

ENVIRONMENT

The Algal Bowl: Overfertilization of the World's Freshwaters and Estuaries

By David W. Schindler and John R. Vallentyne. 2008. The University of Alberta Press, Ring House 2, Edmonton, Alberta T6G 2E1. 334 pages. 34.96 CAD, Paper.

Ever wonder about the origin of all that green slime on your favorite swimming beach? Or why laundry and dish detergents are advertised as phosphate free? If so, let Schindler and Vallentyne guide you through the science and politics of eutrophication.

The authors define eutrophication as “the complex sequence of changes initiated by the enrichment of natural waters with plant nutrients.” This is the story of eutrophication by two of the pioneer researchers on the effects of nitrogen and phosphorus enrichment of our freshwaters by human activity. In particular, it was the authors’ long-term, whole-lake experiments at the Experimental Lakes Area in northwest Ontario that ushered in ecosystem-based manipulative experimentation, the results of which proved the key role of elevated phosphorus levels in freshwater eutrophication.

Despite the great advances in policy that control point sources of overfertilization, the authors admit that local governments are still largely unaware of the excellent science available on the causes and effects of eutrophication. This book is their attempt to rectify this situation.

It is well recognized that we live on a human-dominated planet. A major way in which we affect global ecosystems is through our impact on the flux of global element cycling. Many of our environmental issues are a function of enhanced nutrient levels in the environment as a result of human activity; carbon in the case of global warming, sulphur with acid precipitation, and phosphorus and nitrogen in the case of eutrophication of our freshwaters and marine estuaries.

None could be more qualified for this task than the two authors. Both have dedicated their lives to understanding the influence of human activity on freshwaters. Their pioneering large-scale manipulation and monitoring of whole lake systems over long periods of time set a new research standard. Deliberately pol-

luting small pristine boreal lakes with phosphorus, nitrogen and carbon in a well-designed experiment provided the definitive evidence for phosphorus overload as the cause of lake eutrophication – and set the stage for significant policy change. The authors’ work remains a classic example of the power of manipulative ecosystem-level experimentation.

In an imminently readable style, the authors spell out in 14 chapters the history, science and policy of eutrophication. Preliminary scientific chapters on limnology set the foundation for later discussions of the whole-lake experimental process. In between, the reader is introduced to the role of phosphorus and nitrogen as drivers of eutrophication, followed by a history of the detergent phosphate controversy.

Despite the best scientific efforts, the battle against eutrophication is far from won. Eutrophication has assumed ever more complex forms as freshwater and marine estuaries come under increasing pressure from non-point sources of pollution, climate change, and land use changes around lakes and along coastlines. Furthermore, the problem of eutrophication has moved from freshwater lake systems to the so-called “dead” or anoxic zones of our coastal and estuarine ecosystems. While the science of managing eutrophication is quite well known, applying that knowledge to the actual management of water systems is a complex social and political problem.

The authors are to be commended for distilling years of limnological and eutrophication research into one volume. They have presented the science in a readable manner and have proposed policy and management implications of that research. A glossary and eight pages of colour plates add to the text. We have the science. In one sense, that’s easy. Changing our use of water is another issue.

JOHN MCCARTHY

St. Mark’s College, 5935 Iona Drive, Vancouver, British Columbia V6T 1J7 Canada

Antarctic: First Journey

By Geoff Carpentier. 2009. Avocet Nature Services, Ajax, Ontario, Canada. [Contact Geoff – Birds avocet@rogers.com or see www.avocetnatureservices.com] 359 pages. 33.50 CAD Paper.

I have known Geoff for more years than I care to remember. He tells some quirky jokes – groaners really – but he is a great birder. He has written, not a guide to wildlife, but a guide to how to go to this marvellous continent. He covers Antarctica, the Falklands, South Georgia, and the sub-Antarctic and Tierra del Fuego. And yes, his humour comes through.

If you plan to go to Antarctica – and you should – you need to read this book first. It details all the of the prerequisites you need to know to turn this from a trip to an adventure. He begins with the items you should consider before you depart. For example he has a packing checklist that is very close to the one I have developed and used successfully myself for many