



## Report of the ICRI Ad Hoc Committee on Cold-water Coral Reefs

Presented by the Chairman of the Ad Hoc Committee

### Background

1. At its General Meeting in Okinawa (3-4th July 2004), ICRI adopted a Decision on Cold-Water Coral Reefs, which sets out *inter alia*:

".....

*Decides to extend the Ad Hoc Committee in order to prepare terms of reference and a draft work programme on cold-water coral reefs and related ecosystems for consideration by the next CPC that will, inter alia:*

- *identify opportunities to raise awareness and recognition of cold-water coral reefs and the threats that they face;*
- *encourage additional study and monitoring of cold-water coral reefs;*
- *work with the Secretariat to identify and invite countries that are known to have cold-water coral reefs but are not currently members of ICRI to participate;*
- *identify opportunities for capacity-building; and*
- *review what implementation modalities, if any, might be needed, including a review of the potential implications for ICRI's current work and the potential role of ICRI operational networks.*

....."

2. In the light of this decision, the Ad Hoc Committee<sup>1</sup> has prepared the following products:

- draft Terms of Reference for the ICRI Ad Hoc Committee on Cold-water Coral Reefs (cf. Annex 1);
- A draft ICRI work programme on cold-water coral reefs to complement ongoing ICRI work on tropical coral reefs (cf. Annex 2).

3. In addition, the Ad Hoc Committee reviewed what implementation modalities (e.g. further actions), if any, might be needed for ICRI to carry out work on cold-water coral reefs, including a review of the potential implications for ICRI's current work and the potential role of ICRI operational networks. The recommendations from the Ad Hoc Committee are as follows:

ICRI should agree that:

- cold-water coral reefs should become a standard agenda item for ICRI General Meetings. The time to be allocated to this Agenda Item should be decided by the ICRI Secretariat on a case-by-case basis and with a view to allow sufficient time for discussions on other ICRI business;

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<sup>1</sup> The ICRI Ad Hoc Committee on Cold-water Coral Reefs was comprised of Arthur Paterson (US-NOAA), Marjo Vierros (CBD secretariat), Mark Tasker (JNCC, UK), Ole Vestergaard (Ministry of Food, Agriculture and Fisheries, Denmark), Pierre Emmanuel Vos (Ministry of Environment, France), Rhian Waller (Woods Hole Oceanographic Institution, USA), Robert Canning (DEFRA, UK), Samantha Burgess (Australian National University, Australia), and chaired by Mai Britt Knoph (Ministry of the Environment, Norway) with the support of Stefan Hain (UNEP).

- projects and activities under ICRI's operational networks (e.g. GCRMN, ICRAN, CORDIO) should only be conducted if financed separately and with additional "fresh" money by cold-water coral countries or partners or other new sponsors;
- spin-off effects from the inclusion of cold-water corals in ICRI's work should be sought which benefit ICRI's work on tropical, warm-water coral reefs, e.g. adding to and strengthening of more ecological and economical arguments and awareness for the need to halt / reduce threats to both warm- and cold-water coral reefs, especially in the light of the threats caused by climate change;
- The cold-water coral reef activities under ICRI will focus on the ecology and conservation of these ecosystems. Legal and jurisdictional issues relating to marine areas beyond the limits of national jurisdiction are considered to be outside the mandate of ICRI, and will be discussed in other, more appropriate fora (e.g. the UN General Assembly, UNCLOS and CBD)."

4. Further information related to the protection and sustainable management of cold-water coral reefs originating from the last meeting of the OSPAR Biodiversity Committee under the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic is given in a separate document (cf. ICRI GM (3)2005/??).

### **Action Requested**

5. The ICRI General Meeting is invited:
- a. to examine, revise as necessary, and adopt the draft Terms of Reference for the ICRI Ad Hoc Cold-water Coral Committee (CWC) as at Annex 1;
  - b. to examine, revise as necessary, and adopt the draft ICRI work programme on cold-water corals as at Annex 2;
- and, in accordance with the ICRI Decision on Cold-water Coral Reefs,
- c. to ask ICRI members to volunteer as lead countries to take forward elements of this work programme;
  - d. to examine, revise as necessary, and adopt the implementation modalities for this programme of work at paragraph 3 above.

