

THE BLUE MUSSEL (*MYTILUS EDULIS*) AS ALTERNATIVE PROTEIN SOURCE IN TURBOT (*SCOPHTHALMUS MAXIMUS*) DIET

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Objective

Due to the emerging set-up of offshore wind energy turbines in the North Sea the presence of artificial substrates offer a habitat for various fouling organisms, such as the Blue Mussel, which ultimately dominate the on-growing species conglomerates. Removal of the community decreases weight load and corrosion. Harvesting of the fouling organisms of wind turbines in operation as well as of planned turbines opens an enormous high quality protein and lipid source.



Experiments

To evaluate Blue Mussel meat as alternative protein source in aquaculture feeds, two feeding experiments with the turbot were conducted. Experiments were conducted to test the applicability of mussel meal as an additive in turbot feed. Welfare, acceptance and digestibility of feed stuff containing different percentages of mussel meal instead of fish meal were tested. Diets were fed to 3 x 30 individuals per group.

Experiment A	Experiment B
100% Blue Mussel	25% Blue Mussel
50% Blue Mussel	10% Blue Mussel
0% Blue Mussel	0% Blue Mussel

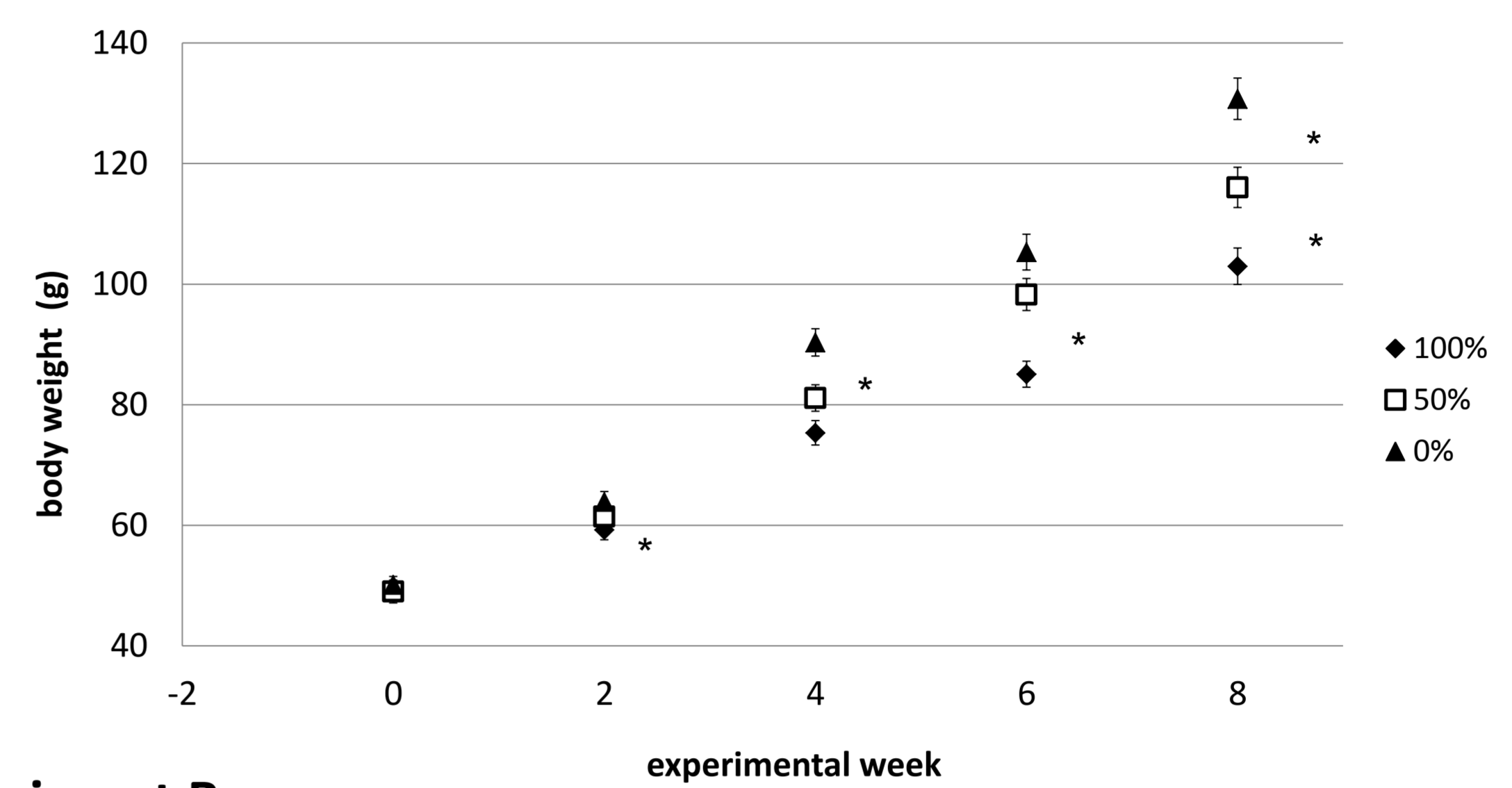
Production of feed

To produce the mussel meal, *M. edulis* was collected of the offshore Island of Helgoland. Shells were removed manually, mussel meat was dried at 60°C and crushed with a knife mill. The feed stuff was mixed according to literature recommendation.

