Pyrodinium toxicity reappears near Acapulco

In November 1995, a bloom of Pyrodinium bahamense var. compressum was recorded off Acapulco in the state of Guerrero, Mexico. It subsequently moved southeast along the Mexican and Guatemalan coasts in the early days of December. Toxin levels estimated by bioassay reached levels of 8.549 µg/100 g⁻¹ in oyster (ostión) meat, and measures to protect public health were taken. The saxitoxin was identified by HPLC and compared with the results of the bioassay using the same extracts.

This bloom was not completely unexpected, since high concentrations of the same species (up to 1.7 x 10⁶ cells l⁻¹) occurred in November 1989 in the same region,¹ and off the coast of Guatemala in summer 1987.² The toxin levels in the recent episode were an order of magnitude higher than in 1989 (811 µg/100 g⁻¹ of meat) using the same method and it is therefore recommended that the region be monitored in a responsible and continuous way. A new outbreak in the area was reported in the second half of February 1996.

Elizabeth Orellana-Cepeda, Universidad Autónoma de Baja California, Mexico.

See also article on page 4 for more news on Mexico.

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The Intergovernmental Oceanographic Commission announces HAB manual

After almost four years of preparation, a comprehensive Manual on Harmful Marine Microalgae has been published in the IOC Manual and Guides series as volume No. 33. The 500-page manual includes chapters on taxonomy, field techniques, culturing techniques, algal toxin chemistry, detection and quantification, as well as description of monitoring and management practices.

The manual is edited by Drs. G. Hallegaard, University of Tasmania (Australia), D. Anderson, Woods Hole Oceanographic Institution (USA), and A. Cembella, Institute for Marine Biosciences (Canada). Forty-two leading scientists in the field of harmful algae have contributed to the various chapters.

The manual is available from the IOC Science and Communication Centre on Harmful Algae, University of Copenhagen (see address on back page). The manual is free of charge but a fee of US$30 will be charged to cover postage and handling. A check issued in US$ for Mr. H. Enevoldsen, IOC, should accompany all orders.

Excepted are marine science libraries and scientists in developing countries which can apply for delivery free of charge.

Winter toxicity of unknown aetiology in mussels

In November 1995, a shellfish poisoning event in The Netherlands, in which at least eight people became ill after eating mussels, was traced to a consignment of mussels from a site on the west coast of Ireland. The consignment of mussels was dispatched from Ireland on 10 November, 1995. The symptoms displayed by those who became ill included nausea, vomiting, severe diarrhoea and stomach cramps. DSP rat bioassays carried out in The Netherlands by Dr P. Hagel (RIVO-DLO) on the leftovers of one of the meals gave a strongly positive (+++) response indicating high toxicity.

The illness of the shellfish consumers and the positive rat bioassay results were surprising as mussel samples from the same area which were tested by rat bioassay at the Fisheries Centre, Dublin, on 12 October 1995 and 31 October 1995, had given negative results, and the DSP toxins commonly found in shellfish in Ireland, okadaic acid (OA) and DTX-2, were present at low levels (4.9 and 2.0 µg/100 g of tissue respectively on 12 October and 3.7 and 2.6 µg/100 g of tissue respectively on 31 October). Furthermore, water samples from the area taken at the same time did not contain any toxic phytoplankton species and the phytoplankton associated with DSP toxicity in Ireland, Dinophysis acuta and D. acuminata, had not been observed in water samples from the area since mid-September.

When advised of the illness in consumers, the harvesting of shellfish from the affected area was prohibited and a further sample analysis was undertaken. From 27 November 1995 to 13 February 1996, rat bioassays on samples taken weekly from several locations in the area gave positive results (+++) even though no known toxic phytoplankton species were detected in water samples. OA and DTX-2 were, however, detected at low levels, e.g. 1.4 and 2.3 µg/100 g of tissue of OA and DTX-2 respectively in samples taken on 27 November 1995. DSP mouse bioassays on samples tested by Dr Margaret McDonald at the Central Science Laboratory in Aberdeen, Scotland, have also given positive results with mice survival times of approximately 90 minutes. The mouse bioassays suggested a “neurotoxin-like” response but samples tested by Dr Marisa Fernández at the European Union (EU) Reference Laboratory on Marine Biotoxins (EU-RLMB) in Vigo, Spain, did not reveal any PSP toxins, and PSP mouse bioassays carried out at the Fisheries Research Centre, Dublin were negative. HPLC analysis of samples at the EU-RLMB also confirmed the presence of OA and DTX-2 at only trace concentrations. Domoic acid was undetectable.

Bacteriological examination of samples by Dr Mary Seavers at the BIM (Irish Sea Fisheries Board) laboratory in Dublin showed that the common pathogens, such as faecal Streptococci, Staphilococcus aureus, Salmonella spp., and Vibrio spp., were not detectable. Rat bioassays on samples which had been boiled for 30 minutes and samples which had been processed in a certified shellfish depuration facility also gave positive results.

At present neither the toxin involved nor the organism responsible for production of the toxin have been identified, and harvesting of shellfish from the affected area is still prohibited. While both the rat and mouse bioassays have been criticized for their lack of specificity, in the present case their usefulness is clear in detecting the presence of an unknown toxin which can produce DSP symptoms in shellfish consumers.

