Blue Mussel – Pilot Hatchery Developments

The Scottish Shellfish Hatchery Stepping Stone Project

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Project Rationale

SPRING BAY
SEAFOODS

- Visit to commercial hatchery
- Aim: To test the commercial feasibility of establishing a shellfish hatchery with focus on mussels

Funding & Set up

Phase 1
Setup and Enabling

University of the Highlands and Islands
Oilthigh na Gàidhealtachd agus nan Eilean

Phase 2
Research & Development

Scottish Shellfish Marketing Group

HIE
Highlands and Islands Enterprise
Iomairt na Gàidhealtachd 's nan Eilean

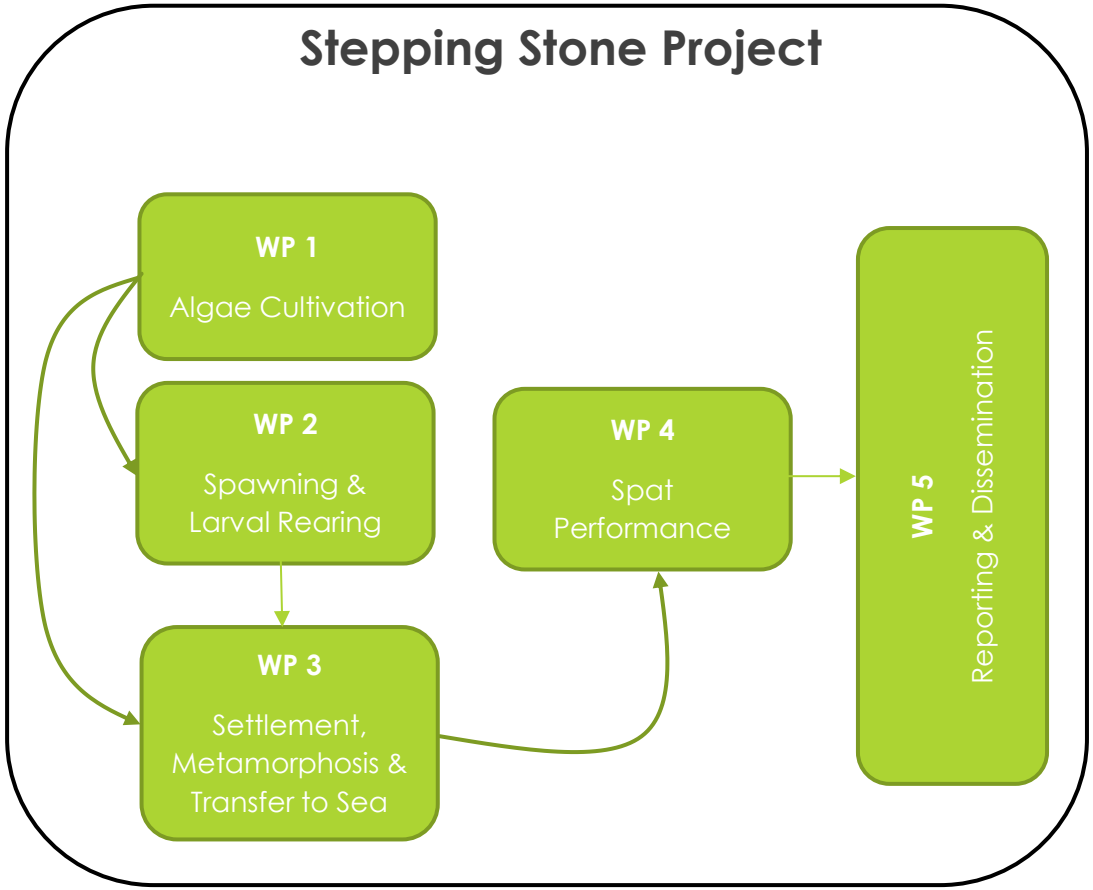
Scottish Aquaculture Innovation Centre

European Maritime and Fisheries Fund

Phase 1 Complete

Phase 2 2016-2018

Work Packages & Associated Projects



- Developing **genetic tools** for mussel hatchery management & future breeding programs

