Should OMP-14 be used to set South African sardine and anchovy catch limits for 2018?

SWG-PEL Meeting

12th October 2017

Carryn de Moor

Marine Resource Assessment and Management Group (MARAM)
Department of Mathematics and Applied Mathematics
University of Cape Town

OMP-14 Risk Criteria

- $Risk_S$: probability that total sardine biomass falls below the average 91-94 biomass at least once during the projection period <0.21
- $Risk_A$: probability that total anchovy biomass falls below 10% of the average 84-99 biomass at least once during the projection period <0.25

OMP-14 tuned assuming a single homogeneously distributed sardine stock

+

'warm-up period' of spatial management

Sardine Risk

Sardine Hypothesis		$Risk_S$		Prob of being below threshold during projection period	
		Old OM		Old OM	
Single Stock	F=0				
	OMP-14	**<0.21**		0.07	

Sardine Risk

Sardine Hypothesis		$Risk_S$		Prob of being below threshold during projection period	
		Old OM	New OM	Old OM	New OM
Single Stock	F=0		**0.78**		**0.35**
	OMP-14	**<0.21**	**0.88**	0.07	**0.51**

Sardine Risk

Sardine Hypothesis		Risk$_S$		Prob of being below threshold during projection period	
		Old OM	New OM	Old OM	New OM
Single Stock	F=0		0.78		0.35
	OMP-14	**<0.21**	0.88	0.07	0.51
Two components, p=0.2onSSB, MoveR					
	OMP-14 one area		**1.00**		**0.81**
	OMP-14 two area		**1.00**		**0.79**

Sardine Risk

Sardine Hypothesis		Risk$_S$		Prob of being below threshold during projection period	
		Old OM	New OM	Old OM	New OM
Single Stock	F=0		0.78		0.35
	OMP-14	**<0.21**	0.88	0.07	0.51
Two components, p=0.2onSSB, MoveR	F=0		**0.98**		**0.70**
	OMP-14 one area		1.00		0.81
	OMP-14 two area		1.00		0.79

Sardine Risk

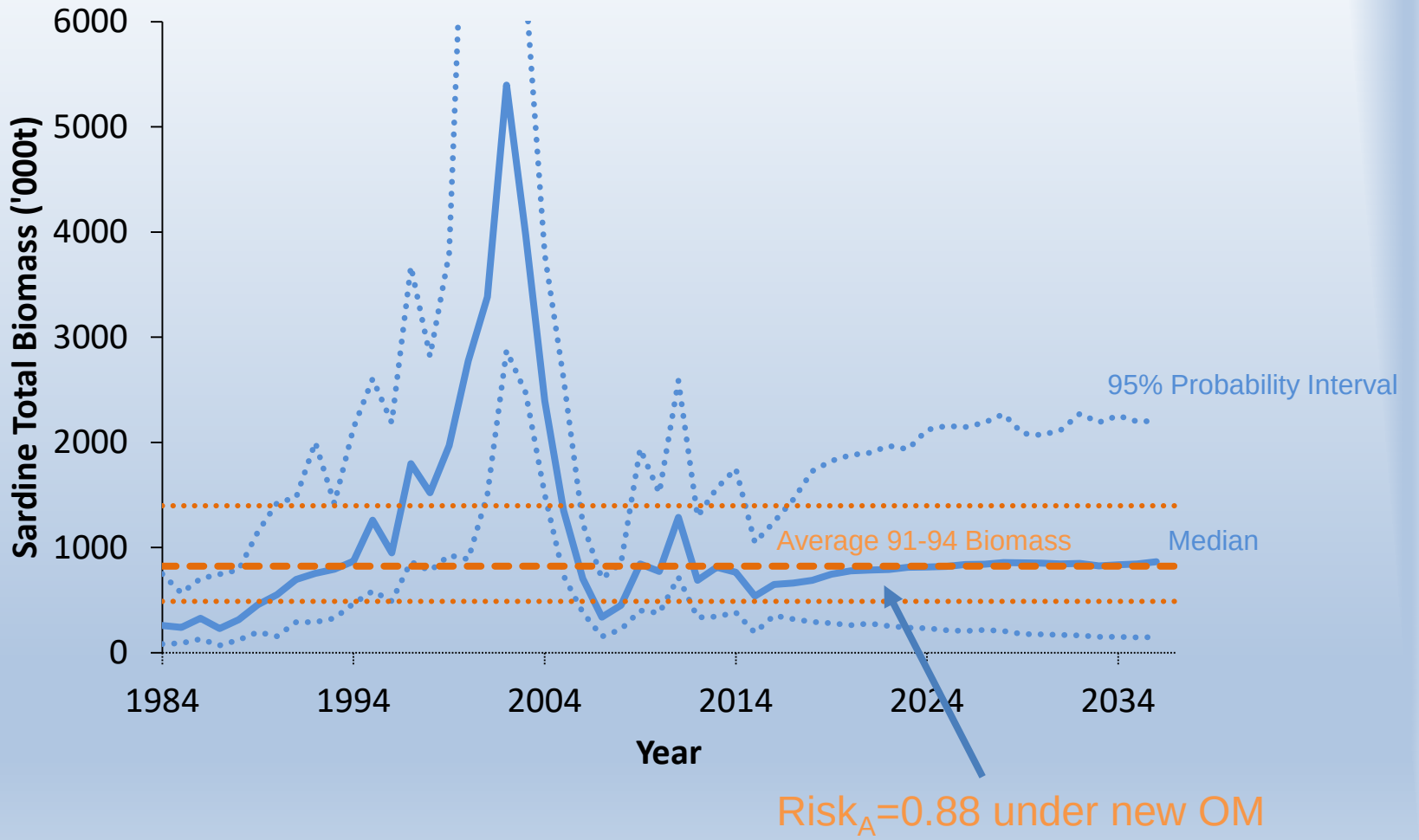
Sardine Hypothesis		Risk$_S$		Prob of being below threshold during projection period	
		Old OM	New OM	Old OM	New OM
Single Stock	F=0		0.78		0.35
	OMP-14	**<0.21**	0.88	0.07	0.51
Two components, p=0.2onSSB, MoveR	F=0		0.98		0.70
	OMP-14 one area		1.00		0.81
	OMP-14 two area		1.00		0.79
Two components, p=0.2onSSB, 0.5MoveR	F=0		**0.96**		**0.59**
	OMP-14 one area		**0.98**		**0.71**
	OMP-14 two area		**0.98**		**0.69**

