WORKING TOWARDS BOOSTING REPRODUCTIVE SUCCESS OF CHAMBO

Apatsa p. chelewani

RATIONALE

- Aquaculture and Rural Development

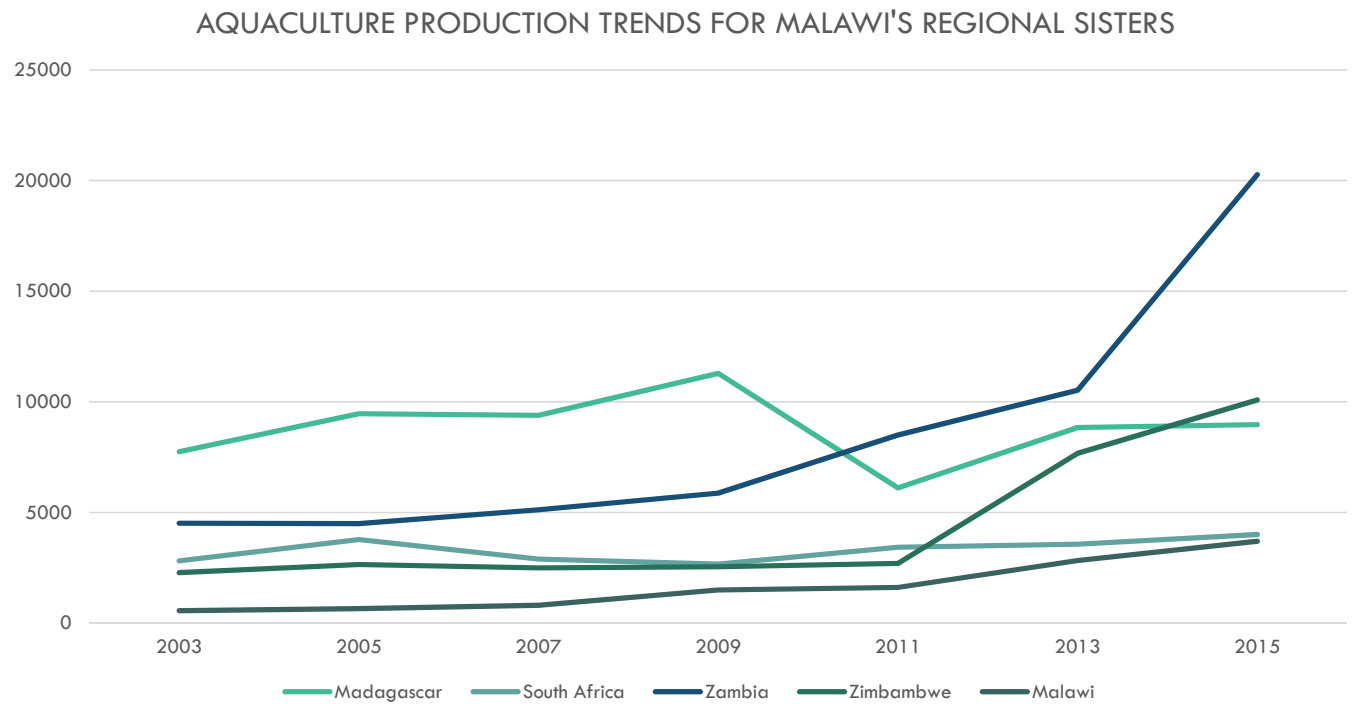
Building resilience through fish farming in Malawi

July 17, 2018 Macneil Kalowekamo - Mana **Be the first to comment**

Fisheries and aquaculture are a vital source of nutritious food, says the UN Food and Agriculture Organisation (FAO).

Yet their current production and supply is failing to meet the global demand in terms of nutrition requirements and sustaining the livelihoods of many.

