# First Annual Management report

November 2000 – October 2001

# Implementation and Networking of large-scale long-term Marine Biodiversity research in Europe

# *BIOMARE*


Contract No: EVR1-CT2000-20002
Proposal No: EVK2-1999-00250

Project Co-ordinators :

**Prof. Dr. Herman Hummel & Prof. Dr. Carlo Heip**
Netherlands Institute of Ecology, Centre for Estuarine and Coastal Ecology

Website: http://www.biomareweb.org

Project duration: 2 years
November 2000 – October 2002

Yerseke, May 2001

Project funded by the European Community under the 5th FW EESD programme

SECTION 1: Management and resource usage summary related to the reporting period

### 1.1. Objectives of the reporting period

The objectives in the reporting period, November 2000 – October 2001, were:
- 1) to start the Concerted Action
  - through a Steering Committee meeting
- 2) to make first inventories on:
  - Reference Sites and Flagship Habitats
  - Biodiversity indicators
- 3) to have a series of Regional Meetings
- 4) to report the first inventories on Regional Meetings
- 5) to organise a first Workshop

### 1.2. Scientific/Technical progress made in different work packages according to the planned time schedule:

#### *1.2.1. Progress*

In November 2000 the BIOMARE Concerted Action started with a steering committee meeting (members 1-10, table 1) at Yerseke, the Netherlands, discussing the general issues of the CA, and offering suggestions and recommendations to the WP Leaders for the first actions such as the development of the questionnaires. A full report was published (see Appendix 1).

In December 2000 the BIOMARE website (http://www.biomareweb.org) was established. It includes details of the project objectives, work packages, results and participants. Links are provided to key marine biodiversity and biodiversity websites. The website has been promoted at regional BIOMARE meetings and through the Marine-B list server, owned by M. Costello and J.-P. Féral. The Marine-B list server has been promoted as a tool for the dissemination of the BIOMARE project and marine biodiversity information. Promotion has been through the website and at BIOMARE regional meetings.
At present over 2800 'hits' have been made on the BIOMARE site.

From December to April all BIOMARE members, and several interested parties, answered to both questionnaires: a questionnaire for WP 1 on flagship- and reference sites and one for WP 2 on biodiversity indicators, leaded by the respective WP leaders (members 2 and 3). For the Reference Sites it provided details on location, coordinates, on demographic aspects and legal protection status, on the array of habitats, on the published data on the biodiversity from the area, and on the research facilities available in the vicinity.

All BIOMARE members attended the Regional meetings organized by the Regional Co-ordinators (members 5-10)(table 1). The meeting for the Atlantic / Arctic Region and the North Sea / Baltic Region were organised in parallel in Sopot (April 2001). The meeting for the Mediterranean Region was organized directly after the Euroconference in Corinth (10-12 May). A full report is given in Appendix 2.

During the summer a second WP1 questionnaire was composed and send to help a further selection of the “Primary” Reference sites. The questionnaire on WP2 was revised and re-opened to be filled in by MARS and BIOMARE members.

A second Steering Committee Meeting was organised en October to discuss the progress, and to prepare the last items for the subsequent Workshop at Palma de Mallorca on 2 and 3 November.
For WP1 it was decided to install a small committee of members and external experts that have no connection to the proposers of “Primary” Reference Sites in order to make a selection of the 190 proposed sites, of which 35 were potentially suitable to be a “Primary” site.
For WP2 it was decided to constitute 4 working groups, each with a chair who will lead during 2 months a small e-conference. The results will be incorporated by the WP-leader to select a final list of biodiversity indicators, and presented at the Regional Meetings.
For WP3 it was decided to develop further 1) databases on researchers and managers on marine biodiversity issues, 2) databases on marine biodiversity datasets, and 3) the dissemination to the managers and public in large through some brochures (flyers)

***Table 1.*** Meetings organised within the BIOMARE Concerted Action

| Date | Organiser of meeting | Type of meeting | Target group | Location of meeting |
|---|---|---|---|---|
| November 2000 | NIE (Netherlands Institute of Ecology) | Steering Committee Meeting | Steering committee members | Yerseke, NL |
| April 2001 | IO (Institute of Oceanology) | Regional Meeting | Members of the Arctic/Atlantic and the Baltic/North Sea groups | Sopot, Pl |
| May 2001 | IMBC (Institute of Marine Biology Crete) | Regional Meeting | Members of the Mediterranean group | Corinth, Gr |
| October 2001 | IMEDEA | Steering Committee Meeting | Steering committee members | Palma de Mallorca |
| November 2001 | IMEDEA | Workshop | All members | Palma de Mallorca |

The first edition of the BIOMARE Newsletter was published in November 2001. The publication was in hard copy (limited print run) and electronically (pdf format) via the website and BIOMARE mailing list. Copies of the newsletter will be archived on the website.

The following specific international publication on BIOMARE has been made in the first period:
- Arvanitidis, C., Bellan, G., Drakopoulos, P., Valavanis, V., Dounas, C, Koukouras, A. & Eleftheriou, A., 2001. Testing hypotheses on polychaete species diversity along the Mediterranean and the Black Sea: Numbers, patterns, coefficients and environmental variables associated (Summary only). Seventh international Polychaete Conference (2-6 July, 2001), Reykjavik, Iceland

BIOMARE was introduced at some (inter)national meetings (see further Ch. 1.5, table 5), such as a presentation by the general coordinators at the Euroconference "Biodiversity of Coastal Ecosystem" in Corinth, Greece 5-10 May 2001. Moreover, the BIOMARE Concerted Action has been announced and introduced by many members at several regional and local meetings.

At several institutes progress has been made to evaluate their data in order to give input to the databases on marine biodiversity research results and activities (as part of WP3). An example is given in the box below.

An overview of the planned and used manpower is given in table 2, of the planned versus the executed and future tasks is given in table 3, and the time schedule in table 4.

### *The SZN Checklist of Biodiversity in the Bay of Naples*

***Valerio Zupo***

A checklist of macrobenthic species living in the Bay of Naples, both plant and animal, was produced and is presently stored at the Benthic Ecology Laboratory of the Stazione Zoologica "A. Dohrn". A major effort was necessary for standardisation of the data-base, in order to obtain a source of information easy to be consulted, exportable and completed. Each record, in the MS Access data-base, contains ecological (biotope, ecotypes, temperature, irradiance, depth limits, salinity, etc.), structural (size, colonial or not, vagile or not, etc.), and functional (feeding, tolerance, etc.) information, besides taxonomical data (gender, species, author, synonyms, etc.), to allow easy search and comparisons of groups extracted. A list of literature used for the compilation of each record is available as well.