Terry McMahon and Joe Silke, Marine Institute, Fisheries Research Centre, Abbotstown, Dublin 15, Ireland.

Alexandria waters

First recorded toxic

Alexandrium minutum Halim bloom

Almost 40 years ago in the summer of 1957, marked discoloration of the neritic waters of Alexandria Harbour (Egypt) was observed, and the causative organism, a small dinoflagellate, proved upon examination to be a new genus and new species, Alexandrium minutum Halim(1). Since then, progressive eutrophication has encouraged the development of algal blooms in this area, and they are now a recurrent phenomenon in the warm season. Other common species, in addition to A. minutum, are Prorocentrum triestinum, P. minimum and Skeletonema costatum(2,3). So far however, no cases of toxicity have accompanied these blooms, although A. minutum is known to produce PSP elsewhere(4). Fish kills have occurred occasionally, for example in the Eastern Harbour in May 1987, when they were attributed to localized oxygen stress and/or gill clogging.

During the first week of October 1994, a bloom of A. minutum extend-
Algal bloom monitoring is needed

The red tide phenomenon has been known since antiquity and was recorded by Roman authors like Strabo and Pliny as early as 208 BC in fresh waters. It was also recorded in the Bible (Exodus, Chapter 7, lines 17-21) but it is impossible to find out the causes of red tides in those remote times.

In modern times, red water has appeared periodically in Greek coastal areas since 1956 and perhaps a little earlier (see map). The first reliable list of micro-organisms found in red blooms was recorded by Anagnostidis\(^1\) in the Gulf of Thessaloniki (N. Greece). In this extensive list, there are species of dinoflagellates (\textit{Protoperidinium} \textit{spp.}, \textit{Gonyaulax} \textit{spp.}, \textit{Heterodinium} \textit{spp.}, \textit{Ceratium} \textit{spp.}), diatoms (\textit{Rhizosolenia} \textit{spp.}, \textit{Chaetoceros} \textit{spp.}, \textit{Lici-}

\textit{mophora} \textit{spp.}), and sulphur bacteria (\textit{Chromatium vinosum}, \textit{Macromonas} \textit{spp.}, \textit{Beggiaota alba}, \textit{Spirillum} \textit{spp.}). Among the algae there were no toxic species. The harm observed in these cases was probably due to deoxygenation of the water, which led to fish deaths. Sulphur bacteria might contribute to creating a toxic environment, particularly when they appear in massive concentrations as Anagnostidis\(^1\) observed. This, however, has not been proved.

In the Gulf of Saronikos (Southern Greece), a red tide was recorded in 1983\(^2\) and attributed to the massive growth of the dinoflagellate \textit{Gymnodinium breve} (10\(^7\) cells/L). Eutrophication, calm waters and high temperatures were thought to be responsible at the time.

Red blooms also appeared in 1978 in the Gulf of Kavala (Northern Greece), associated with a shipwreck which was full of phosphate fertilisers. There are no records of the micro-organisms found in that bloom. In August 1986, following an effort to haul up this ship, the bloom phenomenon reappeared and lasted 20 days causing fish deaths. The dominant species in the bloom was \textit{Alexandrium tamarense} (10\(^7\) cells/L) observed at depths of 0-7 m.\(^3\) There were no records of human poisoning. Associated species were the diatoms \textit{Skeletone-}

\textit{ma costatum}, \textit{Rhizosolenia fragilissima} and \textit{Chaetoceros curvisetum} and the dinoflagellate \textit{Protoperidinium stenii}.

An extensive algal bloom associated with fish deaths was again observed in the Gulf of Kavala in May 1994. Again there were no records of human poisoning. The only available information concerning the algal composition is that the dominant species was \textit{Noctiluca scintillans}.

Nobody has examined red tides in detail in Greek waters, although they are not rare, particularly during recent years. There is certainly progressive eutrophication, but there are no monitoring programmes.

References:

Dr. Alexis Tsangridis, National Agricultural Research Foundation, Institute of Fisheries Research, N. Peramos, 64 007 Kavala, Greece.
Recent observations of HABs and toxic episodes

The Pacific coast of Mexico has experienced a number of harmful algal blooms in the past. The year 1939 witnessed the first reported occurrence of Harmful Algae Blooms (HABs) in the Gulf of California, Mexico (Graham, 1943). Unfortunately, the lack of a suitable system to monitor and follow up on events in the area has always precluded the consistency and accuracy of all previous observations and studies. In 1991, the Center for Biological Research (La Paz) was invited to participate in a task group dedicated to the study of marine biotoxins in Baja California waters. It is not surprising that first reports were incomplete and even wrongly addressed. For example, we were looking for tetrodotoxin (TTX) in shellfish meat as a cause of a massive death of clams at Concepción Bay, Baja California, Mexico, in summer 1993, but of course our assays turned out to be negative. A year later, we used the mouse bioassay for PSP detection in shellfish and obtained the first positive results with values as high as 23,000 mouse units per 100 g of clam tissue. Suspected dinoflagellates involved were*Proorocentrum* sp. and*Alexandrium* sp., together or in succession (Sierra-Beltrán et al., 1995). Yet we could not relate the presence of such toxins to clam mortality.

