# MOLASSES AS ORGANIC CARBON SUPPLEMENT FOR HETEROTROPHIC BACTERIA PRODUCTION ON THE SOLID EFFLUENT STREAM OF A RAS

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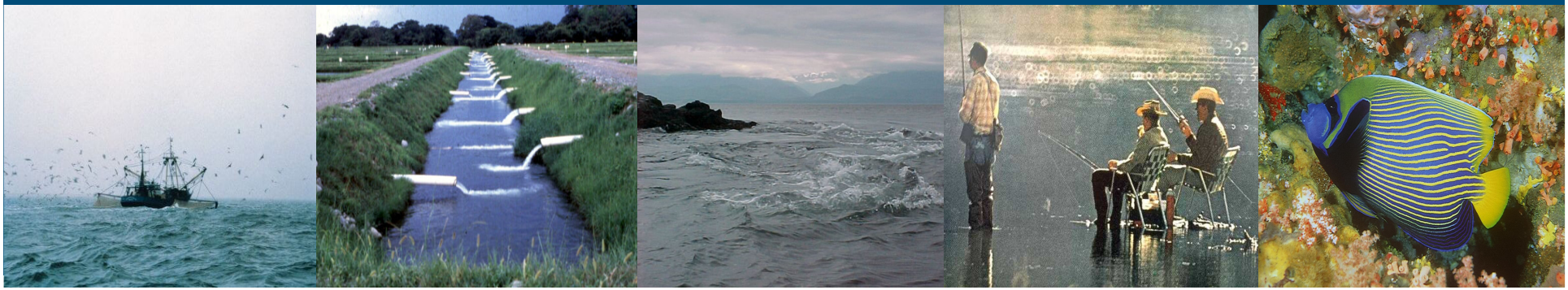

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# Structure

- Introduction
  - Fish Waste & Management
- Material Methods
  - System, husbandry, reactor
- Results
  - Quantitative & qualitative
- Conclusions

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# Introduction

**AQUACULTURE**

**WASTE**

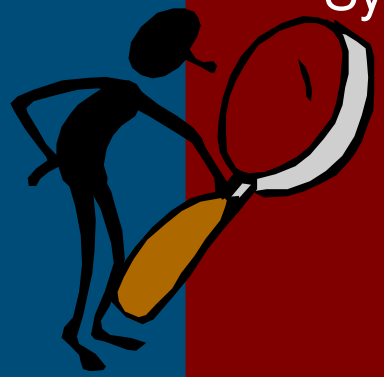
Integrated/suspended

Ponds

Conversion

Aquatic re-use

Recirculation Aquaculture Systems (RAS)



Treatment

Disposal

Terrestrial re-use

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# Introduction

20-50% N

15-65% P

Solid & Dissolved Waste

Dissolved Waste

30-65% N

up to 40% P

Solid Waste

10-30% N & 30-65% P

Bacterial-Waste-Converter NEW

C:N ratios?????

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# Material and Methods

- Optimal C:N ratios: 12-15g:1g → molasses
- Supplement 0.0, 3.2, 5.8, 7.8, 9.7gC/l/d
- C: N ratios: 3.4, 6.4, 9.4, 13.0,16.5