AQUACULTURE IN MALAWI…



- Source: SADC (2015)

AQUACULTURE IN MALAWI…

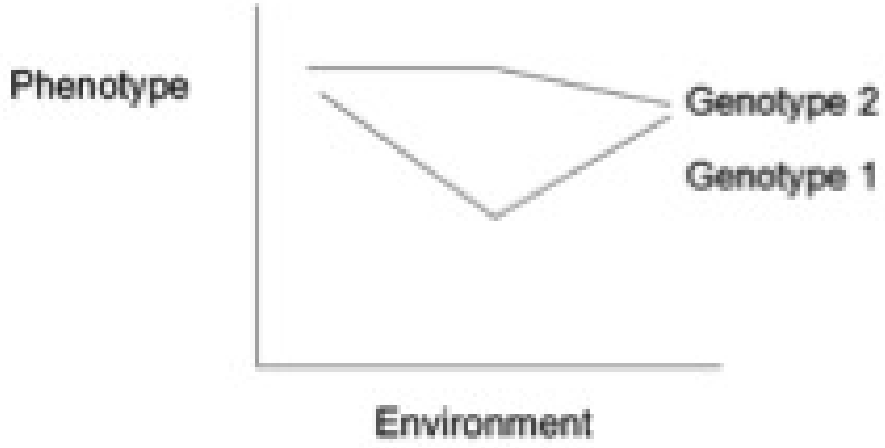
- UNDERSTANDING THE CHALLENGES

RATIONALE…

WHY THE CHAMBO

- PROS
  - Fast Growth
  - Ease of culture
  - Huge demand
- CONS
  - Poor reproductive performance

WHATS WITH THE POOR REPRODUCTION?



WHATS WITH THE POOR REPRODUCTION?

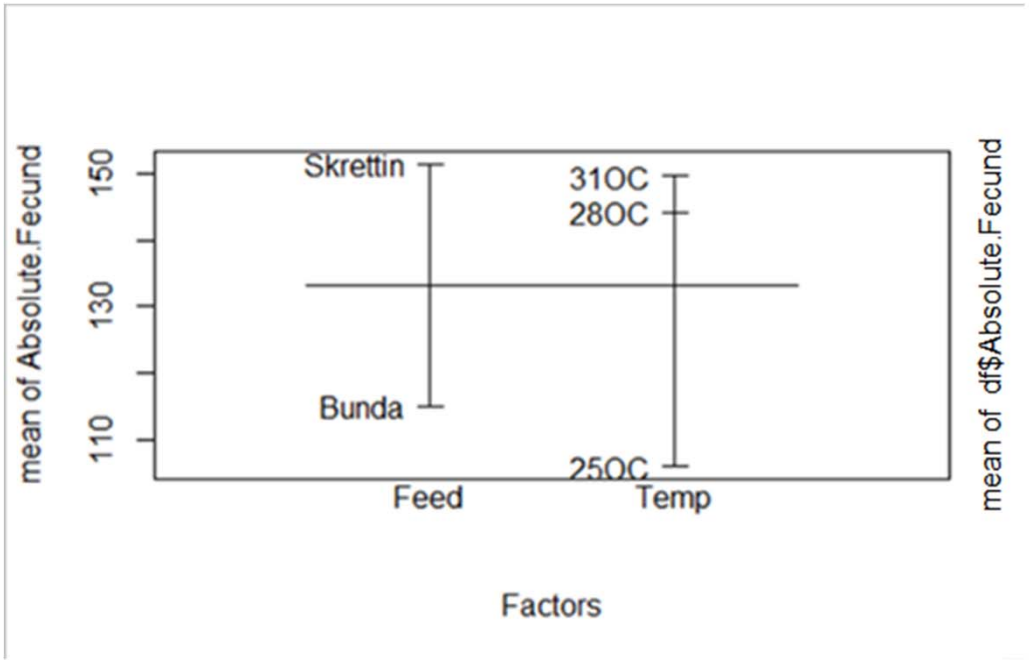
Working towards boosting reproductive success of Chambo:

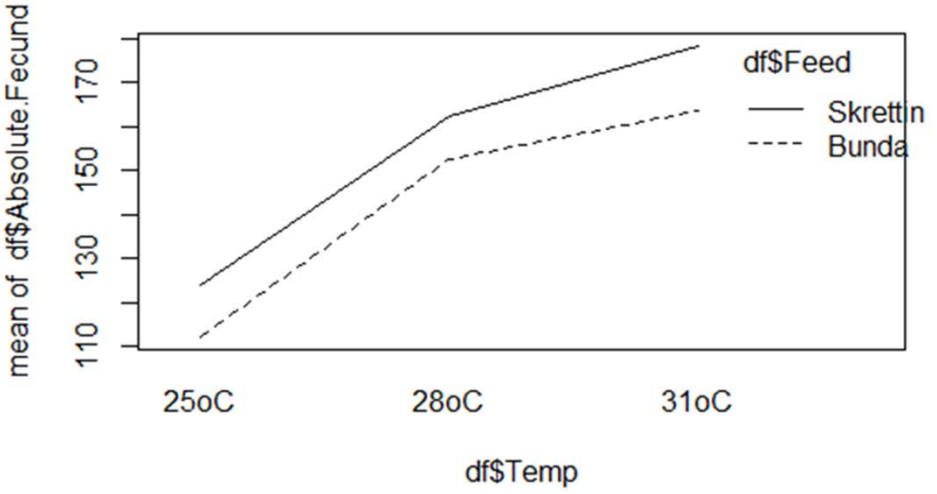
MOLECULAR CHARACTERIZATION, EVALUATION OF EFFECT OF ABIOTIC FACTORS ON REPRODUCTIVE PERFOMANCE CHAMBO Oreochromis (Nyasalapia) karongae, (Trewavas, 1941)

THE WORK

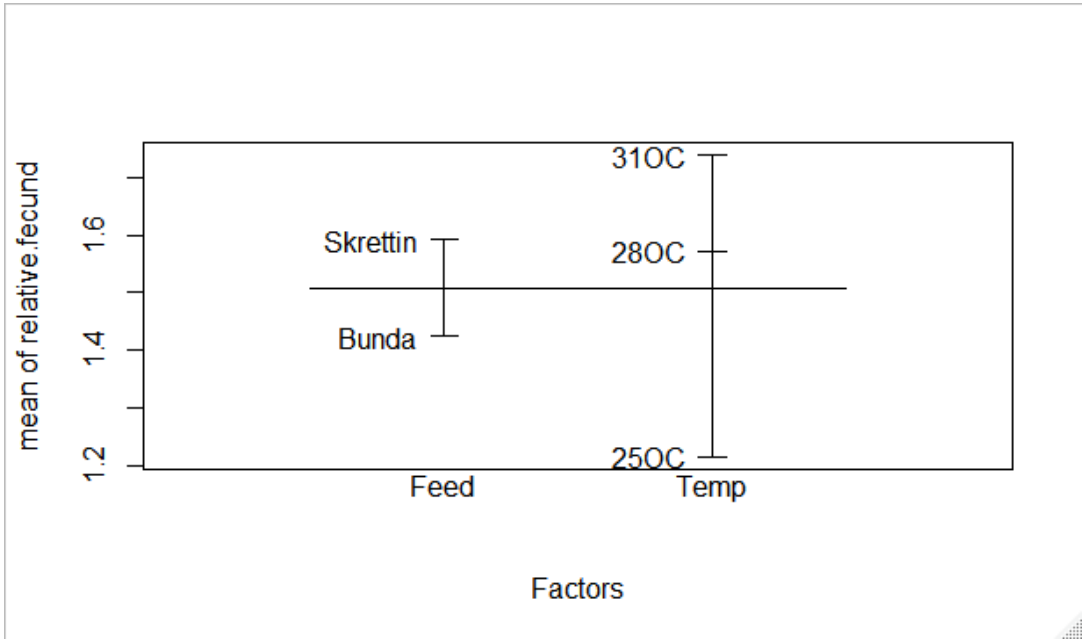
TEMPERATURE	FEED
25OC	Control diet
	Commercial diet
28OC	Control diet
	Commercial diet
28OC	Control diet
	Commercial diet

