



Source: <http://oceanexplorer.noaa.gov>

Orange-coloured bacterial mat living at oil and gas seeps in the Gulf of Mexico

potentially valuable genetic resources in the Earth's commons.

But there is widespread concern among the international scientific community about the potential for severe and perhaps permanent damage to these unique and sensitive ecosystems. Several patents have already

been granted to inventions based on the use of deep seabed genetic resources and compounds based on deep seabed organisms have already been isolated and developed for commercial application. Some are already available on the market and others may soon be commercialized.

The growth in bioprospecting in the deep seabed begs a number of scientific, legal and policy questions. How vulnerable are these ecosystems to human impact? Should access to the deep seabed be regulated, and if so, how? Who should reap the benefits—monetary or otherwise—of these prospecting activities, and how can these benefits be distributed?

Co-authored by Salvatore Arico of UNESCO and Charlotte Salpin of the International Institute for Sustainable Development, *Bioprospecting of Genetic Resources in the Deep Seabed* is published by the United Nations University. It examines the current scientific and commercial explorations occurring in the deep seabed, and offers an in-depth analysis of the relevant legal instruments—and the gaps in these laws.

Bioprospecting in the seabed within territorial limits is currently regulated by the UN Convention on the Law of the Sea, which determines states' jurisdiction, rights and obligations in the oceans, and by the UN Convention on Biological Diversity governing access to genetic resources and benefit sharing.

Whereas most countries have regulations on marine scientific research undertaken in their waters and seabed,

only a few have adopted legislation regulating access to, and exploitation of their genetic resources, including marine resources. Moreover, beyond national jurisdiction, these regulations break down, for there is currently no specific international regime addressing deep seabed bioprospecting in international waters. Thus far, no international co-operation has been organized at government level.



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Large chemosynthetic mussels in the deep sea off the USA's Georgia Coast

An article outlining the report's findings in greater detail will feature in the next issue of *A World of Science*.

Report at: [www.ias.umu.edu/binaries2/DeepSeabed.pdf](http://www.ias.umu.edu/binaries2/DeepSeabed.pdf)

## Fellowships for African physicists

**UNESCO has launched the Mori Fellowships scheme to enable 20 PhD candidates per year from Sub-Saharan Africa to finalize their doctoral research at UNESCO's Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy. The first 20 Fellows travelled to Trieste in September to begin one of two six-month stints over a period of two years at the ICTP.**

The scheme was announced by the Director-General during the visit by President Olusegun Obasanjo of Nigeria to UNESCO Paris as part of celebrations to mark Africa Day on 25 May. President Obasanjo is currently Chair of the 53-member African Union. 'We recognize that scientific research is an area of priority need', the Director-General told the President. 'While there is enormous talent in Africa in this area, the lack of scientific networks both on the continent and with other continents is a major handicap.' The fellowship scheme has been launched to help overcome this handicap.

The ICTP will provide Mori Fellows with research support and training in mathematics and physics, broadly defined to include, for example, climate, fluid dynamics, oceanography and seismology. The scheme is expected to have a multiplier effect by enabling African physics and mathematics students at home to receive expert university instruction from the returning Fellows.

During the 1970s, Sub-Saharan Africa had some of the finest institutions of higher education in the developing world: Dar-Es-Salaam in Tanzania, Ibadan in Nigeria, Khartoum in Sudan and Makerere in Uganda. Decades of neglect, political uncertainty and violence have taken their toll on these institutions and forced a large number of the region's 'best and brightest' to pursue their careers elsewhere. The result has been a chronic crisis in higher education and academic research.

Named after a former Japanese Prime Minister, the Mori Fellowship scheme draws upon a fund established by the Japanese government and has been allocated close to half a million dollars to cover the first two years of operation.

Qualified doctoral or post-doctoral students from Sub-Saharan Africa wishing to apply for the scheme need to fill out an application form detailing their educational background and research interests and accomplishments. A review panel appointed by the ICTP, consisting of scientists from both within and beyond the Centre, will select the successful applicants.

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