Similar findings were reported in a twelve-year study carried out at Mazatlán Bay by Cortés-Altamirano and Núñez-Pasten (1992), in which the appearance of PSP-like toxins was confirmed. The phenomenon took place preferentially during winter, and was persistent throughout that season. Therefore, it was assumed that toxic outbreaks of PSP in the area are periodic and frequent phenomena on the Pacific coast of Mexico. In this study, the most common toxic species, although neither the most abundant nor the most frequent, was*Gymnodinium catenatum*, to which two cases of intoxication with human casualties have been linked, one in April 1979 with two dead, and another in 1988 with 10 dead.

During autumn 1995, the famous port of Acapulco and neighbouring southern states (Guerrero, Oaxaca and Chiapas) on the Pacific coast of Mexico were affected by a “red tide” event that covered several miles of coastline. The PSP toxin concentration was officially reported to be between 120-2000 µg per 100 g of meat, and the organism responsible presumably belonged to*Alexandrium* spp. Six people died and many more were sick (136 in November) as a result of the event. In addition, fish and turtles in great numbers were found dead on the beaches. Other microalgae previously involved in severe intoxication events in the area are*Pyrodinium bahamense* v. *compressum* in two separate events in 1989, as well as*Gymnodinium catenatum* with as many as 99 poisoning cases and 3 deaths in the region the same year. In 1995, and farther north on the Californian Peninsula, two persons died after eating puffer fish fillet presumably contaminated with TTX. Although this event is not related to a HAB, it should be considered within the context of human exposure to marine toxins. Unfortunately, when human casualties occur, it turns out to be difficult to obtain samples from the Health Authorities in Mexico (as indeed in other countries) that may help to corroborate the hypothesis. It seems that, more than neglecting the event, authorities are afraid of recognizing that we live in areas which are susceptible to toxic episodes, and therefore fail to provide education and orientation. A recent outbreak of domoic acid in the southern tip of Baja California in early 1996 was the culprit of more than one hundred dead brown pelicans (*Pelecanus occidentalis*) in the area. No dramatic change in weather conditions, nor in the aquatic environment were associated with this mortality. Sardines and mackerel, both fresh and canned, were analyzed for the presence of diatoms (*Pseudo-nitzschia*) and domoic acid. Only the fresh specimens showed positive results to both factors. The hypothesis thus is that the pelicans ate the fish and, feeling sick, they returned to their shelter where they finally died. On their way, they regurgitated the food, so when captured, both dead and sick animals had in their stomachs only small amounts of toxin, as determined by the mouse assay and chromatographic techniques. Again in January 1996, a quite unrelated toxic event was observed in a reservoir located in Sonora, Mexico. In this case, thousands of freshwater fish appeared dead on the water surface, with their gills and eyes invaded by mucilaginous cyanobacteria including*Micrococcus* spp. This is a common phenomenon in many water reservoirs around the world and requires the application of prevention measures to avoid economical losses and, more important, human fatalities.

References
J.L. Ochoa, A. Sierra-Beltrán, A. Cruz-Villacorta, A. Sánchez-Paz, E. Núñez-Vázquez, Centro de Investigaciones Biológicas del Noroeste, Box 128, La Paz 23000, BCS, Mexico.

Check out the HAN on WWW!

*Harmful Algae News* is now available on Internet at http://www.unesco.org/ioc/news/newslet/han.htm
This workshop was held in Mar del Plata (Argentina) from 30 October to 1 November 1995, at the National Institute for Fisheries Research and Development (INIDEP). The workshop was organized by IOC, with the logistic support of UNESCO’s Regional Office for Science and Technology in Latin America and the Caribbean (ROSTLAC) in Montevideo (Uruguay).

The meeting was convened to:
(a) present and discuss national reports on Harmful Algal Blooms in South America (FANSA, Florecimientos de Algas Noxivas en Sudamérica);
(b) update progress in understanding the dynamics of FANSA, including thematic and methodological aspects;
(c) evaluate the most promising strategies to study FANSA and reduce their effects on marine ecosystems;
(d) develop proposals for a regional training programme, and regional research objectives, integrated within the existing IOC international programme on HAB; and
(e) establish collaborative mechanisms between the operational programmes (monitoring, resource protection, public health) being developed in each country.

There were 34 participants, from the countries which comprise the southern cone of South America (Argentina, Brazil, Chile, Peru, and Uruguay) together with observers from Colombia and IOC. The meeting was chaired by José I. Carreto (Argentina). Beatriz Reguera (Spain) acted as rapporteur and representative of the IOC Intergovernmental Panel on Harmful Algal Blooms. As in the previous meeting, this workshop was an excellent forum for the interchange of information on the region and showed that significant progress had been made in the intersessional period. Amongst the more important items, we emphasized the establishment of a monitoring programme in the state of Santa Catarina (southern Brazil), an area of increasing mussel cultivation, the functioning of a modern laboratory for toxin analysis in the University of Chile, the submission of a scientific project by Argentina and Chile (in cooperation with France and Germany) to the European Union programme for cooperation with third countries (INCO), and the beginning of cooperation between Uruguay and Brazil regarding the mass mortality of benthic organisms.

