



Vlaanderen
is landbouw & visserij



Europees Fonds voor Maritieme Zaken en Visserij (EFMZV)
Met medewerking van OD Natuur, FOD Leefmilieu en het Kabinet van de Noordzee

Integrated aquaculture of extractive species

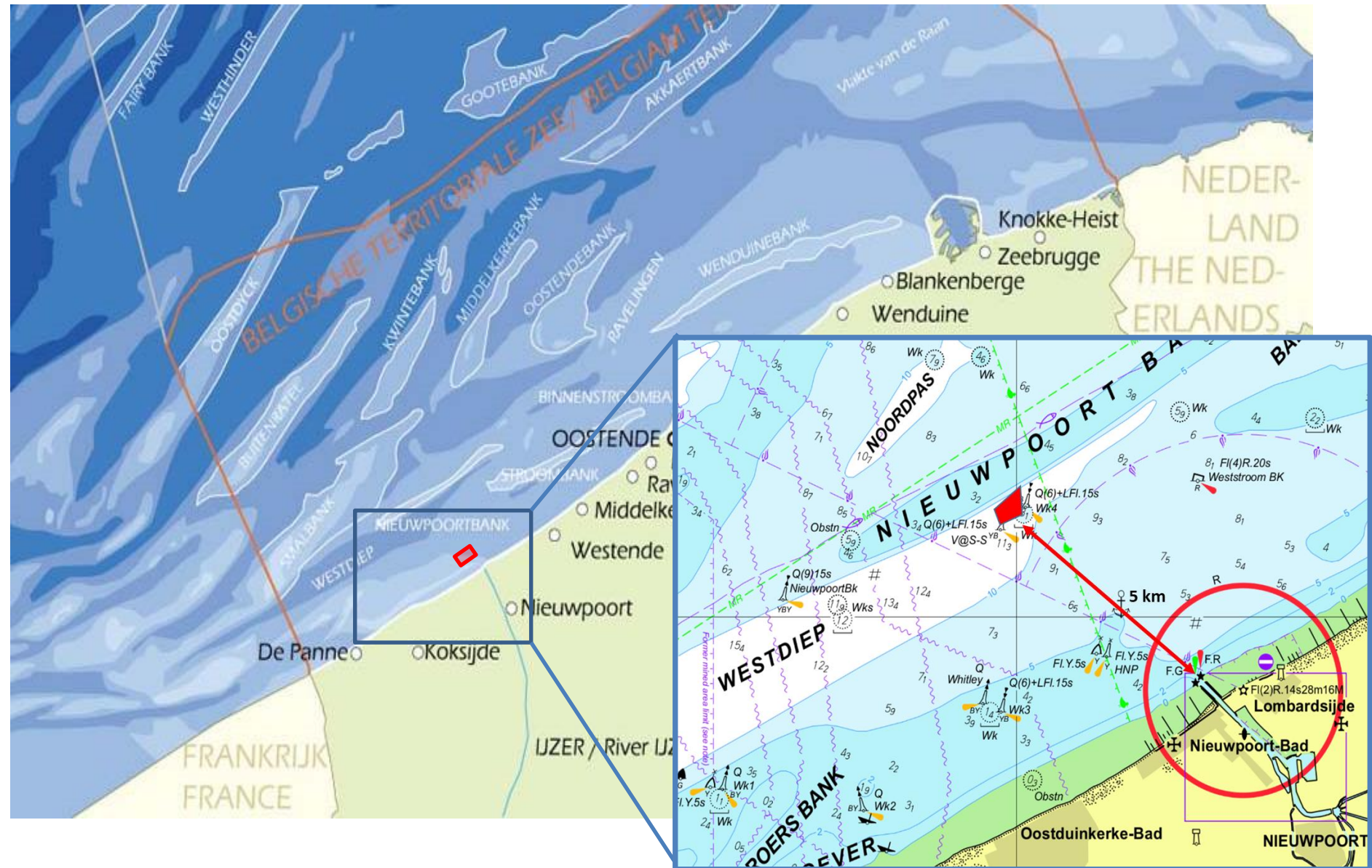
Farming the flat oyster in the Belgian part of the North Sea



Brevisco



Location



Culture systems for flat oysters



Introduction

Size class	Tag*	Initial stocking number	Type	Date of seeding
T12	3-LD	1000/bag	YAD oyster bag with booster & BST baskets	19/12/2017
	3-HD	2000/bag		
	4-LD	1000/bag		
	4-HD	2000/bag		
T20	5-LD	500/bag		
	5-HD	1000/bag		
	6-LD	500/bag		
	6-HD	1000/bag		
T25	7-LD	250/bag		
	7-HD	500/bag		
	8-LD	250/bag		
	8-HD	500/bag		
Adults	1-1	30/bag	YAD 1300G caged oyster bag	
	1-2	30/bag		
T8	2-LD	2000/bag	YAD oyster bag with booster	09/02/2018
	2-HD	4000/bag		
T40		50 – 90/box	BST oyster basket	18/07/2018
Tag* = number is the level starting at the top, LD is low density and HD is high density.				