Sardine Risk

Sardine Hypothesis		Risk$_S$		Prob of being below threshold during projection period	
		Old OM	New OM	Old OM	New OM
Single Stock	F=0		0.78		0.35
	OMP-14	**<0.21**	0.88	0.07	0.51
Two components, p=0.2onSSB, MoveR	F=0		0.98		0.70
	OMP-14 one area		1.00		0.81
	OMP-14 two area		1.00		0.79
Two components, p=0.2onSSB, 0.5MoveR	F=0		0.96		0.59
	OMP-14 one area		0.98		0.71
	OMP-14 two area		0.98		0,69

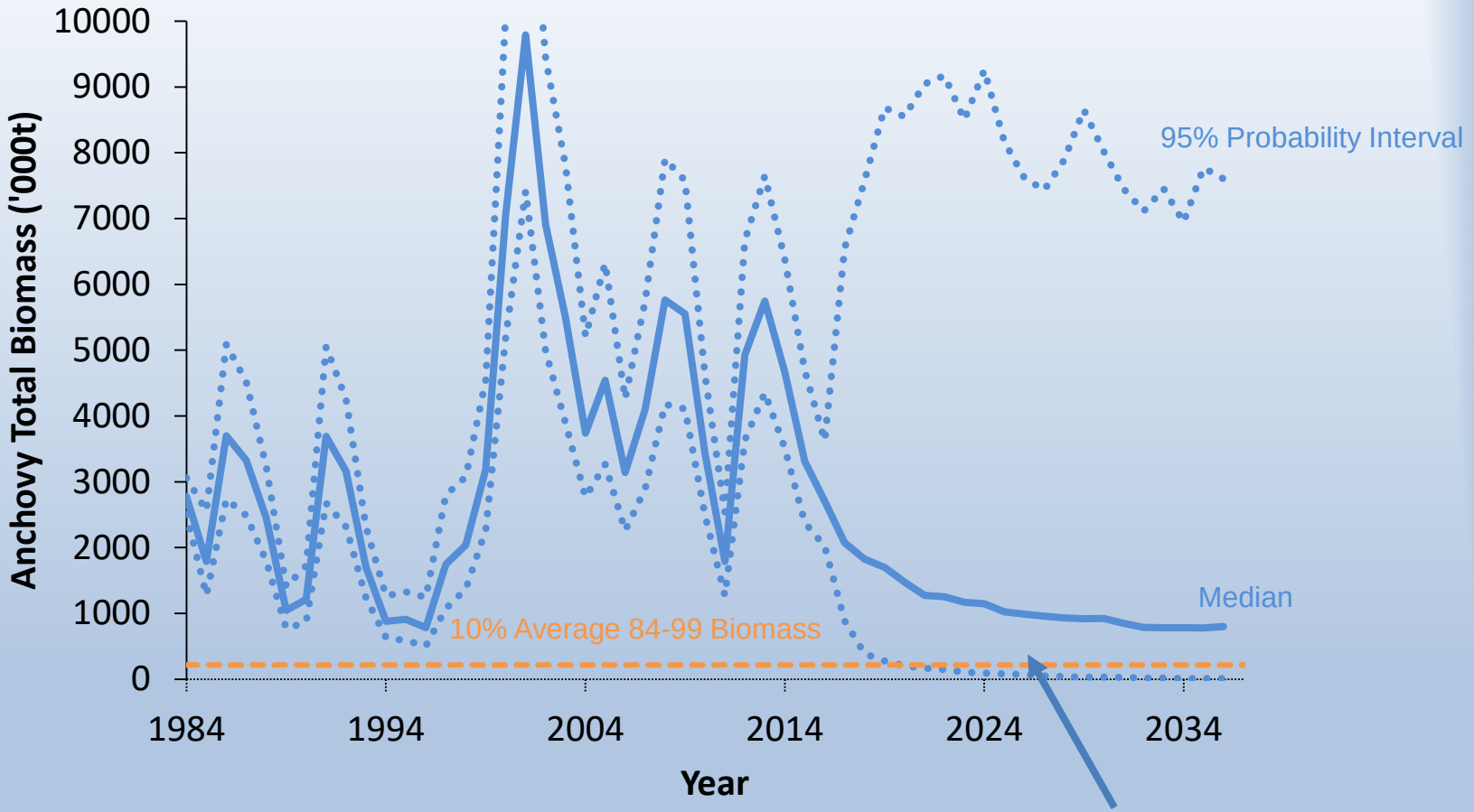
Risk to sardine resource higher than deemed acceptable during OMP-14 development

