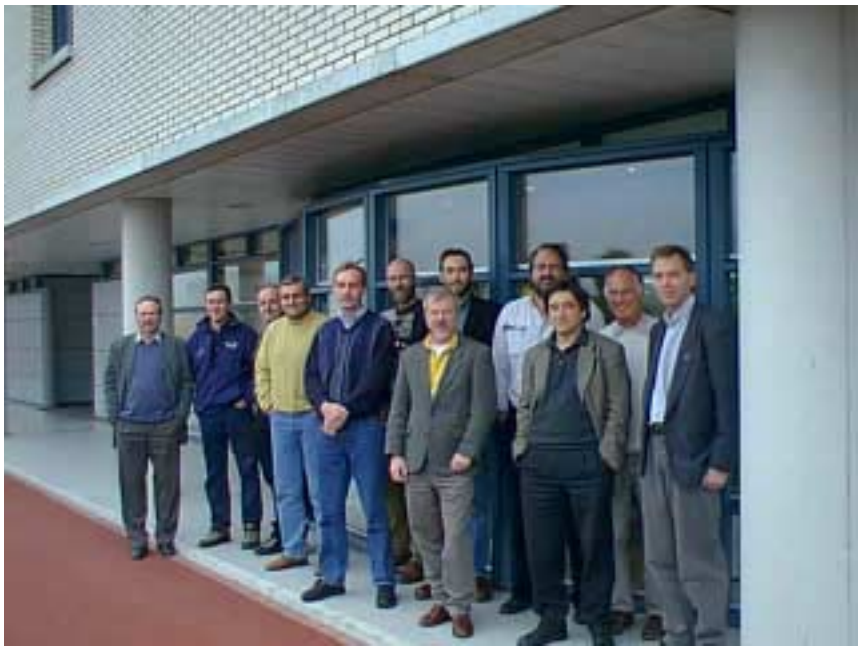
BIOMARE

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

Report of the first Steering Committee meeting, November 13-14 2000



Participants Steering Committee meeting.
From left to right:

Prof. Dr. C.H.R. Heip (CEMO), Prof. Dr. C.M. Duarte (IMEDEA), Drs P.H. van Avesaath (CEMO), Dr. C. Arvanitidis (IMBC), Dr. H. Hummel (CEMO), Dr. J.M. Weslawski (IO), Prof. Dr. F. Buchholz (AWI), C. Emblow (ECS), Dr. J.-P. Féral (OOB), Dr. R.S. Santos (IMAR), Dr. R.M. Warwick (PML), Dr J. Kögeler (AN/UNIS), not on picture: Dr. M.J. Costello (ECS).

Held at the
Centre for Estuarine and Coastal Ecology
Netherlands Institute of Ecology (NIOO-CEMO)
Royal Netherlands Academy of Arts and Sciences
Yerseke, The Netherlands.

Appendices: 5

INTRODUCTION

From 13 to 14 November the first steering committee of the concerted action BIOMARE (Implementation and Networking of large-scale long-term Marine Biodiversity research in Europe) was held at NIOO-CEMO in Yerseke, The Netherlands.

The steering committee consists of the general co-ordinators, the Workpackage leaders and the regional co-ordinators.
During the first meeting the general outline of the Concerted Action was discussed and the tasks, time schedule and finances were fixed. The programme of the meeting is given in appendix 1.

RATIONALE OF THE PROJECT

Chairman: Prof. Dr. Carlo Heip

General aims

BIOMARE is a concerted action at European scale with 21 participating institutes organised to establish the infrastructure and conditions for marine biodiversity research over a period of two years. BIOMARE has three main objectives that will be complemented through three Workpackages (WP): 1) the achievement of a European consensus on the selection and implementation of a network of reference sites as the basis for long-term and large-scale marine biodiversity research in Europe, 2) internationally agreed standardised and normalised measures and indicators for (the degree of) biodiversity, and 3) facilities for capacity building, dissemination and networking of marine biodiversity research. The latter will be achieved by means of organising workshops, the improvement of training and mobility of students and researchers within a network of marine biodiversity research institutes, the publishing of an overview of ongoing research programs and existing infrastructure for marine biodiversity research in Europe through an internet website, and the construction of a database on available data, aiming at employing data for socio-economic questions such as the impact of fisheries or tourism.

The methodology in each of the WPs is similar, following a sequence of inventories, reviews and evaluations made by WP-leaders consulting all members followed by regional meetings and workshops to discuss reports recommendations and implementation. The regional meetings will be held in three regions (Atlantic + Arctic, Mediterranean + Black Sea, North Sea + Baltic).

The concerted action will maximise the integration of effort of marine biodiversity research at a Pan-European scale, enhance significantly marine biodiversity research in Europe and elsewhere by laying the foundations for long term and large scale effort to solve significant but hardly studied questions in marine biodiversity research, supporting biodiversity research and stressing the benefits of long term marine biodiversity monitoring to end-users and society.

Review of the international setting of BIOMARE

Since the Convention on Biological Diversity in Rio de Janeiro in *1992* many initiatives for research on biodiversity issues have been launched, most of them local and short term. Long-term biodiversity research, i.e. for more than 10 years, is very difficult to implement, even at the national level. Some of the major obstacles are the national and European funding systems and also the lack of an internationally agreed methodology for the measurement of marine biodiversity and the choice of indicators for (the degree of) biodiversity.

The implementation and further development of marine biodiversity research in Europe have been discussed in several meetings organised by the EC and the ESF over the last few years. The discussion at this level started at the MAST days in Sorrento (1996) and was followed by workshops in Plymouth (1997) where an inventory of marine biodiversity research was prepared, Yerseke (1997), where the first EMaPS Position Paper was prepared, and in Lisbon (1998) where these documents were discussed and approved and further action was proposed. From these meetings a consensus had grown among the scientific community in Europe that, in order to achieve the long-term and large-scale research that is needed to answer some of the most important questions in marine biodiversity, an important collaboration and co-ordination at the European scale was required. These measures should include comparative inventories of Europe's genetic resources, its species, habitats and landscapes, including marine microbiota, flora and fauna, and the understanding of the mechanisms and consequences of changes in marine biodiversity on large latitudinal and longitudinal gradients and on long time scales. Consequently, the concerted action 'Implementation and Networking of large-scale long-term Marine Biodiversity research in Europe (BIOMARE)' in which 21 institutes participate is organised.

There are a number of reasons why this co-ordination at the European level is relevant. Several national and EU projects within the Fifth Framework Programme are running or starting soon. These projects are short term (3-4 years) and local. The usefulness of the results from this research will be greatly improved by creating an international forum where they can be discussed. Furthermore, the European contributions to DIVERSITAS and to the International Biodiversity observation Year (IBOY, 2001) need to be prepared. The European Network of Marine Stations (MARS) may serve as the backbone of this effort since its 40-odd member institutes cover most of Europe's coasts. However the initiative will be open to all interested parties (not only to MARS member institutes) and can only work if it attracts commitment from an important number of researchers and institutes in Europe. The commitment sought is based on a series of flagship sites covering Europe from Spitsbergen in the north to the Canary Islands and Madeira in the south and to Greece and Turkey in the east. The

research performed through the network of flagship sites should be a major European contribution to the DIVERSITAS programme.

