

farmed fish are covered in Chapter 9. On the whole this chapter is reassuring but it also emphasizes the need for vigilance in ensuring that fish is safe to eat. Chapter 10, 'Freezing and chilling of fish' overlaps to some extent with Chapter 7 in the section on chilled fish. It is, however, mainly concerned with the theory of the freezing process and possible mechanisms of frozen storage deterioration of fish. The final section deals with the technical aspects of freezing equipment. Fish products are brought together in Chapter 11 which covers 'traditional' and more recent fish products. These include dried fish, salted fish, smoked fish, marinated fish, canned fish and fish minces. The section dealing with the last named product I found rather confusing as all minced products are dealt with together including surimi. I would have expected that, because of its worldwide importance, 'surimi' would have been treated separately and more thoroughly. Surprisingly fish fingers, another very important commercial product, are not mentioned.

The final chapter on fish meal and oil provides information on the species used, the manufacturing process and the role of fish meal in animal nutrition. The proportion of the world's catch being converted to fish meal is high (between 25 and 30%), but for economic and practical reasons it seems that there is no alternative at present to making more of these fish available for direct human consumption.

Overall this book provides a useful update across the whole spectrum of interests concerned with fish and shellfish as food, and it is a useful addition to the scientific literature. It is a pity, however, that it does not include a chapter on specifications and regulations drawn up by the European Commission, Food and Drug Administration of the USA, and other bodies, to

ensure the safety and quality of fish and shellfish for human consumption.

Ian Mackie

**Handbook of Food Additives.** Compiled by Michael and Irene Ash. Gower, London, 1995. ISBN 0 566 07592 X. xiv + 1040 pp. £175.00

Far more comprehensive though less easily readable than *Lewis' Food Additive Handbook* (about 1300 entries), this book is more of an encyclopedia of food additives (over 7000 entries). It allows an immediate focus onto one particular substance, description and brief usage properties and supplier's name (where known). This is supplemented by an index of supplier's addresses, telephone numbers and fax numbers. It is therefore a very useful text indeed.

Additional useful features include a list of abbreviations, chemical abstract service (*CAS*) numbers, European inventory of existing commercial chemical substances (*EINECS*) numbers, code of Federal Regulations (US) (*CFR*) numbers, Flavour and Extract Manufacturers' Association (*FEMA*) numbers as well as *EC(E)* numbers and cross-reference tables against suppliers where possible.

There is also a list of Japanese food additive regulations.

Bearing in mind the extremely high costs of completely comprehensive tables of food additives, this volume is clearly a very expedient tool for every-day fast use. The authors are to be congratulated on their mammoth compilation and the book is highly recommended.

Gordon Birch