Fatty Snapper say it's all mussel

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The Hungry Snapper Problem:

The size and growth rate of snapper has been declining over the past 30 years as a reflection of decreasing food resources in the Hauraki Gulf. To prevent further declines, there is a need to understand what habitats snapper value for feeding, so we can preserve them.

Aquaculture Explosion!

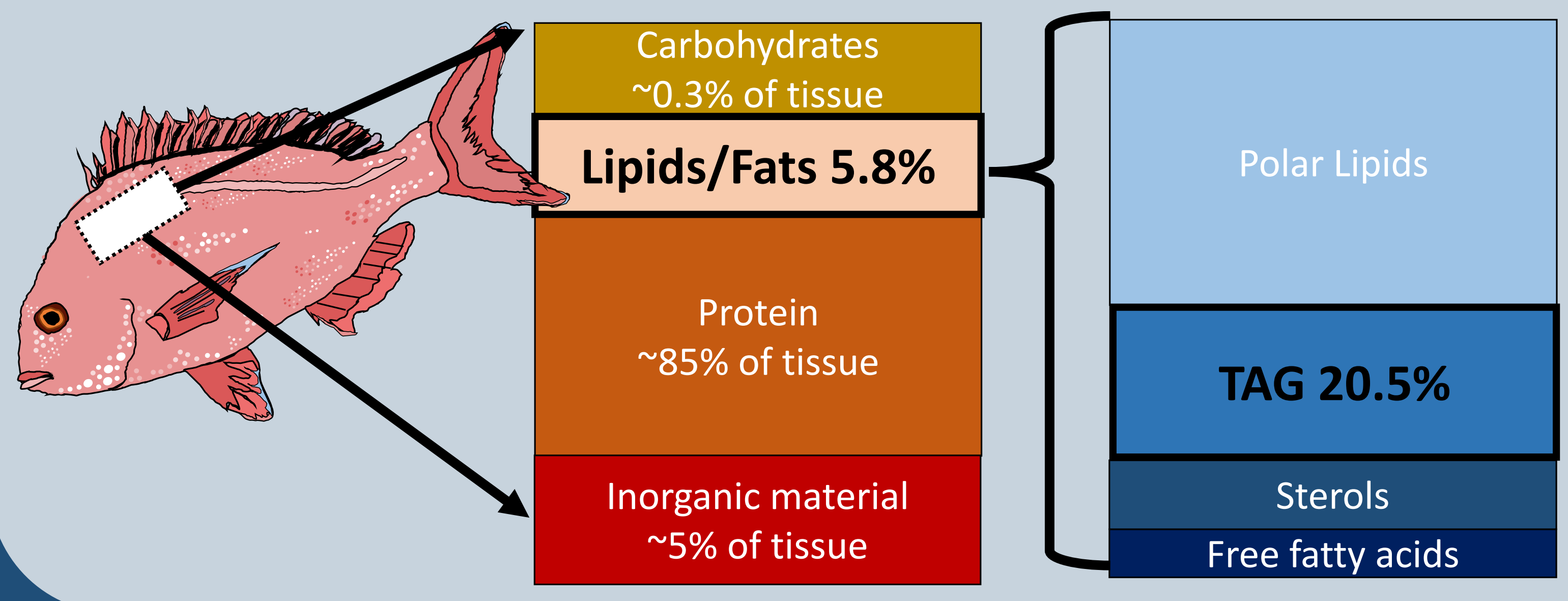
Aquaculture production now exceeds the production of wild fisheries. As a result, aquaculture has expanded into coastal and open ocean regions globally, making it a common habitat for wild fish to encounter.

Methods:

Thirty-two snapper were sampled from within mussel farms, and twenty-eight snapper were sampled from soft-sediment habitats 500m away from the farms. Tissue samples were taken from each of the 60 snapper and underwent biochemical analyses which break the tissue down into its structural components (i.e., carbs, fats, and protein).