- **SAIC-Hatch:** Collaborative working across several institutes & the shellfish industry
- Aims to improve production techniques & provide scientific support to hatchery development
- Live feeds; Bacteriology; Settlement; Transfer to sea

NAFC Marine Centre

The Team

Danny Cowing

Project Officer

Raquel Quinta

Project Technician

Gregg Arthur

Aquaculture Manager

Lesley McEvoy

Aquaculture Scientist

Tariq Mohammed

Engineer / Technician

Blažka Smiljanič

Research Associate

Results so far - WP1 - Algae

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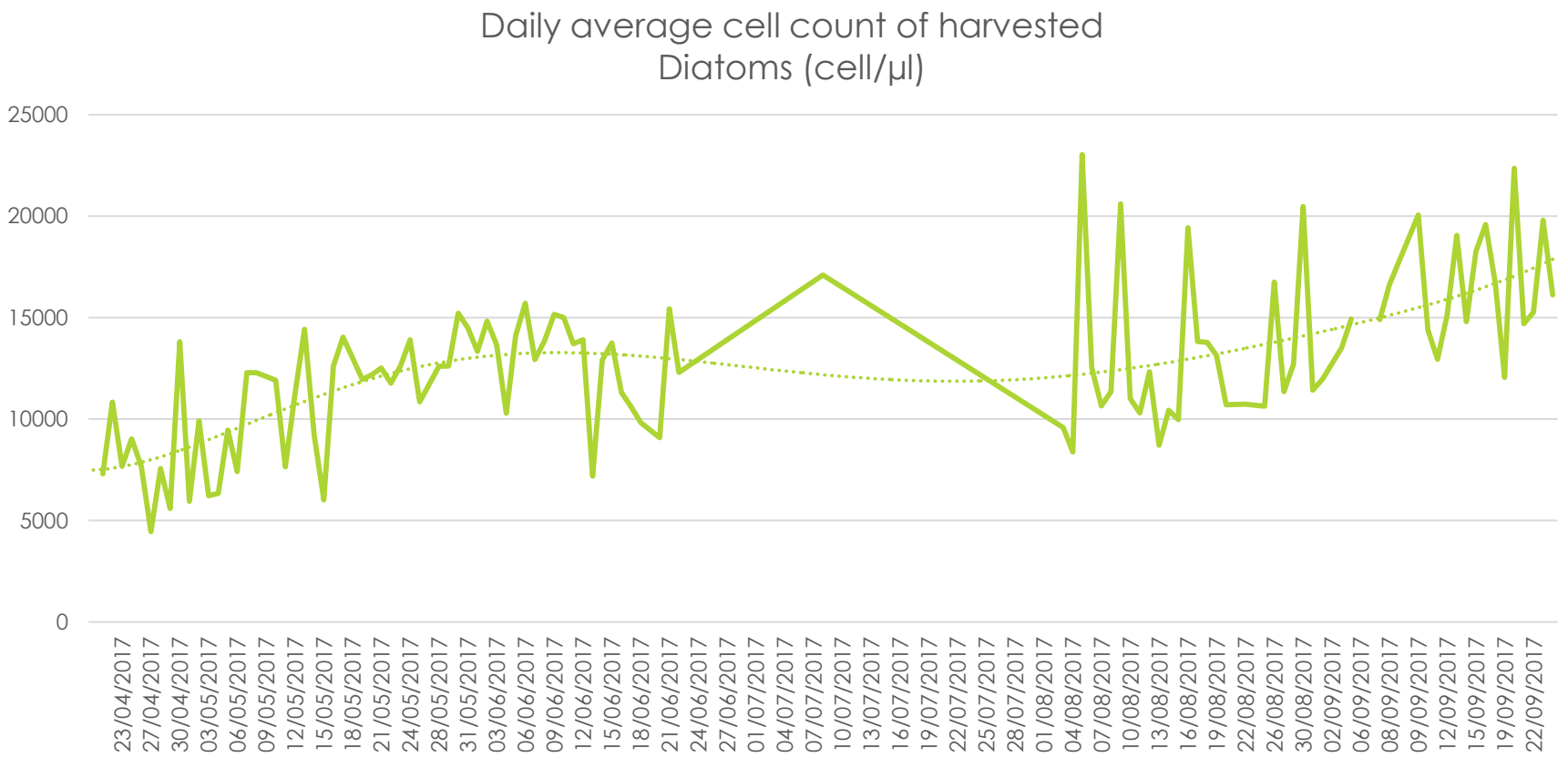
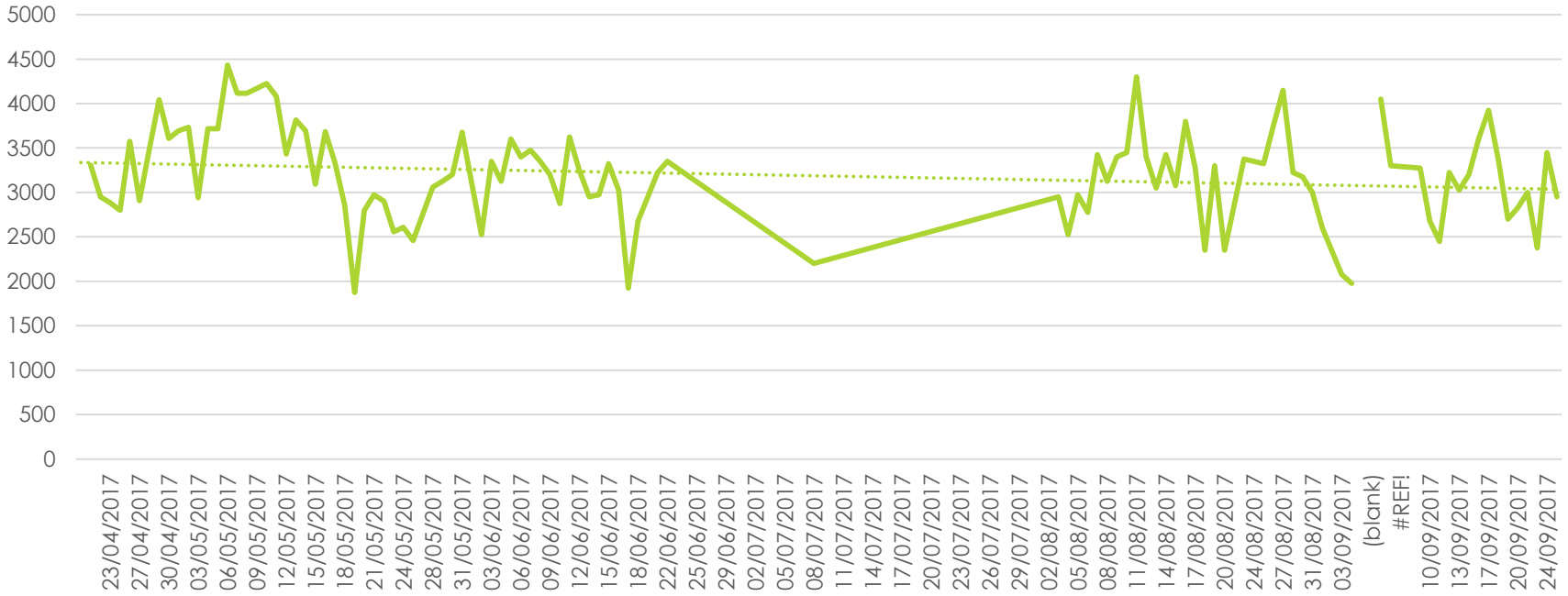
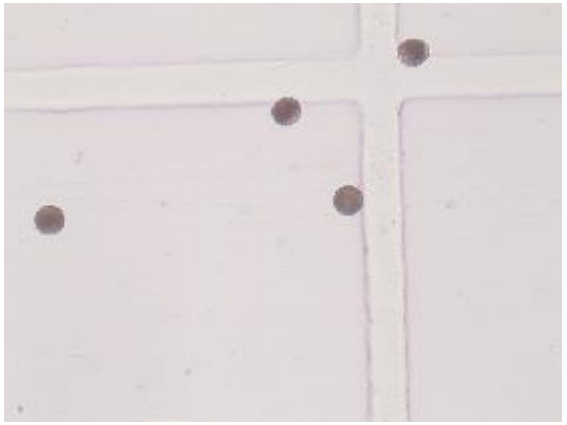


