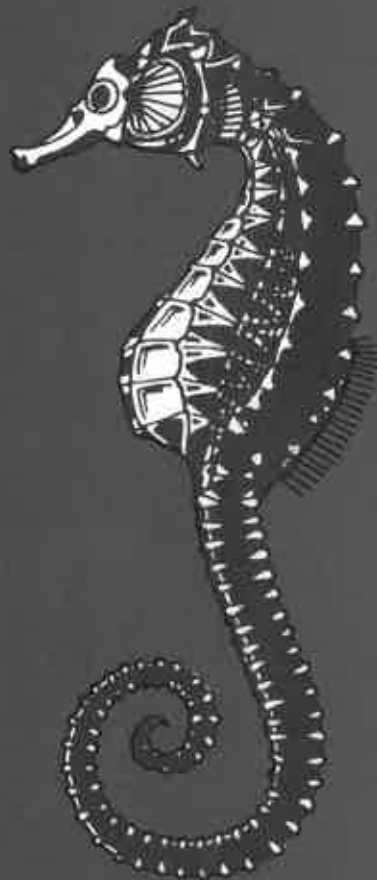


49



AUSTRALIAN MARINE SCIENCE BULLETIN



No. 49

January 1975

50c

Registered for posting as a periodical (Category C)

Please Sign
SHEVEL. SAM H
SWATERMAN

AUSTRALIAN MARINE SCIENCES ASSOCIATION

MEMBERS OF COUNCIL

(ELECTED JANUARY 1975)

PRESIDENT

Dr D. J. G. Griffin
The Australian Museum
P.O. Box A285
Sydney, N.S.W. 2001

VICE-PRESIDENT

Dr J. Noye
Department of Applied Mathematics
University of Adelaide
North Terrace, S.A. 5000

HON. SECRETARY

Mrs P. I. Dixon
School of Zoology
University of New South Wales
P.O. Box 1
Kensington, N.S.W. 2033

ASSISTANT SECRETARY

Dr P. A. Hutchings
The Australian Museum
P.O. Box A285
Sydney, N.S.W. 2000

HON. TREASURER

Mrs R. Allen
192 Ewos Parade
Cronulla, N.S.W. 2230

EDITOR

Dr D. D. Evans
Fisheries and Wildlife Division
Brown Street
Heidelberg, Vic. 3084

IMMEDIATE PAST PRESIDENT

Dr A. J. Gilmour
Fisheries and Wildlife Division
605 Flinders Street Extension
Melbourne, Vic. 3000

COUNCILLORS

Dr K. R. Allen
192 Ewos Parade
Cronulla, N.S.W. 2230

Dr J. T. Baker
Roche Research Institute
P.O. Box 255
Dee Why, N.S.W. 2099

Dr A. J. Butler
Zoology Dept
Adelaide University
Adelaide, S.A. 5000

Mr L. Collett
N.S.W. State Fisheries
211 Kent Street
Sydney, N.S.W. 2000

Mr J. G. Greenwood
Dept of Zoology
Univ. of Queensland
St. Lucia, Qld. 4067

Dr R. P. Kenny
School of Biological Sciences
James Cook University
Townsville, Qld. 4811

Mr R. C. J. Lenanton
W.A. Marine Research Labs
P.O. Box 20
North Beach, W.A. 6020

Dr D. C. Potts
Dept of Environmental Biology
Australian National University
P.O. Box 475
Canberra, A.C.T. 2601

Mr S. A. Shepherd
Dept of Fisheries
183 Gawler Place
Adelaide, S.A. 5000

Mrs J. E. Watson
74 Nimmo Street
Essendon, Vic. 3040

Dr B. R. Wilson
W.A. Museum
Francis Street
Perth, W.A. 6000

The Australian Marine Sciences Association and the Editor of the Bulletin are not responsible for the statements and opinions advanced by contributors.

For advertising space, contact Dr A. J. Gilmour, Fisheries and Wildlife Division, 605 Flinders Street Extension, Melbourne, Victoria 3000.

EDITORIAL COMMITTEE

- Dr P. A. Hutchings — Liaison with fraternal societies
Dr A. J. Gilmour — Advertising
Mr B. S. Newell — Government activities
Mr D. J. Tranter — Research activities

BULLETIN CORRESPONDENTS

- New South Wales — Mr L. C. Collett
N.S.W. State Fisheries
211 Kent Street
Sydney, N.S.W. 2000
- Queensland (North) — Dr R. P. Kenny
School of Biological Sciences
James Cook University
Townsville, Qld. 4811
- Queensland (South) — Prof. J. M. Thomson
Dept of Zoology
University of Queensland
Brisbane, Qld. 4067
- South Australia — Dr J. Noye
Dept of Applied Mathematics
University of Adelaide
North Terrace, S.A. 5000
- Victoria — Dr N. J. Holmes
Fisheries and Wildlife Division
605 Flinders Street Extension
Melbourne, Vic. 3000
- Western Australia — Mr R. C. J. Lenanton
W.A. Marine Research Laboratories
P.O. Box 20
North Beach, W.A. 6020

EDITORIAL

On this page appear the names of the Editorial Committee and the Bulletin Correspondents. The Council hopes that the existence of these two groups will encourage members to further one of the Association's aims — 'to provide for the exchange of information and ideas between those concerned with marine science'. The Bulletin is designed for this purpose and is meant to contain news, letters to the Editor, comments, reviews, articles and research-in-progress reports. The quality of the material presented for publication will decide the character and prestige of the Bulletin, which is the members' forum and the Association's shop window to an ever-widening audience interested in the marine environment. As members, you have a responsibility to communicate with your colleagues and a public that looks to the Association for informed and enlightened opinion.

