BIOMARE
Steering Committee Meeting
30-31 November 2001

Instituto Mediterraneo de Estudios Avanzados (IMEDEA)
Palma de Mallorca, Spain
November 2001

Introduction and goals of the steering committee meeting

At the moment, we are halfway the project. The first year has been primarily used to collect the data and to prepare the analyses. The next, and last, year should be used to finalize the analyses and disseminate the results.

The main aim of the steering committee meeting was to identify the gaps in the information that has been gathered in the different work packages and ways to fill in those gaps. Furthermore the programme and organization of the adjoining workshop had to be fine-tuned.

The meeting ended with the formulation of a set of defined tasks that can be reached within a few months time.

The activities within the work packages should be more focused on ways to bring our work to the attention of the end-users. It is important to extract more information from WP2 that is of value for the end-users: we still think too much as a biologist and not as end-users. For WP3, we have to produce folders, flyers and newsletters to disseminate the goals and results of the project. Within WP1, we need a reduction of the primary sites.

Work Package 2. Indicators

Introduction - Jean-Pierre Fèral

Until now 34 questionnaires have been received. The list of indicator species was not complete. Some contributions were received very late and these were not included in the progress report of WP2. There were some 10 more keystone and/or emblematic species mentioned.

The quality of the information provided was not uniform. Not all respondents to the questionnaires used the same definition for some terms.

From the survey the following gaps in WP2 have been identified:

1. There is a necessity to homogenize methods: we have to define and standardize the techniques.
2. Genetic diversity assessment is lacking at the moment
3. Eco-toxicology and ecology should be linked: we have to know the link between the concentrations of for instance toxic substances and changes in biodiversity and the reasons for those changes.
4. We have to know more about the consequences of foreign, invasive species.
5. We received very little information about indicators that are recommended or imposed by national rules.
6. At the ecosystem level: there is no hard information available. There are suggestions to apply some indices.
7. The questionnaire was intended to know what was used and not what is in the textbook. Sometimes the answers were from the latter.

To fill in the gaps it was suggested to install four working groups with participants from all regions to address the following issues:

1. climatic changes
2. genetic biodiversity
3. invasive species
4. ecotoxicology and ecology.

The steering committee should discuss the issues that have to be discussed in the working groups and appoint working group leaders. The produced output (reports) should be available at the regional meetings. The discussion could take place via E-conferences (WP3).

Discussion

<u>The questionnaire</u>

Although the questionnaire was not completely filled in, the coverage is quite good. A framework can already be developed from this. It is important not to forget that the goals of BIOMARE are large-scale and long-term processes and we should device strategies to reach these goals.

It appeared very difficult to acquire information from neighboring institutes. Many institutes do not have the time to fill in the questionnaires. Several suggestions were made to solve the problem:

1. Send a hardcopy (email) of the questionnaires that can be filled in off line
2. Send students to the institutes to actively acquire the information
3. Provide the institutes funds for data-mining activities.
4. Provide an example of a filled-in questionnaire.
5. Provide a map with the institutes (or research locations) that have filled in questionnaires.
6. Application of a stepwise approach by asking the institutes that submitted proposals for Primary Sites to fill in the questionnaire. Most probable they will be able to stimulate colleagues in the neighborhood to fill in the questionnaires also.
7. The introduction of the questionnaires could be rephrased also: 'Invitation to fill the questionnaires' is better than: 'Please fill in the questionnaire'.
8. There should be a reward for filling in the questionnaire: the names of the institutes (persons) should be mentioned at a list and/ or the website (see also suggestion 5).

Conclusions

The questionnaire will remain open until February 2002. Some details will be changed in the questionnaire but the framework of the questionnaire can remain as such.
A strategy will be developed that stimulates institutes to fill in the questionnaire of WP2. The WP leader will produce an example of a filled in questionnaire. This can be sent to institutes to give them an idea of which kind of information is required. An overview will be presented of the institutes that have filled in a questionnaire at the website.

Action
Jean-Pierre Féral

Genetics and molecular techniques in biodiversity related research

Several gaps were discussed in more detail:

1. Genetic related indicators

Genetic related indicators are not mentioned in the questionnaire. As possible explanations for this were mentioned: genetics are not yet used at a large scale; as genetic studies often are transregional, it is difficult to mention in the questionnaire and the questionnaire did not reach the geneticists among us.
It is essential to introduce genetic research in the project. It might be possible to raise additional funds for this. We have to look for scientists that are able to help us solving this problem. Linda Medlin and Ramon Rossello Romaro were mentioned as the external experts that could help us in this. They could be asked to fill in the questionnaire.