A first list of species was obtained from literature, by cataloguing all the information retrieved in local and international databases, scientific papers, etc. The list was improved by performing additional collections of samples in selected sites, taking into account areas characterized by different levels of anthropic disturbances: a) "Cava dell'isola", in the Island of Ischia, characterized by moderate stress and candidate for the institution of a marine reserve; b) "Banco di Santa Croce", a polluted area under the influence of the Sarno River, and c) the "Harbour of Salerno", influenced by a large ship traffic, which may be responsible for the introduction of allochtonous species. Presently, the database contains 2143 species, 1732 of which are animal (about 80% of total number of species), 398 plant (19%) and 13 fungi (< 1%).

Molluscs, polychaetes and arthropods represent, on the whole, 55% of catalogued species. Among plant species, Florideophyceae are mostly represented (53% of plant species), followed by Bacillariophyceae (16%) and Phaeophyceae (15%). Statistical analyses on the database are being performed, to obtain indications on the trends of alpha-diversity in the different environments considered. Continuous update of the data-base is performed as well, and the addition of other systems (e.g., plankton, micro-organisms, etc.) is under consideration. The analyses demonstrated significant relationships between size of species, their numerical abundance and alpha-diversity, with an interesting inverse relationship between biodiversity and numerical abundance of functional groups, in all the considered environments. The high biodiversity of the Bay of Naples was demonstrated as well: our data-base contains about 1/4 of the total number of species known for the whole Mediterranean basin. Apparently, pollution, introduction of new species and other impacts did not produce, until present, a significant reduction of biodiversity in the monitored environments. This may be due to the "conservative" power of pristine communities, responding to an "intermediate" disturbance.

### *1.2.2. Plans for the following months*

The Independent Committee will decide on a first selection of Reference Sites. A short e-conference on Biodiversity Indicators will be further developed and held at the start of 2002. The results will be presented at the Regional Meetings of March and April 2002.

The next edition of the BIOMARE newsletter will be published in January 2002. With additional editions produced in June/July and December 2002.

The BIOMARE database of researchers and scientists interested in marine biodiversity will be further developed. Each member will be contacted and contact details checked for inclusion in the mailing list. The results of the database may be published via the BIOMARE website. Additional researchers and scientists will be encouraged to join the mailing list at meetings and though the newsletter.

The project website will be further developed to publish project results and dissemination products. This will include the details of long term large-scale marine biodiversity datasets and regional species inventories, results of the bioindicators and flagship and reference site work packages.

The website will promote BIOMARE meetings, conferences and workshops relating to marine biodiversity, training opportunities for marine biodiversity researchers and employment and research vacancies.

A metadata database of long term large scale marine biodiversity datasets and species inventories will be developed. The results of the database will be further published via the BIOMARE website. Initial result will be presented at the November BIOMARE workshop. This metadata database will be further developed and promoted through the mailing list, website and newsletter.

Collaboration with the MARS network will continue to collate and disseminate information on facilities and equipment of European institutes involved in marine biodiversity research, and options for training (courses) and mobility of students and researchers.

The project will be continued to be promoted through international and national workshops and meetings and through the publication of articles in research journals and newsletters for example the Marine Biological Association newsletter.

A brochure publicising the projects aims and objectives and provisional results will be produced. This will be published in the second half of 2001 and be aimed at a broader non-scientific audience.

### *1.2.3. Manpower*

The input of manpower to the BIOMARE Concerted Action was much higher than planned (table 2). The higher input has been primarily buffered by the input of the many permanent staff-members and institutes allowing their temporary staff to work for the project.

***Table 2.*** Comparison between planned and used manpower (all efforts are expressed as person-days; 1 year equals 1680 productive hours: 8 hours per day; in the totals the person-months

efforts are indicated between brackets; P = input by permanent staff, M = input by additional management).

| | | First year | | | | Second year | Total |
|---|---|---|---|---|---|---|---|
| | | First half year | | Second half year | | | |
| | | Planned manpower | Used manpower | Planned | Used manpower | Planned | Planned |
| **Member No. / task** | | | | | | | |
| 1. Coordinator | P | 12 | 23 | 2 | 55 | 21 | 35 (2) |
| | M | 57 | 57 | 48 | 69 | 105 | 210 (12) |
| 2. WP Leader | P | 8 | 12 | 2 | 3 | 25 | 35 (2) |
| | M | 29 | 29 | 23.5 | 29 | 52.5 | 105 (6) |
| 3. WP Leader | P | 8 | 15 | 2 | 10 | 25 | 35 (2) |
| | M | 29 | 85 | 23.5 | 50 | 52.5 | 105 (6) |
| 4. WP Leader | P | 8 | 8 | 2 | 6 | 25 | 35 (2) |
| | M | 29 | 18 | 23.5 | 32 | 52.5 | 105 (6) |
| 5. Regional co-ord. | P | 8 | 16 | 2 | 9 | 25 | 35 (2) |
| | M | 15 | 16 | 11.25 | 16 | 26.25 | 52.5 (3) |
| 6. Regional co-ord. | P | 8 | 12 | 2 | 20 | 25 | 35 (2) |
| | M | 15 | 15 | 11.25 | 22 | 26.25 | 52.5 (3) |
| 7. Regional co-ord. | P | 8 | 8 | 2 | 30 | 25 | 35 (2) |
| | M | 15 | 17 | 11.25 | 15 | 26.25 | 52.5 (3) |
| 8. Regional co-ord. | P | 8 | 8 | 2 | 55 | 25 | 35 (2) |
| | M | 15 | 15 | 11.25 | 30 | 26.25 | 52.5 (3) |
| 9. Regional co-ord. | P | 8 | 10 | 2 | 5 | 25 | 35 (2) |
| | M | 15 | 20 | 11.25 | 10 | 26.25 | 52.5 (3) |
| 10. Regional co-ord. | P | 8 | 15 | 2 | 10 | 25 | 35 (2) |
| | M | 15 | 15 | 11.25 | 0 | 26.25 | 52.5 (3) |
| 11. Regular member | P | 9 | 30 | 0 | 26 | 26 | 35 (2) |
| 12. Regular member | P | 9 | 8 | 0 | 0 | 26 | 35 (2) |
| 13. Regular member | P | 9 | 10 | 0 | 6 | 26 | 35 (2) |
| 14. Regular member | P | 9 | 6 | 0 | 3 | 26 | 35 (2) |
| 15. Regular member | P | 9 | 12 | 0 | 0 | 26 | 35 (2) |
| 16. Regular member | P | 9 | 10 | 0 | 1 | 26 | 35 (2) |
| 17. Regular member | P | 9 | 8 | 0 | 2 | 26 | 35 (2) |
| 18. Regular member | P | 9 | 10 | 0 | 12 | 26 | 35 (2) |
| 19. Regular member | P | 9 | 8 | 0 | 0 | 26 | 35 (2) |
| 20. Regular member | P | 9 | 12 | 0 | 0 | 26 | 35 (2) |
| 21. Regular member | P | 9 | 6 | 0 | 0 | 26 | 35 (2) |
| | | | | | | | |
| Total Person-Days | P | 183 | **204** | 20 | **253** | 532 | 735 (42) |
| | M | 234 | **275** | 186 | **273** | 420 | 840 (48) |

### 1.3. Milestones and deliverables obtained (start project 01-11-2000)

The deliverables obtained, and those planned for the coming months, are indicated in table 3.