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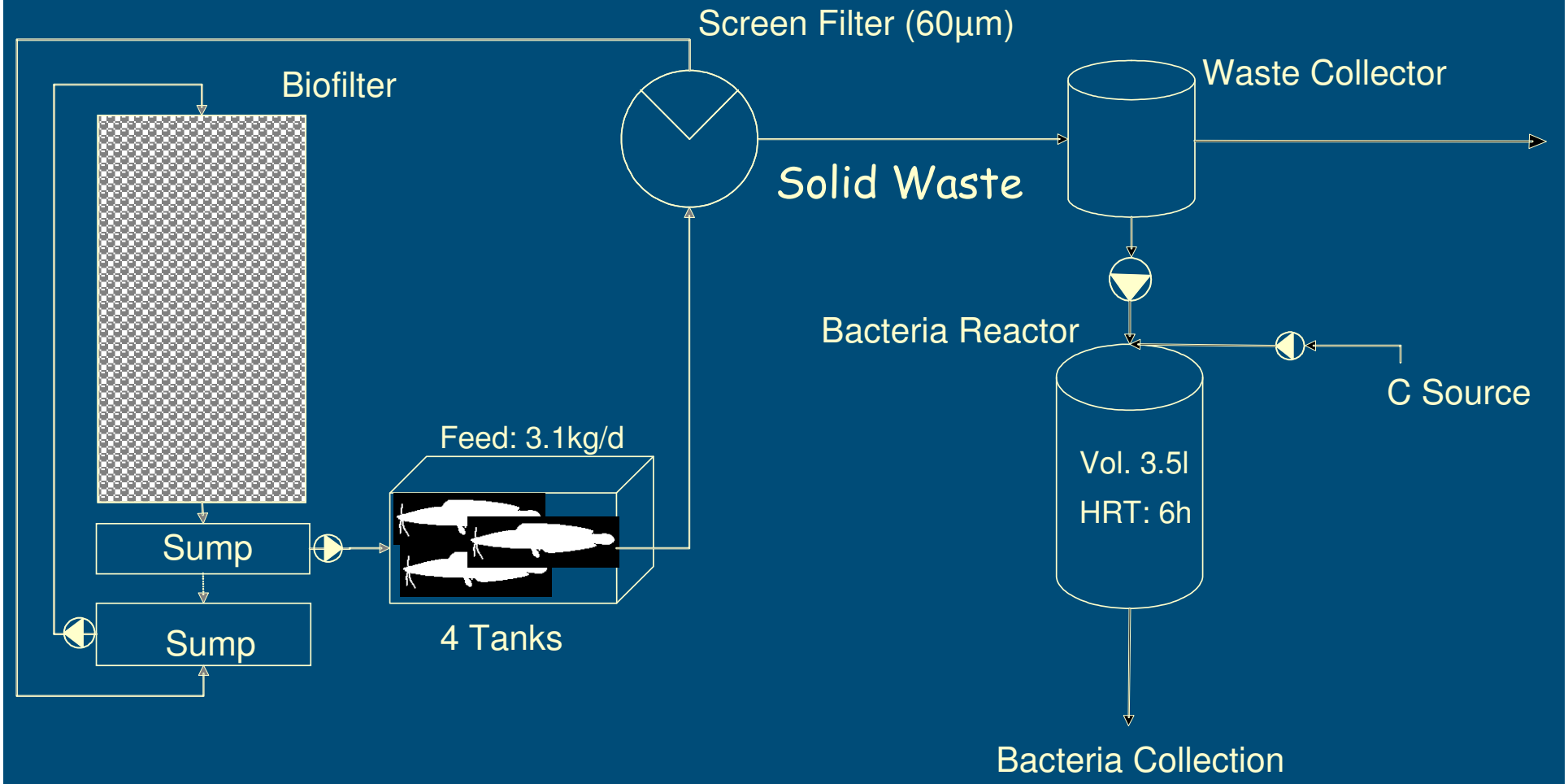
# Material & Methods

