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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

Information on National Training and Educational Programmes
offering facilities to Foreign Students in the Federal Republic
of Germany, Japan and the United Kingdom.

This Information Paper contains summaries of replies from the Federal Republic of Germany, Japan and the United Kingdom to IOC Circular Letter n° 407 of 29 November 1972 which was sent to all National Contacts for Subjects related to Education and Training in Marine Science. Although some of this information already is out-dated (e.g. training course in Japan) it may still be useful in considering future opportunities.

Several other countries responded to the circular letter by sending information material and brochures which were put on display for the TEMA Working Group at its first session, Paris, 7-13 March 1973. This material, however, is not in a form which lends itself to inclusion in an information paper. Information contained therein will later be partially covered by the "Guide to Institutions with Training Facilities in Aquatic Sciences and Fisheries" to be published in 1974 by FAO with the assistance of IOC and the ICSPRO agencies.

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I. Federal Republic of Germany

In seven university institutes and in four governmental (or Länder) institutes, a total of about 60 working places for students and postgraduates is available. In some university institutes, restrictions exist because of the "numerus clausus".

In general, there are no pre-requisites for application to a working place : some institutes request a relevant scientific pre-examination. During the past three years in the above-mentioned institutes a total of about 25 students and postgraduates, all coming from developing countries, have received training.

Name of Institute and address	Subject	Number of available working places for foreign students	Pre-requisites
Institut für Hydrobiologie u. Fischereiwissenschaft, 2 Hamburg-Altona, Olbersweg 24 (University Hamburg)	Hydrobiology, Fisheries marine Biology (marine pollution)	actually <u>none</u> because of the "numerus clausus"	at least 4 semesters pre-training in marine biology. Working places only in connection with experimental programme.
Institut für Meeresforschung Bremerhaven, 285 Bremerhaven-G., Am Handelshafen 12	all branches of marine biology (marine botany, zoology, microbiology, marine chemistry, marine pollution)	<u>three</u>	good qualification. The Institute must have an own interest in the scientific work of the applicant
Biologische Anstalt Helgoland 2 Hamburg 50, Palmaille 9 (governmental institute)	marine biology	<u>two</u> (for guest-research workers only)	-
Institut für Meereskunde an der Universität Kiel, Abt. für Meeresbotanik, 23 Kiel, Düsternbrooker Weg 20 (University Kiel)	marine botany (Phytobenthos)	<u>one</u>	-
Forschungsinstitut für Meeresbiologie u. Meeresgeologie Senckengerg, 294 Wilhelmshaven, Schleusensinsel 10	marine biology marine geology	one to <u>two</u>	the applicant must present an own scientific programme

Name of Institute and address	Subject	Number of available working places for foreign students	Pre-requisites
Institut für Meereskunde an der Universität Kiel, 23 Kiel, Düsternbrooker Weg 20 (University Kiel)	Physical oceanography fisheries marine planktonology, marine chemistry	about <u>ten</u>	graduation (B.Sc/M.Sc.) in physical oceanography: good knowledge in theoretical physics: graduation in fisheries biology or equivalent training
Institut für Meereskunde 2 Hamburg 13, Heimhuderstr. 71 (University Hamburg)	Physical oceanography (theoretical oceanography)	<u>two</u>	postgraduates only
Geologisch-Palaeontologisches Institut der Universität 23 Kiel, Olshausenstr. 40/60 (University Kiel)	Marine geology and sedimentology	<u>about ten</u> <u>about five</u>	for after pre-diploma examination, for postgraduates
Institut für Geophysik Abt. Physik des Erdkörpers 2 Hamburg 13, Binderstr. 22 (University Hamburg)	Geophysics especially marine seismic research and gravimetry	<u>two</u> but restricted by "numerus clausus"	-
Meteorologisches Institut der Universität Hamburg 2 Hamburg 13, Von-Melle-Park 6	Marine meteorology	<u>one to two</u> but restricted by "numerus clausus"	-
Institut für Schiffstechnik u. Meerestechnik der TU Berlin 1 Berlin 12, Strabe des 17 Juni 135	Naval engineering, marine engines, marine technology	<u>ten</u> (students) <u>five</u> (postgrad.)	-
Bundesforschungsanstalt für Fischerei Hamburg 2 Hamburg 50, Palmaille 9	Fisheries Fishing techniques Radiochemistry	<u>one to two</u> for each of the four institutes	basic knowledge in the specific discipline

Information

on Fellowships for Foreign Students and Scholars in the Federal Republic of Germany

Alexander von Humboldt-Stiftung — Alexander von Humboldt-Foundation

Research Fellowships:

The Alexander von Humboldt-Foundation (AvH) awards Senior Research Fellowships to highly qualified young foreign scientists who, as a rule, should not be more than 38 years of age. The fellowships are intended for carrying out a specified research programme at a university or other research institute in Germany. Applicants, who should normally be in possession of a doctorate degree, must have been successfully engaged in either lecturing or research for several years and should have published some of their scientific work. Applications may be submitted at any time either through a German diplomatic representative abroad, or directly to the Foundation.