Discussion
How to pronounce ‘BIOMARE’ ? In order not to be confused with other programmes or companies with similar names it is decided to pronounce ‘BIOMARE’ the Latin way.

WORK PLAN

Chairman: Dr. Herman Hummel

The methodology in each of the Workpackages to reach the objectives is similar, following a sequence of 1) inventories by (E-)mail along all members, 2) regional meetings and a general workshop, and 3) reports.
The sequence of activities is as follows (see also appendix 2):
The leading members will carry out the first inventories and review available data for sites with background data on biodiversity (WP1) and indicators (WP2), review existing networks and categorise available databases (WP3). The members of the Concerted Action will be contacted and consulted by the leaders at this stage for information and advice. This will be done by (E-)mail. After the first inventories, regional meetings will be held with the members to finalise the first comparisons on most suitable and best studied sites (WP1) and indicators (WP2), and on the most suitable way for installing a network and databases (WP3).
The leaders, assisted by 2 regional co-ordinators per region will organise the regional meetings. The major geographic regions are I) the Atlantic and Arctic, II) the Mediterranean and Black Sea, and III) the Baltic and North Sea. During these meetings all topics (WPs) will be discussed. The results of the first inventories and discussions in the regional meetings will be given in draft reports to be made by the leaders and regional co-ordinators. The draft reports will be discussed in the steering committee, readjusted, and subsequently presented in a first general workshop.
On the basis of the first results a further outline for criteria and protocols will be given, gaps in existing data and in knowledge will be identified, and recommendations will be formulated for the selection of sites, indicators, networking and integration of data with socio-economic questions.
Drafts of the final outlines, protocols and recommendations will be discussed in a second series of regional meetings and the steering committee, adapted accordingly, and reported by the leaders and regional co-ordinators.
At a second, final, workshop the results will be presented and evaluated with all members. The final outlines and recommendations will be reported in international journals and reports for specialists (students, researchers) and non specialist, including regional and local managers. A specified timetable is enclosed (Appendix 2).
The general co-ordinators will guide the total process of inventories, meetings and workshop, and guard the milestones and deadlines. The steering committee will control the progress of the Concerted Action, give information and advise to the leaders of the Workpackages, and help to prepare workshops. The steering committee consists of the general co-ordinators (2), leaders of the Workpackages (3), and two representatives of each above recognised European region (2*3). They will have meetings at intervals of approximately 8 months. The several tasks for the participants at the different organisational levels are specified in Appendix 3.

Discussion

Regional Meetings.

In order to minimise costs of attending meetings it is possible that some regional meetings can be joined (e.g. the Atlantic and Baltic meetings). This is up to the regional co-ordinators that organise the meetings in question (after consulting the WP leaders and general co-ordinators).
However the regional meetings should be kept relatively small. This will promote the efficiency.
Note that the regional co-ordinators are responsible for the logistics of the regional meeting. The general co-ordinator will organise the invitations for additional experts if needed.
Draft reports of the first inventories of the WP leaders and regional co-ordinators should be finished before the first regional meetings. The responsible authors should be aware of the fact that they have to start writing the report at short notice.

Links with other organisations.

Similar programmes in the region have to be contacted too. This will promote co-operation, dissemination etc. Furthermore, it should be avoided that the different programmes contact the same regional institutes, organisations and programmes with similar requests for information.
As possible counterparts are mentioned:
Northern region: OSPAR and HELCOM
Southern Region: MEDPAR
Contacting these organisations will be the responsibilities for the regional co-ordinators. The general co-ordinators will organise invitations for the regional meetings.

Ad hoc meeting of the Steering Committee

The Euroconference in April 2001 (Greece) will be used for an ad hoc meeting of the steering

committee. The main topic will be the evaluation of the progress of activities. The meeting will be organised during an evening of this event.

(E)mail addresses

The general co-ordinators will provide all members with a list of the (email) addresses of the participants. For the moment, participants can use the mailing list of the email that Herman Hummel sent to the participants prior to the meeting. This list is considered complete.

Final Workshop

At the second workshop end users should be invited. During the first workshop or subsequent steering committee meeting the format of the second workshop should be determined.

FINANCES AND REPORTS

Chairman: Dr. Herman Hummel

The costs of attending meetings have to be paid by the participants themselves from the funds that have been forwarded to each member-institute. Expenditures should be equilibrated in order to be able to attend all meetings.
To facilitate a quick start, the full first advance-payments already have been sent to the member-institutes. The funds are based on average costs (see appendix 4). Equilibration of costs and funds will take place with the second and final payments.
The participation of external experts will be financed by a fixed contribution of participants to the organisers of a meeting (50 Euro per person per day) and funds becoming available if one or both representatives of the member institutes are unable to attend a meeting. For this reason it will be necessary to sign an attendance list during each day at a meeting.
The general co-ordinators will monitor the expenditures and recommend redistribution of reasonable costs between participants if necessary. Costs (e.g. hotel, dinner, fees etc.) not paid by participants during a meeting will be settled with later payments.

Discussion

Problems of the present system of reimbursement of expenditure:

a. The advance-payment

The advance payment is specifically a problem for the French participants. The funds have been paid to a central financial organisation (CNRS) co-ordinating the funds of French universities and institutes. It has to be checked whether the institutes easily can obtain the required funds from this organisation. If participants need letters of recommendation from the programme, they should contact the general co-ordinators.

b. The estimation of the (average) costs.

For some participants (e.g. participants from the Azores and or Spitsbergen) the (average) funds available for travel may be too low. Actual costs will be evaluated by the steering committee in order to find solutions for refund of additional expenses, to be compensated during the final payment. Planning the meetings near a weekend can minimise travel cost; this will enable participants to make use of the lower weekend fares for flights. Some participants cannot attend meetings during the weekend. These facts have to be considered while planning a (regional) meeting.

c. Evaluation of the payment system

During the next steering committee meetings (Euroconference *ad hoc* meeting and the meeting planned in September 2001), the payment system will be evaluated.

Cost statement.

Only one cost statement will be made. The administrative assistant of the general co-ordinators is responsible for this statement.

External experts attending meetings:

Regional co-ordinators are not able to invite an external expert in order to attend a meeting directly themselves. This is the task of the general co-ordinator. If the expert is from outside the EC, the invitation furthermore has to be granted by the EC. The general co-ordinators will find out whether experts can be invited as representatives of the institutes. Also has to be checked whether they then have to be employed by the participants first.

Reimbursement of costs

It was not clear whether subcontractors could be financed by means from the programme (management costs). Dr. Hummel showed that with regard to subcontractors special regulations are laid down in the contract (article 6, sub 1). In general, costs of subcontracts may not be higher than 20 % of the cost statement of a participant. For some participants expenses are allowed for computer facilities (see appendix 4). It is also possible to buy computer-equipment. In this case the financial administrator needs a justification for the estimation of the depreciation of the equipment (maximal 66% of the costs will be refunded).
Except for the WP3 leader no funds are available to make and / or maintain websites.

Reports

Within the programme three main types of reports are distinguished: All members contribute to the reports, after being requested by the general co-ordinator.