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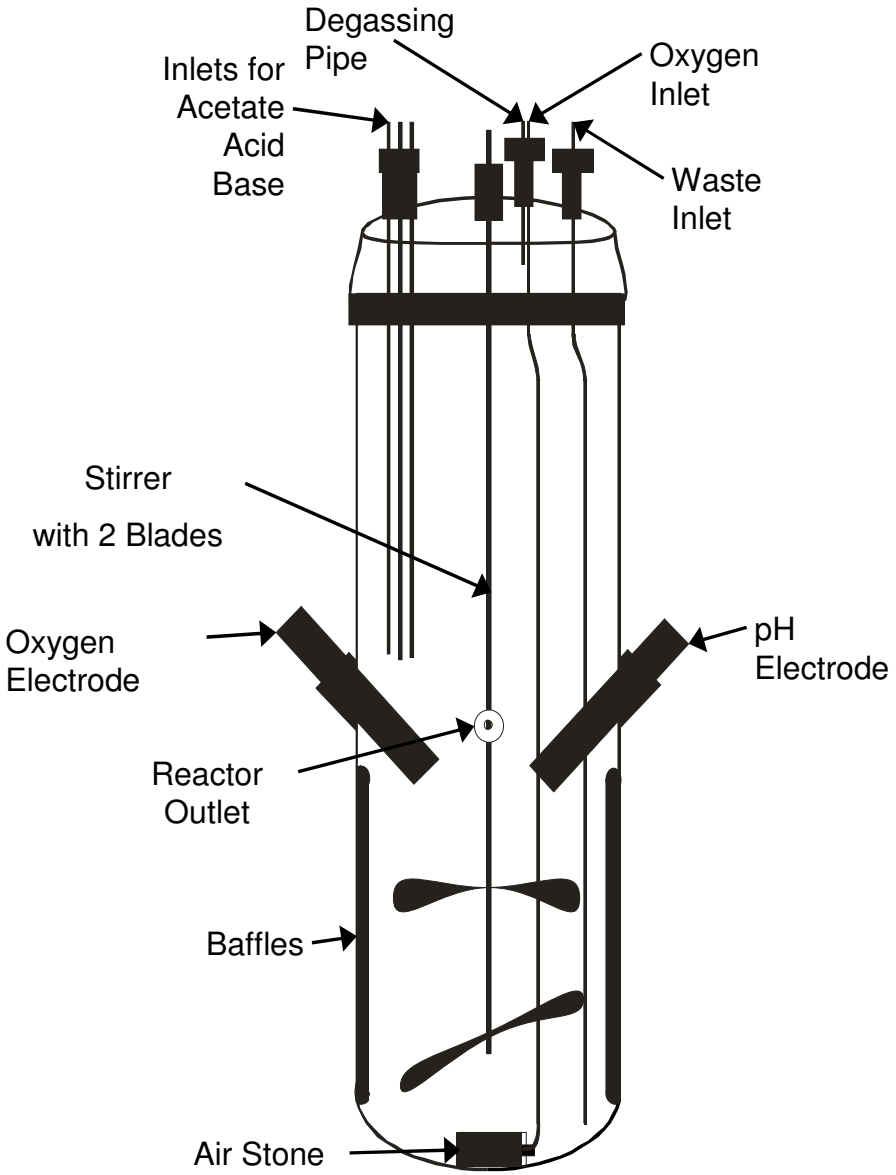
# Material & Methods