2. The link between genetic diversity / adaptation, ecology and (eco)physiology

We have to formulate a link between genetic diversity/ adaptation, ecology and physiology.
Molecular techniques can be used at several organizational levels within biodiversity research. At the population level it is important to look at the genetic biodiversity of the population at the limit of its distribution range. This point of view has similarities with the meta-population model. It has been demonstrated that this model does not hold for coastal marine territories, because there is a substantial genetic exchange. It is also possible to link genetic biodiversity with sentinel species.
Temporal scales should also be considered in this matter: How stable are particular DNA portions? It is most probable that the indicators for genetic changes in time and space are the same. Indicators for differentiation are quite easy to use. And the results can be easily and understandably be presented to the end-users.

3. The biology of microbes

We need tools for the study and monitoring of microbes (bacteria, phytoplankton, microorganisms etc) as well. Linda Medlin, or Ramon Rossello Mora, could be contacted to assist in this. Biomolecular monitoring programmes already exist in Norway and France.
The most important topic is how to find indicators for this. DNA chips could be a possibility.
It is possible to develop a proposal for this type of research after BIOMARE.

Keystone species

The keystone species in the Mediterranean are well covered. In the Atlantic the list is not yet complete. Jean-Pierre Feral expects that this gap will be filled in soon.
There was some uncertainty about how keystone species were mentioned in the questionnaire: keystone species of the trophic level, or with regard to functionality. The term keystone species was used in the broadest sense: both could be mentioned.
We have to develop a priority list of keystone species that have to be studied in a large range of geographic regions: European Flagship Species.
JP will update the list of keystone species and send it to all the participants in order to stimulate scientist to contribute the questionnaire and the discussion. The scales considered should be local and pan-European. People can also put forward their objections to the list of keystone species.
It might be necessary to expand the list more to the pelagic system. Phytoplankton species are suitable indicators for marine biodiversity[1]. With regard to benthos it could be advisable not to focus too much on species: there are too many species. It is better to focus on assemblages of species: communities or functional groups (like system engineers).
The project is focused on coastal areas, affected by local processes. We also need information of off shore sites in order to study global changes and large scale natural processes.
For the contact with the public at large we also should address to the charismatic (emblematic, cuddly) species[2]. Possible species are: groupers, seahorses, sea birds and mammals. Several possible conflicts were discussed:

- We have to take into account diseases that show no link with anthropogenic activities or climate change (extinction of seals in Greece).
- There is a conflict between indicator species and emblematic species in the Baltic. Seals are very appealing to the public in large. However, they do not have a link with the quality of the environment in the region. However, wading birds are an indicator for the quality of the littoral environment, but are not that appealing. Although the seals are very useful for the communication with the public at large, we should not include them in WP2. They should be addressed in WP3.

We should also link to other lists like those provided by OSPAR, ICES, Helcom, the conference of Bern list, CIESM (?) etc. OSPAR and ICES meetings are still organized and we should participate in these meetings at least as an observer. We should link to these lists, but they should not prevent us from developing our own strategy.

Filling in the gaps of WP2

Action
Chris Emblow

The discussion to fill in the gaps of WP2 should be started at the workshop, but it should be possible to continue the discussion via an electronic conference at the web site. Chris Emblow (WP3 Leader) will organize the logistics of this discussion.
It was decided to change the workshop programme to enable the discussion of the gaps in four subgroups.
After a discussion the following discussion groups and items were proposed:

Action
Sabine Cochrane
Carlo Heip
Herman Hummel
Fred Buchholz

1. Environmental change – Discussion leader: Sabine Cochrane.
2. Taxa - Discussion leader: Carlo Heip
3. Genetic Biodiversity - Discussion leader: Herman Hummel
4. Methodology - Discussion leader: Fred Buchholz

Discussion leaders will be responsible for the discussion and the minutes/report of the discussion.

A handout was produced with general rules and specified discussion items to streamline the discussions (Annex 1).
At the workshop, after the subgroup discussions there will be approximately 1 hour for the presentation of the subgroup discussions. The discussion leaders should prepare a summary that can be presented in about 5 – 10 minutes.

[1] Victor Smetacek, ESF meeting Corinth, Greece, May 2001
[2] Species with blue eyes and cuddle fur according to Sabine Cochrane

The connection between WP1 and WP2:
Indicators should be directly or indirectly linked to biodiversity. It is advisable to make an inventory of the indicators that are being used by GO's that are involved in biodiversity research.