Sardine Risk (Single Stock OM)



Risk$_S$<0.21 during OMP-14 development

Anchovy Risk

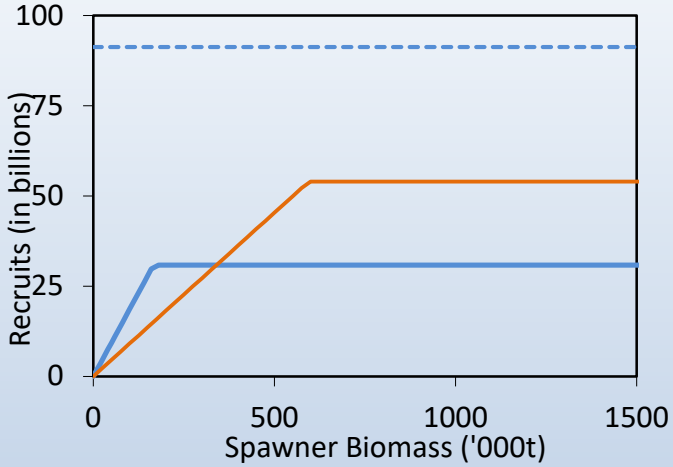


$Risk_A$=0.39-0.40* under new OM

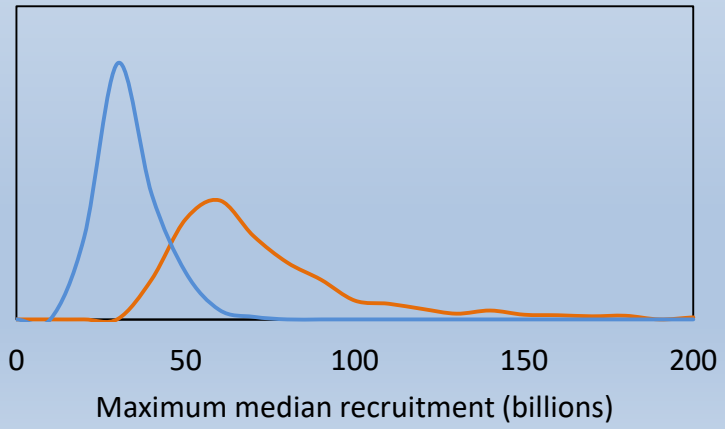
$Risk_A$<0.25 during OMP-14 development

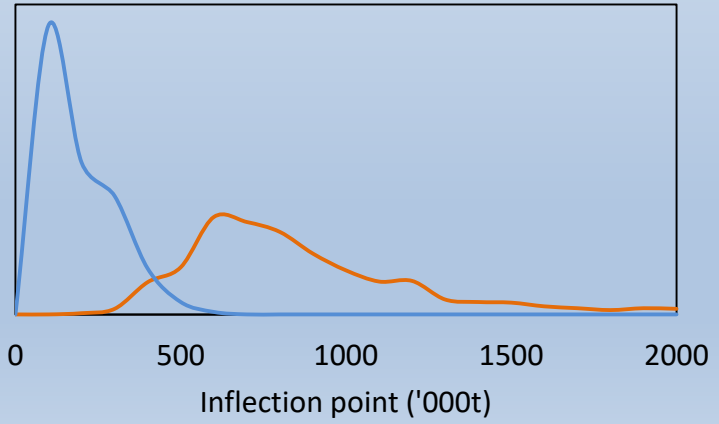
* depending on sardine OM

Sardine Stock Recruitment Relationships



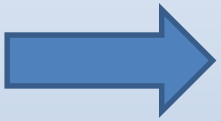
Joint posterior mode





Summary

- OMP-18 won't be ready
- OMP-14 higher risk



Interim OMP?

Should OMP-14 be used to set South African sardine and anchovy catch limits for 2018?

Thank you for your attention

Marine Resource Assessment and Management Group (MARAM)
Department of Mathematics and Applied Mathematics
University of Cape Town