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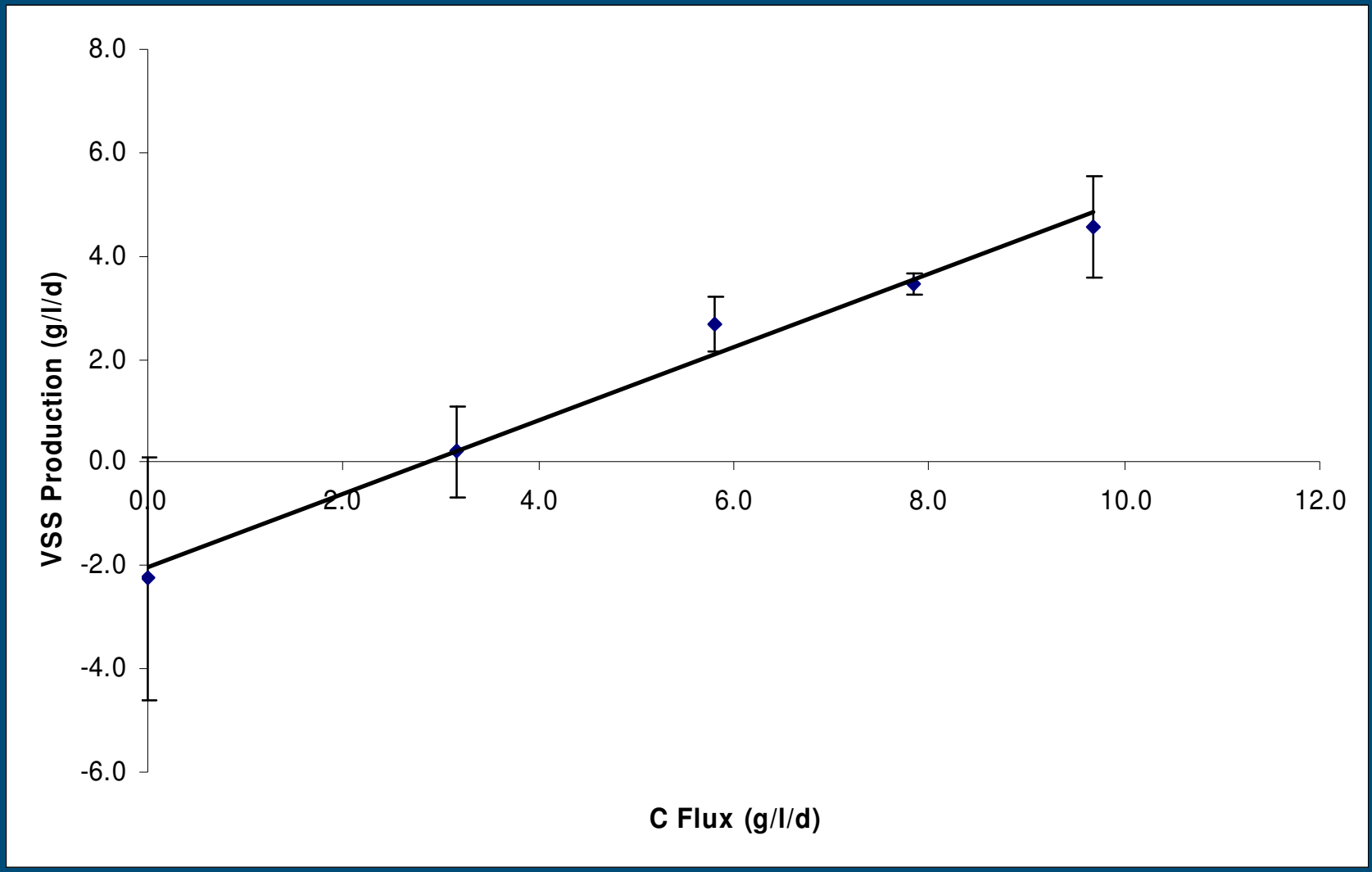
# Results - VSS production