**[Draft] Terms of Reference for the  
ICRI Ad Hoc Committee on Cold-water Coral Reefs**

1. The ICRI Ad Hoc Committee on Cold-water Coral Reefs shall facilitate ICRI's work on cold-water coral reefs and related ecosystems, including
  - a. Advise the ICRI secretariat, ICRI General Meetings and ICRI members on issues concerning cold-water coral reefs and related ecosystems, including reviewing cold-water coral reef reports and products developed by ICRI members as necessary
  - b. Overseeing, co-ordinating and promoting the implementation of ICRI's working program for cold-water coral reefs [for 2005-2007]
  - c. Providing guidance to ICRI on the need for revisions of ICRI's work program and focus on cold-water corals and related ecosystems.
  - d. Present written status reports of the committee's work to the ICRI General Meetings

## [Draft] ICRI Programme of Work on Cold-water Coral Reefs for 2005-2007

The draft work programme is divided into sections, which correspond broadly to the operational paragraphs in the ICRI Decision on Cold-water Coral Reefs adopted at the ICRI General Meeting in Okinawa, July 2004. Information, where available, is also given on related activities conducted (by ICRI members and/or non-members) in other fora.

The implementation of the ICRI Programme of Work on Cold-water Coral Reefs depends on the availability of additional resources from ICRI members or other cold-water coral reef stakeholders.

### 1. Opportunities to raise awareness and recognition of cold-water coral reefs and the threats that they face

#### Work to be carried out under ICRI

Task/Product	Lead	Target Date	relevant Rec. in Appendix 1	More info
1.1 Chapter on cold-water corals in the GCRMN report "Status of Coral Reefs of the world: 2004"	Norway/UNEP	Completed November 2004	21, 23, 24	<a href="http://www.reefbase.org/references/ref_literature.asp?id=23043&amp;searchactive=yes">http://www.reefbase.org/references/ref_literature.asp?id=23043&amp;searchactive=yes</a>
1.2 Television documentary(ies) on cold-water coral reefs	UNEP/Norway	October 2005	21, 24	Appendix 2
1.3 Information on cold-water coral reef related events (meetings, symposia etc.) on the ICRI Forum list of upcoming events	ICRI CWC Ad Hoc Committee, ICRI Secretariat	ongoing	15, 16, 21, 22, 24	-
1.4 Provide information about the ICRI programme of work on cold-water coral reefs to appropriate meetings under other international conventions, e.g. CBD, UNCLOS, Regional Sea Conventions (e.g. OSPAR); regional fishery bodies (e.g. NEAFC)	ICRI Sec. and co-Chairmen upon request of ICRI CWC Ad Hoc Committee and ICRI GM	ongoing, as appropriate	15,16, 17, 21, 22, 23, 24	-
1.5 Encourage inclusion of cold-water coral information in relevant reports, educational material etc.	All	ongoing	21, 24	-

### 2. Encourage additional study and monitoring of cold-water coral reefs

#### Work to be carried out under ICRI

Task/Product	Lead	Target Date	Relevant Rec. in Appendix 1	More info
2.1 Development of a cold-water coral reef database including GIS	ICRI CWC Ad Hoc Committee	draft database and GIS available December 2005	1, 2	Appendix 3
2.2 Desktop Study and Predictive	ICRI CWC Ad	2005/6	1, 2, 3	Appendix 4

Modelling for Mapping the Potential Distribution of Cold-water Coral Reefs	Hoc Committee			
2.3 Development of ICRI Code of Conduct for Cold-Water Coral Reef Research and Monitoring	ICRI CWC Ad Hoc Committee with input from academia	ICRI GM 2006	5	Appendix 5
2.4 Encourage inclusion of cold-water corals and related ecosystems in relevant scientific programmes and activities	All	ongoing	1, 2, 3, 4, 23	-
2.5 Encourage national authorities and others to develop dialogue with industries (incl. fisheries and petroleum) for info exchange	All	ongoing	2	-
2.6 (Develop guidelines/handbook for monitoring of cold-water coral reefs)		2007->??	7	cf. ICRI GM (3)2005/??