Six-monthly management reports

These short management reports should contain:

1. a summary of all activities conducted in the preceding period.
2. reviews of progress in respect to details in the DOW. (For each task the actual state of advancement with respect to the timing foreseen in the DOW have to be indicated)
3. plans for the following 12 months detailed on the Work Package level including, if necessary, a proposal for adjustments.
4. an updated list of publications submitted and published and of presentations of project results made on scientific meetings
5. an updated list of personnel paid partially or fully from project funds for each partner.
6. any other matter relevant to the assessment of the progress of the project.

Annual scientific and technical reports

Are identical to six monthly management report, but include a cost statement

Final report

The final report should focus on:

1. publishable synthesis of the scientific results.
2. abstract for electronic dissemination, which shows the objectives and technical results of the project (in fact the same as the publishable synthesis of the scientific results).
3. extended abstract for the general public and decision makers (avoiding as far as possible very technical terminology).
4. final scientific and technical report
5. short report on the dissemination and exploitation of results, including the Technology Implementation Plan.
6. reprints of all publications of the project.

Discussion:

The management reports are short reports, mainly listing management activities and events and no remarks with respect to content are required.

WORK PACKAGE 1: REFERENCE SITES

Chairman: Dr. Richard Warwick

Within BIOMARE a nested approach is used, making intensive studies at a small number of reference sites and more limited extensive studies at a large number of sites.

The Intensive Flagship Sites (IFS) should be areas with a mosaic of habitats that are relatively pristine (unimpacted) when compared with similar areas elsewhere and which are therefore expected to have the comparatively highest diversity. These reference sites will serve to act as baseline end-members against which the status of degraded or impacted sites can be assessed, and subsequent changes monitored.
The exact criteria used to define these flagship sites will be discussed in more detail during the initial phase of the BIOMARE project.
Probable criteria are:

- The IFSs 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 Intensive Flagship Sites should aim at covering the major habitats in Europe.
Offshore islands may be amongst the favourite locations for IFSs 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. The size of such islands needs to be considered carefully in view of the island effect (dependence of species number on island size).
Coastal environments, such as beach-dune systems, tidal flat systems, lagoons and deltas require a different type of IFS.

Suggestion for research objectives at these reference sites will also be formulated.
Possible research objectives are:

- inventory of the biodiversity present (including as complete a range of taxa as possible, the genetic diversity of target species and habitat diversity).
- study 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.

More extensive but less comprehensive studies of Extensive Flagship Sites (EFS) will be made at a much larger number of sites (approximately 30 sites per transect), covering a range of impacted and non-impacted areas, and using the rapid assessment techniques developed at the reference sites and a restricted number of key species. The criteria for the selection of these sites are not so strict, but comparable habitats should cover a wide geographic range.

The objectives of studies at EFSs will be:

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

The distribution of sites would initially be along three transects:

- A North—South transect from Svalbard to the Canary Islands, with 5 to 6 IFSs and a number of EFSs along the Atlantic coasts of Iceland, Norway, Scotland, France, Spain and Portugal.
- An East—West transect through the Mediterranean, with 4 to 5 lFSs and an appropriate range of EFSs.
- An East—West transect in Middle Europe from the Baltic to the North Sea, with 3 IFSs.

Discussion

The rationale of BIOMARE and the first questionnaire

In the first questionnaire that will be sent to the participants, the rationale of the programme has to be clarified again. It has to be stressed that unlike other programmes ours in principle has strict scientific goals. It is our intention to create an infrastructure for research and not to compete with (non) governmental organisations. The objectives of BIOMARE should be clear to the public.
Furthermore the selection of the Flagship Sites should be an iterative process between the selection of the sites and the selection criteria. The first important step is the definition of the (first) selection criteria for the Flagship sites. Dr. R. Warwick, Prof. Dr. C. Duarte and Prof. Dr. F. Buchholz will develop the first questionnaire taking into account the abovementioned remarks as soon as possible. The position papers will be the basis for the questionnaire.

Other suggestions for the questionnaire:

It is suggested that within the questionnaire the participants that propose Flagship Sites should be asked for a commitment to monitor these sites at long term. It even should be incorporated in the criteria for the Flagship Sites. Also, it has to be examined whether long term monitoring data are available (and whether these monitoring programmes will continue in future).
Participants have to be requested to network with their neighbouring counterparts.
The questionnaire could be sent to the MARS members also.

Other considerations that were mentioned:

Should we choose a priori the minimum size of Flagship Sites? This question has been left open.
Should we include deep-sea? This is possible.
Should we border the geographical area of BIOMARE? We do not.
Do we need to define habitats? At least at a certain level (Intensive Flagship sites) habitats should be defined in order to cover all possible habitats.

WORK PACKAGE 2: INDICATORS

Chairman: Dr. Jean-Pierre Féral

There is a need to rapidly detect significant changes in the environment and biodiversity and therefore to discuss and examine the existing indicators and to evaluate and validate those actually used at a local and/or at regional level. According to the Jakarta Mandate, the principal programme element (1) of the Implementation of integrated marine and coastal area management (IMCAM) is composed of:
- Operational objective 1.1: To review the existing instruments relevant to IMCAM and their implication for the implementation of the Convention;
- Operational objective 1.2: To promote the development and implementation of IMCAM at local, national and regional level;
- Operational objective 1.3: To develop guidelines for ecosystem evaluation and assessment, paying attention to the need to identify and select indicators, including social and abiotic indicators, that distinguish between natural and human-induced effects.

At present no operational indicator concerning marine and coastal biodiversity on a European scale is available. The activities within WP2 focus on the achievement of internationally agreed standardised and normalised measures and indicators for (the degree of) biodiversity. The beginning of the project is a suitable moment to discuss some general terms used in biodiversity studies and describe the conceptual framework.

Indicator
An indicator consists of data selected from a larger statistical whole, and possesses particular significance and representativeness. Indicators thus condense information, and simplify the often-complex environmental phenomena, thus becoming precious communication tools. Bio-indicators will be considered following the model developed by OECD (examples are given without hierarchy):

State indicators:
give a description of the environmental situation (e.g. concentration of heavy metals, nitrates, bacteria, organic matter).
Examples
- Variation of the extent of meadows, coralligen,…
- State of fragmentation of phanerogam prairies and meadows

Constraint or pressure indicators:
indicate the pressure of human activities on the environment
Examples (for the Mediterranean zone and others):
- Dwindling area of phanerogam meadows
- Varying extension ratio of Cymodocea meadows and Posidonia meadows (urbanisation)
- Percentage of coastal area with more than X residents per km2
- Percentage of introduced species per type of habitat (or total)
- *Change of sea level (level of Lithophyllum "trottoir")*
- *Warming (retreat of northern boundary of subtropical species)*

Use indicators:
are measurements of goods and services provided by ecosystems.
Examples:
- Total amount of fisheries per species and per year and for all riparian
- Percentage of species for medical or biotechnological uses
- Total carbon, and carbon per km^2, stored in various compartments of marine ecosystems
- Public perception of biodiversity compared to other subjects
- Varying proportion of "ecotourist" installations in the coastal area
- Rate at which underwater divers frequent chosen sites
- Percentage of endangered native species as against healthy native species

Performance or response indicators:
are often sectorial and allow an assessment of what is being done to solve an environmental problem.
Examples (the 3 first ones are in the French law):
- Protected areas as a percentage of total area (indicator 18.1/FR)

- Cumulative growth of the Conservatoire du Littoral's acquisitions (indicator 18.2/FR)
- Share of the ZNIEFFs belonging to a protected area (indicator 18.4/FR)
- Proportion of chapters dealing with zoology, botany and ecology in primary and secondary school books
- Percentage of doctoral training related to [marine] biodiversity

Reference points
give the means to measure progress and identify needs at political level
They are:
- Base lines (zero points) permitting changes to be measured against a certain date or a certain state
- Thresholds, which are used as early warning systems for problems
- Targets, which reflect tangible performance objectives

Assessment
is the analysis of the gap between the present state and the reference state.
Pressure-state-response assessment framework:
- pressure is the complex of socio-economic factors or motive forces which affect biological diversity
- state is the present state of biological diversity
- responses are measures taken to change the actual or projected state.