The Research Fellowship (Forschungsstipendium) amounts to 1 200,— DM monthly, and the Lecturer's Fellowship (Dozentenstipendium) to 1 600,— DM monthly. The fellowships are of at least 6 months' duration and as a rule are awarded for one year, with the possibility of renewal for one further year.

In cases where a Fellow is accompanied to Germany by his family, the Foundation provides a supplementary allowance of 200,— DM monthly for his wife, and of 50,— DM monthly for each child.

Travelling expenses are borne by the Foundation if they are not covered by other foreign institutions.

The decision of the selection committee is normally made known within 4—5 months after receipt of the formal application.

For further information apply to:

Alexander von Humboldt-Stiftung, 532 Bad Godesberg, Schillerstraße 12 (Tel. 0 22 29/6 69 21).

Deutsche Forschungsgemeinschaft — German Research Association

Guest Professors:

The German Research Association (DFG) may grant financial assistance to guest professors and guest scientists at German universities. Applications should be submitted by the respective inviting German university. This financial assistance can be granted only, if the stay in Germany does not serve further training or development of the foreign scientist, but promotes German research and teaching and, as a general rule, lasts at least one semester. A direct application of foreign scientists to the DFG is not possible.

For further information apply to:

Deutsche Forschungsgemeinschaft, Kennedyallee 40, 532 Bad Godesberg (Tel. 0 22 29/70 11).

Deutscher Akademischer Austauschdienst — German Academic Exchange Service

a) Fellowships for Study and Training:

The German Academic Exchange Service (DAAD) awards fellowships to qualified foreign students and graduates, generally up to the age of 32 years, for study or training at any university or other research institute in the Federal Republic of Germany.

Scholarships amounting to 500,— DM, 600,— DM and 800,— DM per month are granted for 10 to 12 months. The amount of the scholarship depends on the academic qualifications and the age of the applicant and is determined by the DAAD granting committee.

The scholarships include travelling expenses, a supplementary health and accident insurance policy, enrolment and tuition fees, adjustment, family and textbook allowances and, under certain conditions, a single clothing allowance and the costs of a language course.

Young musicians and artists may also apply for DAAD fellowships after completion of studies in their home country.

All applications are to be submitted in the country of residence.

b) Fellowships for Study Visits:

The German Academic Exchange Service is able to offer financial assistance to foreign scholars to enable them to undertake study visits which, above all, serve the guests' particular field of interest. Such visits may be suggested by German scientific institutions, German diplomatic missions, DAAD branch offices, or may be applied for directly.

The DAAD cannot, in general, offer fellowships of more than 3 months' duration.

In addition, the DAAD is able, on application by German scientific institutions and universities to grant financial help for guest professors and guest scientists, for stays of up to 3 months, on the same conditions as those laid down by the DFG.

For further information apply to:

Deutscher Akademischer Austauschdienst, Kennedyallee 50, 532 Bad Godesberg (Tel. 0 22 29/70 21).

II. Japan

1. Ministry of Education (Mombusho)

(1) Undergraduate Students

The Ministry offers five year scholarships to foreign students, who have completed a regular course of at least twelve years of school education, with a view to providing them with the opportunity to continue their study at a University in Japan.

Fields of study are humanities, social sciences and natural sciences.

(2) Research Students

The Ministry offers two year or one year and a half scholarships to foreign students, who are university or college graduates, with a view to providing them with the opportunity to study at a university in Japan.

Fields of study are humanities, social sciences and natural sciences.

2. Japan Society for the Promotion of Science, 2-1-2 Hitotsubashi, Chiyoda-ku, Tokyo 101

(1) Fellowship

The Society offers one year fellowships to foreign researchers, who have university doctorate or are studying for degree in doctor course, with a view to providing them with the opportunity to conduct research at a university or institution in Japan.

