

# ALGAL RESEARCH IN THE UK

## A SCOPING STUDY FOR BBSRC

### OVERVIEW

In the light of the global interest in algae, BBSRC commissioned a scoping study because it wishes to understand whether it should address fundamental research into the biology of algae<sup>1</sup> in the context of a feedstock for energy and other products, and if so, how.

The study is split into two parts; in Part I, it

- takes stock of **current and past algal activity in the UK** (Chapter 1)
- gives an overview of **algal interests globally** (Chapter 2)
- reviews **markets for algal products and services** (Chapter 3)

Part II builds on this information to analyse how the UK can best capitalise on its strengths in the light of current and emerging opportunities for algal R&D, and in the context of international competition. It

- reviews **potential opportunities for algal R&D to progress in plant science and biotechnology** in general, with an emphasis on underpinning food, energy and material security, and progressing biotechnology (Chapter 4)
- assesses the **strengths of the UK research capability on the global algae stage** (Chapter 5)
- analyses **gaps in algal research value chains** in the UK (Chapter 6)
- evaluates levels of risk, reward and importance of **areas of RD&D required to promote the development of an algal economy** (Chapter 7)
- compares the outcomes of this study to a previous DECC report from 2009, entitled 'Assessing the Potential for Algae in the UK'<sup>2</sup>, considers progress against the recommendations of the 2009 report, and makes further **recommendations** (Chapter 8).

#### **Key findings include:**

- The UK currently has a strong and diverse knowledge base of relevance to algae, and excels in fundamental biological and ecological research; however, if the research is to increase its impact, the research community needs to achieve greater cohesion.
- On an international stage, the UK faces competition from well-funded initiatives especially in the US, the BRIC countries, Israel, Australia and within the EU.
- UK expertise can make a global impact by developing algae as a platform for industrial biotechnology, and through advocating and implementing ecologically sound algal commercialisation.

The report recommends the development of a **Virtual Centre of Excellence on Algae** in the UK, to provide:

- support for fundamental scientific research that will underpin the development of novel algae-based products and services
- cohesion across the algal research community
- capacity building in relevant multidisciplinary expertise.

This academic Centre of Excellence should be complemented by an **Algae Technology Innovation Centre**, which will be able to pull the outputs of algal research through to commercial application.

---

<sup>1</sup> Following the definition of RE Lee (Phycology, 2008, Cambridge University Press, p.3), the term 'algae' in this report is used to refer to both macro- and microalgae, with the latter including prokaryotic algae (cyanobacteria). Purple photosynthetic bacteria, which are anoxygenic, are not included.

<sup>2</sup> available from [www.nfccc.co.uk/tools/assessing-the-potential-for-algae-in-the-uk](http://www.nfccc.co.uk/tools/assessing-the-potential-for-algae-in-the-uk)