What is a "good" bio-indicator ?
An indicator is an organism or a group of organisms, which, by reference to biochemical, cytological, physiological, ethologic or ecological variables, allows in a practical and safe way, to characterise the state of an ecosystem or an ecocomplex and to highlight as early as possible their natural or caused modifications (*early warning*).
A variety of stress responses have been measured in biological systems exposed to various kinds and levels of contaminants. Bioindicators can range from biomolecular / biochemical responses to population and community-level responses. To be considered as bioindicators however, biomarkers must be causally linked to ecologically relevant endpoints. Field studies should be designed such that measurements are representative of several levels of biological organisation including biomarkers of exposure and bioindicators of effects.
By measuring health responses in terms of response time and levels of biological organisation, one can establish causal relationships between stressors and biological effects. Biomarkers are generally used to indicate exposure of organisms to contaminants at lower levels of biological organisation (sub-cellular to organism) while bioindicators are typically used to reflect effects of stressors on biological systems at higher levels of organisation (organism to community). Since financial resources for bio-assessment studies are usually limited, an optimum mixture of response-sensitive biomarkers and ecologically relevant endpoints should be measured with a focus on effects at the individual organism level.
Which biodiversity ?
The genetic level will with difficulty be borne in mind routinely, since it requires highly qualified staff, sophisticated technical means, time and money. On the other hand, molecular markers will, for example, in the biodiversity assessment phase, allow the demonstration of fragmentation of populations or erosion of genetic heritage of threatened species.
Impacts of human activities are felt both locally and on meso-scale, but should be studied also on landscape scale. To let biodiversity be an indicator it should be studied at the same range of scales. At a given place, biodiversity is always structured in terms of space and time. This imposes the idea of monitoring after having determined 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.

Common stages recommended in the indicator selection process
are the following:
- Determine the target public and its information requirements and clarify the criteria to be measured

- Determine 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.
- Choose the indicator group(s) for these criteria, according to one's knowledge of them, which must be good; but also checking the existence of standardised sampling techniques, (the same group of indicators is not necessary appropriate for all landscapes).
- Meticulously test indicators
- Set up targets, thresholds and/or marker data that are suitable for these indicators
- Try out these indicators in the field
- Express the results in terms of local (alpha) and landscape, or total (gamma) diversity, as well as in terms of beta diversity (e.g. measurement of substitution of species between differing communities).
- Produce comparable data, quickly made available in banks designed for their public use.

Leads to be explored for determining <u>biodiversity</u> bioindicators (not exhaustive)
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 anthropic origin: species that are sensitive to pollution, or more generally species that are *steno*- on various parameters
- biogenic building species which by their extension, their large size, or their durability contribute to the complexity of landscapes, thus to the diversity of ecological niches: arborescent algae, bioconcretioners, phanerogam meadows. These are often also threatened species.
- species which are at the basis, or which are 'keystone' constituents, 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. ln this case, a taxon may be very vulnerable since it is represented by a single or some populations. These taxa are of great heritage value.

Existing monitoring networks
A certain number of marine environment monitoring systems exist in France (taken here as example) and in other European countries. They should be completed and interconnected:

- Monitoring the bacteriological quality of bathing waters (total coliforms and streptococci whose abundance is correlated with the presence of pathogenic micro-organisms (salmonellae and viruses that are more difficult to show) since 1972 in France by the DDASS (Departmental Board for Health and Social Action) and the Ministry of the Environment. Similar networks exist in Spain and in Italy.

- The *Posidonia* Monitoring Network (RSP) is the only monitoring system in the Mediterranean which routinely uses a biological indicator. This network was set up in 1984 in the Provence-Alpes-Côte d'Azur region (France).

- The National Observation Network (RNO) has since 1974 measured the general parameters of sea water quality: temperature, salinity, nutrients and contaminants. From 1978 on, certain pollutants have also been measured in living organisms, such as mussels, oysters and fish. Since 1992, two pilot sites have been reserved for the routine measuring of the activity of a biological indicator, the detoxifying enzyme EROD. The RNO is managed by IFREMER.

- The Phytoplankton Network (REPHY) has in France since 1984 recorded phytoplankton disturbances, especially toxic unicellulars likely to make caught or cultivated Mollusks unfit for human consumption, and also microalgae responsible for red tides. It is managed by IFREMER.

- The Microbiological Network (REMI) has in France since 1989 monitored the bacteriological quality (fecal bacteria) of shellfish. These are sampled once a month, but when exceptional

phenomena appear (increased contamination, accidental discharge) the sampling is done more frequently.

Links with other organisations
Potential end users

- International Council for the Exploration of the Sea / Conseil International pour l'Exploration de la Mer. ICES-CIEM (http://www.ices.dk)
- European Environment Agency. EEA (http://org.eea.eu.int)
- Intergovernmental Oceanographic Commission. (http://ioc.unesco.org)
- United Nations Environment Programme. UNEP (http://www.unep.org) and related programmes.
- Commission internationale pour l'exploration scientifique de la Méditerranée / International commission for the scientific exploration of the Mediterranean Sea CIESM. (http://www.ciesm.org)

Discussion
A paper with the tentative definitions of each term, together with a proposal for a model on a grid of indicators will be sent to the members. It will not be possible to find a universal indicator for all problems and approaches. Each problem, and probably each region, will need its own set of indicators. It is likely that the indicator will not be specifically an aspect of biodiversity, but the indicator will be strongly linked to biodiversity. We are likely to miss our goal if we only incorporate specific biodiversity indicators. If it is our intention to preserve biodiversity, it is essential to include indicators that monitor the state of the environment, in relation to biodiversity. *Biodiversity by itself is not an early warning system*. A suitable indicator would be one that permits us to differentiate natural disturbance from human impact. Decision makers are in need of such indicators. Some indicators are 'just' shortcuts of biodiversity. In the note that will be sent to the participants, suggestions will be asked for surrogates of biodiversity, human impact and proxi's for climate change.
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 is 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.
It is possible to use a set of indicators to make distribution maps of biodiversity and/or habitats. However, maps are static and likely to become outdated real soon. A solution would be the use of GIS. However, this approach is beyond the scope of the present programme. It could be a suggestion for an additional research proposal.
Indicators are of scientific, social, economical and political relevance. As Prof. Van den Berg, an ecologist - economist who participated in the LOICZ programme used a similar approach, he could be asked to help or co-operate.