The composition of the fishes tissue tells us about their nutritional condition. We can break down the fats even further into lipid class and individual fatty acids. Lipid class tells us what fats are being stored and what for, whilst fatty acids tell us about the diet of the fish.

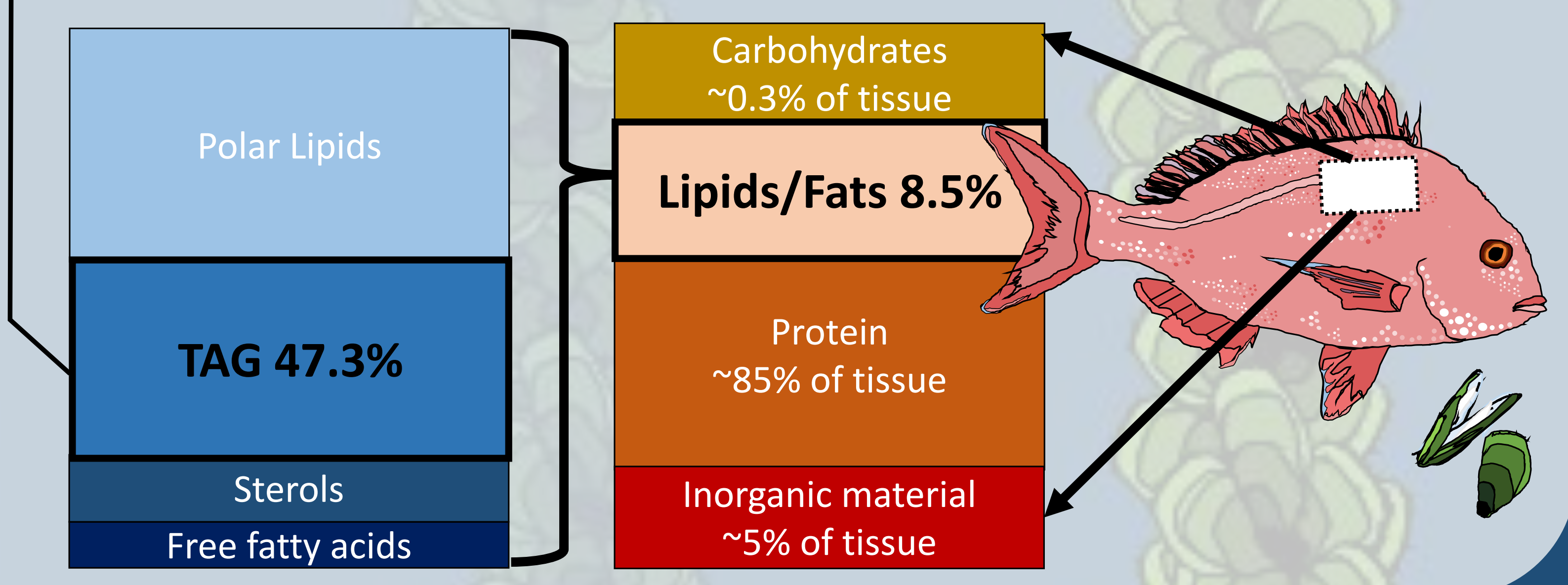
Results:

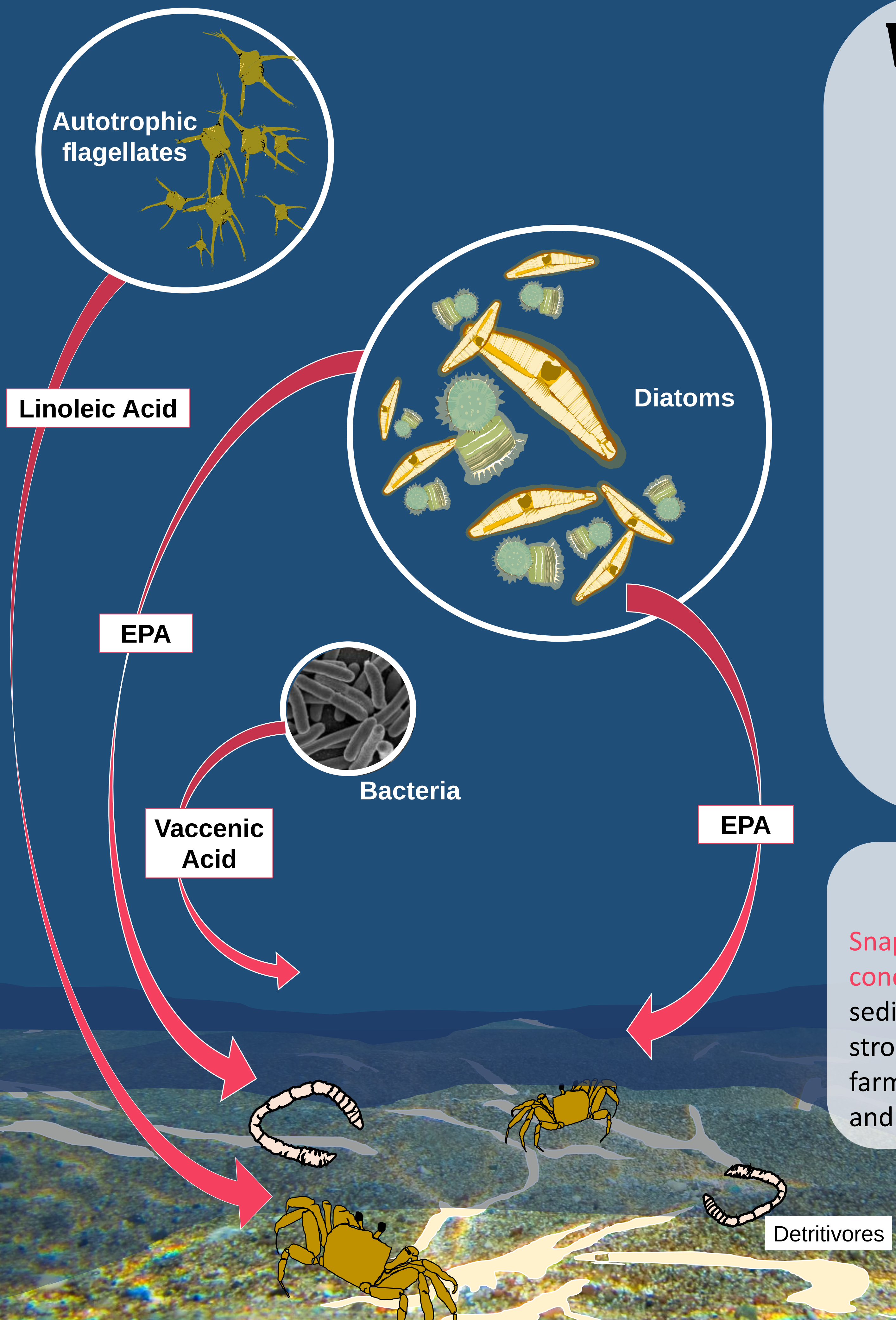


Fat content was 62% higher in mussel farm samples!