AMSA CONFERENCE

The Conference was held in conjunction with ANZAAS at Canberra on 18-19 January 1975 despite Council's doubts about the advisability of arranging a meeting so soon after the very successful joint Australian Society for Limnology — Australian Society for Fish Biology — AMSA Conference in May 1974. Council's decision was, however, influenced by the need to elect a new Council, and Brian Newell, recently transferred to Canberra, volunteered to organise a short informal meeting with the ANZAAS theme of 'Marine Science and Government'. As Brian Newell announced in his opening address, the Conference was the first AMSA meeting without registration forms and fees and without a previously available program — the latter brought about by the late appearance of the last Bulletin for 1974.

The first day of the Conference was given over to papers on the main theme of the Conference and the second day to scientific papers and a discussion of 'Guidelines for the establishment of underwater parks and reserves'.

During the afternoon of the second day, three student papers eligible for the Student Prize were presented. The Prize was awarded to Mr B. J. Powis of the School of Zoology, University of New South Wales.

Abstracts of the papers entered for the Student Prize and presented at the Conference are printed below; other abstracts and some complete papers will be published in the next issue of the Bulletin.

Some seventy members attended the Conference, which turned out to be one of the most enjoyable held by AMSA.

THE BENTHIC INFAUNA OF TUGGERAH LAKES: AN INTERIM REPORT

by B. J. POWIS

School of Zoology, University of New South Wales

ABSTRACT

Fifty-eight stations were sampled throughout Munmorah Lake, Budgewoi Lake and Tuggerah Lake by means of a diver-held corer. Analysis of the data was facilitated by the monothetic divisive procedure designated as DIVINF which incorporates the Shannon Information Content, I , of the population.

The computer classification produced four ecologically meaningful site groups. These groups correspond precisely to particular types of substrate. Mud areas, which account for the majority of the lakes' sediment, have small numbers of species present, the dominant species being the bivalve *Theora fragilis* Adams. Sand areas were found to be dominated by the bivalve *Sanguinolaria onuphria* Iredale. Areas with a weed covering contain a much greater number of species than those where no weed is present. Mud areas with a weed covering were dominated by the polychaete *Nereis* (Hediste) *diversicolor* O.F. Muller. Muddy sand sediment with a weed covering was dominated by the polychaete *Owenia fusiformis* della Chiaje.

FAUNAL ZONATION IN A NEW SOUTH WALES MANGROVE SWAMP

by W. A. McCORMICK
School of Zoology, University of New South Wales

ABSTRACT

A quantitative study of macrofauna occurring in Towra Bay mangrove swamp, near Sydney, was conducted to discover any zonation or gradation patterns of the animals from the seaward through to the landward edge of the mangrove. *Avicennia marina*, the predominant mangrove plant species, grew in two forms, a tree (6-10 m tall) and a low prostrate shrub (0.75 m tall). The oyster (*Saccostrea cucullata*) which is in high densities in the front zone of the mangrove provided a habitat for many species of molluscs, crustaceans and polychaetes. In humid areas under the taller trees in the more landward regions of the swamp three species of red algae (Rhodophyceae) covered the pneumatophores and were used as cover by many small gastropods and crustaceans.

There was an overall trend of reducing species numbers towards the landward edge of the swamp. Only a few species of animals could be found abundantly in all areas of the swamp (*Bembicium auratium*, *Heloccius cordiformis* and *Sesarma erythroductyla*). Their densities showed a decrease paralleling the decrease in the species numbers. This general reduction in species numbers and densities, coupled with decreasing tidal inclination and increasing salinity, indicates that the landward areas are subjected to a more extreme environment.

THERMAL ADDITION AND THE ESTUARINE ENVIRONMENT: THE ROLE OF TEMPERATURE TOLERANCE IN DEVELOPING SAFE CRITERIA IN N.S.W. ESTUARIES

by R. L. WALLIS
School of Zoology, University of New South Wales

ABSTRACT

Emphasis is placed on the important contribution of thermal tolerance data in terms of generating predictions as to the impact of thermal effluents and in establishing thermal loading criteria. Such criteria are discussed in detail from a univariable and a multivariable approach. The univariable criterion developed by Coustant (1972) is extended by viewing the resistance zone of a species as part of a response surface ellipse. A multifactorial model to predict damage to entrained plankton is presented. The model includes the variables of: intake salinity and temperature; temperature shock; incapacitation and delayed mortality response; and turbulence and pressure. The same model in simplified form can be applied to benthic species in the receiving waters — this is illustrated by reference to the tropical bivalve *Trichomya hirsuta* L. Such an approach is suggested as leading to a more realistic and flexible level of thermal loading in the environment.

ANNUAL REPORT OF THE COUNCIL 1973-74

General

During the past eighteen months membership of the Association has increased by almost 100 to a total of 448, which includes five companies who became the Association's first Sustaining Members. It is hoped that our membership will continue to grow with the increasing interest in marine science and the environment.

Council has met seven times since the last General Meeting and during this period has considered many matters of importance to marine science in Australia, including the need for (i) a national policy for marine science and (ii) marine national parks. Council feels that there is a great need for co-ordination in research at a national level and a need for funds for both research and training which underlines the need for the Association to maintain good and constant relations with the Australian Government. Dr Gilmour and Dr Talbot have met with the Minister for Science, Mr Morrison, to put forward the Association's point of view on marine science policy. Last year Dr Gilmour made a submission to the Organisation for Economic Co-operation and Development (OECD) on the needs of marine science in Australia and was later invited to attend a meeting, chaired by Mr Morrison, at which the OECD examiners' report was discussed.

Meetings

In May 1974 a joint conference with the Australian Society for Limnology and the Australian Society for Fish Biology was held at Tawantin, Queensland. This was a most successful meeting attended by more than 200 persons; Council would like to thank all those who were involved in its organisation.

The Bulletin

Dr Roger Braddock has been Editor of the Bulletin since the last General Meeting but is unable to continue as he is now overseas on Study Leave. Council expresses its thanks to Dr Braddock for the great effort he has put into improving the Bulletin. The new Editor is Dr Darwin Evans of the Fisheries and Wildlife Division, Victoria, and he will be pleased to receive contributions for the publication from members as it will only be possible for the main function of the Bulletin (i.e. keeping members in touch with the work being done by other marine scientists in related fields) to be maintained if members keep the Editor and the Council informed of their work.