The most important results of this workshop were:
(1) educational elements: A recommendation that IOC should support two regional courses, one on the taxonomy and culture of harmful algae (in Brazil), and another on biochemical techniques for the study of HAB (in Chile). There was general agreement on the need to establish long-term educational programmes which would allow countries in the region to develop the appropriate expertise to deal with all aspects of coastal zone management, including studies related to HABs.
(2) scientific elements: Plans were made for two regional projects, one on the ecology of Alexandrium tamarense and its associated toxicity in the southwest Atlantic (Argentina, Brazil and Uruguay), and a second on the ecology of Alexandrium catanella in the Austral region with the aim of identifying the possible causes of its recent geographic expansion (Argentina and Chile). The importance of international cooperation for the development and financing of these projects was stressed, and the international programme between France, Germany, Chile, and Argentina on “Phytoplankton responses to environmental disturbance caused by salmon cultivation in Latin America” was cited as an example.
(3) operational elements: several needs were identified: (a) consolidate nascent monitoring programmes in southern Brazil and Peru, and assist expert training at a regional level; (b) organize regional intercalibration of toxin determination by bioassay, with the help of the European Union Reference Laboratory for Marine Biotoxins.

Finally, it was proposed that the next meeting of the IOC-FANSA Working Group should be held in Chile in 1996 following the annual marine science meeting there. The meeting concluded with a Creole barbecue, and camaraderie in which participants enjoyed the delights of Argentinian meats and wines.

The full report of the meeting is available in Spanish and English from the IOC Secretariat (IOC Workshop Report No. 123).

José Ignacio Carreto, INIDEP, C.C. 175, 7600 Mar del Plata, Argentina.
Advanced phytoplankton course

An advanced phytoplankton course was organized by the Marine Botany Laboratory (Naples) in cooperation with the Marine Botany Section of the Department of Biology of the University of Oslo and held in Casamicciola (Island of Ischia, Naples) from 24 September to 14 October 1995. This was the sixth in a series of courses which started in 1976 following a recommendation of the SCOR Working Group on Phytoplankton Methods (SCOR WG33). UNESCO supported the recommendation and made it possible to organize the first three courses (1976, 1980 and 1983) in Norway at the Marine Botany Section of the University of Oslo. The fourth, fifth and the present course were organized by the staff of the Marine Botany Laboratory of the Zoological Station in Naples. The main goal of the course was to train and upgrade qualified students on the identification of phytoplankton species by light microscopy. Financial support for the course was provided mainly by the European Community-MAST programme. Other funds were provided by the Naples Zoological Station and by the Intergovernmental Oceanographic Commission of UNESCO. Carl Zeiss S.P.A. kindly lent 22 microscopes for the practical sessions.

Amongst the faculty were some of the former teachers of the course in 1976 (G.R. Hasle and J. Throndsen) and 1983 (K.A. Steidinger), plus the staff of the Marine Botany Laboratory (D. Marino, M. Montresor and A. Zingone). Other teachers and lecturers included M.J. Chretiennot-Dinet, J.D. Dodge, C.B. Lange, J. Larsen and C.R. Tomas, almost all of whom had participated as students in one of the previous courses.

The course consisted of a theoretical part, including lectures on the general morphology and taxonomy of the different marine phytoplankton groups, followed by practical sessions, with examination of fixed, cultured and slide material in the light microscope. The relevant techniques for collecting and culturing phytoplankton specimens, as well as displaying the essential taxonomic characters, were presented, and everybody was given the possibility to practise. The course also included a series of seminars covering several aspects of phytoplankton taxonomy, phylogeny, biogeography and ecology. The identification of harmful algae received particular attention during the practical sessions, and three workshops dedicated to harmful and nuisance diatoms, dinoflagellates and other phytoflagellates, respectively, were also held to further assist in species recognition and cover other aspects relevant to the topic.

All the participants took the opportunity to improve their skills in species identification and the application of different techniques, as well as to go through the most up-to-date taxonomic literature. A pleasant collaborative atmosphere was established during the sessions, which promoted a full exchange of knowledge and experience. A complete report of the course is available as IOC Training Course Report No. 36, from the IOC secretariat.

Adriana Zingone and Donato Marino, Stazione Zoologica “A. Dohrn”, Villa Communale, 80121 Napoli, Italy.

Harmful Algae News – use it!

As many of you already know, this newsletter is published up to three or four times a year by UNESCO’s Intergovernmental Oceanographic Commission in Paris. The present circulation is around 3,000. The initial idea for this newsletter emerged during discussions at a meeting of the IOC-FAO/OSLR Ad hoc Group of Experts on Harmful Algal Blooms, held in Paris, 31 January to 2 February 1990. The first issue was circulated in early 1992, and since then about 130 articles from 31 different countries have appeared.

The 8th International Symposium on Harmful Algae will take place in Vigo, Spain, 25–29 June, 1997. So far, more than 500 people from 64 countries have registered their interest in attending.


These numbers show that we belong to a large and active community, and that we like to talk to each other.

But very few are using the opportunity the newsletter provides to let us know their news and views!

This note is to encourage you to do so. We welcome articles on all aspects of harmful algae from descriptions of events to public health and aquaculture issues, including taxonomy, ecology, monitoring, epidemiology, management strategies, new techniques, models, ... the list is almost endless in such a multidisciplinary field as ours.