Results so far - WP1 - Algae

Daily average cell count of harvested Flagellates (cell/µl)

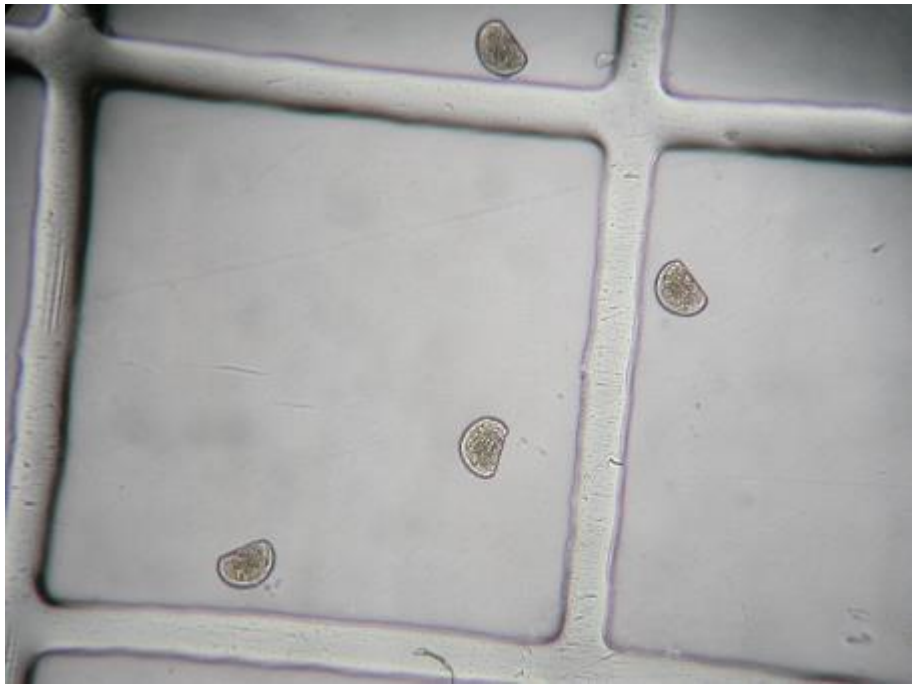


Results so far – WP2 – Broodstock & Spawning



- Height of spawning in April / May

Results so far – WP2 –Larval Rearing



