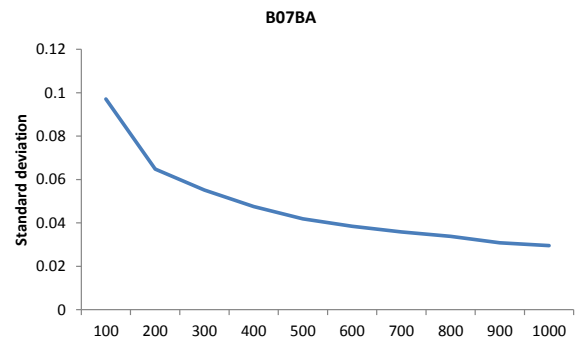
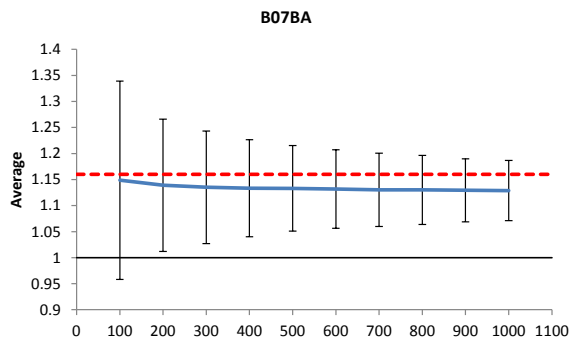
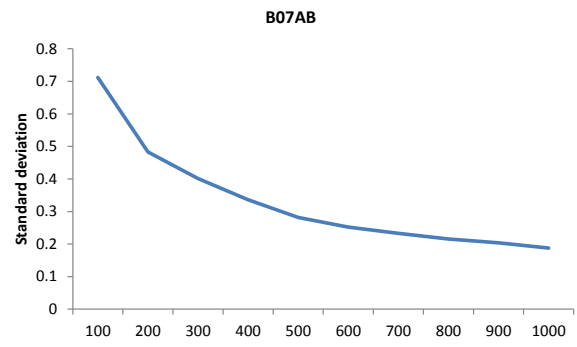
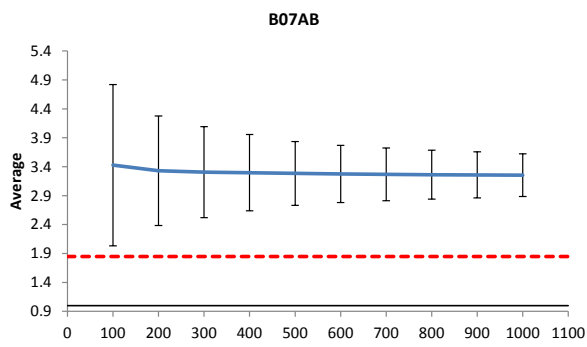
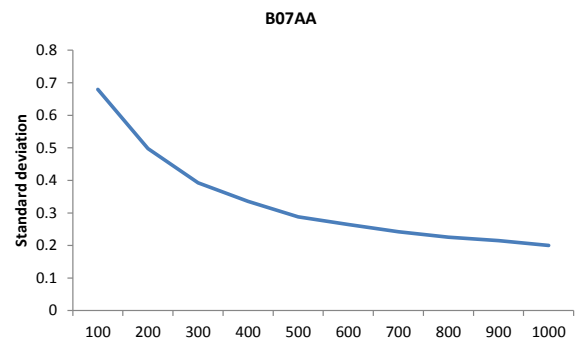
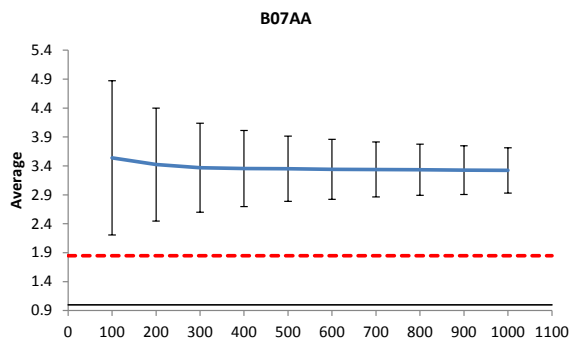
B05 trials