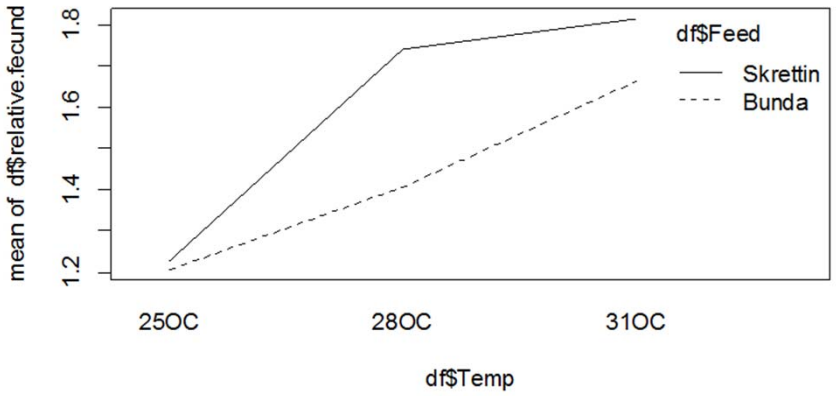
THE WORK


mean of Absolute.Fecund
110
130
150
Skrettin
Bunda
31OC
28OC
25OC
Feed
Temp
Factors

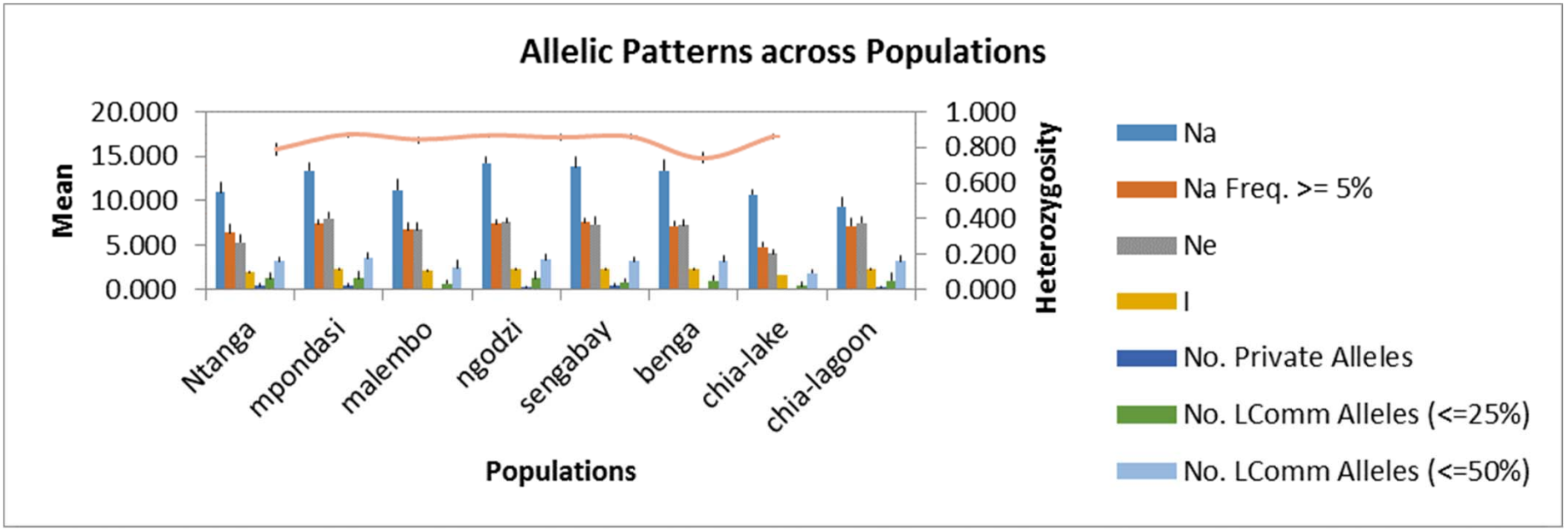

mean of df$Absolute.Fecund
110
130
150
170
df$Feed
Skrettin
Bunda
25oC
28oC
31oC
df$Temp

THE WORK


mean of relative.fecund
1.2
1.4
1.6
Skrettin
Bunda
31OC
28OC
25OC
Feed
Temp
Factors


mean of df$relative.fecund
1.2
1.4
1.6
1.8
df$Feed
Skrettin
Bunda
25OC
28OC
31OC
df$Temp

