Workshop
“Planning the Management of Deep-sea Hydrothermal Vent Fields MPA in the Azores Triple Junction”

biological productivity;

- other marine resources and habitats necessary to fulfil the mandate of the Minister of Fisheries and Oceans.

As a Marine Protected Area, the Endeavour Hydrothermal Vents Area contributes towards the protection and conservation of a representative portion of the Endeavour Segment of the Juan de Fuca Ridge, its dynamic submarine ecosystems, unusual hydrothermal features, specialised biota and habitats, high biodiversity and enhanced biological productivity.

The broad objectives defined in the Oceans Act, Section 35(1), are discussed in more detail below as they pertain to the management of the Area:

The Conservation and Protection of the Unique Habitats of the Area (Consistent with Objective (c) in the Oceans Act, Section 35(1).)

a) Further our understanding of the unique biota assemblages endemic to the Area, and develop appropriate conservation measures.

b) Further our understanding of the linkages between the Area and the surrounding deep-sea environment, and develop appropriate conservation measures.

The Conservation and Protection of the Area as a marine area of High Biodiversity or Biological Productivity (Consistent with objective (d) in the Canadian Oceans Act, Section 35(1))

a) Ensure the protection and conservation of the habitat supporting the unique microbiological community.

The Conservation and Protection of Any Other Marine Resource or Habitat as is Necessary to Fulfil the Mandate of the Minister of Fisheries and Oceans (Consistent with objective (e) in the Oceans Act, Section 35(1))

a) Ensure the continued sustainable human activities in the area, which support the MPA and community involvement and awareness.

5. The Plan

As a Marine Protected area, Lucky Strike and Menez Gwen hydrothermal vent fields; contribute to the protection and conservation of a portion of the Atlantic ridge, to their submarine ecosystems, hydrothermal activities, specialised biota and habitats, high biodiversity and enhanced biological productivity.

In Annex V of the OSPAR Convention, two sets of obligations to the convention are stated:

1. (arising from the OSPAR Convention of 1992): protection of the maritime area against the adverse effects of human activities (...), to conserve marine ecosystems and ... restore marine areas;

2. (arising from the Convention on Biological Diversity of 1992): to develop strategies ... for the conservation and sustainable use of biological diversity.
Following the precautionary principle it becomes quite obvious that there is a need for management of the ongoing activities and to create a basis to regulate prospective activities in a sustainable manner. If degradation of the system and its ecological processes shall be avoided, for a management plan to be effective in fulfilling its objectives, the correct priorities and measurements need to be chosen.

**Objective 1: Designation of the area as MPA**

The MPA status is the fundament to coordinate the ongoing research activity and to regulate further prospective activities. For example potential mining activities can be prevented as being destructive and other activities like tourism can be conceived in a sustainable manner.

**Objective 2: Assess quality and quantity of existing information:**

a) Need to define clearly the stakeholders and the legislative framework affecting the area.
b) Past/present/prospective research activity including sampling activity, pictures (if available), exact location of research within the area and names and nationality of the vessel and a list of all participants.
c) Biogeographic and geological maps of the area giving a general overview of the area and of the individual chimneys

**Objective 3: Zonation of the MPA**

Taking into account that despite the Lucky Strike hydrothermal vent field (Fig. 18) is one of the largest in the world (in terms of number of animals is quite low), and that the Menez Gwen hydrothermal vent field (Fig. 19) is quite small, the limits of the two MPAs were established. A zonation is proposed taking into account the scientific pressure, and the geographic conditions.

**LUCKY STRIKE**

Marine Protected Area - Latitude 37º12’ to 37º22’N, Longitude 32º15’ to 32º22’W, including the water column, the seabed and the subsurface.

Core area - Latitude 37º17’ to 37º18’N, Longitude 32º15’50’’ to 32º17’15’’W

Goal: Data about research activity and different maps of the area are needed to create a data bank for the MPA to decide about management objectives and actions like zoning of the area and regulation of research activities.

When the existing information has been compiled it can be decided what kind of information is still needed and how this can be obtained. Here it could be considered if an Environmental Impact Assessment (EIA) would be feasible and of value to the definition of further management objectives.

A code of conduct for scientists should include agreement on providing data collected to the MPA data bank.
Integral Reserve (observation)

Bairro Alto and Elisabeth until the Lava Lake. Latitude - 37°17′29″-40″N and Longitude 32°17′-16′50″W.