### Activities carried out by others

Cold corals and related ecosystems are included, amongst others, in the following scientific programmes and activities:

- Within the framework of the OSPAR Commission, GIS work is carried out under the lead of the UK on mapping the distribution of marine habitats in the North East Atlantic, which were identified by OSPAR as threatened and/or declining. These habitats include *Lophelia pertusa* reefs. A summary of the outcome of the last meeting of the OSPAR Biodiversity Committee (21-25 February 2005) related to coral reefs is given at ICRI GM (3)2005/??.
- The project "Hotspot Ecosystems Research on the Margins of European Seas" (HERMES) starts in 2005. The HERMES project is one of the largest marine science projects in Europe (comprising a consortium of 45 partners) and is funded by the European Commission's Framework Six Programme under the priority Sustainable Development, Global Change and Ecosystems. Prof. André Freiwald is one of the HERMES coordinators, especially for the corals part of this project. Further information about the HERMES project can be found at <http://www.eu-hermes.net/>
- Mar-eco: includes mapping of coral reefs along mid-Atlantic ridge
- Norway: Mapping ongoing, Mareano: mapping of sea bottom and related research on corals, pilot project in North-Norway 2005.
- Nordic project - rehabilitation of *Lophelia*-reefs
- ICES: has been providing independent scientific advice to fisheries regulators on cold-water corals in the Northeast Atlantic for past four years.
- A new 3.5 year research project ("PROTECT") addressing MPA's as tools for ecosystem conservation and fisheries management in Northern European waters - including cold-water reef habitats (*Lophelia* reefs) - was launched in January 2005, funded by the European Commission's Framework Six Programme under priority 8, 'Policy Oriented Research'. 17 European research institutes will work together to provide policy advice and develop a set of tools for the design, modelling, implementation and evaluation of different MPA regimes, considering both environmental and socio-economic aspects and in consultation with key stakeholder groups. Work on cold-water reefs will include legal aspects of MPA's in international waters. For further information contact the project manager, Ole Vestergaard, The Danish Institute for Fisheries Research, Ministry of Food, Agriculture & Fisheries, email: [osv@dfu.min.dk](mailto:osv@dfu.min.dk).

**3. Identification and invitation of countries that are known to have cold-water coral reefs but are not currently members of ICRI**

**Work to be carried out under ICRI**

Task/Product description	Task Manager / Lead	Target Date	Relevant rec. in Appendix 1	More info
3.1 Development and regular review of list of countries with cold-water coral reefs	ICRI CWC Ad Hoc Committee	ongoing	1	Appendix 6
3.2 Invitation letter to cold-water coral reef countries, scientists, and other cold-water coral stakeholders not yet ICRI members		May 2005	1, 21, 22, 24	Appendix 7 and 8
a) development of draft letters	ICRI CWC Ad Hoc Committee	done		
b) adoption of draft letters	ICRI GM	ICRI GM (3) April 2005		
c) sending/posting of letters	ICRI Sec.	following ICRI GM (3) April 2005		

**4. Identify opportunities for capacity-building**

**Work to be carried out under ICRI**

Task/Product description	Lead	Target Date	Relevant rec. in Appendix 1	More info
4.1 Stimulating cooperation between relevant partners by including cold-water corals on ICRI agenda and inviting new ICRI members	ICRI CWC Ad Hoc Committee, ICRI Sec.	ongoing	4, 21	Appendix 7 and 8
4.2 Specific cooperation projects through aid programmes	The respective national governments and partners			

**Activities carried out by others**

- Nordic project on rehabilitation of *Lophelia* reefs 2005, scientific capacity-building between Norway, Sweden, Iceland, The Faroes (Denmark). Funded by Nordic Council of Ministers, led by Jan Helge Fosså.