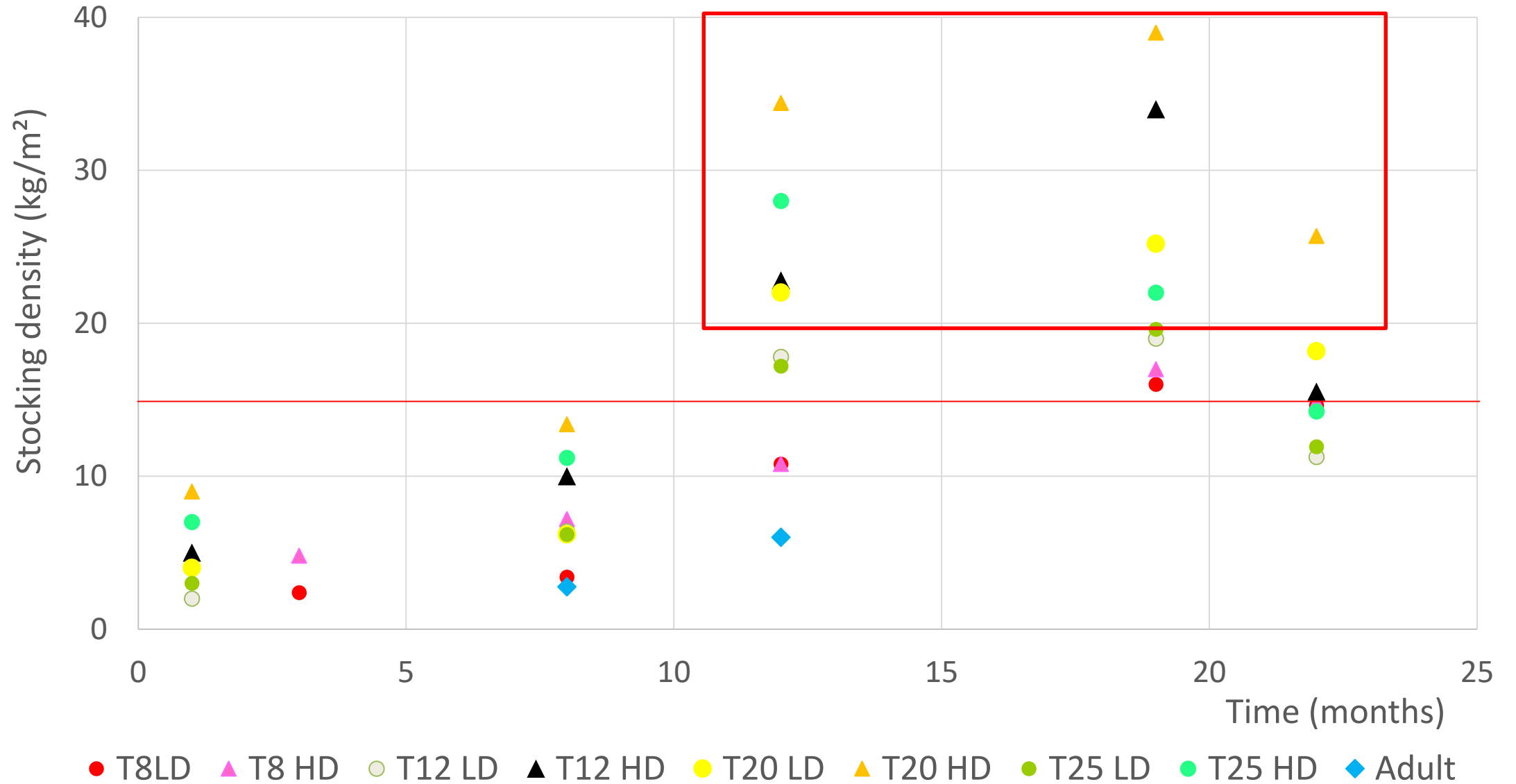
Daily growth rate (mm/day)