Fields of research are humanities, social sciences and natural sciences.

(2) Visiting Professorship

The Society offers two to four month professorships to senior foreign scientists, who are noted for excellent achievements and can contribute to the progress of science in Japan, with a view to providing them the opportunity to conduct co-operative research with Japanese scientists.

Fields of research are humanities, social sciences and natural sciences.

3. Science and Technology Agency, 3-2-2 Kasumigaseiki, Chioda-ku, Tokyo

The Agency invites researchers from the countries with which it has agreement on researchers exchange programme, with a view to providing them with the opportunity to study at a government research institute for seven months.

4. Japan Foundation, n°2 Bansuiken Building, 1, Shiba-Kotohira-cho, Minato-ku, Tokyo.

The exchange of persons including scholars, teachers, intellectuals and artists will be one of the most important undertakings of this recently established Foundation.

5. Overseas Technical Co-operation Agency (OTCA), n° 42, Honmura-cho, Ichigaya, Shinjuku-ku, Tokyo.

Training courses (fellowships) :

Institute	Subject	Duration
Geological Survey of Japan	Offshore prospecting	6 months 15 May - 16 Nov. 1972
Hydrographic Department Maritime Safety Agency of Japan	Hydrographic Survey	5 months 1) 29 May - 4 Nov. 1972 2) 20 May - 2 Nov. 1973
Hydrographic Department Maritime Safety Agency of Japan	Physical oceanography survey course	4 months 6 Nov. 1972 - 21 Feb. 73
Misaki International Fisheries Training Centre	Coastal Fisheries	11 months 5 April 73 - 28 Feb. 74
Tokay Regional Fisheries Research Laboratory	Marine Fisheries Research	6 months 1) 1 May - 30 Oct. 73 2) 15 Sept. 73 - 14 March 74

III. United Kingdom

The list below gives an outline of certain graduate and post-graduate training facilities available in the United Kingdom for foreign students in marine sciences. The list is incomplete. A forthcoming U.K. Royal Society publication on marine sciences will give much more complete information on courses and interests of laboratories and institutions.

**SUMMARY OF INFORMATION ON TRAINING AND EDUCATION IN THE MARINE SCIENCES IN THE UNITED KINGDOM, OFFERING FACILITIES TO FOREIGN STUDENTS:
SUPPLIED BY UNIVERSITY DEPARTMENTS, TO THE NATURAL ENVIRONMENT RESEARCH COUNCIL**

University	Contact	Information - Courses Offered
University of Durham Department of Geology	Professor M H P Bott	The department is willing to consider foreign students to take part in its Marine Geophysical Programme, but only if they are of a high standard, as the staff is not numerous enough to give additional training.
University of East Anglia School of Biological Sciences	Professor D D Davies	Able to take small numbers of foreign students for the whole of the Ecology course which is organised in the Autumn Term. The subject is taught at Honours level, and in addition to fisheries biology (taught by Mr Burd of the Ministry of Agriculture, Fisheries and Food Laboratory at Lowestoft), includes fresh water biology. Professor J A Kitching is in charge of the course.
University of East Anglia School of Environmental Sciences	Professor B M Funnell	At the present time (1973) the School does not offer post-graduate courses of instruction in marine science but they do accept research students to study for the degrees of M.Phil. and Ph.D in this area.
University of Edinburgh Grant Institute of Geology	Professor G Y Craig	Bulk of Oceanographic work is post-graduate. There are 2 post-graduate degrees for Geologists; an M.Phil. normally taking 2 years and a Ph.D. 3 years. In their first year research students are normally registered as "Supervised post-graduate students" undertaking course work (eg Courses on Statistics, Computer Sciences, Languages).
University of Exeter Department of Biological Sciences	Professor John Webster Professor David Nichols	<u>Course DY4: Marine Biology I - Oceanography</u> (15 lectures) Lent Term 6-10 weeks. Oceanography, its scope and methodology. Water movements and the biology of plankton. Marine Sediments and their infauna. The Chemistry of Sea water; marine productivity and the sea's cycles. Zoogeography; the Marine benthos. Life in open Water: Marine fisheries and the deep sea. <u>Course DY5: Marine Biology II - Littoral</u> (10 lectures) Trinity Term 1-5 weeks. Algae and their zonation. Temperate, rocky, sandy and muddy shores, tropical shores. Marine pollution and fouling. The future of marine science. <u>Courses CY5 and CY5B:</u> This course, on the Organisation of Biology, will have a section devoted to the Organisation of Marine Science. The course is held every year, in Trinity Term.
University of Leeds Department of Plant Sciences	Professor Harold W Woolhouse	Formal Courses in Marine Science are not provided, but research into various aspects of the structure and metabolism of larger seaweeds is actively being carried out, and individuals may be accepted for training for suitable periods in whichever of the following are appropriate to their needs: The work involves the use of electron microscopy, light and electron microscopy cytochemical methods and current biochemical techniques in the study of (1) cell wall metabolism in brown and red algae (2) adhesive production by spores of ship-fouling seaweeds (3) host/parasite relationships in the algae.