WP3: Dissemination

Introduction – Chris Emblow

1. Website
From May until now the website has been visited more than 2000 times. That is an increase compared with the first period. A section 'Resources' has been added to the website with information about biodiversity datasets, conferences and vacancies. The hyperlinks to other (marine) biodiversity related initiatives have been updated. The website furthermore shows general information about the work packages, meetings, workshops and reports.
In future, information about the reference sites will be added, including maps with the flagship sites and species inventories.

2. Networking
The mailing list of ERMS and the Marine-B list-server has been added to the address list of BIOMARE. Now we have a list of more that 2000 addresses. The present address list however is very much biology orientated.

3. Newsletter
The newsletter is now available both at the website and as a hardcopy. We should send an announcement of the newsletter to the participants. The newsletter will appear twice a year. We should decide were to send it to. As mentioned before, the mailing list is very much biology orientated.
The new edition could contain regional biodiversity issues, addition from a young scientist and the description of the progress of the project, and a report from the Mallorca workshop. At a later stage special editions could be made for the specific work packages (WP1, WP2).

4. Databases
Several databases were and will be created:
1. Present state of marine biodiversity research in Europe.
2. Facilities for training of researchers and students
3. Facilities for marine biodiversity research
4. Existing long term and large scale biodiversity monitoring datasets.

The first three datasets rely on the activities that will be developed in MARS.

The database on existing long term database and large scale biodiversity monitoring datasets is already under construction, and until now 79 contributions have been received. The information will be presented at the website.
It is very hard to collect the information. The regional leaders are actively involved in stimulating (local) colleagues to fill in the questionnaire. It appeared very hard to obtain data from the colleagues.
Ricardo Santos mentioned that there was a similar initiative that now has ended (EDMED). The information is still available and maybe it is possible to include this information in the BIOMARE database. Chris will contact them.

Action
Chris Emblow

5. Flyer/brochure
We should discuss what the brochure should include: details of the aims of the project, WPS and results?
Will it be in full color?
What will be the distribution list? What will be the public that we want to reach and how do we reach them?

Discussion

1. Website

It will be possible to indicate the sites that already have been covered in the database with the large scale long term datasets. This could stimulate colleagues to participate in the project. The presentation of the primary sites could be presented in a different map. A communication tool will be made that is available for all the participants. If a member wants to send messages to all the BIOMARE members, or a subset of it, it can be arranged via the website in the near future. Until now the communication had to be arranged via the general coordinators, which appeared not practical in some cases.

2. Network

The network now consists of the 2000 addresses from ERMS and 200 from the MARINE-B listserver. We should try to add end users of the marine biodiversity information to this. It is possible to expand the network through connections with other biodiversity initiatives, like OSPAR, ICES, HELCOM, EEA, CIESM and national nature conservation agencies.

3. Newsletter

Action
Chris Emblow

We need a hardcopy of the newsletter. Chris will invite offers for an issue of the BIOMARE newsletter.

Contributions for the next issue:

1. Mass mortality in Mediterranean Gorgonians by Jean-Pierre Féral
2. Turtles on the beach of Almaria by Damià Jaume
3. The Black Goby in Poland by Jan Marcin Weslawski
4. The invader Udotea metallica in Helgoland by Fred Buchholz
5. Hyperbenthos in Crete (Contribution of a young scientist) by a PhD student of IMBC
6. Environmental biodiversity gradient in the Arctic by Sabine Cochrane
7. Mapping of marine biodiversity at the Azores (Contribution of a young scientist) supervised by Ricardo Santos
8. Progress of BIOMARE by General coordinators + WP leaders
9. Report on the workshop

Deadline for the contributions of the newsletter and the report of the workshop: Christmas 2001.

Action
Chris Emblow
Ricard Warwick

The last two editions of the newsletters could be special editions of the project. Alternatives are to make a (glossy) pocket book with the results, or to arrange a special edition of the journal Hydrobiologia.

We could produce brochures / flyers with descriptions of the different primary sites. This shall be discussed with the WP1 leader. It is important to present the primary sites in a proper way so that this information can be used for fund raising etc.

4. Flyer

Action
All

The target of the flyer will be the general public and should be produced as soon as possible (2000 copies). The members will receive 25 copies and be asked to distribute them locally.

A map with the sites will be included. We need pictures to make the flyer attractive. The regional coordinators are kindly requested to look for these pictures. Please mention if there is a copyright. Deadline for the flyer: March 2002.