The Directory

A new edition of the Directory of Marine Scientists in Australia is being compiled by Dr John Noye and should soon be ready for publication.

The Constitution

Council has recently been investigating the possibility of incorporation in the A.C.T. to give the Association legal entity and to limit the liability of members. At its November meeting, Council decided to recommend to members that the Association becomes incorporated in the A.C.T., and that this matter together with the constitutional changes involved be discussed at the January General Meeting.

AUSTRALIAN MARINE SCIENCES ASSOCIATION
INCOME & EXPENDITURE ACCOUNT FOR THE
YEAR ENDED 30 JUNE 1974

(999.31) (Deficit) Surplus	283.15
529.02 General account surplus	113.07
<u>(470.29) Net surplus (deficit) for year</u>	<u>396.22</u>

1973 INCOME - GENERAL	1974
1,554.96 Subscriptions	2,030.50
11.25 Advertising	130.00
5.79 Bank interest	12.37
24.72 Interest on Investment	25.42
359.15 Conference receipts	143.34
16.63 Reimbursement of postage	33.02
401.20 Donations	200.00
— Recoupment of advances	5.00
19.62 Miscellaneous	—
<u>2,393.32</u>	<u>2,579.65</u>

DEDUCT EXPENSES

169.60 Stationery & printing	401.35
170.94 Bulletin postage & charges	82.27
170.00 Interest — R.C. Sprigg	—
26.66 Postage	144.51
20.20 Secretarial & Editorial expenses	12.89
20.00 Petty Cash	40.00
1,283.20 Bulletin printing	1,390.85
2.70 Photocopies	—
1.00 Refunds of subscriptions	—
— Bank charges	3.00
— AMSA Prize & Travel award	188.00
— Branch expenditure	19.00
— Miscellaneous	13.53
— Conference expenses	166.18
— Advances	5.00
<u>1,864.30</u>	<u>2,466.58</u>
529.02 Surplus for the year	113.07

PUBLICATION

170.20 Sales of publications Handbook 1	171.96
497.35 Handbook 2	292.09
22.00 Others	—
<u>689.55</u>	<u>464.05</u>

COST OF PUBLICATIONS

3,379.30 Stock on hand at 30.6.73	1,691.64
1.20 Printing of handbook	—
— Royalty payments	23.42
<u>3,380.50</u>	<u>1,715.06</u>
Less Stock on hand at estimated realisable value	1,534.16
<u>1,691.64</u>	<u>1,534.16</u>
1,688.86 Cost of publications sold	180.90

ASSETS

62.06 Cash at Bank	20.34
409.26 Investments — St. George Perm. Building Society	584.68
1,691.64 Stocks of publications on hand	1,534.16
<u>2,162.96</u>	<u>2,139.18</u>

DEDUCT LIABILITIES

420.00 Loan — R.C. Sprigg	—
<u>1,742.96</u>	<u>2,139.18</u>

2,213.25 Balance at 30.6.73	1,742.96
(470.29) Surplus (deficit) for year	396.22
<u>\$1,742.96</u>	<u>\$2,139.18</u>

NOTES TO AND FORMING PART OF THE ATTACHED
BALANCE SHEET AND INCOME AND EXPENDITURE
ACCOUNT

1. In accordance with past years, the accounts have been prepared on the basis of cash received and cash paid. That is to say no accounting has been made for amounts owed to and amounts owed by the Association.
2. The Association was owed \$520.00 at 30.6.74 for unpaid subscriptions.
3. The Association owed \$550.08 to Rowan Morcom for printing costs and \$58.32 to Dr R. Braddock for postal expenses (both accounts since paid).
4. The results of the year's activity as disclosed by the income and expenditure account are subject to sales of publications realising the estimated realizable value shown on the statement.

D. J. G. Griffin
Hon. Treasurer
4 August 1974

AUDITOR'S REPORT

I report that I have examined the books and accounts of the AUSTRALIAN MARINE SCIENCES ASSOCIATION for the year ended 30 June 1974. In my opinion the attached Income and Expenditure Account and the Balance Sheet attached hereto read in conjunction with the notes thereon show a true and fair view of the transactions of the Association for the year ended 30 June 1974.

C. Spencer, A.A.S.A.

COUNCIL MEETINGS

Council Meetings were held at CSIRO Division of Fisheries and Oceanography, Cronulla, on 21 October 1974 and at the Australian Museum, Sydney, on 27 November 1974. Some of the topics discussed are reported briefly.

Incorporation in the A.C.T.

At the November meeting of Council, Mr Bourke of P.A. Management Consultants explained that as AMSA is not an incorporated body it has no legal entity. As a consequence of this

- (i) AMSA cannot sue or be sued in its own name
- (ii) persons who sign contracts on AMSA's behalf are personally liable
- (iii) AMSA cannot own real or personal property.

He further explained that some changes would be required in the Constitution before Incorporation in the A.C.T. would be possible. Council therefore recommended that:

1. The Public Officer should be appointed by Council and should not have duties other than those imposed by the Act.
2. An additional Office Bearer, to be known as the Assistant Secretary, should be included in the new Constitution.
3. The election of Council should be by members present at the General Meeting.
4. Persons nominated for positions on Council must give their consent before the ballot.

The amended Constitution will be circulated to all members of the Association and the issue will be decided by postal ballot.

Royal Charter

Council recommends that the Association take steps to become incorporated in the A.C.T. and that at this time it does not seek a Royal Charter.

Marine Science in Australia

Dr Gilmour reported that on 11 October 1974 in Canberra he attended a meeting, chaired by Mr Morrison, Minister for Science, at which reactions to the OECD examiners' report on Science and Technology in Australia were invited.

Marine National Parks

The second draft of the document on marine national parks was tabled by Mr Collett at the October Council Meeting.