- ~ 30% return from larval tank
- Lower than expected
- Problem : Tank design

Results so far – WP2 – Fecundity and Size Differences

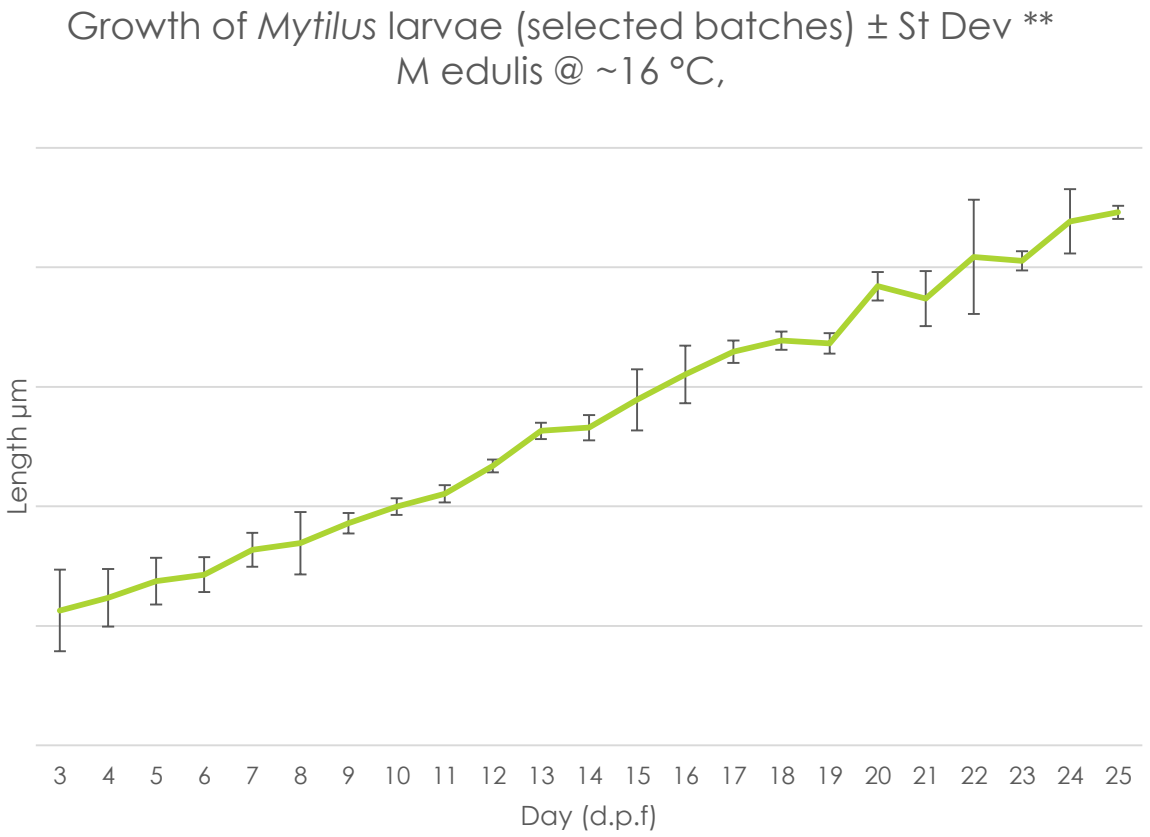
- Smaller Size
- Lower Fecundity

M. edulis

M. galloprovincialis (SBS - Tasmania)