University	Contact	Information - Courses Offered
University of Liverpool Marine Biological Station, Isle of Man	Professor E Naylor	No <u>specific</u> courses in Marine Biology for foreign students, but such students are already working for higher degrees, and consideration would be given to all suitably qualified students for first degree course.
University of Liverpool Department of Botany	Professor D H Jennings	At undergraduate level an M.Sc. Course which would allow experience to be gained in Algal taxonomy. At the post-graduate level there is research in all aspects of algology.
University of London King's College Department of Geology	Professor J E Prentice	Projects on the study of reefs and marine sediments on the East African Coast. Possible development of a Marine Station at Malindi, in Kenya, from which to extend studies to various aspects of reef growth, coastal and estuarine sedimentology. The project is to be carried out in collaboration with the University of Berlin, who will be largely responsible for undergraduate training, whilst King's College will be responsible for post-graduate studies. One post-graduate student is already at work in the area: the whole project is to be supervised by Dr J A E B Hubbard of the Department of Geology, King's College, London.
University of London King's College Department of Zoology	Professor Don R Arthur	Formal Courses are not run, but fairly extensive research work leading to degrees of M.Phil. and Ph.D is carried out. Interests are concerned mainly with the effects of various pollutants on the fauna looked at from an ecological viewpoint. Are happy to consider foreign students of good calibre.
University of London Queen Mary College Department of Zoology and Comparative Physiology	Professor M B Marshall	Courses offered are: Marine Biology, Advanced Marine Studies, Marine Physiology, Marine Field Course, Algae - Brief Review and Field Course. All courses are taken by 2nd and 3rd year students; no course in Marine Biology offered in the first year. Marine Biology is an elementary (introductory) course, the others are more advanced. Each course has the value of one half course unit, ie it is given throughout one of the two Semesters of the Session and consists of 24 lectures and the equivalent amount of laboratory work. The Course in Marine Physiology is held at the Department's Marine Field Station at Whitstable on the north Kent Coast.
University of Manchester Department of the Mechanics of Fluids	Professor N H Johannesen	Although not having any course specifically devoted to Marine Science, certain aspects of the subject are covered in the M.Sc. Course in Fluid Mechanics given jointly with the Department of Mathematics. Also provide research topics for higher degrees which may be relevant. See pages 8, 38 and 39 of the brochure for full details.

University	Contact	Information - Courses Offered
University of Manchester Department of Zoology	Professor E R Trueman	Willing for foreign students to attend any undergraduate courses which would be suitable, as occasional students as the case might arise. This would not involve attendance at the complete undergraduate course but only at such lectures where special attention is given to teaching <u>Marine Science</u> . Also willing to consider any foreign student as a research student, when he could, if he so desired, attend undergraduate lecture courses. (See booklets for courses available).
University Marine Biological Station, Millport, Isle of Cumbrae	Professor Norman Millett	Courses in Marine Biology, Spring and Autumn, both lasting approximately 2 weeks. Applicants to have general familiarity with invertebrate animals. Courses consist of lectures, demonstrations, practical work and discussions. Participants are encouraged to make and record original observations, and to present them in the Course Symposium.
University of Newcastle-upon-Tyne Department of Botany	Professor S L Ranson	Dr B L Moss, a senior Lecturer of the department would be in a position to train post-graduate foreign students in research techniques relating to (a) effects of pollution on brown seaweeds (b) studies on ship-fouling algae (c) physiological studies of brown seaweeds.
University of Nottingham Department of Geography	Professor R H Osborne Professor C A M King	Two courses available for foreign students in Marine Science 1. A 12 week introductory Course in Oceanography. This covers basic aspects including submarine geomorphology and structure. Ocean currents, water masses; waves and tides are considered, and biological oceanography is introduced briefly. The course is elementary but fairly comprehensive. 2. Advanced coast geomorphology is one of the topics covered in the 3rd year geomorphology option and includes a weekend field visit to Gibraltar Point (Lincolnshire), where there are facilities available for coastal research, including a boat for off-shore work. Laboratory facilities are available to deal with sediment analysis.
Faisal College of Technology (Scotland) Department of Biology	Dr John C Smith	Foreign students are welcomed, but there are no specific courses on Marine Science. The nearest course is one in Ecology and Behaviour leading to Part II of the examinations for Membership of the Institute of Biology in which marine ecology takes its place with other aspects of the subject.
Portsmouth Polytechnic Department of Biological Sciences	Miss J Switzer	The following training is offered to those interested in Marine Science. 1. M.Phil. and Ph.D. by research in Marine Biology with special reference to fouling of ships; fisheries research and marine algology. 2. M.Phil. and Ph.D. by research in marine microbiology with special reference to marine bacteria and fungi - their taxonomy, physiology and ecology; parasitology and mycopathology of fish and shell fish. 3. An M.Sc. course in the biodeterioration of materials by examination and dissertation. This is a 12 month course of full time study and will include 18 weeks in industry. Aspects of marine fouling will be included in the course. A one week course in marine biology is run in June of each year. This is normally for pre-university students.