WORK PACKAGE 3: CAPACITY BUILDING, NETWORKING

Chairman: Chris Emblow

A first step in research on a European scale is making researchers aware of expertise, facilities, study sites, and local scientific knowledge, 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. An electronic news service (internet discussion group)
B. A website
C. A newsletter (hardcopy and electronic)

A. The news service
It is recommended that an electronic news service will be used such as the MARINE-B 'list server'. It is possible that the BIOMARE news service can be integrated in this list server or that MARINE-B can be adapted to serve as the BIOMARE discussion group. The latter will be decided in consultation with the founders of MARINE-B. At the moment this news service has approximately 220 members. Jean-Pierre Feral will send information about the capacity and average number of users of the news server at short notice.
The discussion group is suitable for the communication within BIOMARE. However, it is the general opinion within the steering committee that it is not possible to communicate through the news service at large scale. The kind of communication 'traffic' that is suitable for the news service will be chosen by the steering committee.
The new service has to be announced. To this end, the member list of ERMS, MARS network and MARINE-B list server will be used.

B. The website
In addition, a central web site for marine biodiversity research in Europe will be constructed. This web site will have its own Internet domain name, i.e. will not be integrated in the MARS web site. This will improve the accessibility of the web site through search engines. The costs of a 'dot org' domain name are reasonable.
The functions of the website are diverse:
1. Introduction of the BIOMARE to the public
Stating the goals of the project, description of the rationale behind the project and a brief paragraph with the description of the member institutes. This description already exists and will be provided by the general co-ordinators (Dr. H. Hummel).
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, this medium will be used to emphasise the applicability of marine biodiversity research, the relevance of the 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)

For the construction of the database, the member institutes will be sent a questionnaire gathering information about the earlier mentioned aspect. The regular members will be asked to network with regional counterparts. In 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. As MARS momentarily is performing a similar inventory, these actions have to be co-ordinated or preferably joined. Furthermore it has to be decided which website will provide the information (with a cross link to the other website). The MARS questionnaire will be digitised and sent to the WP3 leader. The WP3 leader will provide a list with possible candidates for the survey from the database of taxonomic and species identification

experts identified from the European Register of Marine Species (ERMS) project. The results of the survey can be used to build a pyramid of capacity.
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. The hardcopy will be sent to a broader audience identified with others through the MARS and ERMS network. The newsletter will be put on the website in electronic (pdf) format and sent to the member institutes and news service(s).

The website has to be operational as soon as possible. The WP3 leader will attempt to construct the website within two to three weeks, depending on the availability of the domain name.

Logo
BIOMARE needs a logo. The general co-ordinators will organise a contest and invite the member institutes to make an appealing logo. The winner will receive a bottle of champagne, which will be handed over by Prof. Dr. C. Heip at the next regional meeting.

Discussion
If the activity on the news server will become too large, the news server has to be differentiated for the different topics. The methods of streamlining the flow of information are up to the WP leader. The activity of the uses will be monitored and evaluated at a later stage.
It is decided to use a common format for distribution maps, with standardised legends etc. The WP3 leader will develop a GIS with a unified set of maps that can be used by the members. The scale of the maps will not be standardised.
International organisations like ICES, IEE and/or UNEP should not be overwhelmed with request for information from the different participants of BIOMARE. The general co-ordinators will serve as a link to those organisations and the members are asked to direct their requests for information or co-operation to the general co-ordinators.
Members are asked to send possible (internet) links to the WP leader.
We should check possibilities to use the website of the ESF marine board and COB to stress the importance of biodiversity and thereby BIOMARE. The scientific management assistant of the general co-ordinators will carry out this task.

ARRANGEMENT FOR THE NEXT MEETINGS: AGENDA

(see also general time table, appendix 2)
The exact dates and specifications for the meetings should be reported to the general co-ordinators at least two (2) months in front of a meeting. The general co-ordinators need this period to send the invitations to the member institutes and possible external specialists. The invitation of external specialists not employed by one of the member institutes is expected to be a long-term procedure and should be reported to the general co-ordinators as soon as possible.
The organisers of the meetings are requested to plan a meeting near the weekend. In this way participants are able to make use of the cheaper weekend-fare tickets. It is not the intention to plan meetings during the weekends. It would be much appreciated if the organisers of the meeting could provide a social weekend-programme to entertain the researchers that stay behind.

A. Regional Meetings:
In April 2001, the regional meetings of
I) the Atlantic and Arctic region will be organised in Tromsø, Norway (AN/UNIS)
II) the Mediterranean and Black Sea region will be organised in Crete or Corinth (IMBC, Greece or maybe combined with the Euroconference beginning in May)
III) the Baltic and North Sea region will be organised at Hel in Poland (IO)

In March 2002, the regional meetings of
IV) the Atlantic and Arctic region will be organised in Lissabon (IMAR, Portugal)
V) the Mediterranean and Black Sea region will be organised in Palma de Mallorca (IMEDEA, Spain)
VI) the Baltic and North Sea region will be organised in Helgoland (AWI, Germany)

B. Workshops
November 2001: Palma de Mallorca (IMEDEA, Spain)
September 2002: Spitsbergen (AN/UNIS, Norway)

C. Steering committee meetings
May 2001: ad hoc meeting at the Euroconference (Greece)
September 2001: Dublin (ECS, Ireland)
April or May 2002: Azores (IMAR, Portugal)
October 2002: Banyuls-sur-mer (OOB, France)

Specific task list
- Regional leaders: contact similar programs in the regions to check for possibilities to participate or co-operate: OSPAR, HELCOM, MEDPAR. Results to be passed to the general co-ordinators.
- General co-ordinators will provide the members a list with addresses.
- General co-ordinators will serve as a link to international organisations, such as ICES, IEE and UNEP.
- General co-ordinators will provide WP3 leader with a brief description of the member institutes.
- Dr. Hummel will provide WP3 leader with information about the MARS-questionnaire.
- General co-ordinators will find out the possibilities to gather additional funding to invite external specialist to meetings.
- General co-ordinators have to find out whether it is possible to appoint subcontractors.
- The scientific management assistant of the general co-ordinators will check the possibilities to use the ESF Marine Document discussion and COB to stress the importance of BIOMARE.
- WP2 leader will send a paper with tentative definitions of terms and proposal for the grid of (bio)indicators before January 2001.
- WP3 leader has to construct the web site at short notice.
- WP3 leader will develop a GIS with a unified set of maps.
- Dr. R. Warwick, Prof. Dr. C. Duarte and Prof. Dr. F. Buchholz will develop a draft of the first questionnaire taking into account the abovementioned remarks as soon as possible.
- Dr. J-F Féral will send information about the capacity and average numbers of the MARINE-B news service to the members of the steering committee.
- For the survey within each of the workpackages, participants are requested to network with their neighbouring counterparts.
- General co-ordinators and WP3 leader will organise a contest for the design of the BIOMARE logo.