***Table 3.*** List of obtained and planned deliverables in the BIOMARE Concerted Action

| Deliverable No | Deliverable title | Delivery month (draft) | Progress and Status report on milestones and deliverables (01-11-2000 – 01-05-2001) | Planned |
|---|---|---|---|---|
| **WP 1** | **Reference sites for marine biodiversity** | | | |
| 1.1 | Outline of criteria for site selection | (12) 24 | First and second drafts made. Final draft discussed at Steering Committee meeting in October 2001 and Workshop in November 2001 | Small committee decides on Primary Reference Sites. Decision will be discussed at Regional Meetings in March/April 2002. |
| 1.2 | Recommendation on areas suitable as 'reference sites', and institutions responsible to integrate and lead the research. | (12) 24 | First questionnaire sent to BIOMARE and MARS members. List and map of candidate reference sites constructed and published at internet (http://www.biomareweb.org). Second questionnaire send to proposed primary reference sites. At the workshop in November 2001 it was decided to install a small committee of independent researchers who will decide on the final selection of reference sites. | Final classification of 'reference sites' to be decided at Steering Committee meeting and Regional Meetings in March/April 2002. |
| 1.3 | Protocol for institutes participating in long-term monitoring of marine biodiversity | (12) 24 | | Draft to be discussed at Steering Committee meeting and Regional Meetings in March/April 2002. |
| 1.4 | Review of available data (species and habitat lists, maps, collections, publications) for sites with background data on biodiversity and ecosystem function in Europe | (12) 24 | Set-up for metadatabase discussed at Regional Meetings in April-May 2001 (see also 3.6). Lay-out discussed at Workshop at Palma (November 2001) | Input to Metadatabase opne through the BIOMARE website |
| 1.5 | Comparisons of species lists for best studied sites and deduce what they indicate regarding habitat diversity, research efforts | (12) 24 | | To be discussed at Regional Meetings in March/April 2002. |
| 1.6 | Criteria for accessibility, and compatibility of data-banks connected to (potential) reference sites | (12) 24 | | To be discussed at Regional Meetings in March/April 2002. |
| 1.7 | Critical review of data and identification of gaps in existing data and knowledge | 24 | Discussed at first Workshop in November 2001 at Palma | To be further discussed at Regional Meetings in March/April 2002. |
| 1.8 | Potential role of new methods, e.g. bio-physical modelling approaches and remote sensing techniques | 24 | Discussed at first Workshop in November 2001 at Palma | To be discussed during a small e-conference at the start of 2002, and results presented at Regional Meetings in March/April 2002. |
| **WP 2** | **Indicators of marine and coastal biodiversity at a European scale** | | | |

| | | | | |
|---|---|---|---|---|
| 2.1 | Sets of standardised indicators | (12) 24 | First questionnaire sent to BIOMARE and MARS members. Available at the internet. First draft of flow-chart made | Second draft discussed at first Workshop in November 2001<br>Constitution of working groups and organisation of an e-forum<br>Results to be discussed at the regional levels during the first term 2002. |
| **WP 3** | **Capacity building, dissemination and networking to facilitate marine biodiversity research and integration with socio-economic questions** | | | |
| 3.1 | Expanded network of students, researchers and managers on marine biodiversity (including links with members of MARS) | (12) 24 | This has been achieved as is ongoing through the development of the BIOMARE contacts database and promotion of the project via the website and newsletters. | This will continue through the duration of the project. A project brochure will be produced to facilitate this |
| 3.2 | Improved dissemination through<br>a) an internet web-site, including an electronic newsletter,<br>b) reports and publications in scientific and applied journals for specialists and non-specialists | (12) 24 | a) The website has been established and the first newsletter has been published electronically and in hard copy shortly.<br>b) No publications or reports have been produced yet but this will follow after the results of the other work packages have been collated. | a) The next newsletter will be published in early 2002 with additional editions in June/July and December.<br>b) This will continue through the duration of the project. |
| 3.3 | Overview of ongoing research programs, facilities and equipment of European institutes involved in marine biodiversity research | (12) 24 | This area will be developed alongside the MARS network. A draft questionnaire has been developed | Questionnaire will be send to members in first half of 2002 |
| 3.4 | Overview of possibilities for training (courses) and mobility of students and researchers at member institutes, in the field of marine biodiversity (in co-operation with the MARS Network) | (12) 24 | This area will be developed alongside the MARS network. A draft questionnaire has been developed | Questionnaire will be send to members in first half of 2002 |
| 3.5 | Meetings, conferences on marine biodiversity | 6, 17 / 13, 22 | First Steering Committee Meeting was held in Yerseke at November 2000.<br>First Regional meetings were organised in April-May 2001.<br>In concert with ESF, EC, UNESCO, and MARS in May 2001 an Euroconference on Marine Biodiversity was organised in Corinth.<br>The second Steering Committee Meeting was organised in October 2002 in Palma de Mallorca.<br>The first workshop was organised by IMEDEA in Palma de Mallorca at the beginning of November 2001. | In March/April the second series of Regional Meetings and the third Steering Committee Meeting will be held. |

| | | | | |
|---|---|---|---|---|
| 3.6 | Reviews and checklists on marine biodiversity and reference sites, including<br>a) manuals of the different selected habitats for marine biodiversity research (WP1),<br>b) protocols of agreed methodologies and indicators of marine biodiversity (WP2),<br>c) database of available datasets and associated publications | (12)<br>24 | a) Drafts have been prepared<br>b) Drafts have been prepared<br>c) Drafts have been prepared and are now available via the website | These will be developed following the results of the other work packages and collation of information on long term biodiversity monitoring datasets. |
| 3.7 | Protocols on integration of:<br>a) different formats used for databases (incl. those used at reference sites (deliverable 1.6) and those used in other relevant related studies (e.g. for monitoring or species registration)), and<br>b) socio-economic questions, e.g. on the impact of tourism or fisheries on marine biodiversity | (12)<br>24 | | These will be developed following the results of the other work packages and collation of information on long term biodiversity monitoring datasets. |

### 1.4. Deviations from the work plan or /and time schedule and their impact to the project

Most activities and meetings were organized and conducted according to the agreed time schedule (table 4). At the start the functionality of the server used for the questionnaire on biodiversity indicators (WP 2) was questionable and it was decided to send this questionnaire also by E-mail. Therefore, the deadline for filling in the questionnaire of WP 2 was extended.