Publications

Herman Hummel has been requested to make an article about BIOMARE for the journal 'Coastline'. We need a catching picture for this.

The format for the pictures will be specified as soon as possible.

5. Databases

The databases are not official deliverables of the project.

<u>Databases of large scale, long term biodiversity monitoring sets in Europe</u>

In the database, a gap of information exists: there are no contributions form Belgium and France. In France many data are available. It seems very hard to collect the data for the database.

Several possibilities were mentioned to solve this problem:

- Showing the details of the institutes that already contributed to the development of the database in a map (or table) might stimulate other institutes to do also.
- Sabine Cochrane distilled questions from the template of the database and phoned her colleagues with the kind request to answer six simple questions about large scale, long term biodiversity monitoring datasets. Then she filled in the forms for the colleagues. This approach worked well.

The latter approach will be adopted for the next attempt. The regional coordinators will ask the national contact points to phone their colleagues (one by one) and collect the data as described by SC. Gaps will be covered by the general coordinators. Deadline: 3 months from now. The results will be shown in maps at the website.

Action
Regional Coordinators

Database of the current state of marine biodiversity research in Europe

The description of the state of marine biodiversity research in Europe was launched five years ago by the MARS network. The last update took place in 1999. The present attempt will rely on the scientific output of projects in Europe since then. This could be realized via a literature survey via the Web of Science. There will be a lag between the start of the project and the scientific output. But this will be only one to two years. The suggested study will give a realistic insight in the output, and thus state, of the research. The proposed project facilitates different kinds of research also. It could be a topic for a student research. The general coordinator will perform this research.

Action
Herman Hummel
Carlo Heip

Database on species inventories

It was suggested to make a database of local and regional species inventories. This could be attached to the database with the large scale / long term biodiversity datasets. Contributions can exist of information on electronic databases and reports as well. The information should be categorized. The results will be shown in maps, with hyperlinks to the institutes that keep the datasets.
It will not be possible to check whether the provided information is correct. For this reason it is important to mention species names so that the users of the information can check the validity of the information.

Database of facilities for training of researchers and students and facilities for marine biodiversity research

The databases related to the training and research facilities are connected to MARS activities that are planned in the near future. At short term it will be known whether MARS will receive additional funds to carry out this research. In the proposal that has been submitted by the MARS network, additional funds are requested to organize summer schools. The emphasis is on the extension of the MARS network towards the Newly Associated States. The summer schools will be organized in Slovenia and Poland. The topic will be the comparison of marine biodiversity of the several regions.
If the additional funds will not become available for MARS, this activity has to be developed from within BIOMARE. The next call for proposals is 15 February 2002. Details will be discussed with the EU officer.

BIOMARE could develop a special initiative to involve countries from the Newly Associated States in the network. A EU-proposal could be developed for this. The deadline for the proposal is January 2001. The additional funds will be available only for the NAS countries.
One of the prerequisites for the proposal is that the project is still running for another year. BIOMARE could meet this requirement if the project will be extended for another 3-4 months. This has consequences for the members: they will get their final payment at a later stage. The steering committee has no objections. The members will be consulted during the workshop.

WP1: Primary and secondary flagship sites

Introduction -Richard Warwick
The additional questionnaires have been sent to the institutes that have proposed a primary site except for the Mauritanian and Ukrainian sites. Mauritania is out of European territory and the Ukrainian sites are not eligible for funding (see report of the regional meetings). The additional questionnaires have been received from all sites except two: the site from the West Coast of Scotland and from the Canaries.
The updated database is available at the website now. A hyperlink to the additional questionnaire is provided. All gathered information about the sites is available via the Internet. Hardcopies of the available information have been sent to the steering committee meetings. The map of the proposed sites has been updated. There are still some misplaced sites. The map has to be updated again. Furthermore the map gives a distorted picture of Europe. This will be changed also.
The main task for the steering committee will be to go through the questionnaires and select the sites.

Indicated gaps:
1. Site at the west coast of Scotland.
The site from the west coast of Scotland has originally been proposed by Keith Hiscock. The institute that studies the site did not reply the request to fill in the additional questionnaire. The site is considered not critical. If there is no commitment from this institute than it could be advisable to exclude the site from the list.
2. The Canarian site
It was decided to upgrade the Canarian site that originally was proposed as a reference site. They did not send back the secondary questionnaire. However this site is important and should remain on the list.
3. Site at the coast of Portugal
From the coast of Portugal it is suggested to upgrade Costa Vincentina (Portugal). It is originally proposed as a reference site. The site is more pristine than the other suggested reference sites. Martin Sprung has submitted this site. Richard Warwick will contact him again with the request to fill in the secondary questionnaire.
4. White Sea
At the last moment we received a suggestion for a primary site in the White Sea.

