

- OSTROVSKY, M. L. & DUTHIE, H. C. (1975). Primary productivity and phytoplankton of lakes on the eastern Canadian Shield. *Verh. Intern. Verein. Limnol.*, **19**, pp. 732–8.
- PATRICK, R. & REIMER, C. W., (1966). *The Diatoms of the United States*, Vol. 1. (Monog. of the Acad. Nat. Sci. of Philadelphia, No. 13.) Livingstone, Philadelphia, Pennsylvania: xi+688 pp., illustr.
- PRESCOTT, G. W. (1962). *Algae of the Western Great Lakes Area*. W. C. Brown, Dubuque, Iowa: xiii+977 pp., illustr.
- REHAKOVA, H. (1969). Die Variabilität der Arten die Gattung *Oocystis* A. Braun. Pp. 145–96 in *Studies in Phycology* (Ed. B. Fott). E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, Germany: 304 pp., illustr.
- SCHEIDER, W. A., ADAMSKI, J. & PAYLOR, T. M. (1975). *Reclamation of Acidified Lakes Near Sudbury, Ontario*. Ontario Ministry of Environment: ix+129 pp.
- SCHEIDER, W. A., CAVE, B. & JONES, J., (1976). *Reclamation of Acidified Lakes Near Sudbury, Ontario, by Neutralization and Fertilization*. Ontario Ministry of Environment: 56 pp.
- SCHINDLER, D. W. (1971). Light, temperature, and oxygen régimes of selected lakes in the Experimental Lakes Area, northwestern Ontario. *J. Fish. Res. Bd Canada*, **28**(2), pp. 157–69.
- SCHINDLER, D. W. & HOLMGREN, S. K. (1971). Primary production and phytoplankton of the experimental lakes area, northwestern Ontario, and other low-carbonate waters, and a liquid scintillation method for determining  $^{14}\text{C}$  activity in photosynthesis. *J. Fish. Res. Bd Canada*, **28**(2), pp. 189–201.
- SCHINDLER, D. W. & NIGHSWANDER, J. E. (1970). Nutrient supply and primary productivity in Clear Lake, eastern Ontario. *J. Fish. Res. Bd Canada*, **27**, pp. 2,009–35.
- SCHOFIELD, C. L. (1976). Acid precipitation: effects on fishes. *Ambio*, **5**, pp. 228–30.
- SHAPIRO, J., (1973). Blue-green Algae: Why they become dominant. *Science*, **179**, pp. 382–4.
- UTERMÖHL, H. (1958). Zur Vervollkommung der quantitativen Phytoplanktonmethodik. *Mitt. Intern. Verein. Limnol.*, **9**, pp. 1–38.
- WILLEN, T. (1969). Phytoplankton from Swedish Lakes, II: Lake Assjön, 1961–1962. *Oikos*, **20**, pp. 67–77.
- WRIGHT, R. F. & GJESSING, E. T. (1976). Acid precipitation: changes in the chemical composition of lakes. *Ambio*, **5**, pp. 219–23.
- YAN, N. D. (1975). *Acid Precipitation and its Effects on Phytoplankton Communities of Carlyle Lake, Ontario*. Unpublished M.Sc. thesis. Department of Botany, University of Toronto, Toronto, Ontario: 116 pp.

### International Pollution Treaties in the Mediterranean

Three agreements on Mediterranean pollution that were signed in Barcelona two years ago became international law on 12 February 1978. One commits Mediterranean countries to protecting the sea, their common heritage, from pollution 'for the benefit and enjoyment of present and future generations', another outlaws the dumping of certain dangerous substances from the land by ships at sea, and strictly controls dumping of less toxic wastes, while the third calls for cooperation in combating massive oil-spills.

These three accords required the formal ratification of at least six of the 18 Mediterranean coastal states to enter into force. The first six states to ratify the Barcelona agreements were Spain, Tunisia, Monaco, Lebanon, Malta, and Yugoslavia—followed by France and Israel, while several other Mediterranean governments have indicated their intention to deposit their instruments of ratification in the coming months.

'By the end of this year I am certain that most of the Mediterranean coastal states will have ratified these significant agreements', said Dr Mostafa K. Tolba, the distinguished Egyptian biologist who is the Executive Director of the United Nations Environment Programme. 'The speed with which most Mediterranean countries are acting reflects their determination to take protective measures while there is still time'.

The dumping treaty contains a 'black' list of substances that in no case can be dumped by ships or aircraft into the Mediterranean. These forbidden substances include mercury, cadmium, persistent plastics, DDT, PCBs, crude oil, and hydrocarbons. The treaty's 'grey' list consists of substances, considered somewhat less dangerous, that can be dumped into the sea but only with authorization from the appropriate government. These controlled substances include lead, zinc, copper, cobalt, silver, cyanides, fluorides, and disease-causing microorganisms.

As the Mediterranean countries have no intention of creating a police force to ensure respect for the new treaties, how will they be enforced? 'By the Mediterranean countries themselves', says Peter S. Thacher, Deputy Executive

Director of UNEP. 'In their own best interests there will be regular meetings every two years of the countries which have ratified the treaties, to ensure that they are strictly observed, and they will furnish each other information on the dumping licences they have issued. After all, it was the Mediterranean coastal states themselves which asked UNEP to organize a Mediterranean Action Plan for them. They negotiated these treaties very seriously with the full intention of making them effective. Furthermore, the entry into effect of the treaties will exercise a strong moral force on all Mediterranean governments as well as binding legal obligations on all of the contracting parties'.

Another very important treaty is currently being negotiated by 17 of the region's 18 states. It concerns the land-based sources of pollution—such as industrial waste, municipal sewage, and agricultural chemicals—which are responsible for about 85% of all Mediterranean pollution. Preparations are under way for an experts' meeting in Geneva in October 1978, and it is hoped that this fourth international agreement will be ready for signature in Athens some time next year.

Other treaties will be drawn up on special protection areas, such as marine parks, and on pollution that results from exploration and exploitation of the continental shelf and its 'subsoil'. Meanwhile, hundreds of the basin's leading marine scientists from some 80 laboratories in 16 of the Mediterranean countries have been monitoring pollution and carrying out special research for more than two years. In concrete terms they are counting tarballs on beaches, studying oil-slicks, measuring the concentration of mercury in tuna fish, examining the effects of DDT and PCBs on mullets, mussels, and shrimps, studying the effects of pollutants on ecosystems, and mapping coastal currents.

PAUL E. RESS,  
European Regional Information Officer  
UNEP Geneva Office  
Avenue Jean-Trembley 16  
Petit-Saconnex  
Geneva, Switzerland.