Appendix 1. Program first Steering Committee BIOMARE

13 - 14 November 2000

NIOO-CEMO, Yerseke, the Netherlands

Monday 13 November 2000

12.00 - 13.30 Arrival and lunch

13.30 - 14.30 Brief review of the rationale behind the project
Chairman: Carlo Heip
- aims in general
- objectives within each Workpackage
- what we want out of it
- review of the international setting (MARS, DIVERSITAS, COML)

14.30 - 15.15 Time table and tasks
Chairman: Herman Hummel
- who should do what when
- deadlines (for reports ...)
- meetings
    - when what type of meetings

15.15 - 15.45 Coffee break

15.45 - 16.30 Time table and tasks (continued)
Chairman: Herman Hummel
- payments
- reports

16.30 - 17.30 Finances
Chairman: Herman Hummel
- general division of payments (between/to members; in time)
- flexibility within maximum allowable costs
- costs of organising meetings
- costs of inviting external experts

17.30 - 18.30 Work Package 1 (Reference sites)
Chairman: Richard Warwick
- focal points within WP 1
- what we want out of it
- link to end users (incl. ICES, EEA, UNEP ...)

18.30 - 20.00 Dinner

20.00 - 21.00 Work Package 2 (Indicators)
Chairman: Jean-Pierre Feral
- focal points within WP 2
- what we want out of it
- link to end users (incl. ICES, EEA, UNEP ...)

21.00 Transport to hotel

Tuesday 14 November 2000

09.00 - 10.00 Work Package 3 (Capacity building, networking)
Chairman: Chris Emblow
- focal points within WP3
- what we want out of it
- link to end users (incl. ICES, EEA, UNEP ...)

10.00 - 10.30 Coffee break

10.30 - 11.00 First issues on communication to public in large
- webpage
- logo

11.00 - 12.00 Any Other Business
- Arrangements for next meetings
-

12.00 - 13.00 Lunch

13.00 - .... Transport to trains

Location of the meeting

Centre for Estuarine and Coastal Ecology
Netherlands Institute of Ecology (NIOO-CEMO)
Royal Netherlands Academy of Arts and Sciences
Korringaweg 7, 4401 NT Yerseke
P.O. box 140, 4400 AC Yerseke
phone: +31-(0)113-577484 (577300)
fax: +31-(0)113-573616
E-mail: hummel@cemo.nioo.knaw.nl or heip@cemo.nioo.knaw.nl

Assistance during the contract period of BIOMARE

Management Assistants:
- administrative - Theo Davidse. Administration of costs made at Yerseke, payments of funds, payments by/to participants/organisers of meetings. Arranges banking details, financial bookings and evaluation of all costs and funds (to be) paid by/to member institutes and organisers of meetings.
- scientific - Drs. Pim van Avesaath. Assists with correspondence and reports (on tasks) of general co-ordinators, scheduling, organising and reporting of meetings and workshops, controlling deadlines for contributions and reports

Secretarial support by Mrs. Elly de Bruijn. Organisation of meetings

Appendix 2. General Time Table

Supervisors and/or organisers of the events are listed between brackets. GC= general co-ordinator WP= Workpackage leaders
RC= regional co-ordinator M = member. The numbers in superscript refer to a brief description of the events at the subsequent page.

	2000		2001												2002									
	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
Steering Committee meetings (GC)	S[1]										S[6]	←Dublin, Ireland						S[11]	←Azores, Portugal		Banyuls-sur-mer, France →			S[14]
Inventories (WP)		I[2]	I	I	I	I	I	I																
Regional meetings (RC)						M[3]	I: Tromsø, Norway II: Corinth, Greece III: Hel, Poland										M[10]	I. Lissabon, Portugal II. Mallorca, Spain III. Helgoland,Germany						
Workshops (WP, GC)													W[8]	←Palma de Mallorca, Spain						Spitsbergen→		W[13]		
Draft reports, protocols (WP,RC,GC)									R[5]	R	R	R												
Adjusting / completion reports (WP,RC,GC)														R[9]	R	R			R[12]	R	R			
Management / Annual Reports (GC)						R[4]						R[7]						R[12]						R[15]
Final implementation / dissemination (GC,WP, RC)																								R[16]
Additional: Euroconference (GC)							E[17]	Corinth, Greece																

BRIEF DESCRIPTION OF THE EVENTS

1) Steering Committee meeting: November 2000
Participants: GP[1], WP, RC
Location: Yerseke, The Netherlands

2) Inventories and reviews: December 2000 - June 2001
Leaders: WP, RC
Tasks:
- make first inventories + review available data
  - for sites with background data on biodiversity (WP1)
  - background data on indicators (WP2),
  - review existing networks, categorise available databases (WP3)
- all members contacted and consulted by leaders for information and advice: by (E-)mail

3) Regional meetings: April-May 2001
Participants: all members
- after the first inventories, regional meetings will be held with the members to finalise the first comparisons on:
  - most suitable and best studied sites (WP1)
  - most suitable and best studied indicators (WP2)
  - most suitable way for installing a network and databases (WP3)

Organisation by Regional Co-ordinators
  - 1) the Atlantic and Arctic; location: Tromsø, Norway; host institute: AN/UNIS
  - 2) the Mediterranean and Black Sea; location: Crete or Corinth, Greece; host institute: IMBC
  - 3) the Baltic and North Sea; location: Hel, Poland; host institute: IO

4) Steering committee: management report: April 2001
Participants: GP, WP, RC
- Six-monthly management report

5) Preparation of draft reports for the first workshop: July - October 2001
Leaders: WP, RC
- draft reports by leaders with the results of first inventories and discussions
- readjustment of reports based on recommendations steering committee (see 6)

6) Steering committee Meeting; September 2001
Participants: GC, WP, RC
Location: Dublin, Ireland
Host institute: ECS
- discussion on draft reports in steering committee

7) Steering committee annual report; October 2001
Participants: GC, WP, RC
- Annual scientific and technical report (with contributions of all members)
- Publication in COASTline of the European Union for Coastal Conservation

8) Workshop: November 2001
Participants: all members
Location: Palma de Mallorca, Spain
Local organisation: IMEDEA
- first general workshop
- presentation of draft reports

[1] GC= general coordinator WP= Workpackage leaders RC= regional coordinator

9) Adjustment and completion of reports: December 2001 - February 2002
Leaders: WP, RC
- On basis of the first results:
  - further outline for criteria and protocols,
  - identify gaps in existing data and in knowledge
  - formulate recommendations for selection of sites, indicators, networking and integration of data with socio-economic questions

10) Regional Meetings: March 2002
Participants: all members
- drafts of final outlines, protocols and recommendations discussed in regional meetings, and adapted accordingly
- organisation and report by WP-leaders + regional co-ordinators.

Organisation by Regional Co-ordinators
- 1) the Atlantic and Arctic; location: Lissabon, Portugal; host institute: IMAR
- 2) the Mediterranean and Black Sea; location: Palma de Mallorca, Spain; host institute: IMBC
- 3) the Baltic and North Sea; location: Helgoland, Germany; host institute: AWI

11) Steering committee meeting: April or May 2002
Participants: GC, WP, RC
Location: Azores, Portugal
Host institute: OOB
- discussion on outlines, protocols and recommendations in steering committee

12) Management report: April 2002
Leaders: GC, WP, RC
- Six-monthly management report

12) Adjustment of reports: May - July 2002
Leaders: WP, RC
- finalisation reports

13) Workshop : September 2002
Participants: All members
Location: Spitsbergen, Norway
Local organisation: AN/UNIS
- second general workshop
- presentation of results and evaluation with all members.