It was felt to include some more members from the New Associated States. In order to accommodate for their integration and to put a stronger emphasis on the dissemination of the final outcome. It was decided to request for a prolongation of the Concerted Action with 4 months. This prolongation has been included in table 4.

***Table 4.*** Time-table for the BIOMARE Concerted Action. Dark-grey cells indicate the part that is covered by this 12-monthly Management Report.

| | 2000 | | 2001 | | | | | | | | | | 2002 | | | | | | | | | | | | 2003 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F |
| Steering Committee meetings | s | | | | | | | | | s | | | | | | | | s | | | | | | s | | | | |
| Inventories by leaders of WP's | | i | i | i | i | i | i | i | | | | | | | | | | | | | | | | | | | | |
| Local meetings (m); workshop (W) | | | | | | M | | | | | | | W | | | | m | m | | | | | W | | | | | |
| Draft reports, protocols … | | | | | | | | | r | r | r | r | | | | | | | | | | | | | | | | |
| Adjusting/completion reports, … | | | | | | | | | | | | | | r | r | R | | | r | r | r | r | | r | r | r | | |
| Final implementation/dissemination | | | | | | | | | | | | | | | | | | | | | | | | | | | r | r |

### 1.5. Co-ordination of the information between partners and communication activities

A database of contact details of researchers and scientists involved or interested in marine biodiversity has been established. This builds on the database developed for the European Register of Marine Species and MARS network mailing lists.

A BIOMARE-Newsletter outlining the project aims, methods and progress has been drafted and published. An electronic version is available via the website. The newsletter includes articles on regional biodiversity issues and from young biodiversity researchers.

A draft questionnaire requesting information on long term large scale marine biodiversity datasets and regional species inventories has been sent to the regional co-ordinators. Preliminary results were requested for mid October and were presented at the BIOMARE workshop in November 2001. The provisional results are available via the project website.

In Poland an educational TV program (ATE Gdansk) including BIOMARE information is currently prepared. It will be a major documentary on nature in Poland with the provisional title “Natural history of Poland”, and expected to be released in 2003.

The BIOMARE Concerted Action was communicated at some international meetings (table 5).

***Table 5.*** International meetings at which BIOMARE was introduced.

| Date | Organiser of conference | Title of conference | Title of presentation | Location of conference |
|---|---|---|---|---|
| December 2000 | | 2nd Scientific Picknic (popular-scientific public event with over 2000 visitors) | BIOMARE | Gdynia, Poland |
| March 2001 | Institute of Biomedical Sciences | 25th anniversary of Aquatic Sciences Program | Protection and conservation of biodiversity | University of Porto |
| May 2001 | European Science Foundation | Regional BOOSE (Baltic Operational Oceanography System) | BIOMARE | Gdansk, Poland |
| May 2001 | European Science Foundation | Polar Region Biodiversity | BIOMARE | Cambridge, UK |
| May 2001 | European Science Foundation EURESCO conference | Biodiversity of coastal marine ecosystems | a) Species information systems<br>b) Marine biodiversity: an urgent need of indicators | Corinth, Greece |
| June 2001 | | International Conference on Coastal Ecosystems functioning | BIOMARE (poster) | Gdansk, Poland |
| June 2001 | | LITUS-IBOY project meeting | BIOMARE (poster) | Ghent, Belgium |
| June 2001 | University of Kyoto | Diversity International of the Western Pacific Area (DIWPA)" | Aims and procedures of BIOMARE | Shirahama, Japan |
| July 2001 | International Polychaete Conference | Seventh International Polychaete Conference, 2-6 July 2001, Reykjavvk, Iceland | Testing hypotheses on polychaete species diversity along the Mediterranean and the Black Sea: Numbers, patterns, coefficients and environmental variables associated | Reykjavvk, Iceland. |
| July 2001 | London University | Detecting Environmental Change | BIOMARE | London, England |
| July 2001 | CERCI | Scarborough Centre for Coastal Studies First Annual Conference | Changing Coastal Margins | University of Hull - Scarborough Campus, UK |
| August 2001 | Siberian division of Russian Academy of Sciences | INTAS meeting | Assessment of the marine environment health: use of bioindicators (T Perez) | Limnological Insitute of Irkutsk, Siberia, Russia. |
| October 2001 | | Polar Regions Comparative Research | BIOMARE | Sopot, Poland |
| November 2001 | | 5th International Conference on the Environmental Management of Enclosed Coastal Seas | Towards Coastal Zone Management | Kobe, Awaji Island, Japan |
| November 2001 | | Flamborough Head Maritime Forum | BIOMARE | Bridlington, UK |
| December 2001 | Institute of Estuarine and Coastal Studies | 10th Meeting of the North-East England Marine Group | BIOMARE | University of Hull - Scarborough Campus, UK |

### 1.6. Difficulties encountered at management and co-ordination level and proposed/applied solutions

So far no problems were encountered.