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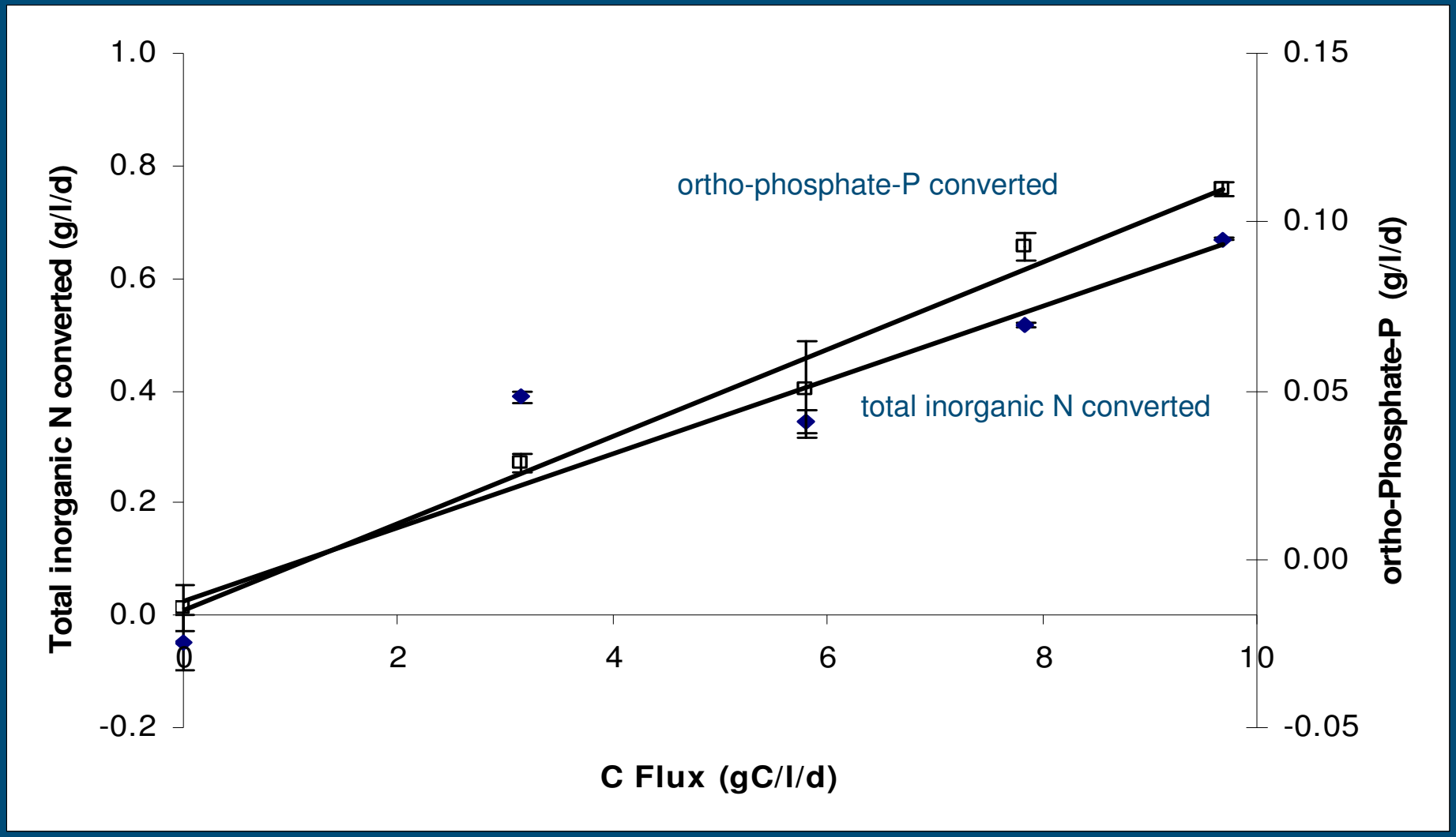
# Results Nutrient conversion