University	Contact	Information - Courses Offered	
University of St. Andrews (Scotland) Gatty Marine Laboratory	Professor M S Laverack	Facilities for higher degrees only in botany, physiology and zoology. Foreign students considered on their merits in competition with students from the UK.	
University of Southampton Department of Oceanography	Professor J E G Raymont	See booklet "Opportunities for Postgraduate Study" Notes on: M.Sc. Course in Oceanography Introductory Course in Basic Oceanography Laboratory Practical Work Specialised Options	Special links with The Advanced Centre for Marine Biological Research, at Ponto Nova, South India, and National Institute of Oceanography, Wornley, Surrey, England.
University of Strathclyde Department of Civil Engineering	Professor D I H Barr	The course in Hydraulics, Hydrology and Coastal Dynamics is marginally related to Marine Science. Also there is the possibility of foreign students undertaking training for a research degree, again in the area of Coastal Studies. At the present (January 1973) there are 2 foreign students in the department who are engaged in studies related to Coastal Dynamics. The first has just submitted an M.Sc thesis relating to movement of materials by waves at the entrance to a harbour, and the second is, as the final part of an instructional M.Sc., undertaking study of the efficacy of various designs of floating break-water using small scale models in a wave flume.	
University College of Wales (Aberystwyth) Department of Geography	Professor C Kidson	No 'taught' courses at post-graduate level, though there are 3 research students operating in the field of Coastal Geomorphology with attendant problems in near-shore oceanography. Within the Faculty of Science there is an undergraduate special option extending over the 2 years of part II in Coastal Geomorphology. The course is constructed as follows:- Part II/i Term 1. Quaternary evolution of Coastlines and Oscillations of sea level Term 2. Waves and Tides Term 3. Movements of Sediments in the littoral zone Part II/ii Term 1. Quaternary evolution of coastlines; advanced level Term 2. Contemporary coastal and estuarine processes	
University College of North Wales Marine Science Laboratories	Professor J Darbyshire	Courses in Physical Oceanography, and Marine Geotechnics. During previous 8 years have had about 7 foreign students from Burma, Nigeria, Norway, Netherlands and Pakistan; all completed the courses satisfactorily.	
University College of North Wales Department of Zoology	Professor J M Dodd	There is a close association with the Marine Science Laboratories at Menai Bridge with sharing of research facilities. Three members of the department, including Professor Dodd, are active in the research field of fish physiology, and several foreign students have carried out research in this area. Interests are in the field of reproductive endocrinology of both elasmobranchs and teleosts, steroids in fishes, renal physiology and the ecology of marine benthic organisms.	

University	Contact	Information - Courses Offered
University College of Swansea Department of Geology and Oceanography	Professor D V Ager Dr F T Banner	<p>1 year Diploma Course in Applied Marine Science starting in September 1973. It will be directed particularly at foreign students. In mind are the needs of graduates from Asia, Africa and the Middle East who have not graduated in Marine Science and who could not be spared from their home countries (and, perhaps their appointments) for more than one year.</p> <p>The emphasis will be upon the application to Marine Science of the students' particular disciplines. The major part of the students' time will be devoted to seminar-discussion, involvement in current research projects and the completion of independent practical marine projects.</p>