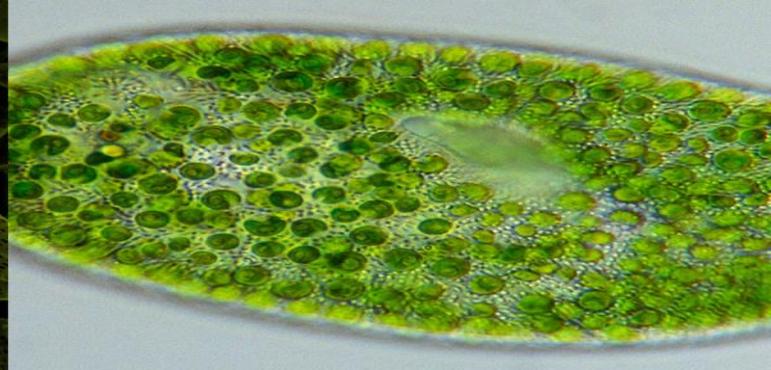


EnhanceMicroAlgae

Webinar The EMA Decision Support Tool

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PI Work Package 7
Swansea University

July, 2020

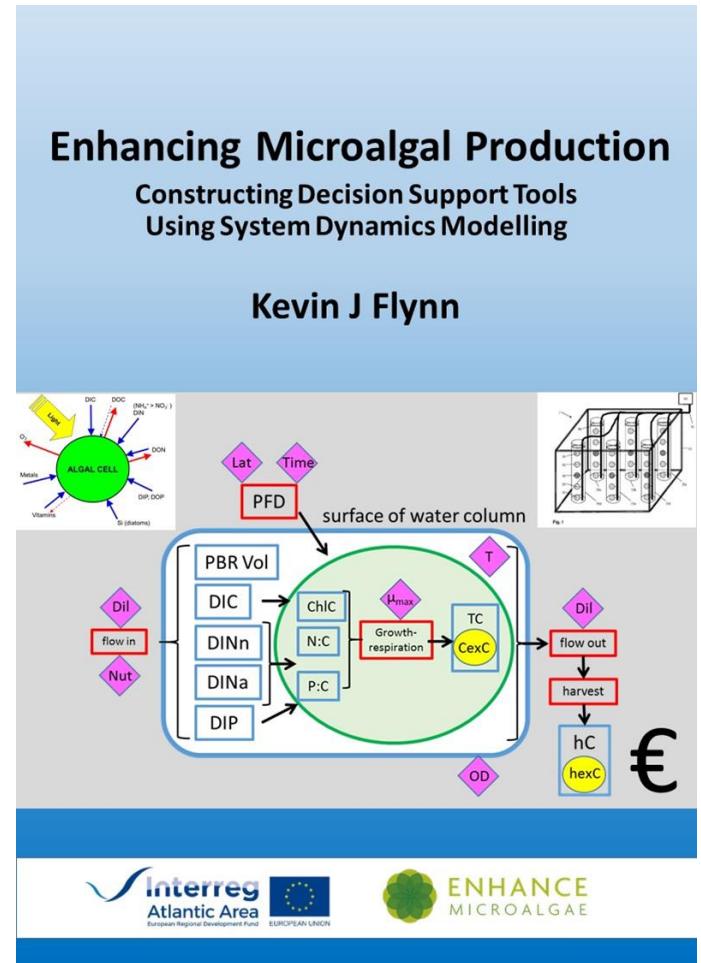


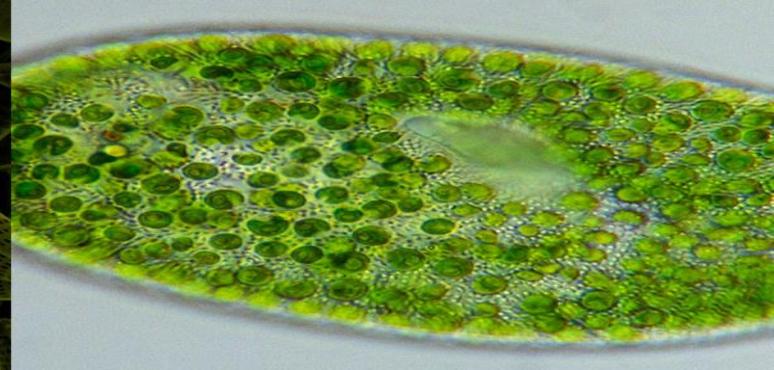
WP7 Action 2

Across different growth platforms (different volume PBR, ponds), different lighting (inc. LED) and nutrient (N vs P-stress) regimes, *Nannochloropsis* sp. and species selected by Atlantic Area stakeholders (likely diatom and/or flagellates), will be grown with multi-parameter logging and frequent sub-sampling for characterization. **"Growth parameters will be used to inform development of a DST, enhanced by biochemical characterization to inform production rate estimates and ensure consistency".**