14) Steering committee meeting: October 2002
Participants: GC, WP, RC
Location: Banyuls-sur-mer
Host institute: OOB

15) Management Report: October 2002
Leaders: GC, WP, RC
- Management Report (with contribution of all members)

16) Final implementation: October 2002
Leaders: GC, WP, RC
- Final report
- publication in international journals; for specialists (students, researchers) and non specialist, including regional and local managers
- Publication in COASTline of the European Union for Coastal Conservation

17) Euroconference: *ad hoc* meeting steering committee; Greece May 2001
Participants: GC, WP, RC
- *ad hoc* meeting of members of the steering committee that attend the Euroconference; evening event
- monitoring the progress of the concerted action.

Appendix 3. List of tasks specified for the participants of BIOMARE at the different organisation levels

General Co-ordinators

- guide the total process of inventories, integration, meetings and workshops
- guard the milestones and deadlines.
- chair the steering committee.
- participate in the organisation of the regional meetings (provide help to the WP leaders and regional co-ordinators).
- organise and chair the general workshops,
- are the main chairs of the Euroconference.
- monitor the expenditures
- decide on redistribution of reasonable costs between participants.
- give, through 2 representatives, input to the 2 meetings and 2 workshops within all 3 WPs, by presenting information on biodiversity research in its country.
- invite external experts . This includes experts from European countries not yet involved in BIOMARE (*The invitations are going to be financed by the 50 Euro fixed contribution by members to meetings and workshops and by funds becoming available if one or both representatives of the member institutes are unable to attend a meeting*).
- take care of publishing the progress of the Concerted Action in a special issue of the European Union for Coastal Conservation (EUCC) magazine and at the web-site of the MARS Network at the end of each operational year.
- are final responsible for dissemination of reports, outlines and recommendations at conferences, at the web-site, and in international journals and reports for specialists (students, researchers) and non specialist (including regional and local managers).

Steering committee:

The steering committee consists of the general co-ordinator, the WP leaders and the regional co-ordinators and:

- controls progress of the CA,
- gives information and advise to WP leaders,
- helps to prepare workshops.

Leader of a Workpackage

- carries out (co-ordinates) the first inventories and reviews on available data. To this end, he contacts and consults the members of the Concerted Action for information and advice. This will mainly be done by (E-)mail.
- chairs the sessions in the regional meetings and workshops dealing with its WP.
- co-operates with the regional co-ordinators in the organisation of regional meetings (3 regions, 1 meeting per region per year)
- reports on the relevant topic.
- makes, with help of the regional co-ordinators, draft reports on the results of the inventories and discussions in the meetings and workshops with regard to the topic of the WP in question (including a draft outline for criteria and protocols, gaps in existing data and in knowledge, and recommendations).
- readjusts reports, outlines and protocols according to recommendations from members, meetings and workshops.
- presents results in meetings and workshops.
- composes final reports on most suitable and best studied sites for marine biodiversity studies.
- gives, through 2 representatives, input to the 2 meetings and 2 workshops (each lasting 3 days) within all 3 Workpackages, by presenting information on biodiversity research in its district/country.
- is member of the steering committee
- the WP3 leader is responsible for the development of a web-site and data-base

Regional Co-ordinator

- prepares overviews on biodiversity research in its region with regard to all WPs.
- co-ordinates (together with the other regional Co-ordinator) the 2 regional meetings in the region in question (1 meeting per region per year with 3 parallel WP-sessions).
- Assists the WP leaders in the organisation of their sessions during the regional meetings. The co-ordination includes the preparation, evaluation, production and distribution of announcements and

scientific/technical reports of the meetings, following the layout as agreed upon by the steering committee.

- gives, through 2 representatives, input to the 2 meetings and 2 workshops (each lasting 3 days) within all 3 WPs, by presenting information on biodiversity research in its district/country.
- assists the WP leaders to compose draft reports on the results of the inventories and discussions in the regional meetings.
- is member of the steering committee.
- discusses the draft reports in the steering committee, and subsequently helps the WP leaders to readjust the reports and to give a presentation in the following general workshops/conferences (once per year).
- helps the WP Leader to compose the final outlines, protocols and recommendations.

Regular Members

- prepare overviews on biodiversity research in its district/country, with regard to all 3 WPs. The overviews will be communicated primarily with the regional co-ordinators of their region and on request with the WP Leaders.
- give, through 2 representatives, input within all 3 Workpackages during the 2 regional meetings within their region and the 2 general workshops (each lasting 3 days), by presenting information on biodiversity research in its district/country.
- comment on the draft reports, outlines and protocols.

For the estimation of the advance payments in order to attend meetings, the following rates have been used:

- 600 Euro per person for travel (average rate, only actual costs of travel will be refunded).
- 150 Euro per day per person for subsistence (official rate: accommodation, food and other costs)
- 50 Euro per day per person: fixed contribution to finance the organisation of meetings/workshops. This contribution is budgeted in the budget item 'Travel and subsistence" but will be deduced directly from the money allocated to each Member Institute by the General Co-ordinator.
- co-ordination/management costs are refunded according to the following calculation: 1 year = 1680 productive hours, i.e. 1 month is 140 hours, made payable by 5000 Euro per month (= 35.7 Euro per hour).
- overhead : 20 % (includes general costs such as rent, insurance, administration)

The general co-ordinators will monitor the expenditures and recommend redistribution of reasonable costs between participants if necessary.

Inviting external experts to some or all of the meetings.
Their participation will be financed by:

- the 50 Euro fixed contribution of participants to the organisers of a meeting
- funds becoming available if one or both representatives of the Member Institutes are unable to attend a meeting.

The allocation of these funds will be decided by the general co-ordinators after consultation of the steering committee members.

Estimation of the total available funds specified for the participant at the different organisational levels

Regular Members:

For each Regular Member two representatives (who have to represent the member in three Workpackages) participate in two meetings and two workshop (of each three days).

- first year :	1 reg. meeting	= 3 days	* 2 persons
- second year :	1 reg. meeting	= 3 days	* 2 persons
	2 workshops	= 6 days	* 2 persons

Time needed:
- 24 meeting-days of 8 hours and 11 days of preparation; total 280 hours (2 months equivalent).

Costs are:		Travel (person*travel*cost)	Subsistence (person*day*cost)	Fee for meeting (person*day*cost)
- first year :	reg. meeting	2*1*600= 1200	2*3*150= 900	2*3*50= 300
- second year :	meet./workshop	2*3*600= 3600	2*9*150= 2700	2*9*50= 900

Cost summary:

	Year 1	Year 2	Year 3	Year 4	Total
Personnel	0	0			0
Travel &subsistence	2400	7200			9600
Computing	0	0			0
Subcontracting	0	0			0
Other specific costs	0	0			0
Overheads	480	1440			1920
Total	2880	8640			11520

Regional Co-ordinators

For each Regional Co-ordinator one of the representatives will co-ordinate [**c**] (in co-operation with another member in his region) the organisation of regional meetings within his region, will be member of four steering committee meetings (of two days each), and regular participant in the two workshops.

