



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
اللجنة الدولية الحكومية لعلوم المحيطات
政府间海洋学委员会

UNESCO - 1, rue Miollis - 75732 Paris cedex 15, France
http://ioc-unesco.org - fax: +33 (0)1 45 68 58 10 - contact phone: +33 (0)1 45 68 39 83/84
E-mail: w.watson-wright@unesco.org

Ref: IOC/WWW/JB/1100

9 January 2012

Dear Mrs O'Brien,

In response to your letter of 13 December 2011, inviting UNESCO and its Intergovernmental Oceanographic Commission to contribute to Part I of the UN Secretary general's report on Oceans and the Law of the Sea, pursuant to the General Assembly resolution entitled "Oceans and the law of the sea", I am pleased to transmit the attached contribution focusing on Marine Renewable Energies and emerging challenges and opportunities linked to the development of marine renewable energy technologies.

Yours sincerely,

Wendy Watson-Wright
Executive Secretary, IOC
Assistant Director-General, UNESCO

Patricia O'Brien
Under-Secretary-General for Legal Affairs
Office of Legal Affairs
United Nations
2 United Nations Plaza (Room DC2-0422)
New York, NY 10017 - USA

CC: DOALOS Director
UNESCO New York Office

Chairperson

Dr Sang-Kyung BYUN
Principal Research Scientist
Climate Change & Coastal Disaster
Research Dept.
Korea Ocean Research & Development Institute
Ansan, P.O. Box 29,
425-600 Seoul
REPUBLIC OF KOREA

Executive Secretary

Dr Wendy WATSON-WRIGHT
Intergovernmental Oceanographic
Commission — UNESCO
1, rue Miollis
75732 Paris Cedex 15,
FRANCE

Vice-Chairpersons

Prof. Peter M. HAUGAN
Director, Geophysical Institute
University of Bergen
Allegaten 70
5007 Bergen
NORWAY

Dr Atanas PALAZOV
Director, Institute of Oceanology – Varna
Bulgarian Academy of Sciences
P. O. Box 152
Varna 9000
BULGARIA

Capt. Frederico Antonio SARAIVA
NOGUEIRA
Directorate of Hydrography and Navigation
Rue Barão de Jaceguai, s/n°
Ponta da Armação
Niterói, Rio de Janeiro
CEP 24 048 900
BRAZIL

Prof. Yutaka MICHIDA
University of Tokyo
Member of National Committee for IOC
Kashinoha 5-1-5
Kashiwa 277-8564
Chiba
JAPAN

Prof. Adoté Blim BLIVI
Chef de Recherche
Head of CGILE
Ministère de l'Enseignement
Supérieur et de la Recherche
University of Lomé,
B.P. 1515
Lomé 228
TOGO

IOC's contribution to the UN Secretary General's report on Oceans and the Law of the Sea

Part I: Marine Renewable Energies

(i) information regarding the activities currently undertaken related to marine renewable energies and (ii) matters which may require further consideration with an emphasis on areas where coordination and cooperation at the intergovernmental and inter-agency levels could be enhanced.

Due to climate change, the need to reduce greenhouse gases emissions, energy supply uncertainty, renewable forms of energy, and especially Marine Renewable Energies (MRE), have a central part to play. The ocean and seas cover 70% of the earth, leading to a considerable potential of renewable energies sources (one or more terawatt). The development of MRE is only at its beginning, with a variety of technologies now moving from proof of concept stage to full scale demonstration projects, and yet, numerous issues are already arising.

Contrary to traditional uses of the ocean, marine energy installations generally use marine space in a permanent (and often exclusive) way. Thus, it is necessary to develop spatial planning processes in countries' EEZs in order to identify potential areas for MRE use and to manage cumulative impacts that these can have on other human sea uses and on marine ecosystems. Establishing such planning processes also requires data collection and analysis from a variety of sources.

Developed by the IOC programme on Integrated Coastal Area Management since 2009, a new approach to ocean management called Marine Spatial Planning, provides a process for analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that usually have been specified through a political process. Characteristics of marine spatial planning include ecosystem-based, area-based, integrated, adaptive, strategic and participatory. Inclusion of MRE into a Coastal Area Management Plan is essential to assure that these technologies can be deployed in efficient cost effective manner which can sustain the environment. MSP is essential to the implementation and development MRE. MSP can be used to help plan where to develop MRE and what kind of technology is most fitting to the area.

The variety of MRE technologies, utilizing tidal currents, wave action, ocean thermal gradients and even the osmotic pressure of salt water, require detailed environmental information for matching the technology to the site, and for effective environmental impact assessment. The Global Ocean Observing System (GOOS), headed by the IOC, can help establish engineering and environmental needs of MSP. GOOS observations for climate services and science; and coastal observations including socio-economic data, will provide baseline data needed by Marine Spatial Planning for ocean energy projects.

MRE is poised to play a large role in providing renewable energy to SIDS, especially through Ocean Thermal Energy Conversion, which uses the difference between cooler deep and warmer shallow or surface ocean waters to run a heat engine producing electricity as well as freshwater as a useful by-product. SIDS are obviously well situated for growth of these technologies with large coastal populations, little infrastructure existing in the coastal zones, and few alternative energy resources. IOC is further exploring research on marine renewable technology as demonstrated by the IOC/WESTPAC workshop, organised from 16-18 February 2012 in Melaka, Malaysia, with the aim to establish a research network for development and implementation of MRE Technologies.