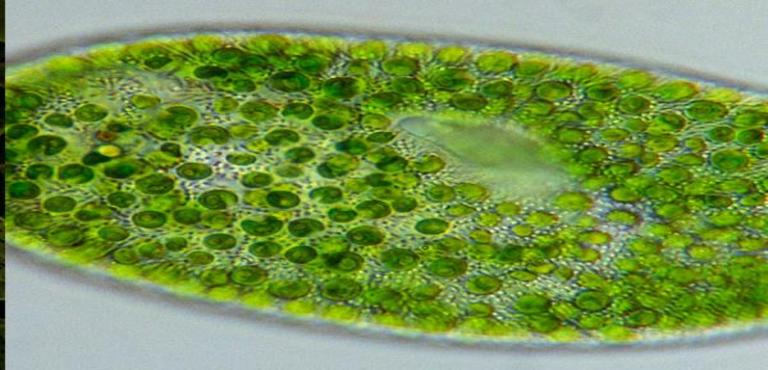
Prof. Flynn works at the interface of (experimental) plankton ecophysiology and simulation modelling. Expert on Algal physiology
> 170 papers



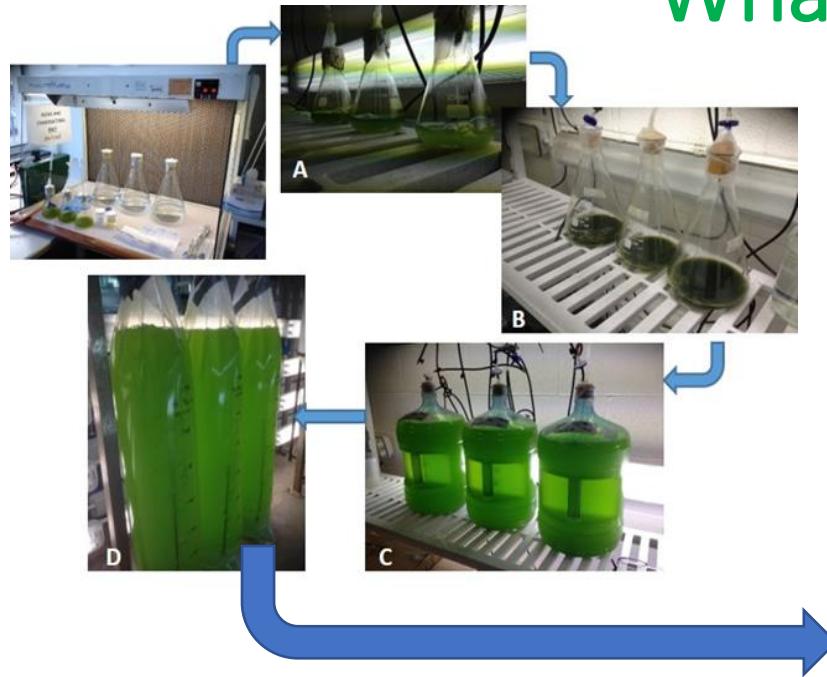


What and Why DST?!