Results so far – WP2 – Fecundity and Size Differences

- Growth rate

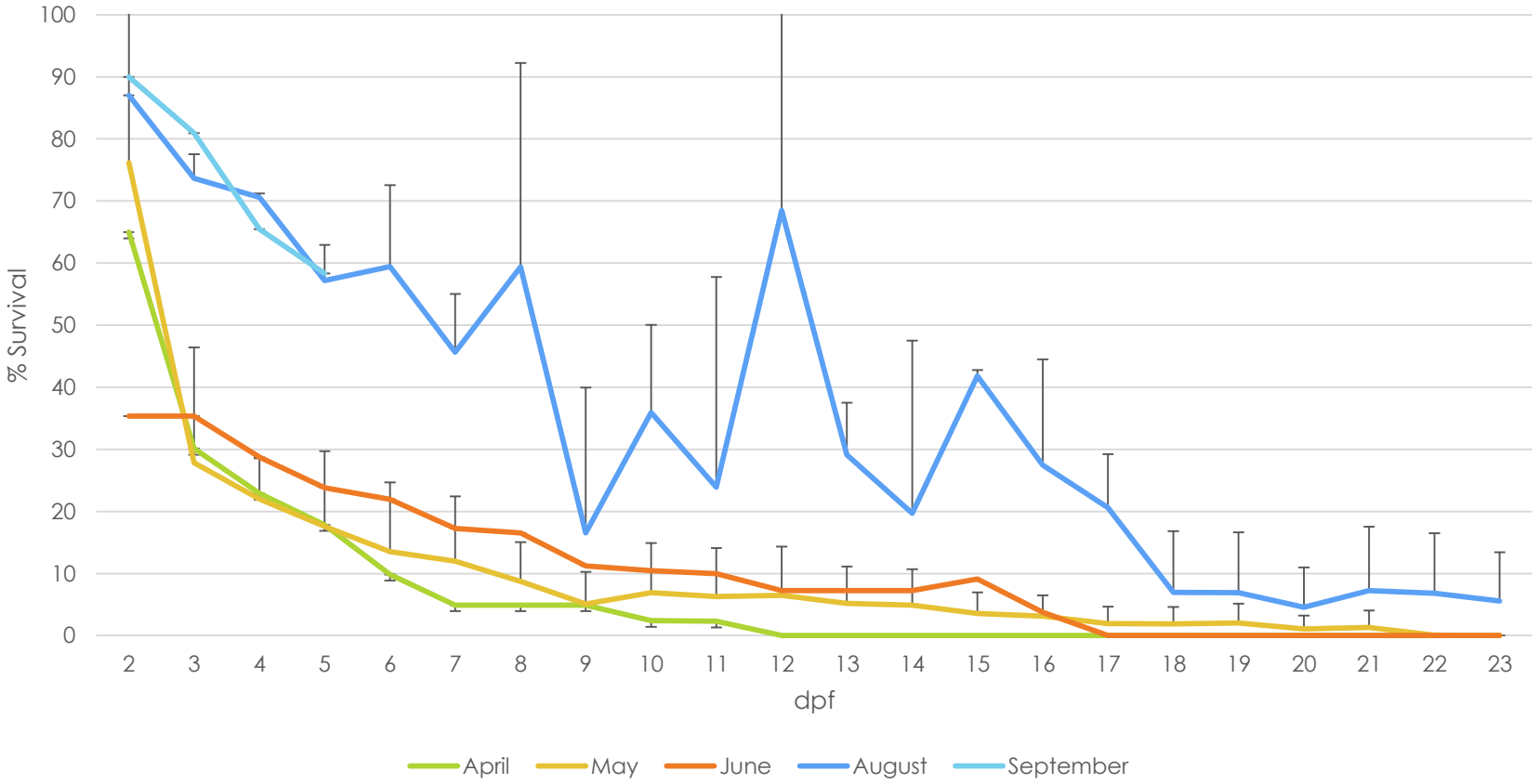


Results so far – WP2 –Larval Rearing

- More than x10 batches
- Variable Results

- High mortality within the first 7 days (dpf)