GENETIC CHARACTERIZATION…



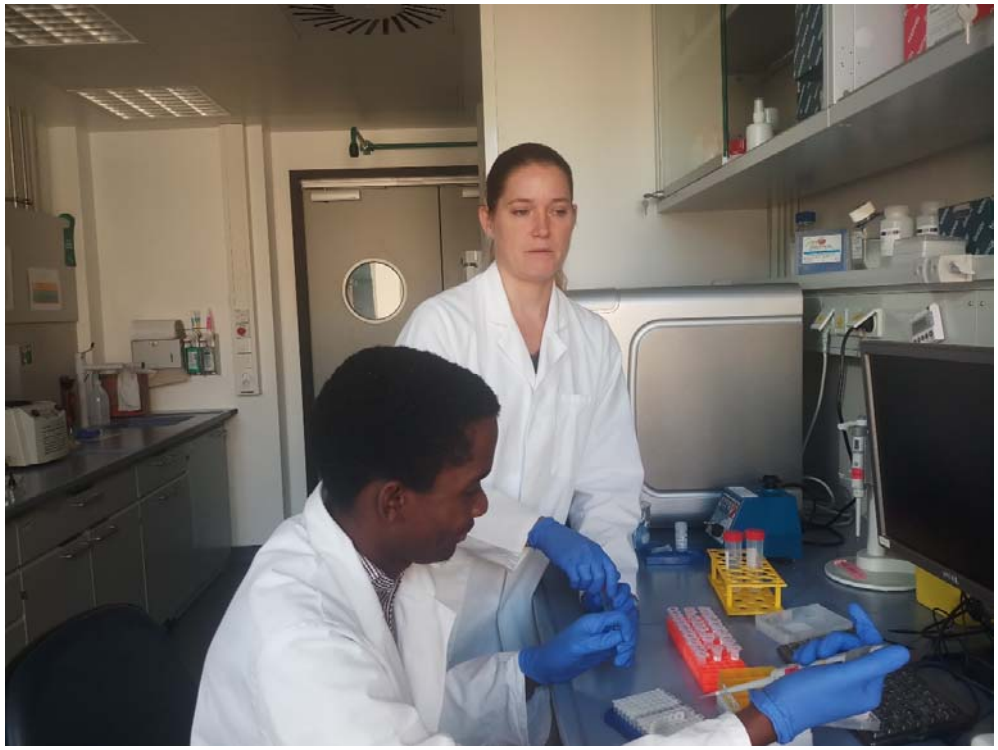
GENETIC CHARACTERIZATION…

Mean Allelic Patterns Across Populations								
Mean values								
Population	**Ntanga**	**mpondas**	**malembo**	**ngodzi**	**sengabay**	**benga**	**chia-lake**	**chia-lago**
Na	7.600	13.400	11.200	14.200	13.800	13.400	10.700	9.400
Na Freq. >= 5%	6.400	7.400	6.800	7.400	7.600	7.200	4.800	7.200
Ne	5.353	7.978	6.747	7.606	7.337	7.265	4.068	7.499
I	1.903	2.260	2.066	2.256	2.220	2.192	1.671	2.232
No. Private Alleles	0.400	0.400	0.000	0.200	0.400	0.000	0.000	0.200
No. LComm Alleles (<=25%)	1.200	1.200	0.600	1.200	0.800	1.000	0.400	1.000
No. LComm Alleles (<=50%)	3.200	3.600	2.400	3.400	3.200	3.200	1.800	3.200
uHe	0.645	0.879	0.852	0.874	0.863	0.867	0.750	0.841

GENETIC CHARACTERIZATION…

Codomina	D	Pairwise Population Fst Values						
Ntanga	mpondasi	malembo	ngodzi	sengabay	benga	chia-lake	chia-lagoon	
0.000								Ntanga
0.029	0.000							mpondasi
0.043	0.011	0.000						malembo
0.043	0.018	0.020	0.000					ngodzi
0.048	0.026	0.023	0.021	0.000				sengabay
0.049	0.022	0.023	0.017	0.016	0.000			benga
0.081	0.051	0.053	0.059	0.057	0.067	0.000		chia-lake
0.039	0.016	0.014	0.017	0.022	0.024	0.046	0.000	chia-lagoc

BEFORE ALL THIS…



SIGNIFICANCE…

- Need for Improvement in Broodstock diet for Chambo
- Significant genetic diversity exists in Chambo: Greenlight for selective breeding
- Possible to design interventions to improve reproductive success.

THANK YOU…