Participants information

| N° | Institution/Organisation | Street name and number | Post Code | Town/City | Country Code | Title | Family Name | First Name | Telephone N° | Fax N° | E-Mail |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Netherlands Institute of Ecology, Centre for Estuarine and Coastal Ecology (NIOO-CEMO) | Korringaweg 7 | 4401 NT | Yerseke | NL | Prof. Dr. | Hummel | Herman | (31-113)-577484 | +31-113-573616 | Hummel@cemo.nioo.knaw.nl |
| 1 | Id. | Id. | Id. | Id. | Id. | Prof. Dr. | Heip | Carlo | (31-113)-577445 | Id. | Heip@cemo.nioo.knaw.nl |
| 1 | Id. | Id. | Id. | Id. | Id. | Drs. | Van Avesaath | Pim | (31-113)-577473 | Id. | Avesaath@cemo.nioo.knaw.nl |
| 1 | Id. | Id. | Id. | Id. | Id. | | Davidse | Theo | (31-113)-577438 | Id. | Davidse@cemo.nioo.knaw.nl |
| 2 | Centre for Coastal and Marine Sciences, Plymouth Marine Laboratory (PML) | Prospect Place, West Hoe | PL1 3DH | Plymouth | UK | Dr. | Warwick | Richard | (44-1752)-633438 | (44-1752)-633101 | r.warwick@pml.ac.uk |
| 2 | Centre for Coastal and Marine Sciences, Plymouth Marine Laboratory (PML) | Prospect Place, West Hoe | PL1 3DH | Plymouth | UK | | Dashfield | Sarah | (44-1752)-633100 | (44-1752)-633101 | sldas@pml.ac.uk |
| 3 | Observatoire Oceanologique de Banyuls (OOB) (see also 22) | | 66651 | Banyuls-sur-mer | F | Dr. | Féral | Jean-Pierre | (33-4) 68887318 | (33-4) 68887383 | feral@obs-banyuls.fr |
| 4 | Ecological Consultancy Services Ltd (ECS) | 17 Rathfarnham Road | | Terenure, Dublin 6 | Irl | Dr. | Costello | Mark | (353-1) 4903237 | (353-1) 4925694 | mcostello@ecoserve.ie |
| 4 | Id. | Id. | Id. | Id. | Id. | | Emblow | Chris | (353-1) 4903237 | (353-1) 4925694 | cemblow@ecoserve.ie |
| 4 | Id. | Id. | Id. | Id. | Id. | | McCrea | Mona | (353-1) 4903237 | (353-1) 4925694 | mona@ecoserve.ie |
| 4 | Id. | Id. | Id | Id | Id | | Dowse | Jenny | (353-1) 4903237 | (353-1) 4925694 | jdowse@ecoserve.ie |
| 5 | IMAR – Centre of the University of the Azores, Department of Oceanography and Fisheries | Cais de Santa Cruz | 9901-862 | Horta, Azores | P | Dr | Serrão Santos | Ricardo | (351-92) 292944 | (351-92) 292659 | ricardo@horta.uac.pt |
| 5 | Id. | Id. | Id. | Id. | Id. | | Afonso | Pedro | Id. | Id. | afonso@horta.uac.pt |
| 5 | Id. | Id. | Id. | Id. | Id. | | Morato | Telmo | Id. | Id. | telmo@horta.uac.pt |
| 6 | Akvaplan-Niva AS and University Studies on Svalbard (AN/UNIS) | Polarmiljøsenteret | 9296 | Tromsø | N | Dr. | Cochrane | Sabine | (47) 777 50327 | (47) 777 50301 | sabine.cochrane@akvaplan.niva.no |
| 6 | Id. | Id. | Id. | Id. | Id. | Dr. | Pearson | Tom | (44) 1631 566877 | (44) 1631 564124 | tom.pearson@akvaplan.niva.no |

| N° | Institution/Organisation | Street name and number | Post Code | Town/City | Country Code | Title | Family Name | First Name | Telephone N° | Fax N° | E-Mail |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Id. | Id. | Id. | Id. | Id. | Dr. | Gulliksen | Bjørn | (47) 790 23350 | (47) 790 23301 | bjorn@unis.no |
| 6 | Id. | Id. | Id. | Id. | Id. | Drs. | Kögeler | Jos | (47) 777 50321 | (47) 777 50301 | jos.kogeler@akvaplan.niva.no |
| 7 | Institute of Marine Biology of Crete (IMBC) | Port of Heraklion | 71003 | Heraklion, Crete | Gr | Prof. | Eleftheriou | Anastasios | (30-81) 346860 | (30-81) 241882 | Telef@imbc.gr |
| 7 | Id. | Id. | Id. | Id. | Id. | Dr. | Arvanitidis | Christos | Id. | Id. | Arvanitidis@imbc.gr |
| 7 | Id. | Id. | Id. | Id. | Id. | Dr. | Koutsoubas | Drosos | Id. | Id. | Drosos@aegean.gr |
| 7 | Id. | Id. | Id. | Id. | Id. | Miss | Scoula | Maria | Id. | Id. | Msimbc@imbc.gr |
| 8 | Instituto Mediterraneo de Estudios Avanzados (IMEDEA), CSIC-Univ. Illes Balears | C/ Miquel Marques 21 | 07190 | Esporles, Islas Baleares | E | Prof. | Duarte | Carlos | (34-972) 336101 | (34-971) 173248 | Cduarte@clust.uib.es; cduarte@uib.es |
| 8 | Id. | Id. | Id. | Id. | Id. | Dr. | Jaume | Damia | Id. | Id. | Vieadjl@clust.uib.es |
| 8 | National Council of Research in Spain (CSIC) | Cami Sta Barbara s/n | 17300 | Blanes | E | Dr. | Sarda | Rafael | Id. | (34-972) 337806 | sarda@ceab.csic.es |
| 9 | Institute of Oceanology PAS (IO) | Postancow Warzawy 55 | 81-712 | Sopot | Pol | Dr. | Weslawski | Jan-Marcin | (48-58) 55117283 | (48-58) 5512130 | Weslaw@iopan.gda.pl |
| 10 | Alfred-Wegener-Institute for Polar and Marine Research (AWI) | Biologische Anstalt Helgoland - PostBox 180 | 27483 | Helgoland | D | Prof. Dr. | Buchholz | Fred | (49-4725) 819322 | (49-4725) 819311 | Fbuchholz@awi-bremerhaven.de |
| 11 | Stazione Zoologica "A. Dohrn" (SZAD), Laboratorio di Ecologia del Benthos | Punta San Pietro | 80077 | Ischia | It. | Dr. | Zupo | Valerio | (39-081) 5833503 | (39-081) 984201 | Vzupo@alpha.szn.it |
| 11 | Id. | Id. | Id. | Id. | Id. | | Iannotta | Alessandra | Id. | Id. | iannotta@alpha.szn.it |
| 12 | Marine Biological Station, National Institute of Biology (MBS) | Fornace 41 | 6330 | Piran | Si. | Prof. | Malej | Alenka | (386-5) 6745306 / 07 | (386-5) 6734579 | malej@nib.si |
| 12 | Id. | Id. | Id. | Id. | Id. | Miss | Orlando | Martina | (386-5) 6745306 | (386-5) 6746367 | orlando@nib.si |
| 13 | Centre d'Océanologie de Marseille (COM), Station Marine d'Endoume | Rue de la Batterie des Lions | 13007 | Marseille | F | Dr. | Vacelet | Jean | (33-4) 91041627 | (33-4) 91041635 | Jvacelet@com.univ-mrs.fr |
| 13 | Id. | Id. | Id. | Id. | Id. | Dr. | Bellan | Gerard | Id. | Id. | Gbellan@com.univ-mrs.fr |
| 13 | Id. | Id. | Id. | Id. | Id. | Dr. | Perez | Thierry | Id. | Id. | Perez@com.univ-mrs.fr |