**5. Encourage development and adoption of precautionary regulations and measures to protect cold-water coral reefs**

**Work to be carried out under ICRI**

Task/Product description	Task Manager / Lead	Target Date	Relevant rec. in Appendix 1	More info
5.1 Summary of existing practise and	ICRI CWC Ad	After 2007?	9	-

regulations, e.g. by updating the Cold-water Coral Reef Report every X year	Hoc Committee			
5.2 Conduct a study on existing practise and lessons learned on relevant environmental impact assessments – ICRI to develop guidance on this basis			11	-
5.3 Increased industry stakeholder involvement in ICRIs work on cold-water coral reefs	ICRI secretariat, ICRI CWC Ad Hoc Committee	ongoing	16	-
5.4 Develop guidance on enforcement of regulations and measures		After 2007?	19	-

### Activities carried out by others

- In September 2004, the UNEP Coral Reef Unit established contact with the International Cable Protection Committee (ICPC), which -as of September 2002- has approx. 79 members representing governmental administrations or commercial companies from 41 countries. Further information about ICPC is given on [www.iscpc.org](http://www.iscpc.org). At the time of preparing this document, the ICPC 2005 Plenary Meeting was held in Sydney, Australia (15 - 17 March 2005). Upon invitation from the ICPC Executive Committee, UNEP prepared a presentation and a poster for this meeting together with a proposal to establish a small correspondence group to facilitate the exchange of data and information between ICPC (and ICPC members) and UNEP. This exchange will include data and information related to cold-water coral reefs. At present, this emerging collaboration takes place outside the ICRI framework, which does not exclude that ICPC (or ICPC members) become a member of ICRI in the future, as they deem appropriate.

**Recommendations from the report "Cold-water coral reefs: Out of sight – no longer out of mind"<sup>2</sup>**

**Recommendation 1**

Encourage the mapping, establishment and maintenance of a global internet-based database of locations where cold-water coral reefs occur, or are absent.

**Recommendation 2**

Develop a dialogue with industries operating in areas of the oceans where cold-water corals may occur, so that cold-water coral reef data and information, especially those originating from fishing activities and oil and gas exploration and production, are made available to the scientific community, managers and decision makers.

**Recommendation 3**

Support the modelling of the potential distribution of cold-water coral reefs globally and regionally on the basis of their environmental preferences and the requirements of reef-building species.

**Recommendation 4**

Strengthen cold-water coral research through increased activity and coordination at the global, regional and national levels, with a view inter alia to countries with expertise and modern deep-sea research, exploration and habitat mapping facilities (vessels with multibeam equipment, remote operated vehicles, submersibles) assisting or cooperating with countries that lack such expertise and tools.

**Recommendation 5**

Develop and implement a code of practice for *in-situ* research (and bioprospecting) on cold-water coral reefs.

**Recommendation 6**

Collate the range of existing and new regulations and measures to conserve, protect and manage cold-water coral reefs, and assess their performance and effectiveness with a view to establishing and disseminating 'lessons learned' and 'better practices'.

**Recommendation 7**

Initiate the development of practical strategies and guidelines for in-situ monitoring of cold-water coral reef habitats.

**Recommendation 8**

Initiate the development of practical strategies and guidelines to assess the socio-economic costs and benefits of cold-water coral reef management actions.

**Recommendation 9**

Establish and maintain a global cold-water coral database for storing and providing access to information and monitoring data on the health, management and conservation efforts of coldwater coral reefs, inter alia, as a basis for the production of periodic regional status reports and the compilation of regular global conservation status reports.

**Recommendation 10**

Develop and adopt precautionary regulations and measures to protect, conserve and sustainably manage cold-water coral ecosystems and reefs to prevent deliberate or accidental damage caused by human activities. This should include consideration of interim prohibitions to reduce or eliminate human activities which adversely impact upon cold-water coral ecosystems within and beyond the limits of national jurisdiction.