Another representative will be regular participant [**r**] in two regional meetings and two workshops (of each three days). Co-ordination includes the organisation of two regional meetings, preparation, production and distribution of announcements and reports, and is calculated as 1.5 months labour-equivalents per regional co-ordinator per meeting (210 productive hours = 7500 Euro per meeting)

- first year :	1 reg. meeting	= 3 days	* 2 persons [c+r]
	2 steering meet.	= 4 days	* 1 person [c]
	co-ordination	= 1.5 months	* 1 person [c]
- second year :	1 reg. meeting	= 3 days	* 2 persons [c+r]
	2 workshops	= 6 days	* 2 persons [c+r]
	2 steering meet.	= 4 days	* 1 person [c]
	co-ordination	= 1.5 months	* 1 person [c]

Time needed:
- 26 meeting-days of 8 hours and 9 days of preparation; total 280 hours (2 months equivalent).
- 3 months of co-ordination and management (including co-ordination of 2 regional meetings)

Costs are:		Travel (person*travel*cost)	Subsistence (150) + fee for meetings (50) (person*day*cost)	Personnel
- first year :	reg. meeting	2*1*600= 1200	2*3*200= 1200	7500
	steer. meet.	1*2*600= 1200	1*4*200= 800	
- second year :	meet./workshop	2*3*600= 3600	2*9*200= 3600	7500
	steer. meet.	1*2*600= 1200	1*4*200= 800	

Cost summary:

	Year 1	Year 2	Year 3	Year 4	Total
Personnel	7500	7500			15000
Travel &subsistence	4400	9200			13600
Computing	0	0			0
Subcontracting	0	0			0
Other specific costs	0	0			0
Overheads	2380	3340			5720
Total	14280	20040			34320

Workpackages Leaders

For each Workpackage Leader one representative [**c**] will co-ordinate the organisation of one of the three Workpackages (bringing six months labour), will chair his Workpackage at all regional meetings (total six, i.e. two meetings in each of the three regions, of three days each) and workshops (two of three days), and is member of four steering committee meetings (of two days each).
Another representative [**r**] will represent the member in the other two Workpackages in two regional meetings and two workshops (of three days each).
Co-ordination includes leading the tasks described for a Workpackage (including making inventories, summaries and evaluations of results), chairing all regional meetings with regard to their Workpackage, helping in preparation, production and distribution of announcements and reports of regional meetings (with regard to their work-package), and organising workshops (together with general co-ordinator).
Co-ordination is calculated as six months labour-equivalents (= eight productive hours per week = 30000 Euro).
For their co-ordination and collecting data the Workpackage Leaders need excessive time on computer (facilities) for which a budget of 2000 Euro has been indicated. Within Workpackage 3 a web-page and data-base will be (further) developed for which a budget of additional 2000 Euro has been allocated.

- first year :	1 reg. meeting	= 3 days	* 2 persons [c+r]
	2 reg. meetings	= 6 days	* 1 person [c]
	2 steering meet.	= 4 days	* 1 person [c]
	co-ordination	= 3 months	* 1 person [c]
- second year :	1 reg. meeting	= 3 days	* 2 persons [c+r]
	2 reg. meetings	= 6 days	* 1 person [c]

2 workshops	= 6 days	* 2 persons [c+r]
2 steering meet.	= 4 days	* 1 person [c]
co-ordination	= 3 months	* 1 person [c]

Time needed:
- 26 meeting-days of 8 hours and 9 days of preparation; total 280 hours (2 months equivalent).
- 6 months of co-ordination and management (leading a Workpackage) (4 additional regional meetings are included in the time of management)

Costs are:		Travel (person*travel*cost)	Subsistence (150) + fee for meetings (50) (person*day*cost)	Personnel
- first year :	reg. meeting	1*1*600= 600	1*3*200= 600	
	reg. meetings	1*3*600= 1800	1*9*200= 1800	15000
	steer. meet.	1*2*600= 1200	1*4*200= 800	
- second year :	meet./workshop	1*3*600= 1800	1*9*200= 1800	
	meet./workshop	1*5*600= 3000	1*15*200= 3000	15000
	steer. meet.	1*2*600= 1200	1*4*200= 800	

Cost summary :

	Year 1	Year 2	Year 3	Year 4	Total
Personnel	15000	15000			30000
Travel &subsistence	6800	11600			18400
Computing	1000	1000			2000
(mbr. 4: 2000+2000=4000)					
Subcontracting	0	0			0
Other specific costs	0	0			0
Overheads	4360	5320			9680
Total	27160	32920			60080
(mbr. 4: 28160+33920=62080)					

The co-ordinators

The co-ordinators will guide the total process of inventories, meetings and workshops, and guard milestones and deadlines. They will organise and chair the steering committee meetings, whereby they have to control the progress of the CA, give information and advise to WP leaders, and help to prepare workshops (equivalent to in total 6 months labour). The co-ordinators will be present at all meetings and workshops. For their tasks they will have scientific secretarial support for on an average of one day per week.
After each workshop at the end of each operational year the co-ordinators will take care of publishing the progress on the CA in a special issue of the European Union for Coastal Conservation (EUCC) magazine (costs 5000 Euro) and on the web-site of the MARS Network.
Co-ordination is calculated as six months labour-equivalents (eight productive hours per week = 30000 Euro). Secretarial support amounts to a similar six months labour (30000 Euro).
For their co-ordination and communications the co-ordinators need excessive time on computer(facilitie)s and a portable PC, for which in total a budget of 4000 Euro has been indicated.

- first year :	3 reg. meetings	= 9 days	* 2 persons
	2 steering meet.	= 4 days	* 2 persons
	co-ordination	= 1.5 months	* 2 persons
	secr. support	= 3 months	* 1 person
- second year :	3 reg. meetings	= 9 days	* 2 persons
	2 workshops	= 6 days	* 2 persons
	2 steering meet.	= 4 days	* 2 persons
	co-ordination	= 1.5 months	* 2 persons
	secr. support	= 3 months	* 1 person

Time needed:
- 36 meeting-days of 8 hours; total 288 hours (2 months equivalent).
- 12 months of co-ordination and management

Costs are:		Travel	Subsistence (150) + fee for meetings (50)	Personnel
		(person*travel*cost)	(person*day*cost)	
- first year :	reg. meetings	2*3*600= 3600	2*9*200= 3600	
	steer. meet.	2*2*600= 2400	2*4*200= 1600	30000
- second year :	meet./workshop	2*5*600= 6000	2*15*200= 6000	
	steer. meet.	2*2*600= 2400	2*4*200= 1600	30000

Cost summary (member 1):

	Year 1	Year 2	Year 3	Year 4	Total
Personnel	30000	30000			60000
Travel &subsistence	11200	16000			27200
Computing	2000	2000			4000
Subcontracting	0	0			0
Other specific costs	2500	2500			5000
Overheads	8240	9200			17440
Total	53940	59700			113640

Total of fees for meetings (to be used for costs of organisation and inviting additional experts)

		(persons * days * 50)		nr.	total
Workshop :		42 * 3 * 50 =	6300	2	12600
Regional meeting :	- Mediteranean	20 * 3 * 50 =	3000	2	6000
	- North Sea + Baltic	20 * 3 * 50 =	3000	2	6000
	- Atlantic + Arctic	12 * 3 * 50 =	1800	2	3600
Steering committee :		10 * 2 * 50 =	1000	4	4000

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