| N° | Institution/Organisation | Street name and number | Post Code | Town/City | Country Code | Title | Family Name | First Name | Telephone N° | Fax N° | E-Mail |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | National Institute of Oceanography (NIO) | Tel Shikmona | 31080 | Haifa | Isr | Dr. | Galil | Bella | (972-4) 8515202 | (972-4) 8511911 | galil@math.tau.ac.il; galil@post.tau.ac.il; Bella@ocean.org.il |
| 15 | Institute of Marine Sciences, Middle East Technical University (IMS) | P.O. Box 28 | 33731 | Içel, Erdemli | Tr | Dr. | Kideys | Ahmet | (90-324) 5213434 | (90-324) 5212561 | Kideys@ims.metu.edu.tr |
| 16 | CNRS/GDR 1117, Marine Chemistry and Ecotoxicology (CNRS) (see also 23 and 24) | 1, rue Gaston Veil | 44035 | Nantes | F | Dr. | Amiard-Triquet | Claude | (33-2) 40412865 | (33-2) 40412861 | Amiard@sante.univ-nantes.fr |
| 17 | University Gent, Marine Biology Section, Zoology Institute (UG) | Ledeganckstraat 35 | 9000 | Gent | B | Prof. Dr. | Vincx | Magda | (32-9) 2645210 | (32-9) 2645344 | magda.vincx@rug.ac.be |
| 17 | University Gent, Marine Biology Section, Zoology Institute (UG) | Ledeganckstraat 35 | 9000 | Gent | B | Dr. | Degraer | Steven | (32-9) 2645252 | (32-9) 2645344 | steven.degraer@rug.ac.be |
| 18 | Scarborough Centre for Coastal Studies, University of Hull (formerly Centre for Environmental Research into Coastal Issues, CERCI) | Filey Road | YO11 3AZ | Scarborough | UK | Dr. | Ducrotoy | Jean-Paul | (44-1723) 357241 | (44-1723) 370815 | J.P.Ducrotoy@biosci.hull.ac.uk |
| 19 | Abo Akademi University, Environmental and Marine Biology (AAU) | Akademigatan 1 | 20500 | Abo | Fi | Prof | Bonsdorff | Erik | (358-2) 2154070 | (358-2) 2153428 | erik.bonsdorff@abo.fi |
| 20 | Tvärminne Zoological Station, University of Helsinki (TZS) | J. A. Palméns vag 260 | 10900 | Hanko | Fi | Dr. | Sandberg-Kilpi | Eva | (358-19) 280121 | (358-19) 280122 | eva.sandberg@helsinki.fi |
| 21 | Klaipeda University, Coastal Research and Planning Institute (CORPI) | H. Manto 84 | 5808 | Klaipeda | Lit | Dr. | Olenin | Sergej | (370-6) 256526 | (370-6) 256526 | serg@samc.ku.lt |
| 22 | UMR CNRS 7628 (see also 3 OOB) | | 66651 | Banyuls-sur-mer | F | Dr. | Féral | Jean-Pierre | (33-4) 68887318 | (33-4) 68887383 | feral@obs-banyuls.fr |
| 23 | Universite de Nantes (see also 16) | 1, rue Gaston Veil | 44035 | Nantes | F | Dr. | Amiard-Triquet | Claude | (33-2) 40412865 | (33-2) 40412861 | Amiard@sante.univ-nantes.fr |
| 24 | Universite Pierre et Marie Curie – Paris VI (see also 16) | 1, rue Gaston Veil | 44035 | Nantes | F | Dr. | Amiard-Triquet | Claude | (33-2) 40412865 | (33-2) 40412861 | Amiard@sante.univ-nantes.fr |

SECTION 2: Executive publishable summary related to the reporting period

Contract No: EVR1-CT2000-20002
Proposal No: EVK2-1999-00250

November 2000 – October 2001

## BIOMARE : Implementation and Networking of large-scale long-term Marine Biodiversity research in Europe

Biodiversity loss and conservation are rapidly becoming important issues on the political agenda. However, the scientific effort is lagging behind this rise of interest, particularly in the marine sector, which suffer the additional problem of being considered as a less serious problem than the terrestrial environment. With the concerted action BIOMARE the marine biological science community of Europe has an excellent opportunity to organize itself by defining the topics that need urgent consideration in the near future and by discussing the implementation of the research required on the European level.
BIOMARE is organized around two work packages that address the topics of reference sites and indicators, and devotes a third work package to the dissemination of results to scientists, politicians and the public at large.

The reference (flagship) sites (WP1) provide the geographical skeleton for the implementation. As things stand now, 190 sites have been proposed to be a flagship site. Of these sites approximately thirty primary sites will be defined in the coming months. The primary sites may be the basis for intensive surveys to assess the status and long-term development of marine biodiversity in Europe.
We must not forget however that the reference sites, as they are called now, will play a crucial role in future marine biodiversity research in Europe, as they will provide the skeleton for the long-term research as well as for comparative studies on selected groups of microbiota, plants and animals. A catalogue of these Reference Sites as well as a discussion on the mechanisms to support research at these sites for at least ten years to come will be crucial as well.

The second work package on indicators is a difficult mission. This cannot be restricted to the merits of the Shannon-Wiener index or the suitability of spiders to indicate changes in the marine environment. Of course it is important to make a catalogue of indicators that are used. But another and probably more important goal of this work package is to find the right translation of very complex biological structures and evolutionary, ecological and biogeochemical processes into more simple parameters and concepts that can be understood by non-scientists. This will require building a bridge between the rigid language of science and the day to day language spoken by 'normal' people. We should not forget that for the moment there are many efforts to define indicators and a discussion, based on our biological background, on what BIOMARE can add to these will be important. At this moment a draft protocol on biodiversity indicators has been made on basis of two questionnaires.

There is therefore a very intensive and intellectually interesting year ahead of us. Marine biodiversity science needs upgrading and marine biologists are perhaps not as well organized on the European level as we should be. We must take the opportunity that BIOMARE now offers to us to do something about this. The BIOMARE community is certainly up to this task, but it also has a great responsibility. We simply cannot afford failure.

SECTION 3: Detailed report organized by work packages related to the reporting period

***WORKPACKAGE 1 - PRIMARY AND REFERENCE SITES***
WP-leader: Richard Warwick

The aim of this work package is to identify sites around Europe that can be used for long term biodiversity research. A nested approach is being used identifying a relatively small number of primary sites and larger number of reference sites.

**Primary sites**
Primary sites will be areas with a mosaic of habitats that are relatively pristine when compared with similar areas and which are therefore expected to have the comparatively highest diversity. They will serve to act as baseline against which the status of degraded or impacted sites can be assessed, and subsequent changes monitored.

