



combinations between any of these), emphasis has been seen to veer towards copepods with their more optimal nutritional characteristics. However, current practice seems to be reverting back to *Artemia* with its "off the shelf" properties and possibly lower disease risk - provided its nutritional failings can be doctored. It therefore seems particularly appropriate that this book appears at such a time covering all aspects of the live feeds side of the argument so keeping all possible solutions open for as long as possible.

The historical perspective is so often overlooked and it is important that references not yet accessible online are included, especially when the book is specifically aimed at advanced undergraduates and postgraduates. The wide-ranging historical context setting of the first chapter very much sets the tone for the rest of the book with every chapter also taking in the long view. Much of this historic information (this is historic in scientific terms) would not be easily accessible from any other source and yet has governed so much of what has actually happened. It is arguable that without periodic acute shortages of *Artemia*, for example, many new avenues of research would never have been stimulated. It is useful for students to be aware of outside influences and how they are not necessarily isolated occurrences, but can happen again. The more recent and current research findings are very clearly introduced and would make this book the first requirement for anyone wanting any information on any aspect of live feeds. The chapters cover a general overview of marine aquaculture with its requirement for live feeds, and proceeds to chapters on production and nutritional value of rotifers, chapters on *Artemia* in general and one on production of *Artemia* from natural lakes and similar approaches for copepods and microalgae.

It is quite striking the expectation expressed by many of the contributors that artificial diets will improve to the level where they will increasingly supply all the larval fish requirements. Even if this is so, it is hard to imagine that much of these eventual diets will not depend to a large degree for their ingredients from live cultures originally. What will certainly not be in doubt is that any such diets will owe a huge debt to the research carried out on live feeds and this research is admirably covered in this volume. I would recommend this book most highly for anyone interested in marine aquaculture.

## MSc in Sustainable Development

Sustainable development can be defined as "meeting the needs of the present generation without sacrificing the potential of future generations" (WCED, 1987). The concept has captured the imagination of world leaders and the public alike and, as such, has emerged as the guiding idea in policy and application from local to international levels. Refined and signed up under the auspices of the UN's Commission for Environment and Development conferences in Rio (1992) and S.Africa (2002) sustainable development is no longer an idealistic dream, but increasingly a practical reality.

It is in recognition of its importance and poignancy for today's society, that the University of Stirling has developed a new MSc course to cover many aspects of this interesting topic. It intends to provide skills to a new cadre of committed people, capable of making significant contributions across society locally, nationally and internationally. The challenges thrown down in making development sustainable encompass historical and philosophical approaches as well as biotechnical, economic, social, institutional and policy related perspectives. The course is designed to apply this unique mix of theory and practice and will lead to a valuable qualification enabling participants to engage in a wide variety of sectors.

As sustainable development is a new disciplinary area, it requires a multidisciplinary set of tools and understanding and this approach is drawn from across the University. The two primary departments involved are the Department of Environmental Science and the Institute of Aquaculture, although other departments and external experts have inputs where relevant. The Institute of Aquaculture has developed case studies intended to give all students, regardless of their backgrounds, an insight into the aquatic aspects of environmental degradation, and sustainable planning for the future. These case studies include, the US-Vietnam catfish trade disputes, the pesticide use/misuse issues as highlighted by current research, and aspects of 'sustainable' shrimp culture and mangrove utilisation in both South America and Asia. We have also explored the precautionary principle with Professor Andrew Watterson from the Faculty of Human Sciences and applied these principles to real life aquatic scenarios.

These case studies have been presented to course participants, not always from scientific backgrounds, and used as forums on which to draw from their wide variety of personal and professional experience.

Due to the direct relevance of this course to the future of our societies and the environment, a wide variety of students have been attracted and will continue to be attracted to this subject and the issues it raises.

The overall structure of the course can be given as follows, although some modules are provided as electives:

### Autumn

Principles and Challenges of Sustainable Development  
Information Technology  
Environmental Techniques and Assessment  
Environmental Policy and Management  
Environmental and Ecological Systems  
Environmental Economics

### Spring

International Development: Sustainability and Livelihoods.  
Advanced Sustainable Development Communities and Processes: Measures and Methodologies  
Legal Aspects of Sustainable Dev.  
GIS and Remote Sensing for Environmental management  
River Conservation and Management  
Biodiversity  
Pollution Control  
Business Strategy and Sustainability.

### Summer

An Independent Dissertation  
We expect that students will be offered places on research/ development projects overseas, for their final dissertations.

### A student's motivation

A few words from one of the current students on the course, Anna Fraser, age 21, from Black Isle, Scotland. My first degree was Animal Biology, but it was my experience volunteering in primary health care provision and education in Africa and Asia that led to me choosing the SD MSc. My main interest in sustainable development is to assess current issues and conflicts between environmental and human requirements. In the future I hope to be involved in rural policy development or public education.