Discussion
Criteria for the selection of the primary sites.
The steering committee agreed on the criteria that have been used to select the primary sites.
It is better to ask an institute to commit itself to do research at a site than a person.
Additional class of sites
Carlo Heip suggested introducing a third class of sites: sites of special interest. It is a special site that is attached to the project. It will not be illegible for funding within the project, but the title could be used to raise funds for research at the national level.

Detailed discussion of the sites from the different regions:

A. Atlantic-Arctic region

1.Kongsfjorden ([3]66) and Hornsund (na), Spitbergen: combined site.
At Svalbard two sites are being proposed together: Kongsfjord and Hornsund. The distance between the sites is 1 degree (approximately 110 km). The sites supplement each other: Kongsfjord has an Atlantic influence while Hornsund has an Arctic influence. The different sites supply information about the different water masses. Kongsfjord has very good accommodation.

2. Tromsø, Norway (Balsfjord near Tromsø, 69)

[3] The numbers between brackets refer to the identification no of the site in the WP1 database

The Balsfjord area near Tromsø is suggested as a primary site. There is a vertical gradient in Arctic / Atlantic influence. Long-term datasets are available. The site is located at the edge of two water masses: one Atlantic based, the deeper one is an Arctic refusion.
?[4] Funds. There are no real funds for ongoing research.
The monitoring is being financed with commercial projects. However the cooperation with the university is good. Teaching activities are organized in the area and the University pays shipping time. There is an ongoing interest in the site and the proposer is confident that they can fulfill the commitment.
? Protected area. The area has no special protection status.
There are no protected marine areas in Norway, because there is no need for it.
? The information available is very macro-benthos dominated.
Other information is available but is not mentioned on the questionnaire. The questionnaire should be revised within this respect.
It is advisable to change the name of the site. It is an area near Tromsø.

Action
Sabine Cochrane

3. Trondheim, Norway (91)
A lot of research information is available for this site. There is commitment to continue research in future. Funds are available.
? Commitment. There will be a change over of the staff in the future.
Most probably this has no consequences for the commitment of the institute that submitted this site.
? Funds. It is mentioned that the funds available for monitoring is not much.
Most probable this budget is sufficient.
If the site is not a primary site it should be at least a site of special interest. This is the only place where Lophelia reefs occur in shallow water.

4. Svarasson, Iceland (130)
Here a project is running (BIOICE) facilitating regular monitoring of the site. The site is located near Reykjavik, but remote.
? Funds. The project BIOICE facilitates research in the area (every two years).
? Available data. Many groups have not been studied yet.
It is suggested to downgrade the site to reference site.

5. Lough Hyne, Ireland (106)
The site is protected, has many different habitats, but is somewhat small and somewhat isolated from the coast. Many (long term) data are available. Research facilities are available.
? The lough experiences occasional anoxic situations. This only occurs below 25 m.
? Facilities The area is not accessible for large research vessels.
These are not required. The lough is accessible for small boast. The outer part of the Lough can be reached by boat. Research facilities are available (3 labs)
It is suggested to extend the area of the site to enlarge the representativeness of the site for the surrounding area.
Datasets of the surrounding areas are available, but not as extended as from the Lough. An alternative suggestion is Sherkin Island. In the surrounding area aquaculture exists locally, but the effects are only local.
The proposers are requested to fill in the second questionnaire for the larger area.

Action
Chris Emblow

6. Loch Linnhe, Scotland (105?)
As mentioned before no additional information is available. Sabine will contact the institute that studies the site with the request to fill in the second questionnaire. The site is not essential and alternative sites are available.

Action
Sabine Cochrane

7. Scilly Isles (85)
The Scilly Isles are pristine, and long term datasets are available. The site has a strong southern (Mediterranean) representation of fauna. It is located at a transition from the South to the North Atlantic.

[4] Critical remarks of the WP leader

? Facilities Local laboratory facilities are not available. Although no facilities are available, it is possible to arrange a research vessel, or rent a local boat. The distance to the nearest lab is 100 km. Limited local facilities are available.

