INTERNATIONAL SEABED AUTHORITY

Note No. 131/15

The Secretariat of the International Seabed Authority presents its compliments to the members of the Authority, and has the honour to refer to the training proposal submitted by the UK Seabed Resources Ltd. pursuant to the terms of the Contract for Exploration for Polymetallic Nodules between UK Seabed Resources Ltd. and the Authority.

According to the proposal, UK Seabed Resources Ltd. has contracted with Plymouth University to provide training opportunities for two trainees starting in 2015. One trainee from a developing State will receive on-land training in a 4-year Ph.D. programme in the analysis of polymetallic nodules using advanced imaging and analysis techniques and another trainee from a developing State will receive training in a 4-year Ph.D. programme in deep sea marine biology.

Schedule of the training programme

Both Ph.D training programmes are planned to start on October 1st 2015. Each programme will proceed for a duration of 4 years.

General qualification of candidates

Candidates for the Ph.D. training programme in polymetallic nodules should hold a degree and masters qualification in a relevant subject such as geochemistry, chemistry, mineralogy or environmental science, or equivalent education acceptable to Plymouth University.

Candidates for the Ph.D. training programme in deep sea marine biology should hold a degree and masters qualification in a relevant subject, preferably marine biology, or equivalent education acceptable to Plymouth University. It is desirable that the candidate have work experience in a relevant field, such as experience of undertaking benthic surveys, use of GIS, statistical modelling, and/or skills in species identification. The ability to be able to go to sea for up to 2 months is highly recommended.

In general, candidates for both Ph.D. training programmes should meet the entry requirements for Plymouth University, including demonstrating the ability to read and write English to a level of at least IELTS 6.5, be in good health, and be able to provide two satisfactory written reports from academic referees.

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Cost-bearing

UK Seabed Resources Ltd. will bear the costs of the two training programmes through a grant to Plymouth University. Funds from the Grant will be used to discharge all fees and expenses incurred by the trainees in connection with their participation in the relevant training programme (including the costs of training, accommodation, meals and other incidentals, passport and visa, transport, travel, insurance, materials, fieldwork, incidental study expenses and each student's union or guild fees). UK Seabed Resources Ltd. will additionally provide a berth for each student on a research cruise to the Clarion-Clipperton Zone.

Other information

For further information, including objectives of each training programme, training institutions, please see the attached *Proposal for Two Training Programmes in 2015-2019* submitted by UK Seabed Resources Ltd.

The Secretariat further has the honour to invite members of the Authority to nominate up to four candidates, who must be from developing countries, for the training programmes.

Submission of nominations should be in one of the official languages of the Authority in electronic format to: training@isa.org.jm and should be received by 20 June 2015. Nominations received after that date will not be considered. Nomination form, along with any further requirements on application, can be found on the ISA website (http://www.isa.org.jm/training). The trainees will be selected by the Legal and Technical Commission at its meetings in July 2015, in consultation with UK Seabed Resources Ltd. and Plymouth University.

Nominating governments should also give an assurance that, inter alia,

(a) All information supplied by the candidate is complete and correct;
(b) The candidate will be made available at the time and for the period required for the training;
(c) The candidate will be placed on leave of absence for the duration of the period of the training (if possible);
(d) Upon successful completion of the training, the candidate will be appropriately employed in their professional capacity or in a related field;
(e) The International Seabed Authority accepts no responsibility for the medical and life insurance of the trainee or costs and any other responsibilities arising from injury, illness or death that may occur to the trainee during the training period.

The Secretariat of the International Seabed Authority avails itself of this opportunity to renew to the members of the Authority the assurances of its highest consideration.

24 April 2015

To: The Member States of the International Seabed Authority

Attachment: Proposal for Two Training Programmes in 2015-2019

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Proposal for Two Training Programmes in 2015-2019

Overview of sponsored training programmes at Plymouth University

In accordance with the Schedule 3 of the 'Contract for Exploration for Polymetallic Nodules' between the International Seabed Authority (ISA) and UK Seabed Resources Ltd. (UKSR), UKSR has contracted with Plymouth University to provide training opportunities for two trainees starting in 2015. One trainee from a developing state will receive on-land training in a 4-year Ph.D. programme in the analysis of polymetallic nodules using advanced imaging and analysis techniques, and another trainee from a developing state will receive training in a 4-year Ph.D. programme in deep sea marine biology.

Objectives of the training programmes

Both Ph.D. training programmes are designed to build the capacity of trainees from developing States through theoretical graduate courses, practical laboratory data analysis, and training in investigation skills as well as data analysis and interpretation, in order that the trainees may increase their future scientific research level in the study of polymetallic nodules and deep sea ecosystems.