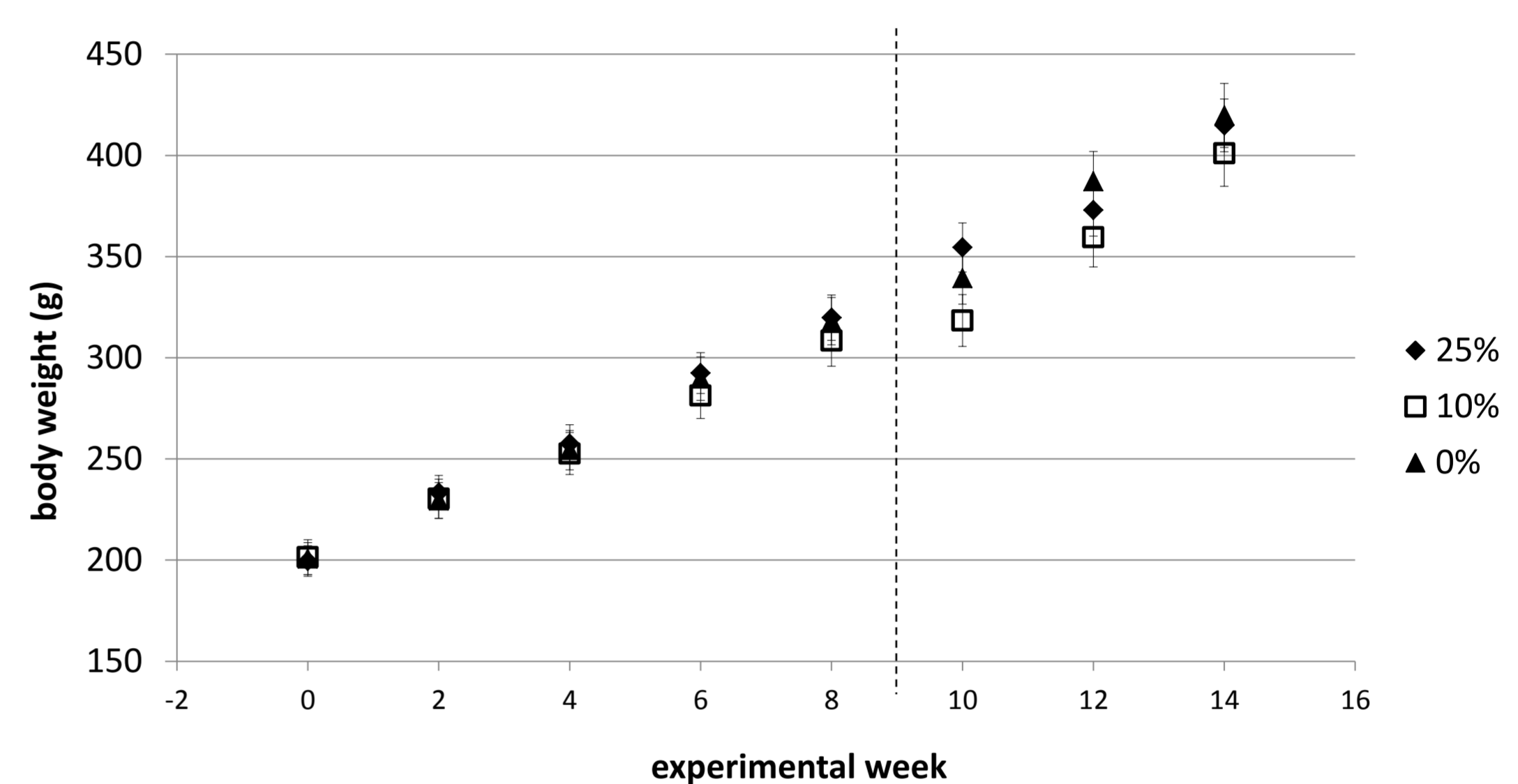
Basic recipe								
Fish meal	CPSP	Soya cake	Fish oil	Extr. wheat	Wheat remillings	Vitamine Mix	Mineral Mix	Binding agents (Gluten)
30%	15%	10%	10%	14,5%	15%	2%	1%	2,5%

Results

Experiment A



Experiment B



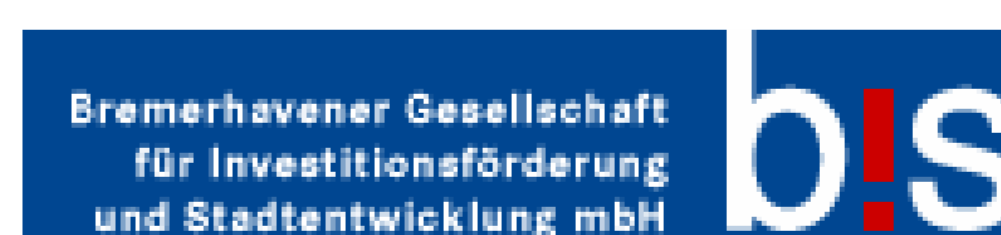
	Experiment A			Experiment B		
	100%	50%	0%	25% (T1)	10% (T1)	0% (T1)
FCR	1.96±0.07	1.53±0.1	1.44±0,04	2.49±0.05	2.74±0.15	2.54±0.09
CF	2.17±0.17	2.19±0.16	2.26±0.18	2.13±0.17	2.12±0.21	2.1±0.15
HSI	1.43±0.14	1.41±0.18	1.45±0.2	1.49±0.19	1.47±0.17	1.40±0.28

Fish meal in turbot diet can be replaced at minimum by 25% of mussel meal without growth loss or occurrence of any health effects.

Conclusion

Fish feed with additives of mussel meat has a high potential to serve as a sustainable, organic feed stuff, which not only meets the western aesthetics, but also offers a species-appropriate feed, which originates from the same milieu.

Acknowledgments & supplemental information



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Partner

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Literatur

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