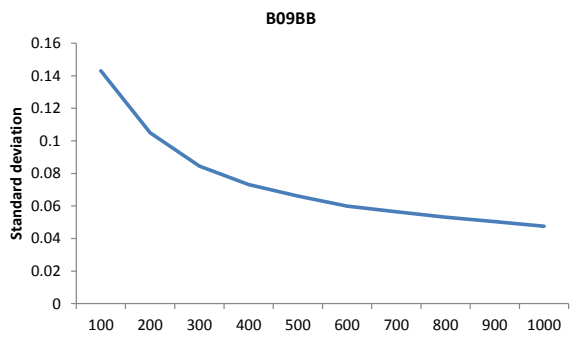
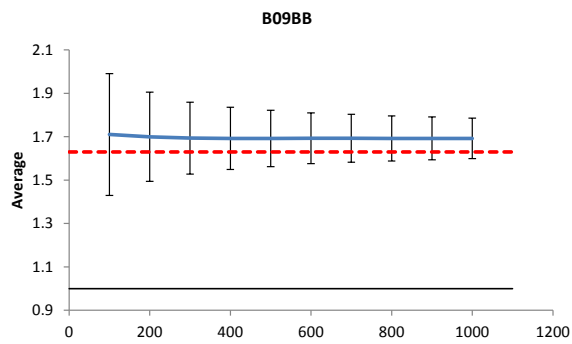
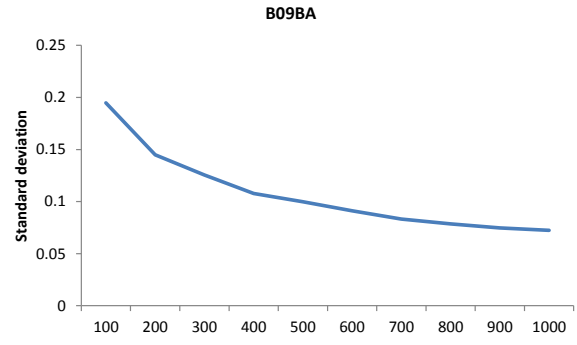
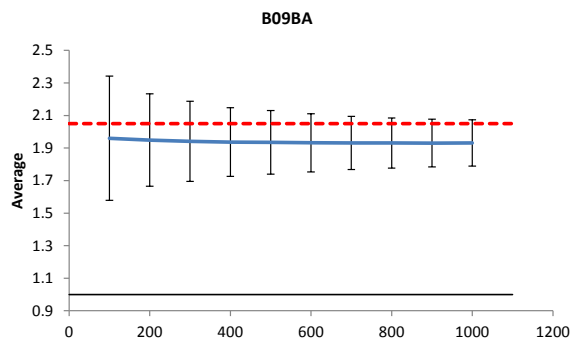
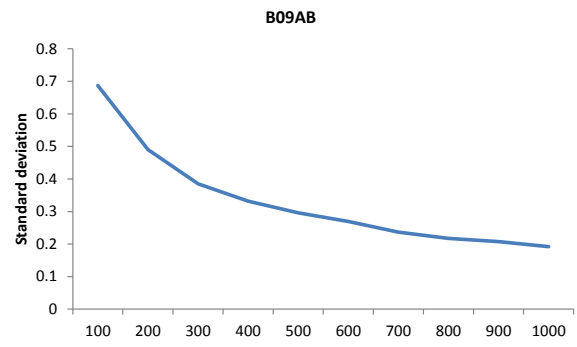
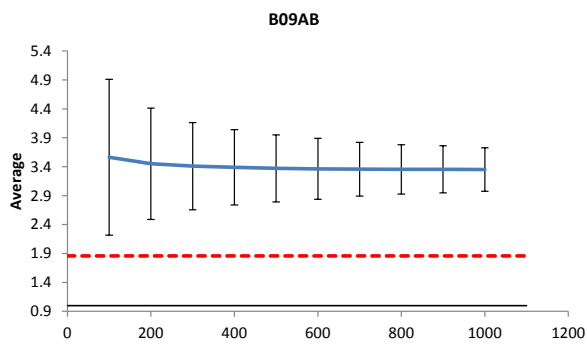
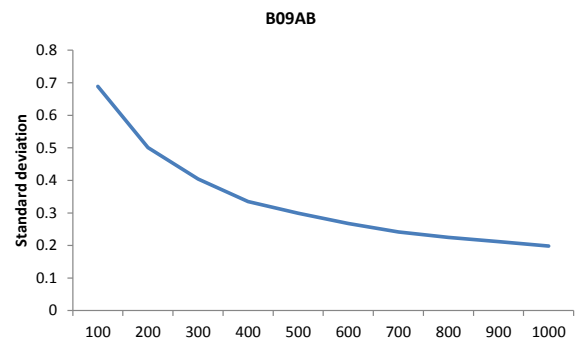
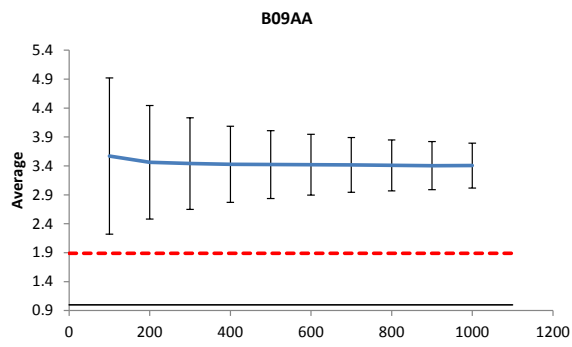