Botany Bay Project

Council has requested that the Hon. Secretary write to the Secretary, Australian Academy of Science, and request up-to-date information about the Botany Bay Project.

Subscriptions

The Association's increasing expenses have made it necessary for the Council to recommend increased Subscription Rates. For the 1975-76 financial year the rates will be as follows:

Student members	\$4
Ordinary members	\$8
Associate members	\$8
Corresponding members	\$5
Corporate members	\$32
Sustaining members	at Council's discretion
Library Subscription	\$5

New Members

Mrs R. ALLEN
192 Ewos Parade
Cronulla, N.S.W. 2230

AMATIL
G.P.O. Box 145
Sydney, N.S.W. 2001

Mr G. R. V. ANDERSON
The Australian Museum
6-8 College Street
Sydney, N.S.W. 2000

Ms D. ANDERSON
Environment Science & Services
P.O. Box 107
North Brisbane, Qld. 4000

Dr A. AXELRAD
Fisheries and Wildlife Division
605 Flinders Street Extension
Melbourne, Vic. 3000

Dr R. BLACK
Department of Zoology
University of W. Australia
Nedlands, W.A. 6009

Mr J. H. BISHOP
28 Parramatta Road
Keilor, Vic. 3036

Mr P. A. CAMERON
Zoology Department
Sydney University
Sydney, N.S.W. 2006

Mr P. CROCOS
CSIRO, Div. Fisheries and
Oceanography
P.O. Box 5

Deception Bay, Qld. 4508
Mr R. J. EDWARDS
CSIRO, Div. Fisheries and
Oceanography
P.O. Box 21

Cronulla, N.S.W. 2230
Exploration Representative
Gulf Oil Co—South Asia
P.O. Box 641

Singapore
Dr R. A. FIELD
Department of Environment
Protection (WA)
BP House
1 Mount Street
Perth, W.A. 6000

Professor M. GILMARTIN
Australian Institute of Marine
Sciences
P.O. Box 119
Woden, A.C.T. 2806

Mr A. B. HICKS
Dept of Housing and Construction
17 Yarra Street
Hawthorn, Vic. 3122

Dr J. KUDENOV
Fisheries and Wildlife Division
605 Flinders Street Extension
Melbourne, Vic. 3000

Mr S. E. LOOMES
P.A. Management Consultants
Pty Ltd
211 North Miller Street
North Sydney, N.S.W. 2060

Mr W. B. MURDAUGH
P.A. Management Consultants
Pty Ltd
211 North Miller Street
North Sydney, N.S.W. 2060

Mr R. W. PETTIS
Material Research Laboratories
P.O. Box 50
Ascot Vale, Vic. 3032

Miss B. C. POLLARD
Gowrie Private Hotel
Melbourne Avenue
Braddon, A.C.T. 2600

Dr J. R. RICHARDSON
National Museum of Victoria
Russell Street
Melbourne, Vic. 3000

Mr S. R. ROUBAL
University of New England
Armidale, N.S.W. 2350

Mr B. RUSSELL
Australian Museum
6-8 College Street
Sydney, N.S.W. 2000

Mr D. A. STAPLES
86 Surrey Road
Blackburn, Vic. 3130

Dr D. V. SUBBA RAO
Marine Ecology Group
Bedford Institute of Oceanography
Halifax, Nova Scotia

Technical Services Librarian
Auckland Public Library
P.O. Box 4138
Auckland, New Zealand

Ms H. TRANTER
Australian Museum
P.O. Box A285
Sydney South, N.S.W. 2000

Mr P. D. WATT
P.O. Box 46
Richmond, Vic. 3121

GUIDELINES FOR THE ESTABLISHMENT OF UNDERWATER PARKS AND RESERVES IN AUSTRALIAN WATERS

by L. COLLETT and D. POLLARD

New South Wales State Fisheries, 211 Kent Street, Sydney, N.S.W. 2000

Consideration of how the Australian Marine Sciences Association might use its influence to encourage Australian Governments to establish underwater parks and reserves in coastal areas has led to the preparation of the following set of guidelines. These were discussed at the Association's Annual General Meeting in January 1975 and it was agreed by those present that the guidelines, together with some of the comments made at the meeting, should be published in the Bulletin to encourage further feedback from the members on this important topic. It is intended that the guidelines will eventually form the basis of a submission to the Australian Government on this subject.

Comments on these guidelines are requested from members and should be sent to the AMSA's Special Committee on Marine Parks and Reserves, c/o Dr David Pollard or Mr Leon Collett, at the above address. (Telephone no. 2 0529, ext. 422 and 455).

GUIDELINES

1. The now almost universally accepted need for the conservation and preservation of aquatic habitats and their biota can be met in Australia by the establishment and appropriate management of Underwater Parks and Reserves at various places around the coast. All Australian Governments should therefore be encouraged to set aside representative areas of marine and estuarine habitat for this purpose and to establish the administrative machinery necessary for their management.

2. The scientific and aesthetic interest and value of Australian aquatic biota should be recognised, and this recognition should extend to an appreciation of the fact that the coastlines of the separate States in most cases comprise more than one biogeographic province.

Any scheme for selecting suitable areas for preservation must take into account our current understanding of biogeography.

3. Within each of the main biogeographic provinces there is a need to set aside areas representative of each of the major marine and estuarine habitat types (for example, salt marshes, mangrove stands, seagrass meadows, mud flats, sand flats, rock platforms, rocky reefs, beaches, coastal lagoons, bays and offshore islands).

The ecological importance of vertical zonation must also be considered when defining the boundaries of an area to be set aside as a reserve; 40 m (120 ft.) has been suggested as appropriate around certain offshore islands.

4. The fact should be recognised that in some very restricted areas a combination of physical and chemical factors may interact to produce unique biological communities, and that in addition to the larger areas reserved, much smaller restricted areas are also worthy of protection.