8. Ouessant (40) / Glenant (18), France

Action Jean-Pierre Féral

Both sites fulfill the criteria for primary sites. Only one can be chosen as a primary site. The steering committee was not able to choose between the two sites based on the provided information. Jean-Pierre Feral will discuss the selection of the sites with the proposers. Only one site will be accepted. It could be a solution to join research forces at one site.

9. Costa Vincentina, Portugal (124)

Action Richard Warwick

It is suggested to update Costa Vincentina, one of the three proposed reference sites of Portugal to Primary Site. No information is available at the moment. The proposer (Sprung) will be asked to fill in the additional questionnaire.

10. Formigas bank (74) and Corvo Island (75),Azores

The sites from the Azores are pristine. Datasets are available from 1974. It is suggested to combine the two sites as primary sites:
1. Formigas Bank is an offshore, protected, islet. Although the actual islet is small, the protected area is very large. Only ship-based research is possible at this site. No phytoplankton data available.
2. Corvo Island is a small island with several sites of special interest. It meets all the criteria for a primary site. A small population is present. There is some fishery activity, but the uses of nets are prohibited.
Although the distance between the sites is large it was decided to combine both sites as one primary site.

11. Canary Islands (15), Spain.

Action Carlos Duarte

No additional information is available about this site and at the moment it is not possible to discuss the site. The site is located at the end of the transect, and is considered crucial. It will not be excluded from the list of primary sites.
Carlos Duarte will help the institute to fill in the second questionnaire.
? The institute that proposed the site are not members of BIOMARE. How to proceed when the site will be accepted in the future? They have to join meetings and for this funds have to be allocated. In the case no funds are available, Carlos Duarte suggests to invite them to join the meetings as representatives of IMEDEA.

12. White Sea Site (??)

Action Herman Hummel

The site was proposed only recently and could not be discussed because no additional information was available.

B. Baltic- North Sea Region

A study goal of this region could be the salinity gradient. There are nine sites proposed including the Scilly Islands. All the sites fulfill all the criteria for primary site.

1. Tvarminne, Finland (65)-Asko, Sweden (61)-Aland, Finland (64)

They are all similar with respect to the habitats present. Only small salinity differences occur. It was decided to cluster the sites (see also report regional meeting).

2. Bay of Puck, Poland (56)

The site is in a transition area between the North Sea and the Baltic. Long-term dataset are available.
? Habitats No hard substrate available. This type of habitat does not occur in the area.
? Pristiness The site is not pristine. It suffers from pollution. Pristine site do not occur in the area: pristiness is relative (see report of the regional meetings).

3. Meckelenburg, Germany (138)

The site is originally proposed as a reference site. This site is situated at the transition zone between the Baltic and the North Sea.

The site is considered identical to Puck, and is not essential.

4. Helgoland, Germany (139)-Sylt, Germany (135): combined site
Helgoland has hard substrate. Sylt has soft bottom substrate. The two site complement each other and are suggested as a combination. It is a transition zone between the Lusitanian and Boreal area.

5. Flamish banks, Belgium (Western Coastal Banks 7)
The off shore bank system is a transition zone between Lusitanian and Boreal area.
The site could be a site of special attention.

6. Flamborough Head, United Kigndom (92).
The commitment of the institute is very strong. The site is situated at the transition zone between the Boreal and the North Sea area towards sub arctic.
? river input
? tourism
? heavily fished
? habitat atypical
The site is a very good reference site.

C. The Mediterranean region
a. Western Mediterranean
The French (Port Cross (30), Parc Regional de Corse (35) and Spanish (Cabrera Archipelago (11)) sites fulfill all the criteria for the primary sites.
The proposed sites in Italy (Otranto (3), Tuscany Archipelagio (116)) are polluted. It is suggested to look for suitable primary sites at Sardinia and Sicily. As possible contact persons were mentioned: Dr. Boero, Dr. Zupo, Dr. Valerga. Prof. Dr. Eleftheriou will contact these persons to discuss the situation.
Dr. Boero will be asked whether it is possible to propose another site.