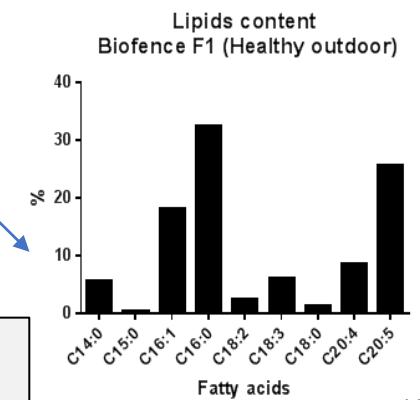
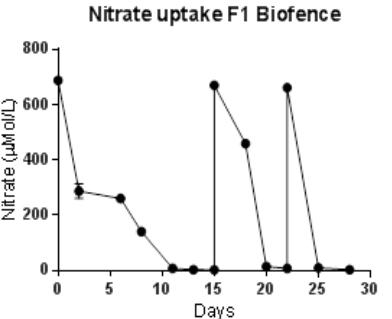
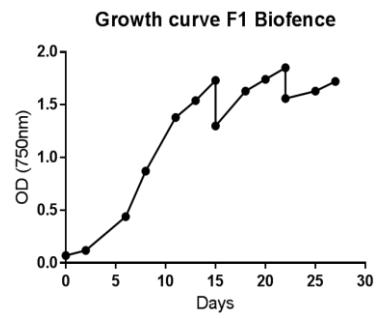
- A computer based simulation description to experiment with
- Real algal growth is slow and expensive to study
- Mistakes are costly
- Simulations are cheap (free) and fast
- Identify bad options quickly
- Concentrate effort on better options
- Select best options for exploration with a real system



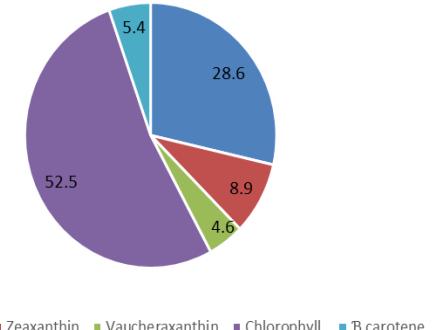
What and Why DST?!



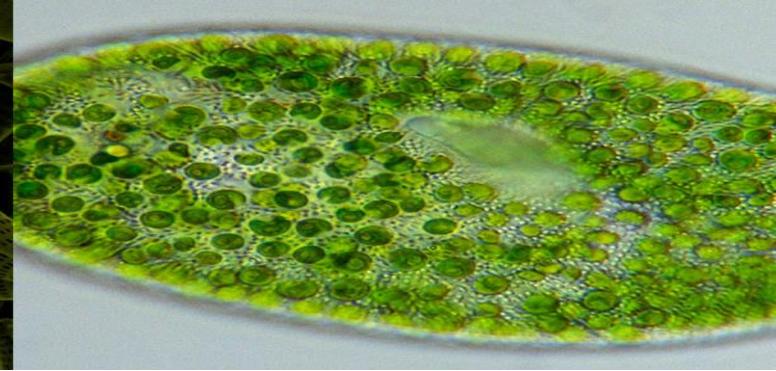
Scale-up process from (A) 250mL flasks, (B) 1L flasks, (C) 20L Carboys, (D) 80L Bags, finally to 800L Biofence cultures



Pigments percentage in healthy sample (Carboy indoor conditions)