The exact criteria used to define these primary sites has been discussed in more detail during the initial phase of the project and are:

- They should be pristine, free from anthropogenic disturbance, and also free from natural stressors if these are atypical of the region, which the site represents.
- They should comprise a mosaic of representative habitats within a well-defined area.
- Some background information should already be available
- They should be in areas that are afforded protection by their conservation status, which will ensure the perpetuation of their pristine status.
- There should be an appropriate infrastructure for biodiversity research.

The series of Primary Sites will aim to cover all the major marine habitats in Europe. Offshore islands may be amongst the favourite locations because they are remote from anthropogenic impacts, not subject to freshwater or fine sediment inflows from rivers, have well-defined limits and a long coastline relative to their area.

Suggestion for research objectives at these reference sites will also be formulated. Which could include:

- an inventory of the biodiversity present (including as complete a range of taxa as possible, the genetic diversity of target species and habitat diversity );
- studies of the underlying phylogenetic pattern of biodiversity;
- development of rapid assessment techniques for (dynamics in) biodiversity;
- development and calibration of biodiversity measures based on relatively coarse data appropriate to the large scales of observation and the production of indices that are not strongly dependent on standardised sampling effort;
- initialisation of long-term observational information in order to establish patterns of temporal change.

**Reference sites**
More extensive but less comprehensive studies of Reference Sites will be made at a much larger number of sites, covering a range of impacted and non-impacted areas. The criteria for the selection of these sites are less rigid however comparable habitats need to cover a wide geographic range. The objectives of studies at Reference sites will be to:

- map the distribution patterns of biodiversity on a relatively fine scale;
- assess Man's impact on biodiversity;
- undertake long-term monitoring using rapid assessment techniques or biodiversity indicators.

**Questionnaire**
An initial questionnaire sent out to BIOMARE participants has provided an extensive list of Primary and Reference sites. It was clear that unlike other programmes BIOMARE, in principle, has strict scientific goals and is the intention to create an infrastructure for research and not to compete with (non) governmental organisations. Furthermore the selection of the Primary Sites should be an iterative process between the selection of the sites and the

selection criteria. Following discussion at the first two BIOMARE regional meetings these lists were refined. However to further refine the list a second questionnaire has been developed and sent to those who nominate Primary sites.

A database and maps of the preliminary candidate Primary and Reference sites can be downloaded from the BIOMARE website (www.biomareweb.org).

**Plans for the following 12 months**
The selections of sites will be continued and in the next Regional Meetings (March/April 2002) decisions will be made. Then gaps will be identified and completed, and the final reports made.

***WORK PACKAGE 2 - BIOINDICATORS***
WP-leader: Jean-Pierre Féral

The composition and structure of the fauna, flora and habitats of the oceans change due to climate and human activity amongst others. Anthropogenic influence is the reason for the much of the deterioration over the last half century where the rate and extent of damage has been unprecedented. Such impacts have serious consequences on biological diversity. In order to manage the marine environment it is necessary to understand and identify causes of biodiversity loss before they are irreversible. The use of developing indicators for biodiversity as monitoring tools given the impossibility to survey biological diversity in its entirety is essential. Indicators generally refer to the environmental attributes, often species or species groups, which can be sampled and whose modification is supposed to reflect a change of biological diversity.

The objectives of this work package are to:
- survey and critically evaluate different types of bioindicators available in Europe including so-called indicator and sentinel species, biological indices, biomarkers, lethal and sublethal tests, and bioaccumulators;
- provide a tentative inventory of existing national monitoring networks (e.g. seawater quality: temperature, salinity, nutrients and contaminants, phytoplankton disturbance (especially by toxic unicellular organisms), bacteriological quality of shellfish by faecal bacteria) will also be made.

Over the duration of the project at the regional workshops a number of issues will be discussed, particularly how to:
1. organise a sequence of meetings aimed at increasingly inclusive information coverage (definition of sustainable indicators and related techniques at regional and European levels);
2. determine the geographical unit which must be studied e.g. the same biogeographical history and a certain ecological homogeneity;
3. choose the indicator group(s) according to current knowledge, and explore the availability of standardised sampling techniques;
4. express the results in terms of local (á) and landscape (ã) diversity, as well as in terms of â diversity (e.g. quantify the number of species substitution between communities);
5. produce comparable data, readily available in databases designed for their public use.

The outcome of the inventory preferably would be a set of 20 to 30 indicators to monitor biodiversity. Some of them will be indicator species, some will be bio-chemical factors, and others are likely indicators that already have been incorporated in the law of some countries. It should be possible to produce a uniform set of indicators for each region that can be adapted for other regions. When specific regional problems exist, these can be incorporated in the set of indicators.

When determining indicators for biodiversity it should be noted that a number of indicator types have already been identified:
- State indicators which give a description of the environmental situation (e.g. concentration of heavy metals, nitrates, bacteria, organic matter);

- Constraint or pressure indicators which indicate the pressure of human activities on the environment (e.g. Percentage of introduced species per type of habitat, varying extension ratio of *Cymodocea* and *Posidonia* meadows (urbanisation);
- Use indicators which are measures of goods and services provided by ecosystems (e.g. percentage of species used for medical or biotechnological use, percentage of endangered native species as against healthy native species);
- Performance or response indicators which are often sectorial and allow an assessment of what is being done to solve an environmental problem (e.g. protected areas as a percentage of total area, Percentage of doctoral training related to [marine] biodiversity);
- Reference points which give the means to measure progress and identify needs at political level (e.g. Thresholds, which are used as early warning systems for problems).

A number of questions need to be considered in selecting indicators:
- What is a good bioindicator? - by definition, an organism or a group of organisms, which, by reference to biochemical, cytological, physiological, ethologic or ecological variables, enables the state of an ecosystem to be assessed and to highlight, as early as possible, changes.
- Indicators of which biodiversity? - genetic level biodiversity although requiring highly qualified staff, sophisticated technical means, time and money will allow the demonstration of fragmentation of populations or erosion of genetic heritage of threatened species.

Although impacts of human activities are felt both locally and on regional consideration should also be given to biodiversity at a landscape scale. Biodiversity is always structured in terms of space and time requires monitoring to be done following the determination of an initial reference state (base line). Landscape scale is best for analysis of specific diversity, not only as a parameter of the heterogeneity of the biotic and physical environment, but also as a reflection of human activity. This activity, when it induces disturbances of moderate intensity and frequency, may encourage maximal species richness (intermediate disturbance hypothesis), which must be analysed in terms of diversity at different scales.