Articles can be of any length from 25 to 1500 words, and can include black and white photographs or illustrations. The newsletter appears in English only at present, but if you do not feel sufficiently confident to write in English, we are prepared to translate short articles from the following languages: Chinese, Danish, French, German, Italian, Norwegian, Philippino, Portuguese, Spanish and Swedish.

Articles should be sent to the HAN Editor: Tim Wyatt, Instituto de Investigaciones Marinas, Eduardo Cabello 6, 36208 Vigo, Spain; fax: (34-86) 292762; e-mail: twyatt@nautilus.iim.csic.es
ICI/IEO practical course on toxic phytoplankton

A common situation in developing countries is that a few experts, sometimes in quite remote places, have to deal with varying aspects related to the occurrence of harmful algae events. Bearing this in mind, an ICI (Instituto de Cooperación Iberoamericana) practical course on toxic phytoplankton was held in the Instituto Español de Oceanografía (IEO) in Vigo, Spain, from 13 to 29 February 1996.

The course was addressed to Iberoamerican phytoplanktonists from governmental institutions who are in charge of establishing or improving regional programmes for the investigation and control of harmful algae. The objective of the course was to give the participants a broad perspective of the different aspects of harmful algae that need to be dealt with in these programmes, and to train them and provide practice in the basic techniques which are applied in contingency plans for the occurrence of toxic/noxious algal events. Course topics included the multipurpose sampling of “red patches” for taxonomic identification of the causative organisms, the isolation and culturing of the suspect microalgae, and the preparation and preservation of extracts of field plankton populations, bivalve meat, and dead fish viscera for mouse bioassays and HPLC analyses.

The course included theoretical classes, but special emphasis was given to practical workshops in which participants had the opportunity to collaborate in various activities. These included: (i) the identification of noxious or toxic algae from their own samples or from cultures maintained in the IEO culture collection in Vigo; (ii) monitoring the development of freshly isolated single cells and the subsequent establishment of monoalgal cultures from them; (iii) joining in routine monitoring cruises in Ría de Vigo on board the R/V J.M. Navaz, and further storage of CTDs and plankton data; (iv) preparing extracts of concentrated algae cultures and bivalve meat for PSP, DSP and ASP toxin detection by mouse bioassay at the European Union (EU) Reference Laboratory for Marine Biotoxins; and (v) demonstrations of toxin analysis of algal and bivalve meat extracts by high performance liquid chromatography (HPLC).

The instructors in the course were from the Spanish Oceanographic Institute (B. Reguera, S. Fraga, I. Bravo and J.M. Franco), the EU Reference Laboratory (A. Martínez, M.L. Fernández, A. Míguez, E. Cacho) and the Galician Department of Fisheries, Mariculture and Aquaculture (J. Mariño, J. Blanco), together with an invited speaker from the Marine Sciences Institute in Barcelona (M. Delgado). The participants visited the Galician Monitoring Center and the Laboratory of the Association of Canning Producers (ANFACO, Asociación Nacional de Fabricantes de Conservas). They were also taken in a traditional mussel raft boat for a demonstration of the seeding and thinning of mussel ropes in Ría de Arosa, which is the “pearl” of the Rías Bajas of Galicia and produces about three quarters of the total of Spanish mussel production.

Beatriz Reguera, Instituto Español de Oceanografía, Aptdo. 1552, 36280 Vigo, Spain.

Spanish commitment to the IOC HAB Programme

On 28 March 1996, an agreement was signed between Spain and the IOC to establish a science and communication centre on harmful algae at the Instituto Español de Oceanografía in Vigo, Spain. The centre is expected to open in January 1997, and will help implement the IOC HAB Programme with respect to research and capacity-building activities. The Vigo centre will be complementary to, and work closely with, the IOC Science and Communication Centre on Harmful Algae at the University of Copenhagen, Denmark, as well as with the HAB Programme Office in Paris. More news on the activities of the centres will be published in coming issues of HAN.
Editor’s bibliographical notes

Some years ago I received an overexposed nth-generation photocopy of an editorial in the Philippines Journal of Science, from 1908.(1) During the copying and recopying, it has been marked by at least five different hands, and rubber stamped twice. The names of Jay (or Fay? probably John!) MacLean and Rudolf Hermes appear amongst these “graftifs”. It has been “indexed” three times. The text has been marked at some time with one of those blunt felt pens with which some readers persuade themselves they can extract the essentials from a document (and mutilate textbooks).

The title, “PERIDINIUM”, was type-set in capitals; nevertheless, someone found it necessary to mark the initial “P” with “cf”, meaning – capitalize it! On the copy before me is written in my own hand “From Rhodora, 23 July 1990”, the same Rhodora Corrales who contributes regularly to this newsletter. And it bears the stamp of the ICLARM library. All this in one only and a half pages – these are the hallmarks of a classic!

Authorship is commonly attributed to H.M. or A.M. Smith, both of which are technically incorrect but reasonable, since six of its seven short paragraphs seem to be taken from a report he wrote. The first paragraph, by the anonymous editor, informs us that Smith was Deputy Commissioner of the United States Fish Commission steamer Albatross, so that H (for Hugh) is meant. The putative quotation from Smith’s report begins: “There have been at least three visitations of Peridinium in Manila Bay during the current year...”. A few details follow. The blooms were monospecific, due to illumination from Smith’s report begins: “There are some villages where the link between red tides and food poisoning is well recognized and tradition dictate that shellfish are not consumed for several months after the occurrence of red tides”.(4) Perhaps equivalent traditions formerly existed in the Philippines, even if the danger were infrequent. It could be argued that the many cases of PSP which have been reported in the Philippines in recent decades have been caused at least in part by the adoption of new dietary habits and the loss of traditional taboos – a consequence of urbanization.