**Recommendation 11**

Consider the establishment of requirements and procedures for environmental impact assessments to be carried out prior to licensing of activities which affect the sea floor in potential cold-water coral reef areas. This would benefit from a cumulative assessment of all on-going and projected activities in a spatially framed assessment process, with a view to avoiding any damage to coral sites.

**Recommendation 12**

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<sup>2</sup> Freiwald, A., Fosså, J.H., Grehan, A., Koslow, T., Roberts, J.M. 2004. *Cold-water Coral Reefs*. UNEP-WCMC, Cambridge, UK.



Include an adequate representation of cold-water coral ecosystems in national and regional networks of marine protected areas.

#### **Recommendation 13**

Support at the global and regional levels the establishment of urgent and precautionary international measures designed to conserve, protect and manage sustainably vulnerable marine habitats such as cold-water coral ecosystems in the high seas.

#### **Recommendation 14**

Support the establishment of legal regime(s) and framework(s) to conserve, protect and manage sustainably cold-water coral reefs in the high seas under and/or consistent with UNCLOS and existing international agreements and conventions.

#### **Recommendation 15**

Inform the relevant industry associations and sectors of the distribution, importance and vulnerability of cold-water coral reefs and encourage their active involvement and support in the process of developing and implementing management regulations and measures.

#### **Recommendation 16**

Engage global and regional organizations (both regulatory and non-regulatory), especially global and regional fishery bodies, international oil and gas industry associations, as well as pipeline and cable placement companies, in the development of international and national work plans on cold-water coral reefs.

#### **Recommendation 17**

Encourage the fishing industry and fishing fleets to comply with the Code of Conduct for Responsible Fisheries of the Food and Agriculture Organization (FAO) of the United Nations\* and to avoid the use of destructive fishing methods and gear in known or potential cold-water coral reef areas.

#### **Recommendation 18**

Encourage the oil and gas industries and the pipeline/cable-laying placement industries to avoid and mitigate damage to cold-water corals due to their activities and avoid operations and the placement of pipelines or cables in known or potential cold-water coral reef areas.

#### **Recommendation 19**

Enhance enforcement of existing legislation and establish punitive penalties to prevent destruction of cold-water coral reefs.

#### **Recommendation 20**

Assess the feasibility of extending the use of satellite vessel monitoring systems (VMS) to provide the responsible authorities with data related to compliance with regulations to protect cold-water coral reefs in national and/or international waters.

#### **Recommendation 21**

Support the incorporation of cold-water coral ecosystems into the programmes of activities of the International Coral Reef Initiative (ICRI) and other relevant bodies, and provide additional resources to strengthen these bodies.

#### **Recommendation 22**

Encourage the development and strengthening of global, regional and multinational cold-water coral reef partnerships and networks.

#### **Recommendation 23**

Support the inclusion of cold-water coral reefs as a key/representative ecosystem for deeper marine waters in existing or planned international monitoring and assessment programmes, such as the Global Ocean Observing System (GOOS), the Global Marine Assessment (GMA) and relevant programmes under Regional Seas Conventions and Action Plans.

#### **Recommendation 24**

Further promote the awareness of cold-water coral reefs and the urgent need to conserve, protect and manage these ecosystems sustainably within relevant national governments, Regional Seas Conventions/Action Plans, intergovernmental organizations and the public.

**Television Documentary(ies) on Cold-water Coral Reefs**

A scientific research cruise with the manned submersible "Jago" from the German Max-Planck Institute (cf. [http://npolar.no/geonet/pdf\\_files/Info\\_JAGO.pdf](http://npolar.no/geonet/pdf_files/Info_JAGO.pdf)) on board the German Research vessel "Poseidon" is planned for July/August 2005 to study reefs in Northern Norway and Barents Sea. Prof. A. Freiwald will be the cold-water coral reef team leader for this cruise.