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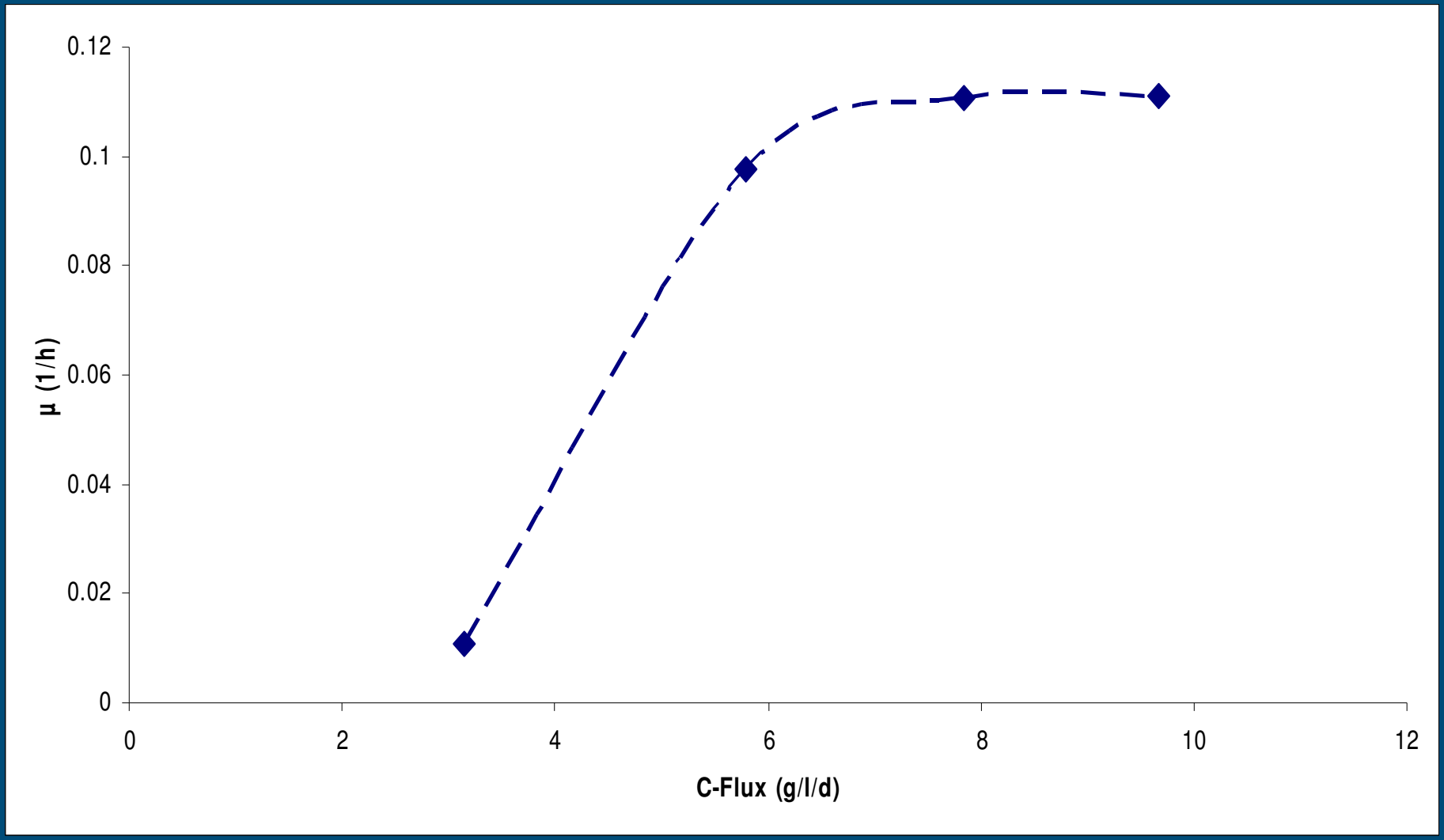
# Results -- Kinetics