This year’s meeting of the ICES-IOC HAB Working Group was held in Brest, France, from 17 to 20 April. An issue of a regional newspaper for 19 April 1996 informed us (amongst other items) that “Au Danemark, 1er exportateur européen de moules, une toxine diarrhéique fait des ravages”. There are only two errors in these thirteen words, “1er”—third or fourth would be more accurate, at least according to FAO statistics; and “ravages” (again)! At least nobody told me that Denmark has been laid waste recently. The report continues “En Alaska, l’Alexandrium a provoqué trois décès, à la fin des années 80”. Not very startling, but not very accurate either. The problem in Alaska is paralytic rather than diarrhetic, and Alexandrium is in the paralytic class. “Trois décès”? Possibly true. My records say five. Further on: “On a découvert des kystes d’algues fossiles datant de 350,000 millions d’années” which is getting on for about 100 times some estimates of the age of life on earth. The estimates may not be reliable.

The last sentence of this report maintains that a toxin from USA introduced by a ship into Australian waters caused damage to the Black Sea anchovy! (“...une toxine, venue des USA par bateau, a commis des dégâts énormes, sur les anchois de la mer Noire”). C’est magnifique la confusion! Two stories have probably been conflated here, first, the invasion of the Black Sea by the comb jelly Mnemiopsis leydii, a native of the western Atlantic, and the associated “eco-catastrophe”,(5) and, second, the introduction of the toxic dinoflagellate Gymnodinium catenatum to Tasmania.(6)

“La France n’est pas épargnée” the writer said, meaning from toxic algae, and, we must add, “du problème de communication entre les scientifiques et les journalistes.”

References:

Tim Wyatt
The first circular announcing the VIII International Conference on Harmful Algae (Vigo, Spain, 25-29 June 1997) has met with an enthusiastic response: more than 500 experts from 67 countries have pre-registered. The present announcement requests participants to register formally, and to submit abstracts of communications to be presented orally or in poster sessions. Once more, the title of the conference has been changed to adapt itself to the increasing interest of the international community to marine and freshwater microalgae, planktonic or benthic, and their toxicity and other harmful effects. The topics of the conference will be:

I. Ecology and oceanography of harmful algae events
   • Models
   • Population dynamics
     - Physical-biological interactions
     - Harmful algae-zooplankton interactions
   • Interactions with viruses, bacteria or other algae
   • Growth
   • Physiology (with special emphasis on toxin production)
   • Biogeography

II. Taxonomy
   • Species description by conventional optical methods
   • Alternative methods: molecular probes, DNA sequencing, image analysis, neural networks and others

III. Toxins
   • New toxins and advances in analytical methods
   • Alternative methods: molecular probes, cytotoxic assays
   • Transmission of toxins through the food web – Uptake and elimination by bivalves and other organisms

IV. Management of toxic and harmful algae events
   • Descriptions of events – Impact on public health and on resources
   • Monitoring of harmful algae and phycotoxins
   • Mitigation of the harmful effects – Prediction

V. Pharmacological and epidemiological studies

The conference will comprise: keynote lectures; oral and poster presentations; and round-table discussions. Professor Ramon Margalef will give the opening address. Professor F.J.R. “Max” Taylor will organize the inaugural meeting of the International Society for the Study of Harmful Algae. At this meeting, the officers of the Society (President, Secretary and Treasurer) will be elected, and the goals and statutes of the Society decided. A call for nominations will be included in a forthcoming issue of Harmful Algae News. Persons nominated must indicate their willingness to stand. Only paid-up members of the Society will be eligible to vote, although everybody will be welcome to attend the session. For membership (fee of US$20), see p. 11 in this issue of HAN.

Registration
Up to 1 March 1997, the registration fee is 48000 ptas (accompanying person: 18000 ptas). After 1 March 1997, the fee rises to 60000 ptas (20000 ptas). The fee for the accompanying person includes the banquet and all social activities of the participants, plus two other excursions of cultural interest in the Galician region. Payment should be made in Spanish pesetas. Please make payment by wire transfer, or by credit card, carefully following the instructions in the form. The registration form can be requested by e-mail: insovigo@cesga.es; or by fax: (34-86) 492351.

Submission of abstracts
Papers submitted for consideration as oral or poster contributions within the topics outlined in this announcement are welcome. Authors should submit a one-page abstract of 200-300 words in one original and two copies to the Conference Secretariat for review and selection by the organizing committee. Abstracts accepted will be accessible to the harmful algae community via the web page of the IOC HAB Programme (http://www.unesco.org:80/ioc).

Abstracts will be photocopied for distribution in an abstract volume. Please confine the text to a width of 170 mm and a height of 115 mm. The title should be given in capital letters followed by full names and addresses of authors on the 2nd line below. The text should follow on the 2nd line below the address and be single spaced. If using a typewriter, 10 pitch/inch font is preferred. If you are using scalable fonts, do not use anything smaller than 10 points. To facilitate correspondence, please ensure that your full name(s) and address(es) appear on the abstract. If you are not sure that the mailed abstracts will reach us on time, please send a copy by fax or e-mail.