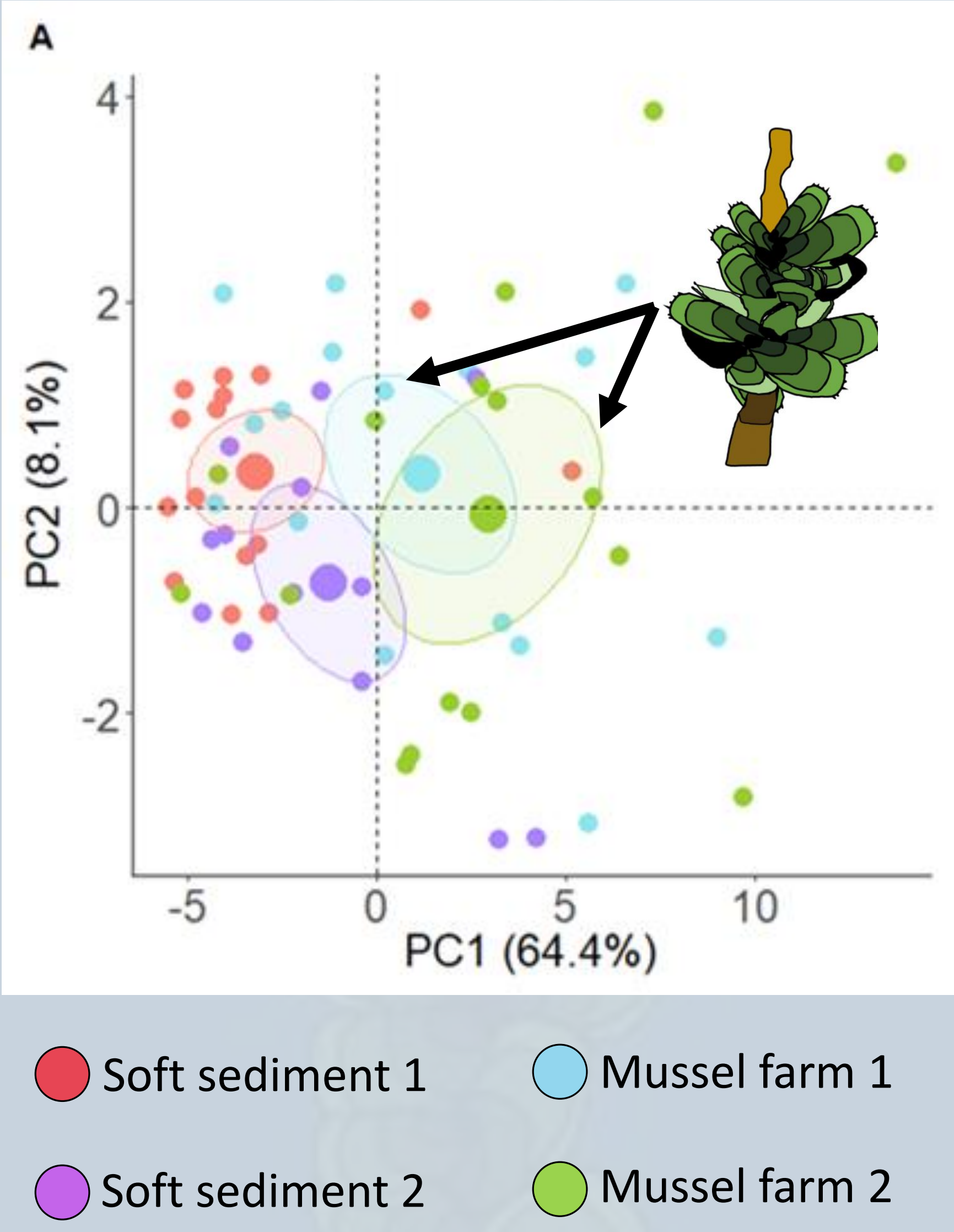
TAG was 79% higher in mussel farm samples!

