



Marine biological resources

POSEIDON

EXPLORING AND ANALYSING OCEAN BIODIVERSITY

The POSEIDON project was one of the scientific components of the Tara Oceans expedition which carried out sampling at 220 stations in oceans around the world. The object of POSEIDON was to gather marine plankton from every ocean and to explore the diversity of protists (unicellular organisms) using innovative technologies and methodologies.

From a technical point of view, the project exploited a number of groundbreaking technologies. The yacht was fitted out as a genuine 'floating laboratory'. Samples gathered were analysed using the latest and most powerful sequencing and imaging techniques.

In addition, POSEIDON focused on one of the least well known components of the biosphere, making it extremely significant in terms of potential discoveries. The project was specifically interested in the genetic functions which were characterised and then recorded and which will provide a locus of potential innovation and development for all industrial sectors exploiting blue biotechnology while paying due regard to marine biodiversity.

Lastly, the project adopted an original approach to communication: the science was accompanied by activities, notably documentary films, photography exhibitions and the creation of an interactive website, which were aimed at engaging with the general public.

All targets set were achieved during the project:

- Sampling was carried out at 220 stations
- 35,000 samples were collected
- A catalogue was compiled of 40 million genes, 60-80% of them previously unknown.

Spin offs and future developments

The principle scientific results obtained from work on the diversity of eukaryotic ribosomes (composed of proteins and RNA) are as follows: - A diversity of plankton organisms in the ocean photic zone (surface area of the oceans where light penetrates) corresponding to the majority of organisms existing in this zone;

- A greater diversity than foreseen among organisms whose importance in the oceans was known;
- Extremely diverse cell lines uncovered whose importance in the oceans was

Partners

COM_PROJECTS_CATEGORIE_PARTNER_ENTREPRISES

Fondation TARA, Paris

Research centers

Station biologique de Roscoff [\[Project Developer\]](#)
Genoscope, Evry

Other partners

EMBL, Heidelberg (Allemagne)
University of British Columbia, Vancouver (Canada)

Funder

- Agence Nationale de la Recherche

Labelisation

18/09/2009

Overall budget

1 570 K€

previously unknown;
Numerous groups of heterotrophic protists (which feed on pre-existing organic constituents) prevalent in the data sets and involved in different types of symbiosis.

All data emerging from the Tara Oceans expedition has been made accessible to the scientific community which will be able to make free use of it in any subsequent research.