$$\text{DGR (mm.day}^{-1}\text{)} = (L_s - L_i) / (t_s - t_i)$$

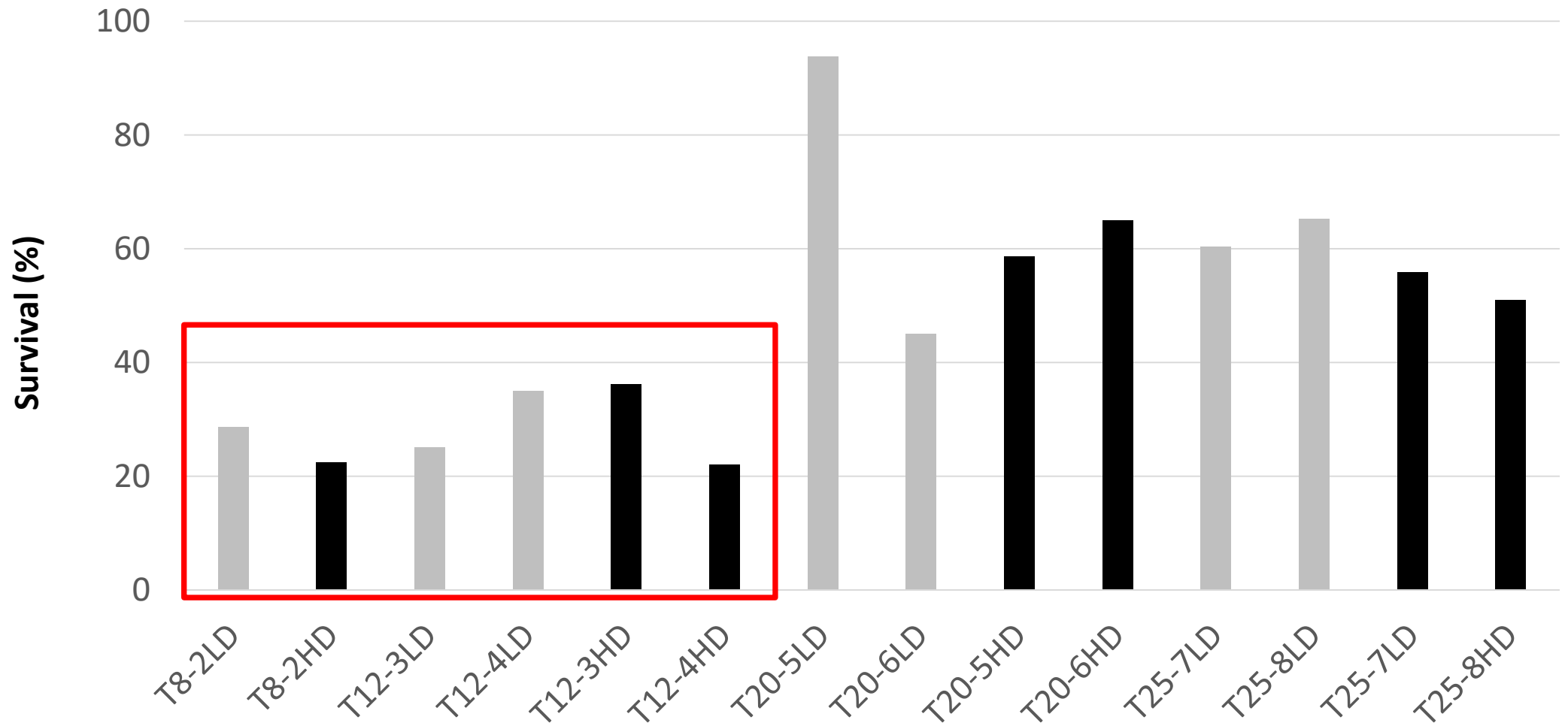
	T8	T12	T20	T25	T40
18/07/2018	0,07	0,07	0,04	0,05	
16/11/2018	0,10	0,12	0,15	0,10	0,17
2018	0,05	0,06	0,05	0,05	
27/02/2019					0,01
24/06/2019	0,07	0,04	0,05	0,01	0,03
27/09/2019	0,05	0,05	-0,05	-0,03	0,17
2019	0,04	0,05	0,00	0,00	0,09

Note: Pogoda et al. (2011) obtained daily growth rates of 0.13 – 0.18 mm.day⁻¹ in one growing season from April till October