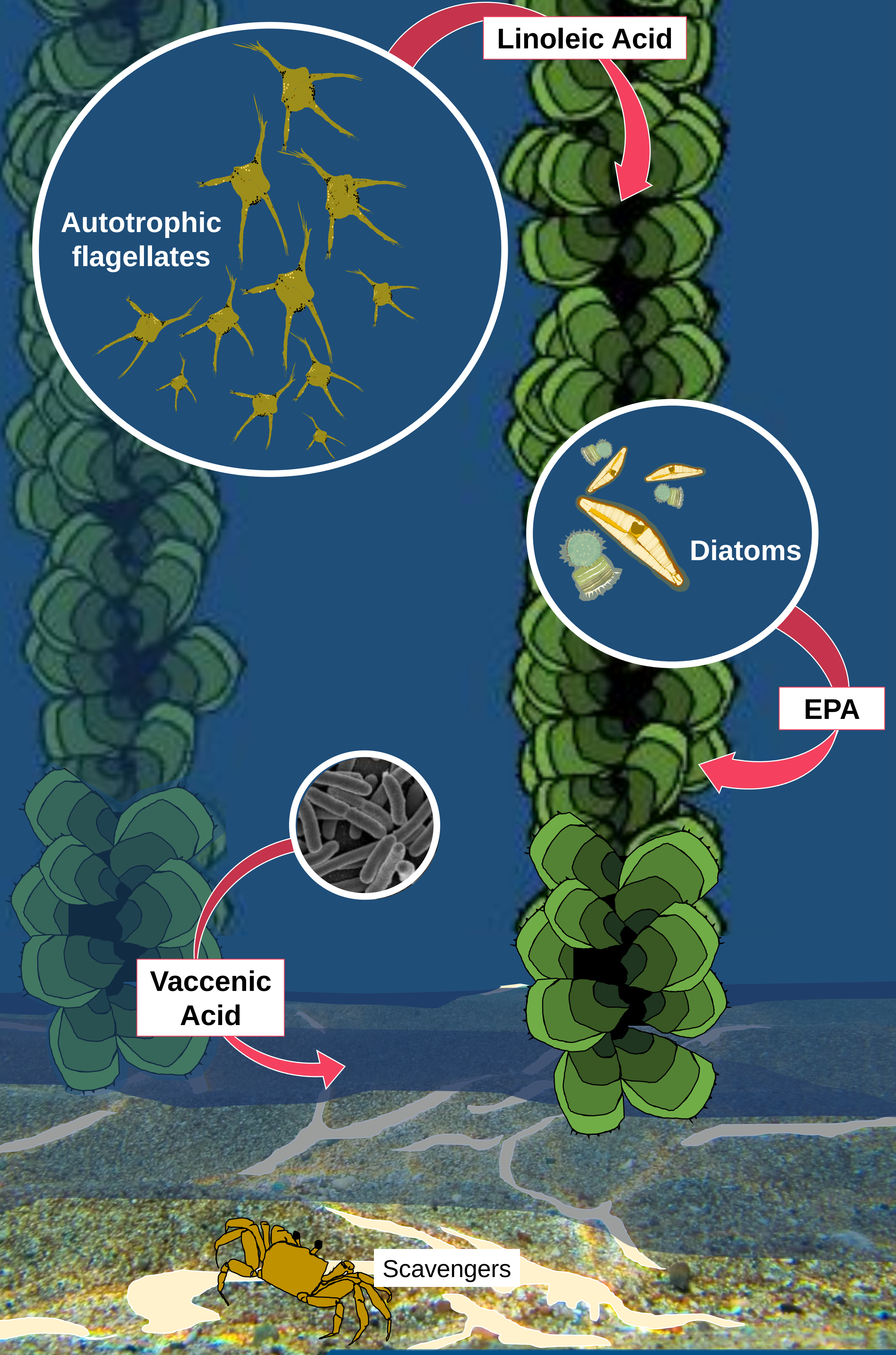
TAG is super dense in energy and is stored prior to spawning or starvation events!





What's the Fatty Acid Story?





Conclusions

Snapper in mussel farms are in better nutritional condition than snapper just 500m away in soft-sediment habitats. This study suggests that there are strong benefits for snapper feeding within mussel farms, with the potential to influence their growth and reproduction.

References

Underwood, L., Reis, A., & Jeffs, A. (2023). Diet of snapper (*Chrysophrys auratus*) in green-lipped mussel farms and adjacent soft-sediment habitats. *Aquaculture, Fish and Fisheries, 3*(3), 268-286. https://doi.org/10.1002/aff2.113

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