This area will respect the natural state of the environment (natural condition). Evolution of vent areas will be observed in these areas.

Reserve (observe, monitor)

LS ET and Sintra.

Regulated Sampling

The remaining area, but respecting the Code of Conduct and the indications of the MOMAR Steering Comity

Regulated scientific activities are the only activities permitted inside the MPA.

Fig. 18. Zonation of the MPA at the Lucky Strike Hydrothermal Vent Field.


**MENEZ GWEN**

Marine Protected Area - Latitude 37°47’ to 37°52’N, Longitude 31°28’ to 31°35’W, including the water column, the seabed and the subsurface.

Core area - Latitude 37°49.8’ to 37°51’N, Longitude 31°30’ to 31°31.8’W

Conservation Area (Non-intrusive observation, non-destructive sampling allowed)

Southern sites including the active volcano and the coral reefs

Between parallel oblique lines defined by points: line 1 - A1 - 37°51.76’N; 31°31.80’W and B1 - 37°50.52’N; 31°31.80’W and line 2. A2 - 37°50.16’N; 31°30.18’W and B2 - 37°49.92’N; 31°30.18’W.

**Regulated Sampling**

The remaining area, but respecting the Code of Conduct and the indications of the MOMAR Steering Committee

Regulated scientific activities are the only activities permitted inside the MPA.

Fig. 19. Zonation of the MPA at the Menez Gwen Hydrothermal Vent Field.
Objective 4: Monitor and coordinate activities at the vent field through an Access

Authorisation Process and Zonation of the Area

Goal: The current main issue for management is the research activity at the vent site being the only actual impact. To ensure that research activities do not lead to disturbance of the ecosystem and different research activities do not lead to conflicts among each other their frequencies, intentions and specific destination within the area need to be regulated. Therefore any request for access should be directed to an authorised institution that will grant permission based on the defined MPA status and its individual measurements as defined by the plan.

To prevent overlapping, research activities should be coordinated in accordance to the zonation of the area. Requests for access should include:

- Principal Investigator or Program Operator (if non-research)

- Funding sources

- Rationale for the cruise

- Kinds of activities planned (including anticipated number and type of samples to be collected; equipment to be left in the area, date of recovery of the equipment.)

- Specific location of activities

- Schedule and approximate dates of the program

- Name of the vessel (if available)

- Number of cruise participants

- Names of any Portuguese participants

- Planned dissemination of results

- Agreement to the code of conduct

Protocols shall also be established in order to implement some approaches like:

- Sample activities will require before and after images properly document and submitted with cruise reports

- All/persons organisations conducting activities in the area will be required to submit cruise reports, and describe activities and procedures undertaken (in six months).

- Vessels carrying out activities in the area will be required to reserve a berth for an observer.

Objective 5: Code of Conduct

5.1 - Scientific research

Research activities should be in accordance to the approved MPA’s Management Plan and any other local and international regulations.

The PIs must provide to the MPA all accurate and relevant information in order to obtain clearance for the research.

After any cruise a list of samples (species (or type), preservation methods, numbers, destination, person/lab responsible) should be sent to the MPA Management Committee.

The MPA administration is aware of the need to protect unpublished data with
respect to authorship. The MPA encourages the publication of the results.

The MPA must keep a public record of planned and completed research. It should also have communication channels permanently open to InterRidge, MOMAR, IOC, etc. Research should be publicized in order to avoid conflicts of interest.

The MPA management committee should publish an annual summary of research carried out in the area, directed mainly to general public.

The MPA encourages interdisciplinary research teams. Not only one discipline.

The PIs should report collection of non-target samples (not initially covered by the approved research programme).

Research should not pollute the area (e.g. ballast disposal). Presence of non-natural materials should be communicated to the MPA.

No disposal of sampling material at sea outside the area of collection (prevent contamination).

In the MPA research proposals need a statement to indicate possible environmental impacts.

Biological transplantation should be forbidden inside the boundaries of the MPA and discouraged elsewhere (risks of disrupting genetic integrity, disease dissemination and introduction of alien species).

Scientific equipment deployed on the sea floor must be reported in order to avoid conflicts of interest.

Voucher specimens and reference collections should be deposited in a Natural History Museum in accordance to the InterRidge Biological Exchange Agreement (e.g. Museu Municipal do Funchal (História Natural)), which in turn should keep updated public records.