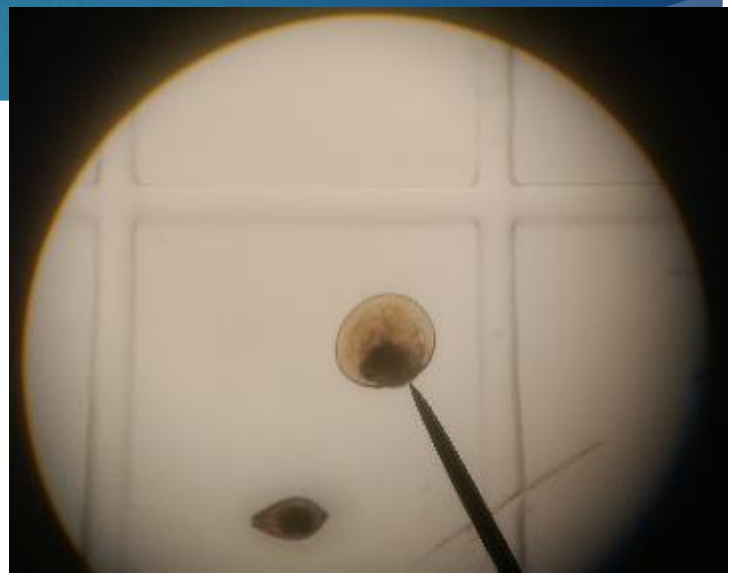
Results so far – WP2 –Larval Rearing



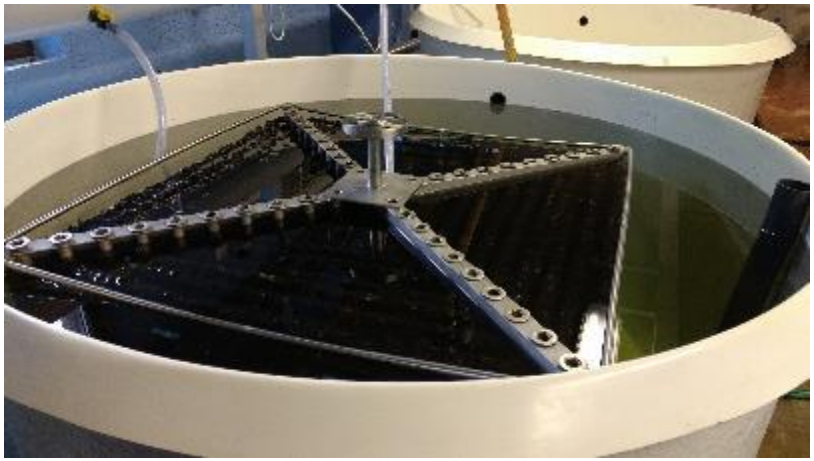
Improvements so far

- Time Efficiency
- Larval Observations
- High Hygiene Levels

- Positive Feedback from SBS Knowledge Exchange

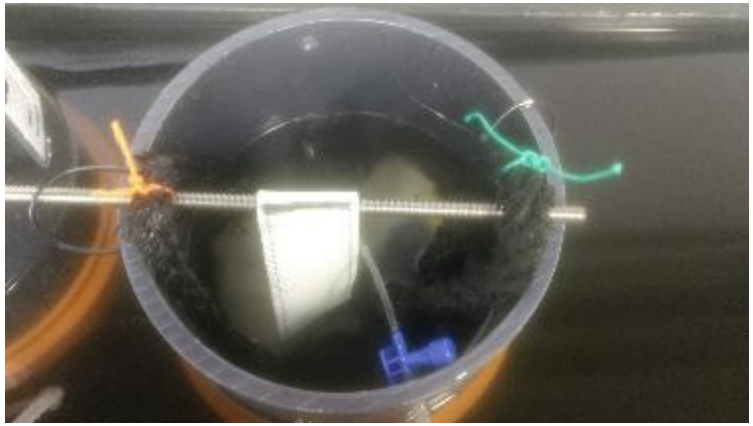


Results so far – WP3 – Settlement and Metamorphosis



Results so far – WP3 – Settlement and Metamorphosis

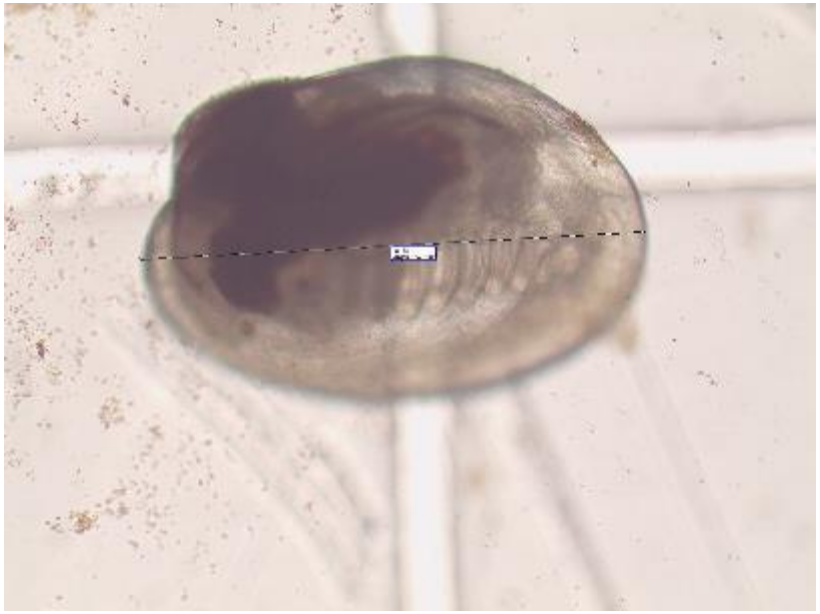
SAIC-HATCH Trials



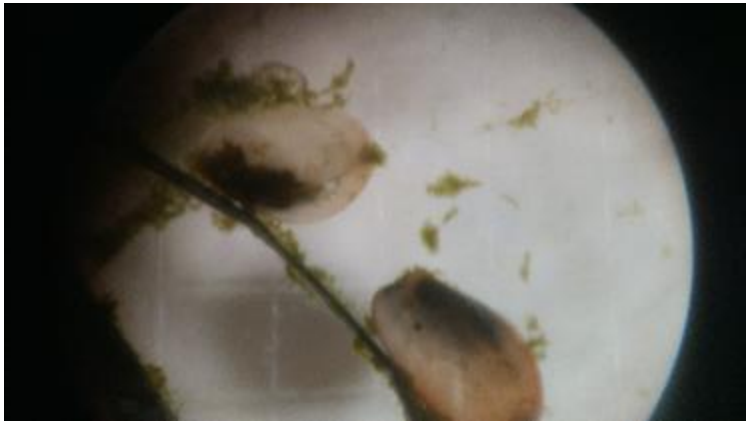
- Continue trials comparing the settlement rates of mussel spat on several different rope designs

- Grown spat up to 5mm.

Results so far – WP4 – Spat Performance



- 2mm length within two months
- Good survival once settled