The UNEP Coral Reef Unit is in contact with Prof. Freiwald and "Television for the Environment" (TVE) about the production of a documentary from this cruise. TVE produces, *inter alia*, the Earth Report series, which is screened on BBC world service, and is the main producer for UNEP-related television footage. TVE has also been interested in production of documentary on cold-water corals in tropical areas and developing countries. Both ideas are relevant for ICRI to consider.

The costs for producing one (or two) cold-water television documentary(ies) as outlined above still have to be established. Funding should come from ICRI members and other cold-water coral stakeholders as "fresh money".

## CONCEPT NOTE

## on the Development of a Cold-Water Coral Reef GIS

**Objective:** To establish a global cold-water coral reef database an internet-based GIS system which allows coordination and easy access to geo-referenced data and information on cold-water coral reefs.

**Background:** Currently, most geographical data on cold-water coral ecosystems are kept/stored by individual scientists, national authorities and industry sectors operating on or near the seafloor (e.g. fisheries, oil & gas, pipeline laying, cable placement). There is no global database with reviewed and evaluated recordings and no GIS facility which provide a single entry and access point to these data and information. For warm-water coral reefs, a number of such facilities exist, such as:

- ReefBase (<http://www.reefbase.org/>)
- UNEP-WCMC I-Maps (<http://stort.unep-wcmc.org/imaps/marine/mangroves>)

Under the OSPAR Convention for the Protection of the Marine Environment of the North East Atlantic, mapping of the distribution of marine habitats identified by OSPAR as threatened and/or declining (including *Lophelia pertusa* reefs) is being carried out by the UK. Document ICRI GM(3)2005/? provide information about the details, specifications and experience gained in this GIS-based approach, which were presented at the last meeting of the OSPAR Biodiversity Committee (21-25 February 2005). The work carried out under OSPAR should be taken into account in the development of a global cold-water coral reef GIS to avoid duplication of work and ensure that data can be exchanged freely between both systems.

**Benefits of a cold-water coral reef database and GIS:** There are a multitude of benefits of creating a global database and an interactive global GIS to visualise the location of cold-water coral reefs and make relevant data and information available, including:

- **industry:** in the planning of commercial seabed operations or activities in the marine environment which have the potential to affect cold-water coral reefs;
- **national agencies:** in the licensing of seabed operations or activities in the national waters and EEZ which have the potential to affect cold-water coral reefs;
- **governments:** in the efforts to implement the relevant goals and objectives agreed at WSSD and the associated targets and programmes of work under CBD, e.g. relating to the reduction of the loss of biological diversity by 2010 and the establishment of a representative network of marine protected areas by 2012;
- **academia:** in the planning and execution of research cruises and seabed exploration;
- **international bodies and organisations:** in the further discussions regarding the protection and sustainable management of marine biodiversity and vulnerable marine ecosystems in national waters and waters beyond national jurisdiction.

**Technical specifications:** The following list provides some key requirements to be taken into account in the development of a global cold-water coral reef database and GIS. This list is preliminary and not exhaustive, and would have to be further developed by the ICRI Ad Hoc Committee with expert input.

- Description of what data shall be included (definition of cold-water coral reef/ ecosystems)
- Data (recordings) to be reviewed and evaluated by an expert group before entry?
- Internet-based global GIS, allowing constant access to digital maps with a [to be determined] grid resolution.
- Possibility to flag the status of a location entry, i.e. whether the entry is based on finding of cold-water corals or on a confirmed observation of cold-water coral reef associations;
- Possibility to indicate and map potential, but not yet proven, areas of cold-water coral reefs resulting from desk top studies and predictive modelling (cf. Appendix 4);
- Possibility to combine/overlay cold-water coral reef maps with:
  - geomorphological background information, e.g. bathymetry;
  - information on maritime boundaries, e.g. the extension of national waters, EEZs etc;
  - other existing GIS layers, e.g. on warm-water coral reefs, marine protected areas, fishing zones etc.;
 and to expand the system to include future GIS layers developed in other fora, e.g. human activities in (potential) cold-water coral reef areas, location of other vulnerable marine habitats associated with cold-water coral reefs etc.
- Possibility to attach information to each cold-water coral reef entry/data point in a variety of formats (e.g. text files, pictures, video clips, internet links etc.).
- System to allow remote data entry, with a clear identification of who entered the information and when.
- Data and information validation for each entry to be carried out in two steps: (i) system administrator to delete 'junk' entries, (ii) other entries to be examined by a small group of international experts.