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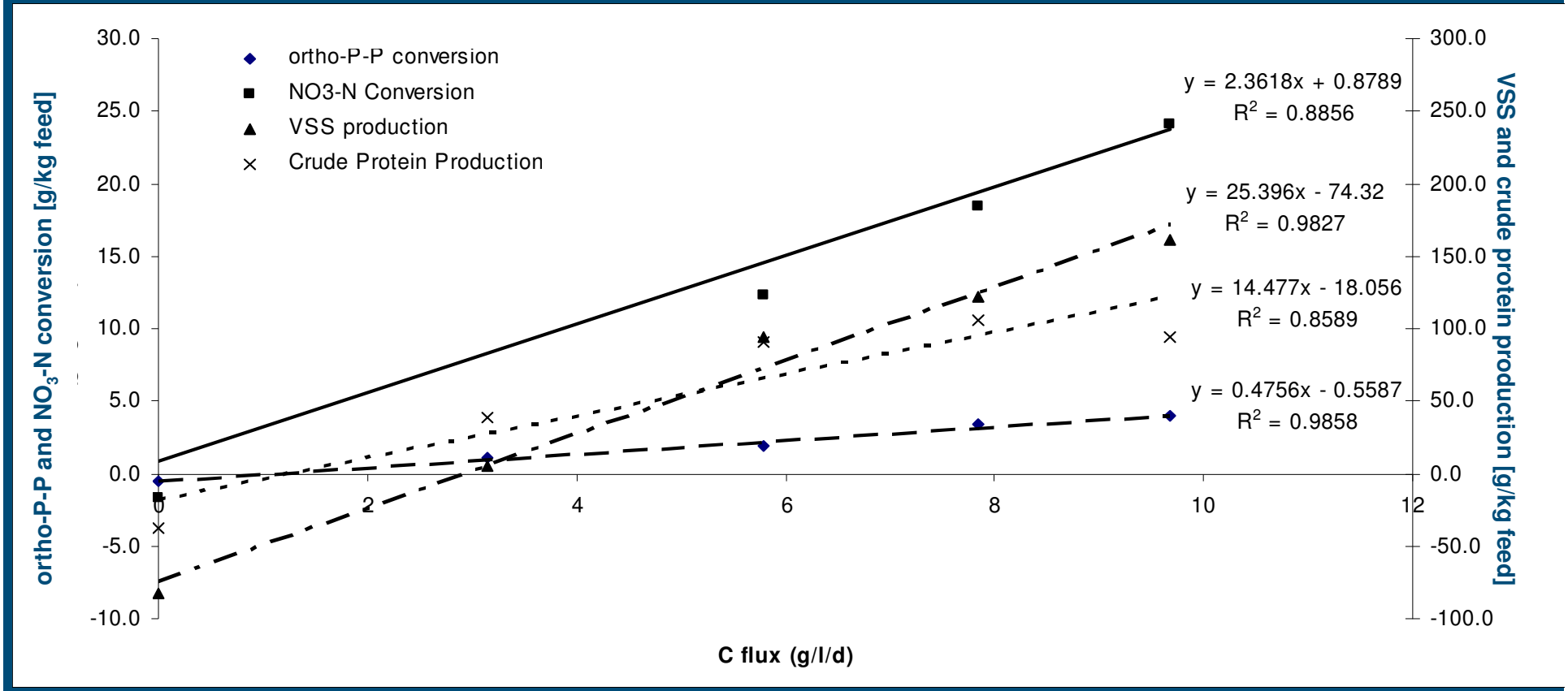
# Results -- Production per kg feed





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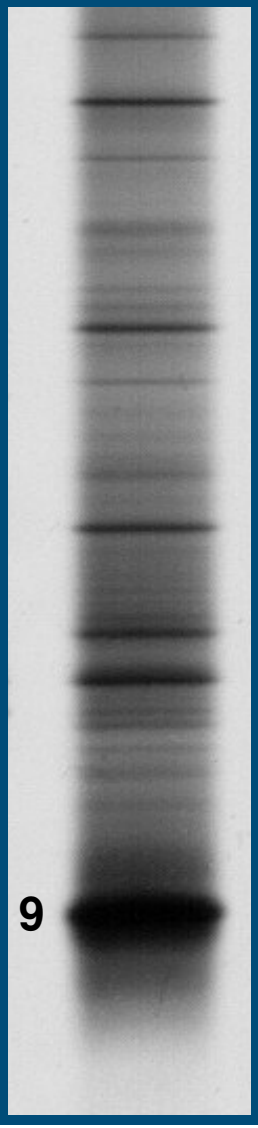
# Results – Bacteria Analysis





- Not reported as pathognic
- aerobic
- different salinities
- denitrification reactors
- as well in marine recirculation systems

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# Conclusions

- VSS production enhanced by carbon supplementation
- 167gVSS / kg feed
- 95g crude protein / kg feed
- 24g $NO_3$-N/ kg feed (90% DIN)
- 4gP / kg feed (98% o-P)
- Not pathogenic

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Integration of heterotrophic bacteria conversion to manage the waste effluent of a RAS is a prospective tool to increase RAS sustainability in the future…

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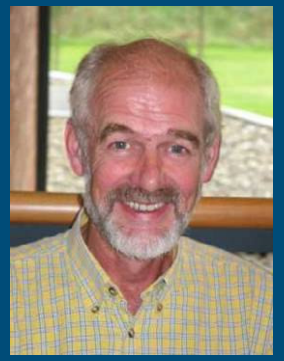
# Acknowledgements













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# Questions?????

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