The organizers reserve the right to decide whether a contribution will be presented orally or as a poster, and may suggest that a proposed poster contribution be presented orally if helpful in organizing thematic sessions.

Submission of manuscripts
The Conference Proceedings containing accepted papers (oral contributions and posters) will be published and made available to participants as part of the registration fee. One of the main objectives of the organizers is to have the proceedings published before the end of 1997. To facilitate this, three double-spaced typed copies of the manuscript, based on talks or posters, must be submitted to the conference organizer not later than 20 April 1997. Each manuscript should be in English. Make sure your manuscript is linguistically acceptable when sending it for preview and within the limited length when retyped in camera-ready copy. A selection of the papers will be made on the basis of criteria related to their relevance to the themes of the conference and their originality. Manuscripts, as corrected or amended by two referees, will be returned to their authors before, during or after the Conference. The final version of the typed (single-space) manuscript should be prepared according to instructions which will be circulated at a later date. The editorial committee reserves the right to refuse any manuscript not meeting their requirements.

Posters
Posters should be prepared to occupy a space measuring 80cm in width and 120cm in height. Posters must be legible from a distance of 2 metres, which means your font should have a minimum height of 5mm. All contributions, including those presented orally, must be displayed as posters.

Deadlines
- 15 December 1996 Submission of abstracts
- 1 March 1997 Registration
- 20 April 1997 Submission of manuscripts for review
- 31 July 1997 Submission of manuscripts in publication format
A regional course specifically on the identification and biology of harmful marine microalgae was requested by the IOC Sub-commission for the Western and Northern Indian Ocean (IOCINCWIO). Occurrences of harmful algae and harmful incidents have been known in the region for centuries, but so far harm has been relatively restricted. With the growing interest in shellfish and fish farming, monitoring for harmful species becomes essential in relation to export of seafood products as well as in relation to protection of local consumers.

The local organizer was Professor I. Fagooonee, Dean, Faculty of Science, University of Mauritius, in collaboration with the IOC Science and Communication Centre on Harmful Algae (Denmark). The Course was funded jointly by SAREC (Sweden) and DANIDA (Denmark).

Eleven participants from Kenya, Mauritius, South Africa, and Tanzania were selected from 25 applicants.

The objective of the course was to improve the participants’ taxonomic skills in order to enable them to make reliable identification of phytoplankton species causative of harmful algal events. The course was aimed at participants who had a basic knowledge of phytoplankton taxonomy (main taxonomical groups and their characteristics) and were familiar with the basic use of microscopes. Applicants who were themselves trainers were given priority.

The course was opened by the Hon. S. Obegadood, Minister of Fisheries and Marine Resources, by Prof. I. Fagooonee, Dean, Faculty of Science, University of Mauritius, and by H. Enevoldsen, IOC.

The course was a combination of practical work in the laboratory, microscopy, lectures, and demonstration of methodology in the field. Light microscopes were used for demonstration of specimen features and preparation techniques. A selection of modern and classical taxonomic literature was available during the course. Lectures were given by Dr Max Taylor, University of British Columbia, Canada, and by Dr Jacob Larsen and Henrik Enevoldsen, IOC Science and Communication Centre on Harmful Algae, University of Copenhagen, Denmark.

They focused on taxonomy, but also included ecology, sampling techniques, and toxicity tests. Dr. J.P. Quod, ARVAM, La Réunion, was a guest lecturer on ciguatera problems in the region.

Each participant was provided with a 400-page “take-home” training course compendium, summarizing the state of the art with respect to harmful microalgae taxonomy and identification, as well as a summary of the lectures given during the course. After the course, the participants were given a copy of the IOC Manual on Harmful Marine Microalgae, which partly replaces the compendium. Each trainee was provided with a 20 µm mesh plankton net, a Sedgewick Rafter Counting Slide for quantitative work, and basic equipment for simple Artemia toxicity tests.

Most participants had brought their own samples, and time was reserved for them at the end of the course to undertake work according to their individual wishes. This provided an opportunity to address specific questions, and many trainees had an opportunity to prepare and bring home quality scanning electron or light microscopy photos of specimens from their own samples.

Preliminary discussions were held on regional follow-up action with the Chair of IOCINCWIO, Prof. Ragoonaden and the Dean of the Faculty of Science, University of Mauritius. Such action included possible research projects, as well as Ph.D. and master’s degree projects in the framework of cooperation between the IOC Centres and research institutions in the region.

At the end of the course, a questionnaire for assessment by trainees was distributed. In general, the participants were very satisfied, and felt that the objectives of the course had been met. Many participants noted that they would feel more confident in their future work in identifying toxic algal species. Several indicated that, upon returning home to continue their monitoring work, they would reconsider their previous species identifications. Some participants expressed the need for better library facilities. The University of Mauritius provided excellent accommodations for the course, and the modern and well-equipped laboratories helped to ensure the success of the training course.

The report is available as IOC Training Course Report No. 40.
Application for founding membership in the
International Society for the Study of Harmful Algal Blooms (ISSHAB)

Name: ....................................................................................................

Affiliation: ...............................................................................................

Address: ................................................................................................