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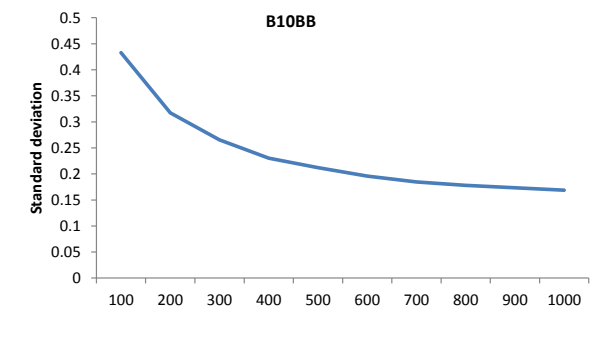
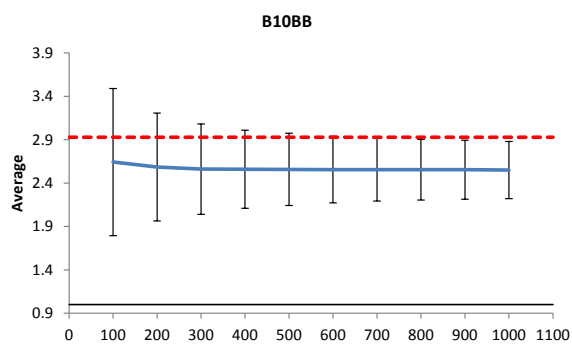
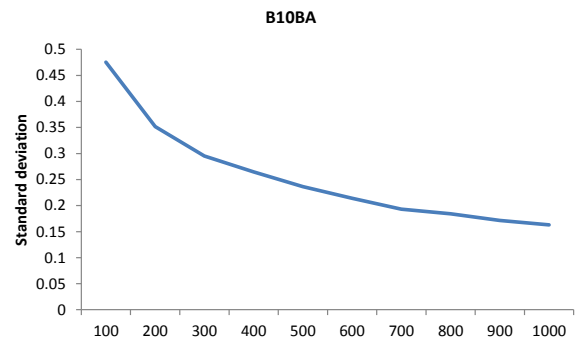
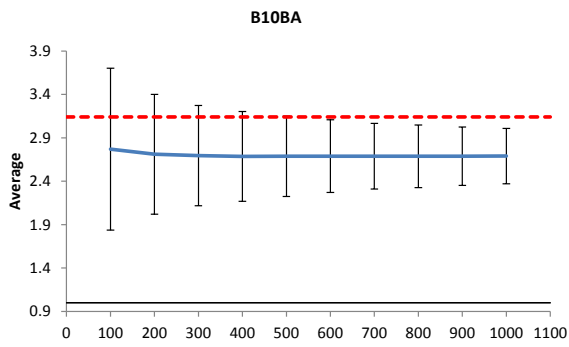
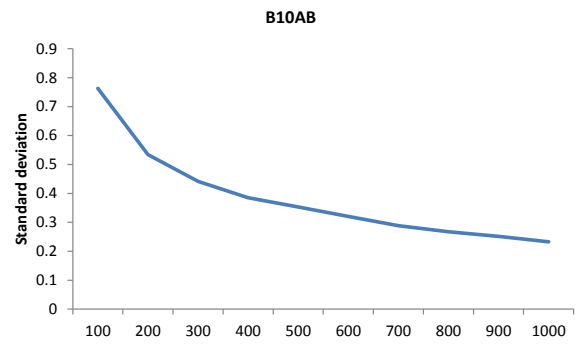
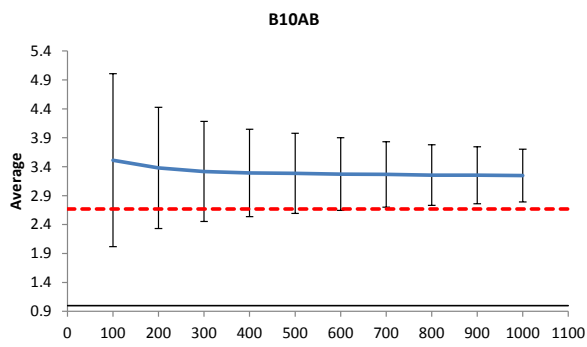
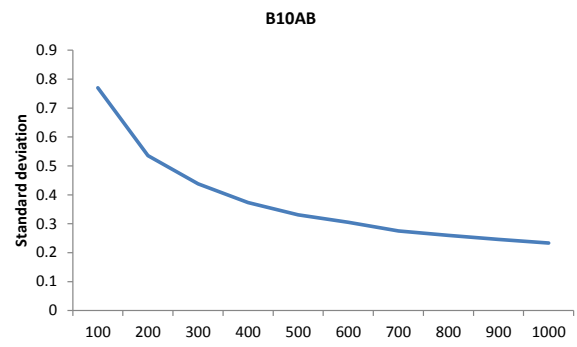
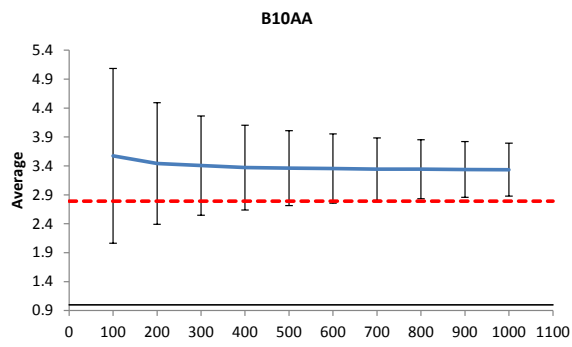
B07 trials