5. The separate individual Underwater Parks and Reserves thus established may require different management strategies, depending on the uses for which they are intended. Four major categories of use can be recognised. These are (in order of stringency of protection):

- (i) Scientific Reserves. Unspoiled natural areas set aside for the study of pure and applied marine and estuarine ecology and other sciences by competent persons or organisations. Human access to these areas would be severely restricted.
- (ii) Conservation Reserves. Unspoiled natural areas which would function both as a source of flora and fauna for the repopulation of adjacent areas and as reservoirs of genetic diversity. Human access to these areas would also be limited.
- (iii) Educational Reserves. Relatively unspoiled natural areas set aside specifically for school, college, and university groups to observe and learn at first hand the general principles of aquatic ecology. These areas would also be open to the general public for the same purpose.
- (iv) Recreational Reserves. Areas in a relatively natural state set aside for passive recreation, but in which spear fishing, aquarium fish and shell collecting, and perhaps also commercial fishing and angling, would not be permitted. Such active recreational pursuits as water skiing would also be excluded.

Comment. This is a difficult category and views of competent persons differ as to how these use objectives can best be met. Categorisation and management strategies are also topics which are

likely to arouse strong public feeling and objections. Various pressure groups with specific interests, for example, spear fishermen, anglers, commercial fishermen, could threaten the viability of these separate categories, and special efforts in public education will thus be needed to ensure their acceptance.

6. Underwater Parks and Reserves in each of these categories should:

- (i) preferably be established in regions where existing or proposed National or State Parks or Fauna Reserves are adjacent to the shoreline,
- (ii) be large enough to comprise a viable ecological unit, and
- (iii) be characterised by as large a variety of marine habitat types as possible.

7. Legislation to protect all Underwater Parks and Reserves from influences arising outside their boundaries (for example sewage effluent discharge) and from harmful forms of commercial exploitation (such as mining and petroleum exploration) should be enacted by all relevant Government departments.

8. Adequate funds should be allocated on an annual basis by Australian Governments for research in underwater parks and reserves.

9. A program of public education is needed to ensure the widespread acceptance of such parks and reserves and to foster a general understanding of the rationale of aquatic conservation.

10. A National Advisory Committee should be established to co-ordinate intergovernmental and interinstitutional activities and to advise on policy matters.

INTERNATIONAL POLLUTION ALERT NETWORK: SMITHSONIAN INSTITUTION CENTER FOR SHORT-LIVED PHENOMENA

by D. J. ROCHFORD

*CSIRO Division of Fisheries and Oceanography,
P.O. Box 21, Cronulla, N.S.W. 2230*

THE ESTABLISHMENT OF AN INTERNATIONAL POLLUTION ALERT NETWORK

In 1968, the Smithsonian Institution established a Center for Short-Lived Phenomena (CSLP) to notify scientists of the occurrence of short-lived events. At present, 2,300 scientists, scientific institutions, government ministries, and universities in 138 countries participate in the program. They receive notification from the Center of the occurrence of events such as unusual animal migrations and mortalities, major vegetation changes, oil spills, atmospheric and marine pollution, pesticide and herbicide contaminations, earthquakes, volcanic eruptions, landslides, floods, and major fireball events and meteorite falls, and, in turn, report such events taking place in their areas to the Center. The Center acts as a clearing-house for information on environmental changes; it has issued over 2,000 event reports and handled more than half a million cable words of data and information on over 700 events occurring in 74 countries and all of the oceans of the world during the past six years.

Through the new International Pollution Alert Network (IPAN), the present system is being expanded to include 670 pollution monitoring programs which operate over 60,000 permanent pollution monitoring sites in 72 countries. This network will provide the basis for an inter-

national pollution event alert program through which the Center will disseminate daily pollution event reports to hundreds of monitoring programs throughout the world.

THE PURPOSE AND GOALS OF THE NETWORK

- to obtain reports of the occurrence of significant pollution events throughout the world,
- to provide near real-time data and information exchanges on significant pollution events and high pollution level discoveries to environmental monitoring programs throughout the world,
- to develop an international communications alert network to access the frequency, magnitude, and geographic distribution of significant pollution events on a global scale,
- to join together pollution monitoring programs throughout the world that will begin to report pollution event data and information to a central repository and begin to develop standardised reporting procedures and establish specific lines of communication,
- to act as a pilot program for international co-operation between pollution monitoring networks by providing data and information exchanges on significant pollution events and high pollution level discoveries,
- to issue a quarterly summary report of all pollution events reported by the network to all participants of the network,
- to publish and distribute periodic reports on the preliminary results of field investigations that evaluate the impact of selected pollution events on the environment,
- to publish an Annual Report that will document each pollution event reported to the network and evaluate the impact of these events on the environment.

TYPES OF POLLUTION EVENT REPORTS

During 1968-1974 the Center for Short-Lived Phenomena reported the occurrence of over 700 transient events to the international scientific community. More than 180 of these events were major 'pollution' events. During the past few years the frequency and magnitude of 'pollution' events has increased substantially and it is the intention of the new International Pollution Alert Network to become a more comprehensive and more international repository for information on such events.

The network wishes to receive reports of all 'pollution' events that have a significant environmental impact, particularly events that cause, or threaten to cause, sudden changes in terrestrial or aquatic biological systems, or pose an imminent threat to man's health and well-being. These events include the occurrence of major oil spills (both terrestrial and marine), herbicide and pesticide contaminations, toxic substance spills or poisonings, atmospheric pollution events, thermal pollution events, and high pollutant level discoveries during routine monitoring. Information received by the network on such events will be quickly disseminated to all participants in the network as outlined in the Operational Procedures section.

OPERATIONAL PROCEDURES

The International Pollution Alert Network is being established to receive reports on all types of pollution events that have an environmental impact, particularly events that threaten to cause sudden changes in terrestrial and aquatic biological systems or pose an imminent threat to man's health and well-being or both. The

Center would like to be notified of the discovery of high levels of pollutants in various media, such as high mercury levels in fish or high radiation levels in the atmosphere.