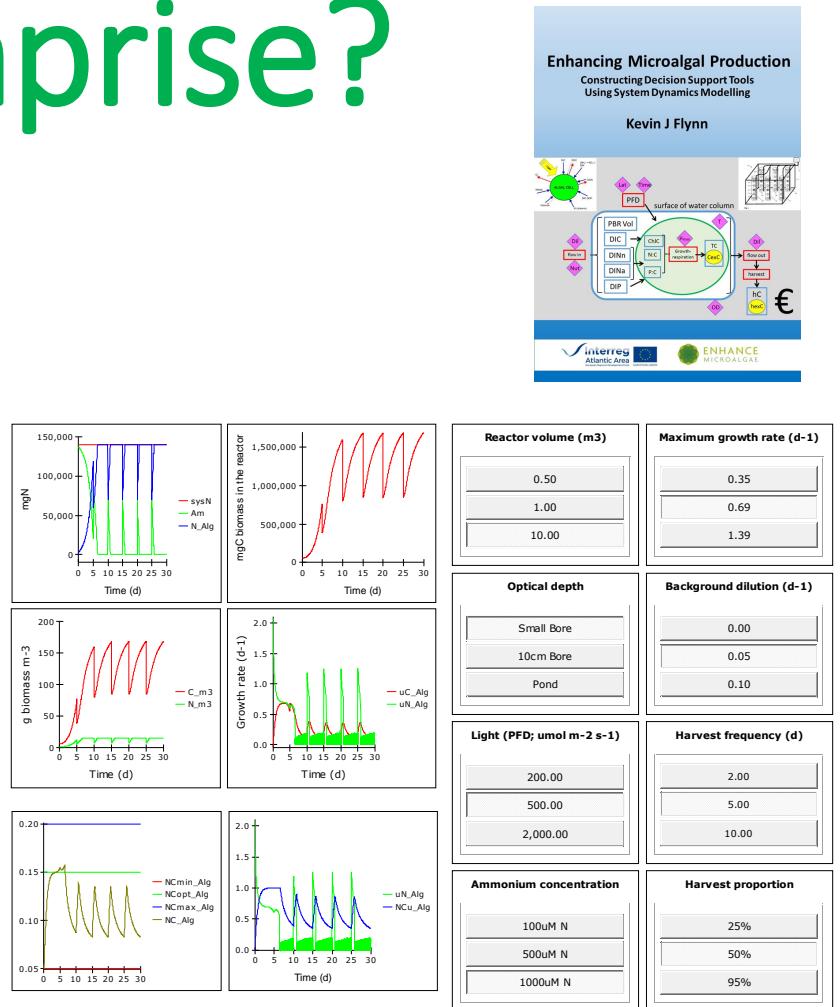


Chemical analysis



What does the DST comprise?

- A free e-book on aspects of algal physiology and culturing, with an introduction to the DST
- An introduction (for those who wish it!) on simulation modelling
- Free simulation models for the end-user to use to aid commercial-facing decisions in the growth of microalgae





<https://www.enhancemicroalgae.eu/>

The screenshot shows the main website for the EnhanceMicroAlgae project. At the top, there are logos for Interreg Atlantic Area, European Regional Development Fund, and European Union. Below the logos, the project name "ENHANCE MICROALGAE" is displayed with a green circular logo. A red circle highlights the "DECISION SUPPORT TOOL" link in the navigation menu. The main content area features a large image of microalgae and the text: "EnhanceMicroAlgae" and "High-added value industrial opportunities for microalgae in the Atlantic Area". Social media icons for Facebook, LinkedIn, Twitter, and Instagram are located in the top right corner.

The screenshot shows the landing page of the Decision Support Tool. It features the same top navigation bar as the main website. The main content area has a large image of microalgae and the text "Decision Support Tool" and "Welcome to the EnhanceMicroAlgae Decision Support Tool (EMA-DST)".

The screenshot shows a detailed view of the Decision Support Tool interface. It includes a software window titled "Microalgal P" with a flowchart diagram. A red circle highlights a specific part of the diagram. To the right, a blue arrow points to the text "DST ebook download". At the bottom, another blue arrow points to the text "Powersim software download".