A number of common stages are recommended when selecting indicators including:
- Determining the target public and its information requirements and clarify the criteria to be measured;
- Determining the geographical unit, which must be studied. If the boundaries are unknown, preliminary studies are needed to verify that what is called a landscape does have the same biogeographical history and possess a certain ecological homogeneity;
- Choosing the indicator group(s) for these criteria, according to one's knowledge of them but also checking the existence of standardised sampling techniques;
- Meticulously testing indicators;
- Setting up targets, thresholds and/or marker data that are suitable for selected indicators;
- Trying out selected indicators in the field;
- Expressing the results in terms of local (á) and landscape, or total (ã) diversity, as well as in terms of â diversity (e.g. measurement of substitution of species between differing communities);
- Producing comparable data, made readily available through databases designed for public use.

A number of additional considerations could be explored when selecting indicators. Among the species present in a region one can consider the species as a species in itself and also for the contribution it makes to the architectural, trophic and functional complexity it brings to the ecosystem. Thus the following types could be included in a group of diversity bioindicators:
- rare species,
- threatened species, those becoming extinct and those which are now extinct (locally) as a consequence of the changed environment: global change or more local modifications of anthropogenic origin;
- species that are sensitive to pollution;

- biogenic species which by their existence, large size, or durability contribute to the complexity of landscapes, thus to the diversity of ecological niches;
- species which are 'keystone' species of complex trophic networks or of complex biological cycles (parasite hosts, reproduction sites, nurseries), and which therefore sustain a system or even a whole ecosystem (*Posidonia*);
- taxonomic groups with high geographical differentiation e.g. a genus with a high endemism rate. In this case, a taxon may be very vulnerable since a single or several populations represent it. These taxa are of great heritage value.

The questionnaire on bioindicators is now available for completion from the BIOMARE website (http://www.biomareweb.org) under bioindicators. The questionnaire has been made to provide an inventory and evaluate the relevance of different types of indicators available in Europe (including bioindicators or sentinel organisms, biological indices and biomarkers). Information on recommendations by national laws and their use within national monitoring networks, in order to identify the main causes, the rate and extent of biodiversity loss or evaluate the benefit of the implementation of protective or restorative measures are also being evaluated.

**Plans for the following 12 months**
The questionnaire will be completed and the results discussed at the Regional Meetings (March/April 2002).
This questionnaire is during the coming months to be directly filled in on-line, but it also can be made a two-part process:
1. Print a hard copy of the preview and then fill in once the answers have been found (it is not always possible to have the answers without a little research, which does help when filling in a form on-line).
2. Return to the website and fill in on-line.

Please read the instructions prior to completing the questionnaire and direct any questions to Jean-Pierre Feral (feral@obs-banyuls.fr).

On basis of the results a protocol on indicators to measure marine biodiversity will be constructed.

***WORK PACKAGE 3 - CAPACITY BUILDING AND DISSEMINATION***
WP-leader: Chris Emblow

The aim of this WP is to make on a European scale researchers, managers and the public at large, aware of expertise, facilities, study sites, and local scientific knowledge, on marine biodiversity in different countries. Mechanisms for the communication of this information throughout Europe are thus essential. The most rapid and lowest cost communication would be through the Internet.

The activities within WP3 will in first instance focus on the dissemination via the Internet through several means:

**A. The news service**

To facilitate communication of the project aims to a broad an audience as possible and to disseminate the results of the project the Marine-B (Marine Biodiversity) electronic mailing list will utilised by the project.

**To join the list**

This process will generate a piece of mail inviting you as the owner to add the person to the list.
Send an email to listserv@listserv.heanet.ie leaving the subject line blank.
In the main part of the mail type in the command, subscribe MARINE-B <firstname surname>
Make sure that you do not add a signature at the end of the mail. You will then receive a message saying you are subscribed to the list.

**To send mail to the list**

When you want to send mail to the list you just enter MARINE-B@listserv.heanet.ie in the To: field and the mail is distributed to the people who have signed onto the list.

If you wish to check the list archives go to http://listserv.heanet.ie/marine-b.html. The website (http://www.lsoft.com/) may also be useful if you wish to get further information about listservers and the running of the list. If you have any problems please e-mail Chris Emblow (cemblow@ecoserve.ie).

**B. The website**

A central web site for marine biodiversity research in Europe has been constructed at http://www.biomareweb.org.

The website has four main goals:

1. Introduction of the BIOMARE to the public - It states the goals and provides a description of the rationale behind the project and has brief descriptions of the member institutes.
2. Dissemination of the results - The website will show the results of the different Workpackages and the progress of BIOMARE via the publication of newsletters, reports etc. Furthermore it will be used to emphasise the applicability and the relevance of the marine biodiversity research for socio-economic and management issues and the existence of an international network of (non) governmental organisations involved in biodiversity research at regional or Pan-European scale

3. Capacity building - a database will be incorporated in, or linked to, the website giving insight in the
   - Current state of marine biodiversity research in Europe
   - Identification of gaps of this research in Europe
   - Facilities for training of researchers and students
   - Facilities for marine biodiversity research at European Institutes (logistic facilities)

   This survey it will be attempted to include institutions with relevance for biodiversity research, like museums, universities and governmental laboratories outside the project. The regional co-ordinators will be responsible for the survey in their region. The MARS network is currently performing a similar inventory and this will be co-ordinated with the work of BIOMARE.

4. Links with other organisations - The website will provide links to other biodiversity programmes (like the terrestrial biodiversity programmes, the Convention of Biological Biodiversity website, etc) and biodiversity research institutes. Furthermore these organisations should be asked to link their programme to BIOMARE.

**C. The newsletter**

The newsletter will be used to inform the public about the progress of the BIOMARE. It will be published twice a year. A limited number of hardcopies will be sent to a broader audience identified with others through the MARS and ERMS network. Whilst an electronic version of the newsletter will be put on the website in pdf format and sent to the member institutes and news service(s).

**Plans for the following 12 months**

- The project website will be further developed to publish project results and dissemination products including:
  - the details of long term large-scale marine biodiversity datasets
  - regional species inventories
  - results of the bioindicators and primary and reference site work packages
  - promote BIOMARE meetings

    - promote conferences and workshops relating to marine biodiversity.
- Further editions of the BIOMARE newsletter will be published in December 2001 and June 2002.
- A database of researchers and scientists interested in marine biodiversity will be further developed. The results of the database may be published via the BIOMARE website.
- A metadata database of long term, large scale marine biodiversity datasets and species inventories will be developed. Initial result will be presented at the November BIOMARE meeting.
- Collaboration with the MARS network will continue to collate and disseminate information on facilities and equipment of European institutes involved in marine biodiversity research, and options for training (courses) and mobility of students and researchers.