Stocking density



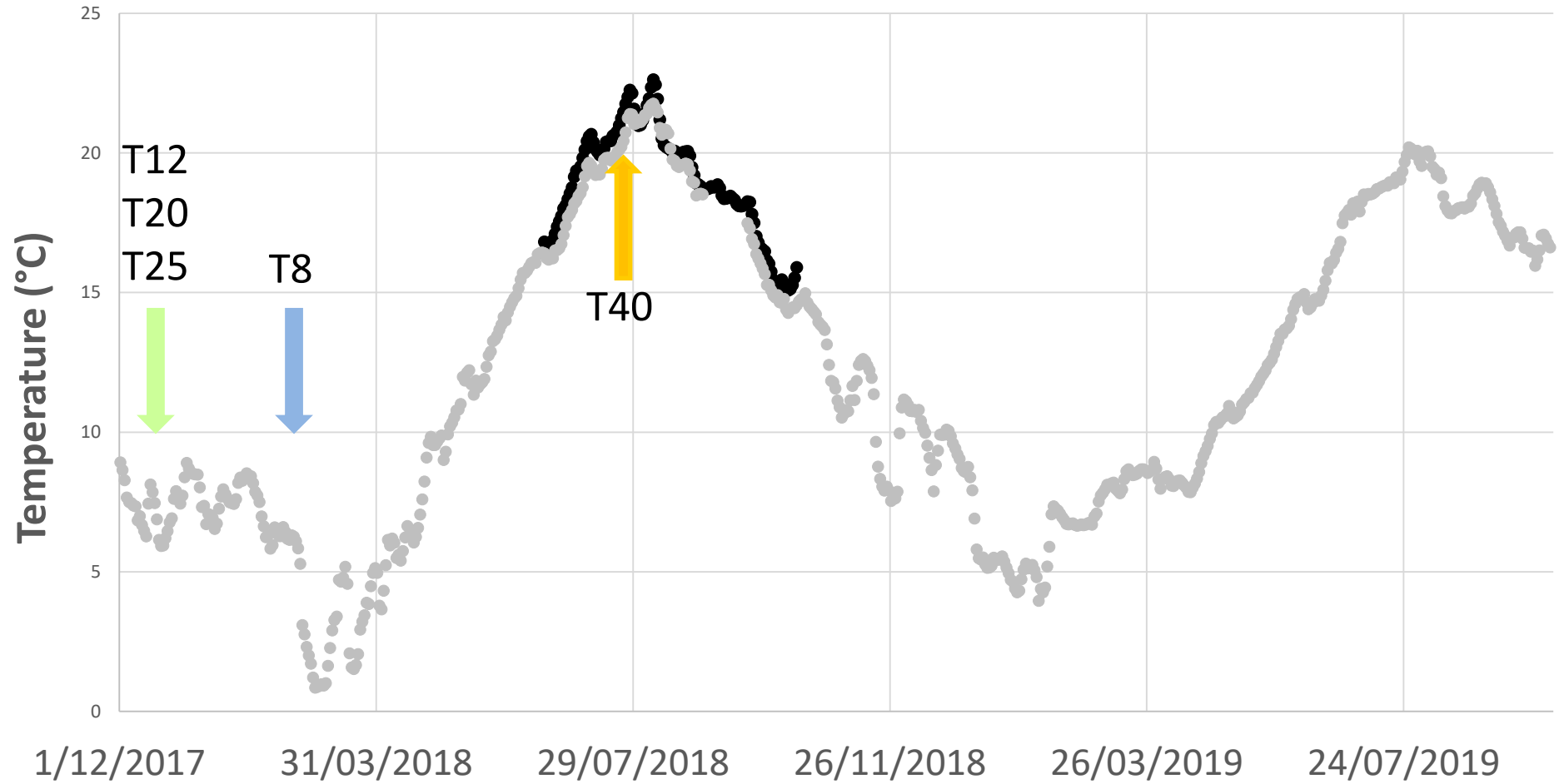
Survival



Acarli et al. (2011): between 20 and 60 %

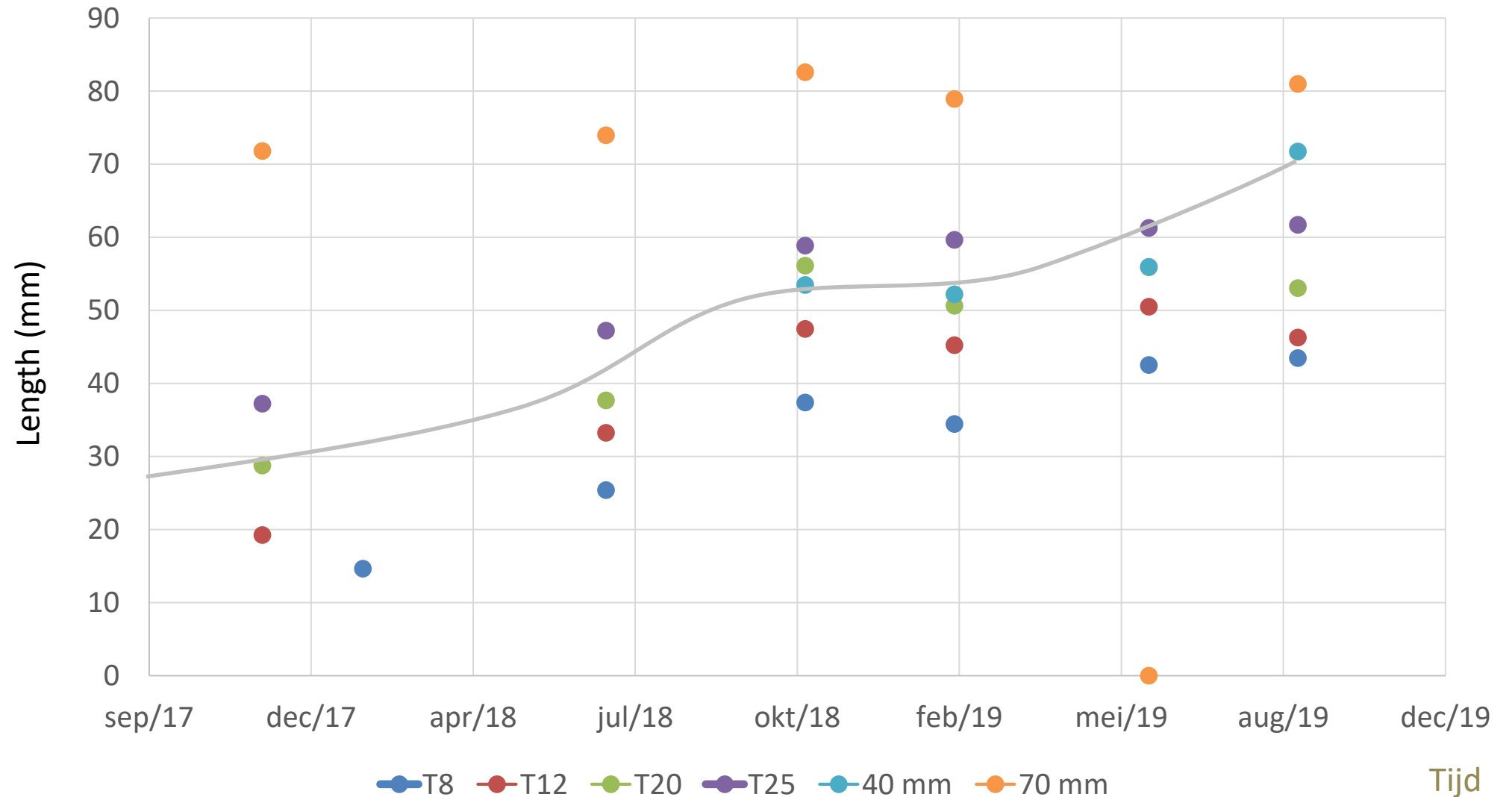
Pogoda et al. (2011): very high survival (97%)

Surface Sea Temperature



- In situ
- SST-RIBNS model

Growth simulation



Leasson learned

Culture systems:

- BST boxes directly on the backbone: too much tumbling (severe shell wear): high mortalities; and high lost due to wrong practices
- BST boxes fixed in ladder structure: 50% lost due to the wear and tear of the binding ropes.
PS: no clips were used!
- The rack with YAD mesh bags survived several storms without severe damage and no mesh bags were lost.



Leasson learned

Flat oysters:

- Good growth & firm shell
- Form Index: 1.4 - 1.6 (cfr. 1.4 – 1.5 Zealand)
- Meat yield: 11 – 15 (> 9)
- Condition-index: 3 – 5 (sept'19)
- Survival: 45-94 % (T20 in 2 growing seasons)



Leasson learned

Biofouling:

- Heavy biofouling of the structures: mainly blue mussels and scud.
- Accompanying macrofauna: common starfish, shorecrab, velvet crab, edible crab and shore sea urchin.
- No predatory sea snails were found.
- No *Polydora*, but calcareous tubeworms and different species of acorn barnacles.



Conclusions

The Westdiep is suitable for farming of flat oysters.

But

- keep the stocking density below 15 kg/m²
- frequent cleaning of bags or baskets, upto 3x/month from April till July.

Commercial farming of flat oysters in the BPNS is only possible if these maintenance activities can be mechanised !!!



Thank you

For more info:



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