b. Eastern Mediterranean
The Ukrainian sites (Zmeiniy Island (42) and the Crimean coast (47)) have been removed from the list. The proposed site at Crete will be a reference site. In the Black Sea there will be one Bulgarian (Cape Kaliakra (50)) and one Turkish site (Sinop Peninsula (146).
If we have to reduce the number of sites in the Black sea than the Bulgarian site is considered the best alternative. On the other hand it was argued that it is wise to keep at least two sites in the Sea. If there is a local catastrophe still one site is available. The two sites are more or less complementary: the Turkish site has plankton/pelagic data, the Bulgarian one has more benthic related information.
Shiqmona, Israel (129) is a very special site, but not typical for the region. It is suggested to give this site the status of 'special site'.
The proposers will be asked to enlarge the area. Nearby a nature park is present that could be suggested as a primary site.
Too many sites are proposed to be primary sites and even within the steering committee it appeared impossible to reduce the number to the originally planned 12 – 14 sites.
There were several possibilities to solve the problem suggested:
1. The introduction of a third class of sites: 'special sites'
We could introduce the category 'special sites'. These are sites that were not selected as primary (flagship) sites, but are sites with special characteristics and should get a special status. This special status could be used to raise funds at the national level
For the category special sites additional funds could be sought at the national levels.
2. Introduce commitment of the institute as a strong criterion
Fred Bucholz argued that driving force should be used as an argument to include sites in the project. Commitment is very important. According to others that cannot be the case. Some members are very committed but have not proposed sites. In this case a false argument would be introduced in the selection criteria.
3. Put together a committee of BIOMARE members that do not have a personal interest in the flagship sites and let them decide on the final list of flagship sites based on the criteria list.
4. Change the concept of the Flagship sites

Carlo Heip suggested changing the names of the sites. Name them all flagship sites, but give them some assessment/classification, like Michelin stars for flagship sites. The present primary site can be called reference sites because they form a sort of yardstick. The combination of research at the flagship sites can resolve scientific questions. Selection can be made for e.g. habitat type.
The status of flagship sites will give the institutes that proposed that means to arrange local funds for research at those sites.

During the meeting no decision was taken. At the workshop it will be possible to resume the discussion.

Bridging WP1 and WP2.
The basis for the connection between WP1 and WP2 is mentioned in the objectives of the research that will be carried out at the primary (flagship) sites:
1. Comprehensive inventory
2. Phylogenetic pattern determination
3. Development of rapid assessment techniques
4. Calibrate biodiversity measures appropriate to large scale of observation
5. Initiate baselines for measuring long-term patterns of temporal changes.

The last three objectives are suitable to create a link with WP2.

Objectives of the reference (secondary flagship) sites:
1. Distribution patterns of biodiversity on a relatively fine scale.
2. Assess mans influence on biodiversity
3. Long term monitoring using rapid assessment techniques or Biodiversity indicators (the latter may appear not feasible).

For the objectives of the research at these sites we also rely on WP2 for the validation on indicators for biodiversity.

The future research objectives should be discussed in the workshop.
The primary sites can be used to develop indicators and rapid assessment techniques that can be applied for (long term) research at the secondary sites in order to assess mans impact on biodiversity. The establishment of baselines is very important for the distinction between natural and man induced changes.
The study of the distribution patterns of biodiversity on a fine scale and the long term monitoring using rapid assessment techniques should also make part of the research at the primary sites.
Several other aspects were considered missing:
- Modeling
- Origin and maintenance of biodiversity (functional aspects of biodiversity)
- Use of biomarkers as early warning systems.

In this respect we have to distinguish between environmental health and biodiversity. Biomarkers linked to biodiversity should be used. The validation of biomarkers as early warning systems cannot be carried out at the primary sites. Only experiments are suitable for this type of research.

Not all the institutes will be present at the workshop and thus will not be able to add to the discussion of the research programme. We should give them an opportunity to give their opinion. The researchers have to agree on the research programme first before they go to the director and discuss the commitment of the institute to do research at the primary sites.

We specifically have to mention in the research programme that there will be an extended inventory of the species at the sites. If we do not mention this, institutes can have the impression that a standard monitoring programme suffices, and just give a summary of already performed research.

The research programme at the sites has to be discussed during the workshop. For this the workshop programme has to change. The evaluation of the reference sites shall be replaced by this discussion. The setup of the meeting (subgroup) discussion does not have to be changed.
During the discussion it should be mentioned that the approach should be nested and stepwise.
We will have two phases in the research: a period of 2 – 3 years to prepare the long term monitoring programmes that will be carried out in the 4 – 10 years afterwards. The EU will be happy to invest in the second stage of the research, but the first years will be essential to develop the approach. Phase one will be a general description of the present status of the biodiversity and the second stage focuses on the functional aspects of the research. How we should define biodiversity is another important question.