- Moving rope to sea site next week



Improvements for next season

What have we learnt:

- Differences in broodstock
- Embryo development
- Hygiene
- Environmental parameters
- Intensive
- "the only source of knowledge is experience" Albert Einstein

Future Improvements:

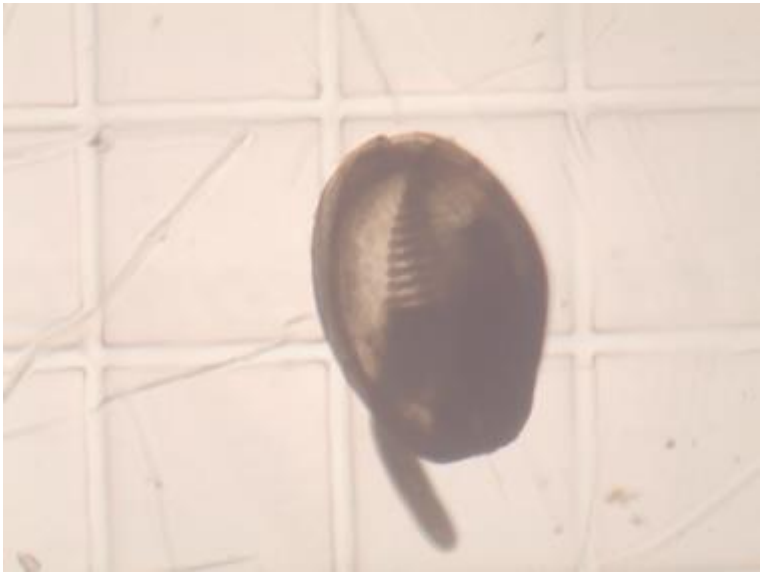
- Trial source broodstock
- Modify tanks
- Scrub, Scrub, Scrub!!
- Selection (Screens)
- Modify algal systems
- Summer students
- Keep learning!

Post Project Options

- Phase 2 (R&D) runs till the end of 2018

- Stepping stone to commerciality ???
- Additional funding?
- Intellectual Property will be open
  - Manual(s)
  - Research publications

Thank you for listening



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