Following the initial event report, it would be valuable for each participating program to communicate significant changes in the status of the event as they occur. Reports evaluating the significance of events, their impact on the environment, and preliminary results of field investigations are welcomed for exchange among participants.

The notification of the occurrence of a pollution event should be reported to the International Pollution Alert Network immediately. Fast reporting is imperative.

Generally, event reports from the field should include the following:

1. An initial report notifying the network that a pollution event has occurred. (What, where, when, . . .)
2. Follow-up reports based on additional observations or on documentation from field investigations.
3. Notification of the termination of the event.
4. A final summary of information on the nature and the magnitude of the event and its impact on the environment.

The Division of Fisheries and Oceanography CSIRO has agreed to act as the Australian agency for the transmission of suitable reports of Pollution Events in Australia to the IPAN.

AMSA members are therefore invited to forward details of Pollution Events to the Assistant Chief CSIRO, P.O. Box 21, Cronulla 2230.

As well as a short account of the event itself, the following information must also be supplied:

- Type of event — e.g., Biological.
- Date of occurrence.
- Location of event — Place, country, latitude and longitude if possible.
- Reporting source — Initial reporting agency.
- Source contact — Name and address of follow-up contact.

NEWS FROM NEW SOUTH WALES

Professor John Day from the University of Cape Town will be at the Australian Museum for twelve months from March 1975 on a joint ARGC grant with Dr Hutchings to study estuarine polychaetes in eastern Australia. He will present a seminar on polychaetes in the first half of 1975; contact Dr Hutchings for details.

Professor Alan Kohn, Department of Zoology, University of Washington, Seattle, paid a four-day visit to the Australian Museum in February. He gave a seminar entitled 'Interrelationship of some predatory gastropods on coral reefs'. Professor A. Kohn will spend some months on the Barrier Reef studying the predatory behaviour of *Conus* gastropods.

Dr John McIntyre, School of Biological Sciences, University of New South Wales, has returned from sabbatical leave spent at the Victoria University, Wellington, where he looked at mussel culture practices in New Zealand. He also acted as a consultant to the electricity authorities of New Zealand.

Dr John Paxton, Curator of Fisheries, Australian Museum, is on study leave from March to the end of July. He will investigate type specimens located in a variety of overseas museums and will spend some time on the current Alpha Felix expedition to Ambon, Indonesia.

NEWS FROM VICTORIA

Sarda, the Fisheries and Wildlife Division's new marine fisheries research vessel was commissioned at the Royal Victorian Motor Yacht Club, Melbourne, on 3 February. The guests were welcomed by Mr J. C. F. Wharton, Director of Fisheries and Wildlife Division, who invited Mrs W. A. Borthwick to name the vessel, which was then officially commissioned by the Hon. W. A. Borthwick, M.L.A., Minister for Conservation, Victoria. The *Sarda*, 65 feet overall and weighing 80 tons, is powered by a V8 71N General Motors 240 h.p. diesel engine and has two auxiliary motors — Ford 72 h.p. engines. In addition to sophisticated navigational equipment, the vessel has an echo-sounder, net recorder, sonar fish-finder and unique net winches designed by the Division's staff for exploratory research fishing, which will be one of the vessel's main functions. The *Sarda's* highest priority for 1975 will be the Commonwealth-funded investigations of gummy shark stocks in south-east Australian waters. Other investigations will include surveys of scallops in Port Phillip Bay, prawns at Lakes Entrance and scallops in central and western Bass Strait. Towards the end of the year the vessel will be used for exploratory trawling for deep-sea trevalla, hake, ling and hapuka in an attempt to develop new fisheries.

MEETINGS AND CONFERENCES

AMSA Council will meet on 11 March, 13 May, 22 July, 9 September and 11 November 1975.

ANZAAS-SA. The 2nd Australian Conference on Science and Technology takes place at the University of Adelaide, 17-20 August 1975. The program will include papers on techniques in biological, physical and earth sciences and environmental monitoring and control. Further details: The Registrar, ANZAAS-SA, 141 Rundle Street, Adelaide, S.A. 5000.

Oceanography. Preparations for the fourth Joint Oceanographic Assembly to be held in Edinburgh, Scotland, from 13 to 24 September 1976 have already begun. The program is being arranged by an international steering committee under the chairmanship of Professor W. S. Wooster (USA). No details of the program are available at present.

Fish biology. The Annual General Meeting of the Australian Society of Fish Biology is to be held at Port Stephens, 15-18 August 1975. The facilities of the N.S.W. Fisheries Brackish Water Research Station have been made available to the Conference. Accommodation can be arranged at the Salamander Motor Inn (\$19 per day). Excursions will take place on the Saturday of the Conference. Anyone wishing to submit a paper or requiring further details should contact Dr N. McKay, N.S.W. State Fisheries, 211 Kent Street, Sydney 2001.

A Malacological Workshop is being arranged at Lizard Island, Great Barrier Reef, for two weeks in early December. Attendance, by invitation only, will be restricted to 6-10 persons. Details from Dr W. Ponder, Australian Museum, P.O. Box A285, Sydney, N.S.W. 2000.

Whaling. A meeting of the Scientific Committee of the International Whaling Committee under the chairmanship of Dr K. Radway Allen is scheduled for 3-17 December 1975 at the South Water Fisheries Centre, La Jolla, California.

Atomic Spectroscopy. The Fifth International Conference on Atomic Spectroscopy, sponsored by the Australian Academy of Science, will be held at Monash University, Melbourne, 25-29 August 1975. The fields covered by the Conference will include atomic emission, absorption and fluorescence spectroscopy, with particular emphasis on the application of these techniques to

analytical chemistry. Papers describing original unpublished work are invited but deadlines must be strictly observed. Details from Dr J. B. Willis, Secretary, Fifth International Conference on Atomic Spectroscopy, Box 160, Clayton, Victoria 3168. Scientific equipment of interest to atomic spectroscopists will be on display, and visits to the CSIRO Division of Chemical Physics and to Varian Techtron Pty Ltd will be arranged. Full accommodation is available at the Halls of Residence on the campus at Monash University or at motels in Melbourne.