General coordination

Progress:
The different actions of the BIOMARE project are still on schedule. The first year has been primarily used to collect the data and to prepare the analyses. The next, and last, year should be used to finalize the analyses and disseminate the results.
Only, the expansion of the networks (WP 3) is not yet developed. In first instance we should agree on an email-network. We should try and get more end users involved in the network. The lists of OSPAR and ICES could be an entrance for this. Also museums and universities should be added to the network. Other initiatives that BIOMARE should link with: CIESM, HELCOM, Barcelona convention, Black Sea convention.
We also could get involved with GO's with an interest in biodiversity, but with no available funds for research. They will not have any money, but can contribute in discussions of the marine biodiversity issue, and help with publicity.
The activities, results and progress of the first year have to be reported in the annual management report. The report will include financial details and a cost statement.

Extension of BIOMARE
It is possible to extend the project for another 3 – 4 months. This will enable the development of a proposal to stimulate NAS countries to get involved in the network. There will be no additional money available for the BIOMARE project. Furthermore, the final payment will be expanded with 3-4 months. The members have to agree on that. The NAS participants will not be able to submit sites for WP1, but will be able to contribute to WP2 and WP3. Extension of the project has several additional positive points: it will be possible to make glossy booklets of the results and the consortium has additional time to prepare for the next framework programme. There are two calls available to submit proposals to include the NAS countries. The first is available in January. The second opportunity will be in February (accompanying measures). Continuation of BIOMARE will not be received positively by the (EU) commission. Future proposals should be new efforts.

Finances:
Two representatives of each institute should participate in each BIOMARE meeting. Many institutes did not comply with this request. The first advance payment was based on the attendance of two persons. In the case only one scientist represented the institute during one of the meetings, the standard amount for travel and subsistence for the lacking person will be discounted in the second payment. This means that the institutes will receive less money.
Any funds coming available after redistribution will be used by the general co-ordinators to invite experts and for publications.
Costs for publications do not have to be reported specifically to the EC officers. The general coordinators will be able to reallocate funds for the publication of the results. Changes in the budget that do not exceed 20 % of the total budget should only be reported to the EC Officer. No permission is needed in this case.

Any other business:

Jan-Marcin Weslawski has been asked to discuss the possibilities to propose an Antarctic site within BIOMARE. This is out of reach.

Agenda:

1. Steering Committee meeting Azores: 3rd week of April, combined with regional meeting: range 17 – 21 April 2002. To use cheap flight rates the flight back should be on Sunday.
2. Combined regional meeting: Mediterranean and North Sea-Baltic, Heraklion Crete: 11-15 March 2002
3. Second workshop; Svalbard: 15 – 20 September.
4. Last Steering Committee meeting, Banyuls, France: 21 – 22 November 2002

Annex 1. Handout WP2

Work Package 2: Disccussion Themes of the subgroup discussions
BIOMARE workshop Palma de Mallorca, 2-3 November 2001

1. Indicators of environmental change (Sabine Cochrane)

- give general indicators for the impact of environmental changes
- give indicators for specific impacts (Climatic changes, toxicants)

Take care that indicators are valid for long-term research and large-scale (networking, uniform methods)

- do indicators (taxa/groups) exist which by their geographic and bathymetric distribution could be used

- do indicators of early signs of biodiversity change/disturbance exist

- what is the usefulness of biomarkers:
    - what is the link with biodiversity
    - which relations with the health of the environment

- how to distinguish anthropogenic from natural impact

- give the major methods for the priority indicators

- what indicators to use to predict a change in diversity (modelling)

2. Keystone, invasive and engineer species (Carlo Heip)
We need:
- lists of OSPAR, Bern convention, etc. Others ??
- more pelagic taxa
About priorities:
- do we need taxa or functional groups?
- which species are the priority ones a) at local level, b) at European level
- how to distinguish anthropogenic from natural impact
- give the major methods for the priority indicators
- what indicators to use to predict a change in diversity (modelling)

3. Genetic (and molecular) biodiversity (Herman Hummel)
Solve gaps (how to do/measure) :
- assessment of biodiversity
- monitoring of invasive taxa and aquaculture escapes
- gene conservation and molecular ecology
- heterozygosity and demography at sea? Is it useful?
Needed:
- which indicators are the priority ones a) at local level, b) at European level
- how to distinguish anthropogenic from natural impact
- give the major methods for the priority indicators
- what indicators to use to predict a change in diversity (modelling)

4. Methodology (Fred Buchholz)
- how to collect and use existing data
- how to use remote sensing / habitat mapping / side-scan mapping (habitat diversity)
- how / for what modelling, scenarios, prediction
- which indicators are the priority ones a) at local level, b) at European level
- how to distinguish anthropogenic from natural impact
- give the major methods for the priority indicators