<https://www.enhancemicroalgae.eu/>

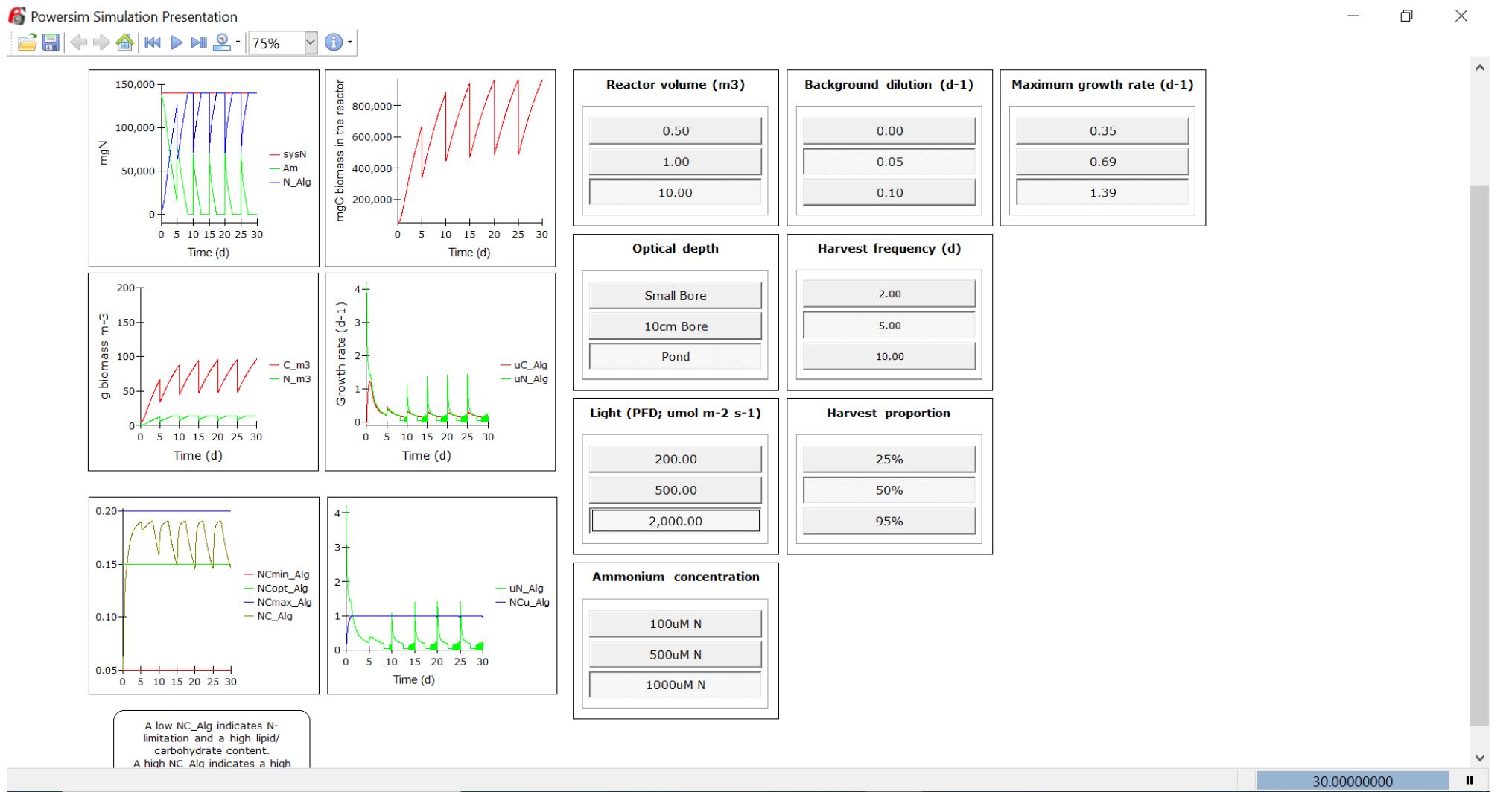
DST book

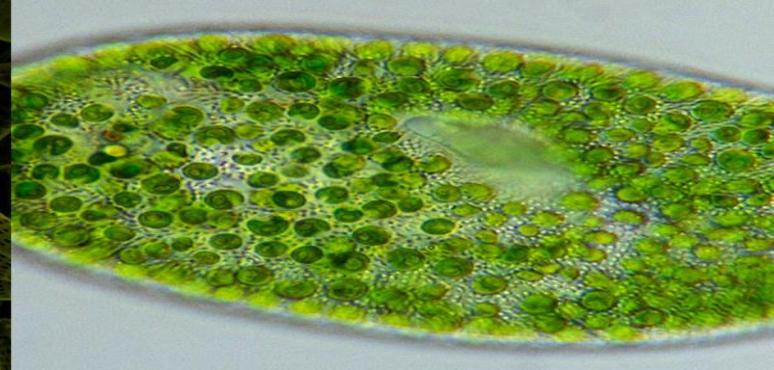
From the link below, you can [download the latest version of the EMA-DST e-book](#)

A screenshot of a PDF document titled "Enhancing Microalgal Production: Constructing Decision Support Tools Using System Dynamics Modelling" by Kevin J Flynn. The document is page 1 of 63.

This is available to run in the Microsoft Windows environment, from here: https://www.powersim.com/main/download-support/technical_resources/service_releases/studio10cockpit/

A screenshot of the Powersim Studio 10 Cockpit download page. The page features the Powersim Software logo and navigation links for Business Solutions, Services, Simulation Products, and Download & Support. Under "Download & Support", there is a section for "Studio 10 Cockpit" with links for "Powersim Studio 10 Cockpit (32-bit)" and "Powersim Studio 10 Cockpit (64-bit)". There is also a "Sign up to Mailing list!" button.





<https://www.enhancemicroalgae.eu/>

Many thanks!! Questions??

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DST problems or suggestions, please email the author at kjfplankton@gmail.com