Training institutions for the programmes

Both Ph.D. programmes will be undertaken in cooperation with the Plymouth University in the United Kingdom.

The Ph.D. training programme in the analysis of polymetallic nodules will be undertaken within the School of Geography, Earth, and Environmental Sciences and in conjunction with the Electron Microscopy Centre, a microscopy and analysis centre at Plymouth University housing a range of modern electron and light microscopes together with ancillary analytical equipment and image analysis facilities. The School of Geography, Earth, and Environmental Sciences has a long history of teaching and carrying out research in the fields of petrology, geochemistry, and biogeochemistry.

The Ph.D training programme in deep sea marine biology will be undertaken within the School of Marine Science and Engineering and the Plymouth University Marine Institute, both of which are world leaders in the study of marine biology and ecosystems, including deep sea marine science and technology.

Objectives of Ph.D. Programme in Analysis of Polymetallic Nodules

The first objective of this training is to carry out an integrated approach centered on advanced imaging methods and microbeam analysis, primarily using scanning electron microscopy to fully determine and quantify the texture and mineralogy of polymetallic nodules, and energy dispersive X-ray spectroscopy (EDS) to determine semi-quantitative elemental concentrations. This project would make use of the high-resolution Field Emission Gun Scanning Electron Microscope (FEG-SEM) at the Electron Microscopy Centre at Plymouth University.

The second objective is to perform a feasibility study of innovative leaching and recovery of Rare Earth Elements (REE), Platinum Group Elements (PGE), cobalt, nickel and copper using 'green' biogeochemistry, as an environmental sustainable alternative to smelting and roasting. Energy-efficient and clean bio-extraction of REE is currently being developed at Plymouth University,

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together with partners at Birmingham University, and trials for extraction of PGE are also being carried out. The aim of these tests is to assess the range of promising 'rock eating' bacteria mixtures available and licensed to Plymouth University and its partners to investigate their suitability for REE and PGE recovery.

The Ph.D. supervisory team will be composed of professors and researchers in the field of petrology, geology, geochemistry, biogeochemistry, and electron microscopy.

Objectives of Ph.D. Programme in Deep Sea Marine Biology

The objective of this training is to apply methods of predictive habitat mapping and species distribution modelling to the deep sea environment. These methods are widely used in conservation ecology and environmental management, but are relatively new tools in the field of deep-sea marine environmental management, and have the potential to reduce the cost of comprehensive field surveys by allowing the targeting of important areas and filling data gaps for large areas of un-sampled seabed.

Using the CCZ as a case study, the aim of this Ph.D. training programme will be to apply predictive modelling approaches to deep-sea mapping for the purpose of spatial management of a potential mining region.

The trainee will address the following questions:

1. How 'unique' from a broad scale physical environmental perspective is the CCZ and where do the UK licence block(s) and APEIs fall in that context? This will set the CCZ in the broader context of the biogeographic region and other known nodule provinces.

2. Can one identify the drivers of faunal distribution patterns in the CCZ at a variety of scales?

3. To what degree of reliability can we predict the distribution of faunal assemblages in the CCZ at regional and site specific spatial scales?

The Ph.D. supervisory team will be composed of marine biology professors and researchers who are active in the field of deep sea biology.

Schedule of the training programmes

Both Ph.D. training programmes are planned to start on October 1st, 2015. Each programme will proceed for a duration of 4 years.

General qualifications of candidates

Candidates for the Ph.D. training programme in polymetallic nodules should hold a degree and masters qualification in a relevant subject such as geochemistry, chemistry, mineralogy or environmental science, or equivalent education acceptable to Plymouth University.

Candidates for the Ph.D. training programme in deep sea marine biology should hold a degree and masters qualification in a relevant subject, preferably marine biology, or equivalent education

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acceptable to Plymouth University. It is desirable that the candidate have work experience in a relevant field; such as experience of undertaking benthic surveys, use of GIS, statistical modelling, and/or skills in species identification. The ability to be able to go to sea for up to 2 months is highly recommended.

In general, candidates for both Ph.D. training programmes should meet the entry requirements for Plymouth University, including demonstrating the ability to read and write English to a level of at least IELTS 6.5, be in good health, and be able to provide two satisfactory written reports from academic referees.

Cost Details

UKSR will bear the costs of the two training programmes through a grant to Plymouth University. Funds from the Grant will be used to discharge all fees and expenses incurred by the trainees in connection with their participation in the relevant training programme (including the costs of training, accommodation, meals and other incidentals, passport and visa, transport, travel, insurance, materials, fieldwork, incidental study expenses and each student's union or guild fees). UKSR will additionally provide a berth for each student on a research cruise to the Clarion-Clipperton Zone.