



United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织



Observing and Understanding Oceans

Oceans represent nearly 70% of the Earth's surface and are a significant source of food and mineral resources. However, pollution and depleted fishing resources are destroying the ocean's delicate balance.

The Intergovernmental Oceanographic Commission (IOC) is the United Nation's primary programme on marine sciences and services. Created in 1960, the IOC has made international cooperation its primary goal in order to insure that its programmes reach all parts of the world. The Commission helps to compensate for lack of infrastructure and the dearth of technical data found in certain countries. Its goal is to "promote scientific research with the aim of increasing knowledge on the nature and resources of oceans through the concerted efforts of its members".

The IOC has three major goals:

- to promote and coordinate multinational research;
- to provide Member States with integrated marine services including data exchange and ocean surveillance stations;
- to foster capacity-building for marine research through training and teaching programmes in the short and long term; through mutual assistance between countries; and through partnerships with various institutions. A new programme was recently created to promote capacity-building in the field of sustainable development. To achieve its aims, it must demonstrate to all levels of society that marine sciences offer important benefits in terms of security and of conservation of

essential resources located in the oceans and coastal regions.

The IOC is involved in various activities aimed to meet these goals.

The Tsunami Early Warning System in the Pacific represents the IOC's most successful programme. It has undoubtedly saved numerous lives since it was established in 1965. Since the 2004 tsunami, the IOC has actively sought to extend the system. A global early warning system is scheduled to be in place in 2007. Meanwhile, an Indian Ocean Early Warning System will be operational in July 2006.



Chilean ocean drifter used in tsunami early warning system (2005, Shoa © UNESCO)

The Global Ocean Observing System (GOOS) is the IOC's

most widespread programme. It is a real time ocean observation system which offers climatic and weather forecasts useful for forward planning and elaborating risk prevention strategies. (See box).

The Ocean Data and Information Network for Africa (ODINAFRICA)

unites marine institutions from 25 African countries. It receives funding from the IOC and the government of Flanders in Belgium. Designed to improve access to the most up-to-date information, the network develops capacity-building of archival infrastructure and the skills needed to store and manage archived data. Each Member State has an Information

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The Global Ocean Observing System (GOOS)

Oceans do not respect national borders, hence the importance of an international system based on cooperation between States. GOOS was officially created in 1991 from a desire to pool data and resources. GOOS collects international data on the oceans and seas of the planet in a coordinated and reliable manner. It is the ocean component of the Global Climate Observing System (GCOS) and is the coastal component of the Global Terrestrial Observing System (GTOS).

Sixty-one Member States directly participate in the GOOS project. They freely collect and share information on the marine environment. Improving the quality of data collected and the forecasts derived from it are major factors in understanding climate change. This data can help prevent future catastrophes such as rising sea levels, coastal erosion, *El Niño* or *La Niña*. It can also prevent the depletion of fishery resources by forecasting the best time to harvest them. The programme underlines the need of all countries, developed or emerging, to share information.

Many instruments are used to gather the real-time data provided by marine observation: ocean drifters (some can be tracked via satellite), marine measuring instruments, satellite observations of the oceans, coastal and shallow-water observation stations as well as fixed ocean observation platforms.

Centre and a National Centre for Marine Data.

The World Climate Research Programme (WCRP).

The Harmful Algal Bloom Programme (HAB) trains Member States to fight against algae harmful to fishery resources and capable of leading to fishery closings; to a fall in tourism; or to public health problems. Thirty-five workshops and over 500 training sessions have been organized in which participants benefited from both new technologies and lessons learned from the past.

Oceans are “Wells of Carbon.” Given the important role played by oceans in attenuating climate change, the IOC promotes and coordinates international research, measurements and systematic observations on the role of oceans as “wells of carbon”.

Ecosystem Indicators for Management of Resources. The IOC develops techniques and indicators used worldwide to measure the condition of marine and coastal ecosystems. Scientists use the data to measure the impact of climate change. They then propose strategies and recommendations. In addition, they produce information which can be used to estimate future resource productivity, including size of fish populations or the state of barrier reefs.

Research on Climate Change allows experts worldwide to measure the role of oceans on climate change. It also fosters comprehension of the potential effects of such change, like rising sea levels. Together with the World Meteorological Organization (WMO) and the International Council for Science (ICSU), the IOC sponsors the

Contact :

ioc.secretariat@unesco.org

Keith Alverson, Head of Section, Operational Observing System Section, at IOC
K.Alverson@unesco.org

To Find Out More

Intergovernmental Oceanographic Commission web site:
<http://www.ioc.unesco.org/>

GOOS web site:
<http://ioc.unesco.org/goos>