

# Who's Working on Tropical Red Tides?

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**R**ed tides are extraordinary phenomena. Countless dinoflagellates taint the sea, and may produce toxins which accumulate in shellfish and fish eventually eaten by man and resulting in paralytic or diarrhetic shellfish poisoning. The increasing incidence and geographic spread of red tides has serious implications for public health, aquaculture and the livelihood of persons who directly or indirectly earn their living from the sea.

For this article, the Aquatic Sciences and Fisheries Abstracts (ASFA) covering the period 1971-1988, the ICLARM library and professional staff collections, were used in the literature survey.

We found 243 articles, more than 80% of which were written within this decade. The annual average number of publications exceeded one only from the 1970s (three per year). Presently, 20 articles per year are published.

## Growth over time

Publications were few until the 1970s and there were two gaps noted in the 1910s and the 1940s. Increasing incidence and awareness during the 1980s led to the current literature explosion (see figure). A significant part of this literature consists of newspaper articles.

Majority of the papers were on the Indo-Pacific and Red Sea. The rest were from Latin America. There were no publications from the tropical African coasts.

A useful background proceedings volume is *Toxic Red Tides and Shellfish Toxicity in Southeast Asia* published in 1984 by the Southeast Asian Fisheries Development Center and the International Development Research Centre of Canada.

## Recent publications

*Indo-Pacific red tide occurrences, 1985-1988*, by J.L. Maclean to be published in the *Marine Pollution Bulletin*, discusses recent outbreaks in

that region. *Red Tides: Biology, Environmental Science and Toxicology*, edited by T. Okaichi, D.M. Anderson and T. Nemoto, is the proceedings of the International Symposium on Red Tides Biology held in Takamatsu, Japan, 10-14 November, 1987, and published in 1989 by the Elsevier Science Publishing, New York, USA. *Bibliography on Indo-Pacific red tides*, by J.L. Maclean and R.M. Temprosa published in 1989 by ICLARM, contains all the articles described in this review (see p. 15).

## Contact persons and institutions

In Central America, E. Ferraz-Reyes, of the Instituto Oceanográfico, Universidad de Oriente, Cumaná, Venezuela, has worked on *Gonyaulax* and *Protogonyaulax* in the Gulf of Caraco. Mr. F. Rosales - Loessener, DITIPESCA, Ave. Reforma 8-60 Zona 9, Guatemala, is involved in *Pyrodinium* work. In the western Pacific, many groups are now active in Australia, Brunei Darussalam, Japan, Malaysia and the Philippines. A

useful first contact point at present is J.L. Maclean, of ICLARM who has been involved in red tide work in the Indo-Pacific since the 1970s.

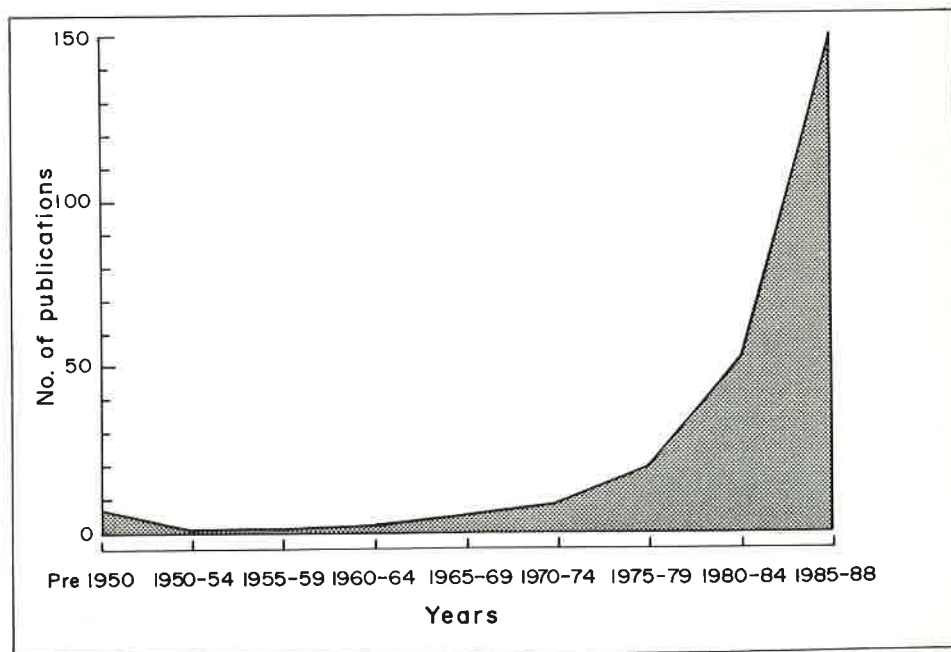
In May 1989, at a workshop in Brunei Darussalam involving over 40 researchers, the biological, economic, management, medical and training issues of *Pyrodinium* red tides were discussed. *Pyrodinium* has become the most important tropical red tide organism (see article on p. 9). The proceedings of this workshop will be available later this year through ICLARM, and will be a "who's who" of this field of research.

ICLARM can provide more information on red tides. Write to Selective Fisheries Information Service, ICLARM, MC P.O. Box 1501, Makati, Metro Manila, Philippines, for details and costs involved.

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Growth of the literature on tropical red tides