5.2 - Fisheries

No experimental as well as commercial fisheries should take place inside the boundaries of the MPA.

The MPA Committee should develop and maintain information programmes (awareness campaigns) towards the fishermen communities, involving their local organizations and other agents.

5.3 - Tourism

Although tourism is not, for the moment, an important activity in the area, there are elements that indicate that this activity could increase in the future, with associated increased risk of impact. Extra caution should therefore be exerted if this activity is to be permitted.

As a minimum:

- Access should be prohibited in the defined zones shown in the accompanying maps i.e. experimental areas and highly sensitive areas.
- Other areas will also have restrictions relating to operation, type and size of vehicle, etc.
- MPA officers should be required on board tourism vessels to explain the MPA, describe work being undertaken and have enforcement
duties. An officer should also be present on each dive.

- During tourist trips collection of specimens will be prohibited. Photographic and video images should be used only for private use.
- Tourism enterprises should submit independent Environment Impact Assessments (EIA). The activity should not impact or degrade the area in any way. Presence of non-natural materials should be communicated to the MPA.
- Tourism trips and vessels will be licensed and such licenses will be revoked, if they violate the management objectives of the MPA.
- A license fee, which will contribute to the management of the MPA, should be considered.

5.4 - Commercial exploitation (Mineral, geo-thermal and Biotechnological)

All commercial exploitation on the above topics shall be forbidden inside the boundaries of the MPA. Exploitation outside the MPA, which might affect the MPA, should be subject to strict independent environmental assessment and maybe prohibited.

A fee should apply to professional photographers and copies of the images should be given to the MPA data bank. Publication of photographic material should refer to the MPA.

Objective 6: Establishment of a MPA data bank

Goal: In accordance with InterRidge, and in view to fulfil the objective 2, a data bank of the MPA should be created including a list with samples that have been taken and a wish list for samples needed. It is proposed that this should be linked to the InterRidge homepage. In this way the research impact and sample taking can be minimized and investigations can be facilitated where own cruises to the site are not possible. Moreover monitoring of the MPA including the effects of human activities will become feasible.

To obtain the respective data it could be set as a mandatory part of the code of conduct for the scientists to provide the data they collected to the data bank. This data bank will be part of a possible information centre. The purposes of this data bank are:

- Inform scientists of the plans to be carried out or are being carried out at these two vent fields;
- Foment the information sharing, cooperation and reduction of duplication research;
- Identify research gaps, providing guidance for further research;
- Provide resources for education and public in general;
Objective 7: Public education

Goal: To increase public knowledge about hydrothermal vents and the need to protect marine features and ecosystems.

Objective 8: Other activities

Goal: The potential of eco-tourism as a source of funding for the MPA and to increase public knowledge about hydrothermal vents and the need to protect marine features and ecosystems should be evaluated.

6. Administration

The administration of the MPA should consist of a general assembly (GA) which consists of the following persons/positions:

- Chair: Regional Secretary of the environment to convocate the GA.
- Representatives of all stakeholders to the MPA and its surrounding area.
- Representatives of all agencies/institutions who are responsible for the MPA and its surrounding area.
- Scientific Experts for Hydrothermal vents and the surrounding area as needed
- Representatives of NGO's involved in the MPA/surrounding area (e.g. WWF)
- Executive Managers for the MPA

They will be responsible for:

a) Identification and evaluation of critical issues involving access to the MPA and activities within it;

b) Review proposed activities within the area and give recommendations about permission to the Access Authority Board;

c) Identify opportunities to increase public knowledge and awareness of the area;

d) Manage the research databank;

e) Review and evaluation of past/present and prospective measurements of the Management Plan and their effectiveness periodically;

An executive managers group, which is designated by the Regional government, and is responsible for the vessel clearance requests analyses.

An advisory organ which is elected by the general assembly, constituted by no more than three person, which will be consulted by the executive managers when needed.

Beyond monitoring compliance with the regulations and objectives of the MPA, this process will enable the General Assembly to better co-ordinate activities in the area thus maximising benefits while minimizing deleterious impacts to the ecosystem. Currently, this authorisation process is largely accomplished in conjunction with the foreign vessel clearance request process through the Department of Foreign Affairs and International Trade. These foreign vessel clearance requests will also be vetted through the Management Committee Governance Structure.
7. Financing

Eco-Tourism and/or Research Permits could be a source of income together with the regional government.

REFERENCES