AUSTRALIAN INSTITUTE OF MARINE SCIENCE (AIMS)

(Reprinted with the permission of AIMS)

The Institute was established as a Statutory Authority by Act of Parliament in 1972 and is wholly supported by the Australian Government. Initially the Institute will direct its efforts towards the Coral Sea, the Great Barrier Reef and the North Queensland coast. The Institute's activities will not be confined to any specific branch of marine science. The research philosophy will emphasise multi-disciplinary projects focussing on research of basic importance to tropical marine sciences. The Institute will be mainly concerned with research and will not engage in undergraduate teaching, although co-operative postgraduate programs will be developed with Australian universities. The Institute will establish a visiting scientist and post-doctoral program to supplement research performed by the Institute.

Several of the research projects on which the Institute will focus its attention during the first two years have already been selected. A seven-man group, headed by Dr John Bunt, is currently starting an investigation of the primary production of shallow inshore waters, including the mangrove communities. This region is an important food source and nursery ground for many inshore species of marine organisms. Concurrently a group, headed by Dr William Hamner, is conducting investigations on the behaviour of important elements of the coral reef invertebrate community; the investigations will be expanded to include *in situ* studies of the behaviour of zooplankton, an extremely important but rarely studied phenomenon. A group, under the direction of Dr David Barnes, is being formed to conduct studies on the process of calcification in coral species, and concurrently Dr John Vernon will be starting a two-year project to complete a monograph on the taxonomy of Great Barrier Reef hard corals.

Scientists are being selected to form a marine pollution group to investigate the effects of both heavy metals and chlorinated hydrocarbons encountered in marine environments. Plans are being developed to form a marine geology group which will focus its attention on the environmental factors and processes primarily responsible for the physical structure of coral reefs. In addition, co-ordinated with the availability of the first Institute research vessel, a physical oceanography group which will place research emphasis on tidal and current phenomena will be formed.

AIMS will be located on a site of about 190 ha (470 acres) on Cape Cleveland about 50 km south of Townsville, Queensland. The site is protected by a national park with a virgin flora and fauna. A 5,600 square metre (600 squares) laboratory complex and a research vessel harbour are to be constructed on the site ready for occupancy in late 1976. During the interim period, research groups are occupying temporary facilities on Cape Pallarenda just north of Townsville.

By the end of 1976-77 the Institute is expected to have a scientific staff of about 75, composed of about 25

Scientists and 50 Scientific Officers and Technicians. This group will be supported by 75 people, composed of the Administrative staff, shop and ground personnel and boat crews. Thirty-six staff have been employed as of 8 January 1974, and an additional five are scheduled for employment by the end of June 1975.

It is envisaged that two research vessels will be constructed for the Institute, one about 24 m and the other about 37 m long. Design of the 24 m vessel has commenced and is being conducted by the Australian Department of Transport, with Mr Larry Glisten, of Seattle, Washington, serving as the consulting naval architect.

The Director of the Institute is Dr Malvern Gilmartin, who before taking up his appointment was Professor of Biological Oceanography at the Hopkins Marine Station of Stanford University, California. The Secretary is Dr George Melville, who was previously Director, Scientific Services Branch, Department of Science, Canberra.

MAJOR NEW RESEARCH VESSEL FOR CSIRO

(Reprinted from Australian Fisheries, January 1975)

The Australian Government is to build a major research vessel for CSIRO's Division of Fisheries and Oceanography. The 67 m stern-trawler type vessel is expected to be operational by 1978.

Details of the 1,860 gross tons vessel, first announced in the Budget, were released recently by CSIRO and the Australian Minister for Science, Mr W. L. Morrison.

Mr Morrison said the vessel would be capable of performing multiple tasks in oceanography and marine environmental studies, as well as a full range of fisheries research activities and commercial-type fishing operations.

The work program envisaged for the vessel was a full one and would cover all waters of Australia. Investigations would include:

- the circulation, productivity and biology of oceans adjacent to Australia, with particular reference to the protection of the quality of marine waters and their effective management;
- oceanographic study of the marine environment in relation to the behaviour and distribution of fisheries resources;
- and distribution, abundance and biology of fisheries resources around the Australian coast.

It will provide good working conditions for scientists, will be able to stay at sea for long periods, and is designed to work in most weather conditions which could be expected north of latitude 50°S.

Design work is being done by the Shipbuilding Division of the Department of Transport. It is anticipated that the design will be completed by March 1975, when tenders will be called. Construction should be complete by the last half of 1978.

The hull design is that of a stern-trawler, a type not often seen in Australian waters. It will have a 7.5 m curved stern ramp up which nets can be hauled. As a general purpose research vessel it will have many features not found on conventional ships.

A retractable bow propeller which can be turned in any direction will make it possible to keep the ship stationary in a sea while oceanographic equipment is lowered into the depths.

In order to keep underwater noise levels to a minimum and to keep down shipboard vibration in the laboratories, engines and all noise producing machinery will be mounted on a 'raft' which will be attached to the hull structure by resilient rubber absorbers. The raft and machinery

will be covered by an acoustic hood which will subdue airborne noise.

To further reduce noise the main propeller will have more blades than is usual and the hull will have fine lines and a very smooth finish. The reduction of noise generally is essential for acoustic work, especially for echo sounding and sonar for fish finding.

The main propulsion unit will be diesel electric. This will give fine control of the main propeller and make it easier to maintain a fixed stationary position. It will also enable slow running for long periods as required in trawling.

Seaworthiness and sea kindliness are of vital importance so that a stable platform can be provided to enable research to be carried on into the higher sea states. Stabilisation of the hull will be achieved by anti-roll tanks which will operate whether the vessel is stopped or under way.