B09 trials



B10 trials



Appendix

List of evaluation trials for bowheads

Trial	Description	Conditioning
GB01AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 10; historic survey bias = 1	Yes [1A]
GB01AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 10; historic survey bias = 1	1A
GB01BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1	Yes [1B]
GB01BB	MSYR ₁₊ = 1%; need scenario B; survey frequency = 10; historic survey bias = 1	1B
GB01CA	MSYR ₁₊ = 4% (and MSYL1+=0.8); need scenario A; survey frequency = 10; historic survey bias = 1	Yes [1C]
GB01CB	MSYR ₁₊ = 4% (and MSYL1+=0.8); need scenario B; survey frequency = 10; historic survey bias = 1	1C
GB02AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 5; historic survey bias = 1	1A
GB02AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 5; historic survey bias = 1	1A
GB02BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 5; historic survey bias = 1	1B
GB02BB	MSYR ₁₊ = 1%; need scenario B; survey frequency = 5; historic survey bias = 1	1B
GB03AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 15; historic survey bias = 1	1A
GB03AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 15; historic survey bias = 1	1A
GB03BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 15; historic survey bias = 1	1B
GB03BB	MSYR ₁₊ = 1%; need scenario B; survey frequency = 15; historic survey bias = 1	1B
GB04AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 10; historic survey bias = 0.5	Yes [4A]
GB04AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 10; historic survey bias = 0.5	4A
GB04BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 0.5	Yes [4B]
GB04BB	MSYR ₁₊ = 1%; need scenario B; survey frequency = 10; historic survey bias = 0.5	4B
GB05AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 10; historic survey bias = 1; 3 episodic events	1A
GB05AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 10; historic survey bias = 1; 3 episodic events	1A
GB05BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1; 3 episodic events	1B
GB05BB	MSYR ₁₊ = 1%; need scenario B; survey frequency = 10; historic survey bias = 1; 3 episodic events	1B
GB06AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 10; historic survey bias = 1; stochastic events every 5 years	1A
GB06AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 10; historic survey bias = 1; stochastic events every 5 years	1A
GB06BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1; stochastic events every 5 years	1B
GB06BB	MSYR ₁₊ = 1%; need scenario B; survey frequency = 10; historic survey bias = 1; stochastic events every 5 years	1B
GB07AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 10; historic survey bias = 1; alternative future Canadian catches B	1A
GB07AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 10; historic survey bias = 1; alternative future Canadian catches B	1A
GB07BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1; alternative future Canadian catches B	1B
GB07BB	MSYR ₁₊ = 1%; need scenario B; survey frequency = 10; historic survey bias = 1; alternative future Canadian catches B	1B
GB09AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 10; historic survey bias = 1; alternative future Canadian catches D	1A
GB09AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 10; historic survey bias = 1;	1A

	alternative future Canadian catches D	
GB09BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1; alternative future Canadian catches D	1B
GB09BB	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1; alternative future Canadian catches D	1B
GB10AA	MSYR ₁₊ = 2.5%; need scenario A; survey frequency = 10; historic survey bias = 1; asymmetric environmental stochasticity (depletion = 0.3)	Yes [1A,10A]
GB10AB	MSYR ₁₊ = 2.5%; need scenario B; survey frequency = 10; historic survey bias = 1; asymmetric environmental stochasticity (depletion = 0.3)	10A
GB10BA	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1; asymmetric environmental stochasticity (depletion = 0.3)	Yes [1B,10B]
GB10BB	MSYR ₁₊ = 1%; need scenario A; survey frequency = 10; historic survey bias = 1; asymmetric environmental stochasticity (depletion = 0.3)	10B