Fax: ............................................ E-mail: ..........................................

Are you on the mailing list for Harmful Algae News?
If not, do you wish to be added?
Are you in the IOC Directory of HAB Experts?
If not, do you wish to be in the next edition?

Please indicate, up to a maximum of four, which of the following potential sections
(to be confirmed, with chosen leaders, at future meetings) you are most interested in:

☐ Taxonomy/genetics-cycles
☐ Ecology (marine planktonic)
☐ Ecology (marine benthic, ciguatera)
☐ Ecology (freshwater, including cyanobacteria)
☐ Biogeography/introductions
☐ Toxicology
☐ Pharmacology
☐ Epidemiology/public health etc.

(Regional sections will be added later)

Information on your background and experience will be requested. Meanwhile, please rate yourself as:

☐ very experienced
☐ moderately experienced
☐ beginning professional research in the field
☐ a graduate student in the field
☐ an enthusiastic amateur
☐ other

Please enclose a cheque or money order for US$ 20.00, issued in the name of:
(Credit cards not accepted)

Henrik Enevoldsen
IOC Science and Communication Centre on Harmful Algae,
University of Copenhagen, Botanical Institute,
Dept. of Mycology and Phycology,
Øster Farimagsgade 2D, DK-1353 Copenhagen K, DENMARK.
Tel: (45-33) 134446; fax: (45-33) 134447
E-mail: henrike@bot.ku.dk
Future events

1st European Phycological Congress, Cologne, 11-18 August 1996. There will be a session on “Red tides and algal-bacterial interactions” convened by Drs Malte Elbrächter and Karen Steidinger. Congress Secretariat: Prof. Dr Michael Melkonian, Botanisches Institut, Universität zu Köln, Albertus-Magnus-Platz, D-50923 Köln (Germany); tel.: (49-0) 221 470 2475; fax: (49-0) 221 470 5181; e-mail (internet): mmelkon@biolan.uni-koeln.de

14th International Diatom Symposium, Tokyo, Japan, 2-8 September 1996. Convener: Dr Hiromu Kobayasi, Tokyo Diatom Institute, Konagei-shi, Tokyo 184, Japan; e-mail: mayama@u-gakegei.ac.jp; tel.: (81-0) 423 25 1475; fax: (81-0) 423 24 9832.

Fifth Canadian Workshop on Harmful Marine Algae, St. John’s, Newfoundland, Canada, 11-13 September 1996. The workshop will promote exchange of new and unreported information and plan for future research on aspects related to harmful marine algae. The proposed programme will include contributed oral presentations, poster papers, a review of relevant work done by different agencies, working group sessions, including a session on harmful marine algae and aquaculture site management, and a plenary session. Contact: M.A. Paranjape, Ocean Ecology Division – Science, Department of Fisheries and Oceans, Northwest Atlantic Fisheries Centre, P.O. Box 5667, St. John’s, NF A1C 5X1, Canada; tel.: (709) 772 6184; fax: (709) 772 3207; e-mail: mparanjape@niforc.nwac.nf.ca

IOC Regional Training Course on the Taxonomy and Biology of Harmful Marine Microalgae, Rio Grande, Brazil, March 1997. This course will focus on identification and preparation techniques supplemented by lectures on different aspects of the biology of harmful algae. Teaching staff will include: Dr Yasuwo Fukuyo (Univ. of Tokyo), Prof. Oyvind Moestrup (Univ. of Copenhagen), Dr Jacob Larsen (Univ. of Copenhagen/IOC Centre), Dr. Clarisse Oddebrecht (Univ. of Rio Grande). Organized by the University of Rio Grande and the IOC Science and Communication Centre on Harmful Algae, Copenhagen.

For application forms, contact: the IOC Secretariat (Paris), or the IOC Science and Communication Centre on Harmful Algae, Botanical Institute, Ø. Farimagsgade 2D, DK-1353 Copenhagen K, Denmark; fax: (45-33) 13 44 47.

7th East Coast Protistology Conference, University of Rhode Island, 21-23 May 1997. Open to all who are interested in eukaryotic unicellular organisms. The programme will include contributed oral and poster presentations, a keynote speaker and a special workshop on Ecological Methods for Protistology. Conference coordinator: Dr. Linda Hufnagel, Department of Biochemistry, Microbiology and Molecular Genetics, University of Rhode Island, Kingston, RI 02881, USA; e-mail: aun103@uriacc.uri.edu; or Lucie Maranda, Department of Pharmacognosy and Environmental Health Sciences (same address); tel: (1-401) 874 5048; fax: (1-401) 874 2181.

New IOC publications

• International Directory of Experts in Toxic and Harmful Algae and their Effects on Fisheries and Public Health. Published jointly with the US NOAA. IOC INF Document 1015.

• Design and Implementation of Some Harmful Algae Monitoring Systems. Co-published with ICES. IOC Technical Series No. 44.


• Amnesic Shellfish Poisoning (ASP), Volume 1, IOC Manuals and Guides, No. 31.

These publications are free of charge and available from the IOC Secretariat (Paris) and the IOC Science and Communication Centre, Copenhagen (see addresses elsewhere on this page).

Harmful Algae News

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The opinions expressed herein are those of the authors indicated and do not necessarily reflect the views of UNESCO or its IOC.

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