Precise navigation will be done much of the time by the scientific staff and navigation equipment based on a satellite system of very high accuracy will be installed with its own computer. This is particularly important for taking water samples in the open ocean.

There are three laboratory areas. The main laboratory complex will be amidships and consist of separate rooms for a biological laboratory, a marine physics laboratory and a marine chemistry laboratory.

Near the fish handling area towards the stern will be a wet laboratory coping with not only fish but also water samples and plankton samples. On the boat deck level above the main laboratory complex will be another complex which will include a data handling section, a computer installation, a scientific plotting room and an electronics workshop.

Within the scientific areas an intercommunication system separate from the general ship system will be established. This will handle data as well as ordinary speech.

The whole of the stern area on the main deck including the ramp will be used for fishing and other net operations. The heavy duty winches required for this will be located on the deck above, giving a clear view of the operations to the winch driver.

The cleared area of the forecastle deck towards the bow will be used for physical oceanography operations. An 'A' frame will be fixed so as to swing over the starboard side and will be used for launching and retrieving equipment such as buoys, current meters and small moorings.

A 5 tonne hydraulic articulated crane with boom which can be extended to 11 m will handle heavy moorings and other equipment over the side and stern.

The types of fishing operations at present envisaged are demersal (bottom) trawling, pelagic (midwater) trawling and prawn trawling.

The vessel will be engaged on plankton and larval surveys, using a wide range of small mesh nets including special opening and closing nets which sieve water only at a pre-determined depth. They are carried down by a large depressor attached to the end of the wire.

Oceanographic water sampling will be done from the surface to depths as great as 8,000 m in the deep ocean trenches. Light dredges will be used to take bottom samples. Protracted sampling operations in these depths may involve keeping the vessel stationary and the sampling cable vertical for up to 12 hours. This requires the use of the bow propeller.

The vessel will be used to place heavy oceanographic buoys which will collect and transmit data to ship or shore stations. These will float at the surface in the open ocean moored to concrete blocks up to 5 tonnes weight in water down to 3,000 m.

Instruments such as current meters which operate below the surface at various depths also will be anchored by large concrete blocks but with special release devices for recovery.

Free drifting oceanographic buoys which can be tracked by satellites will be released in the ocean. These buoys monitor and transmit environmental data and their movements give information on currents.

Facilities will also be available for towing various instruments including geomagnetic electrokinetograph electrodes for detecting ocean currents, hydrophones for reception of underwater telemetry and strings of hydrophones for location and tracking of acoustic floats which descend to fixed depths and move in the currents there. Their movements give information on the speed and direction of the deep currents.

The vessel will be operated by the Transport Operations Branch of the Department of Transport and be manned by 10 officers and 19 crew, with 19 scientists.

Mr. G. C. Trout of the U.K. Ministry of Agriculture, Fisheries and Food is visiting Australia for two weeks as a consultant in the designing of the new 67 m research vessel to be built for CSIRO Division of Fisheries and Oceanography. He has had wide experience in the design of research vessels and is currently advising the Governments of New Zealand and South Africa. He was directly responsible for the planning and designing of R.V. *Cirolama*, a fisheries research vessel built for the M.A.F.F. Fisheries Laboratory at Lowestoft, Suffolk.

AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL (ASTEC)

In a White Paper entitled 'Science and Technology in the Service of Society — the Framework for Australian Government Planning' the Government describes its plans to achieve 'a better integration of science and technology in the service of society and a better framework for Australian Government planning'. The Government has decided

- to form a Ministerial Committee under the chairmanship of the Prime Minister, or his nominee, to exercise overall co-ordination of the Government's programs on science and technology; and
- to establish a statutory body to be known as the Australian Science and Technology Council (ASTEC) whose major task will be to advise on the role of science and technology in the formulation and realisation of national goals. It will also identify areas where the national effort in science and technology is inadequate or in which existing expenditure is excessive or unproductive. The Council will report to the Ministerial Committee.

ASTEC will report and make recommendations to the Government on

- (i) the role of science and technology in the formulation and realisation of national objectives;
- (ii) the socio-economic implications of developments in science and technology;
- (iii) the adequacy of Australian scientific and technological activities and of associated organisational and institutional arrangements;
- (iv) priorities for scientific and technological research and development, and on policies to give best effect to these priorities;
- (v) manpower policies for science and technology;
- (vi) science and technology in relation to Australia's international role;
- (vii) the requirements for, and evaluation of, statistical and other information on the national effort in science and technology;
- (viii) any matters referred to it by Government.

APPLICATION FOR MEMBERSHIP

I (Dr, Mr, Mrs, etc.)*
(Please give full names and degrees)

of (Institution and Branch if any and address for mailing)

.....
hereby apply for membership of the Australian Marine Sciences Association.

cheque
I enclose money order* \$..... being Corporate/
Ordinary/Student/Corresponding membership fee.*

My research interests in Marine Sciences are

I have published research in

..... Journals

Date

Signature of Applicant

Proposed by

Seconded by

— both being members of AMSA who to the best of their knowledge, verify that the applicant is eligible for membership under AMSA Constitution.

* Delete that which is not applicable.

OBJECTS OF AMSA

To promote liaison between scattered centres and workers in the many disciplines of marine sciences in all States, through a quarterly Newsletter, through meetings and conferences or any other means and to promote co-operation between them. Membership is open to scientists or corporate bodies engaged in marine research or to students of marine science approved by the Council of the Association. AMSA aims to improve the public's 'image' of marine scientists and to forward their interests generally.

SUBSCRIPTION RATES

Corporate	\$32.00
Ordinary	\$8.00
Student	\$4.00
Corresponding	\$5.00
(For members domiciled beyond Australia and her dependent territories.)	
Mrs R. Allen	
Hon. Treasurer, AMSA	
192 Ewos Parade	
Cronulla, N.S.W. 2230	

Australian Marine Sciences Bulletin January 1975