**Suggestions for implementation via a step-wise approach:** Subject to ICRI's approval, the following steps could be foreseen in the development of the cold-water coral reef database and GIS:

Step	Activity	Lead	suggested time line
1.	ICRI approval	ICRI GM	April 2005
2.	Further development of technical specifications for tender (together with clarification of financial and resource implications)	Ad Hoc Committee with expert input	May-July 2005
3.	Tender to be posted on ICRI forum	ICRI Secretariat	August 2005
4.	Choice of contractor	ICRI secretariat and Ad Hoc Committee members	September 2005
5.	Contractor designs and arranges the basic facilities (maps etc.) ready for external data entry	selected contractor with feedback from Ad Hoc Committee	October-December 2005
6.	Presentation of draft database and GIS to ICRI General Meeting	selected contractor	November / December 2005
7.	Cold-water coral reef GIS goes online <sup>3</sup>		December 2005
8.	Invitation to scientists, industrial companies, authorities, international bodies and other relevant data holders to submit their data	ICRI Secretariat with advice from Ad Hoc Committee	January 2006
9.	Promotion of ICRI cold-water coral reef database and GIS at major international events to raise awareness and encourage use and further input of data and information into the database and GIS, e.g. at: <ul style="list-style-type: none"> <li>• 3rd International Symposium on Deep-Sea Corals (28 November – 2 December 2005, Miami, Florida, USA;</li> <li>• 11th Deep Sea Symposium (8-14 July 2006), Southampton, UK</li> </ul>	Members of Ad Hoc Committee and other ICRI members	ongoing
10.	Review of the data and information entered by external	Contractor with advice	review interval to

<sup>3</sup> It might be advantageous to carry out the previous steps on a web site which is not publicly available.

	users	from Ad Hoc Committee	be determined
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**Financial and resource considerations/implications:** The development of a cold-water coral reef database and GIS has a number of financial and resource implications, including:

- Initial design of database and GIS;
- Entry of existing data and information, including support for the data entry by co-authors of the UNEP report, if necessary; and review and evaluation of data,
- Maintenance of database and GIS, including costs for internet site;
- PR activities to raise awareness of cold-water coral reef database and GIS;
- Review of remote data entries by expert group.

## **Desktop Study and Predictive Modelling for Mapping the Potential Distribution of Cold-water Coral Reefs**

**Objective:** To investigate and map on a global basis the areas most likely to harbour cold-water coral reefs

### **Approach:**

#### **1. *Review of scientific literature, historic expedition reports and museum collections***

Detailed descriptions or anecdotal observations of findings of corals in deeper parts of the oceans has been documented in older scientific literature (e.g. monographs) and in the historic reports of oceanographic and biological exploration cruises carried out in the 17<sup>th</sup> to 20<sup>th</sup> century. Samples and specimens collected on these expeditions can still be found in the collections of various museums.

Cold-water coral reef scientists, such as the authors of the UNEP report, have already compiled a number of these historic references, but there is a need for a more thorough and systematic review of the various literature and of the coral collections held in museums. In addition to an internet based literature search, a questionnaire to leading national museums (e.g. Smithsonian, Senckenberg etc.) could be developed to gather data and information on the findings of cold-water corals.

#### **2. *Predictive modelling the potential distribution of cold-water coral reefs***

From the known distribution of reef-building cold-water corals and the emerging studies of their biology, the environmental conditions and preferences (e.g. water temperature, oceanographic and hydrographic conditions etc.) for the various cold-water coral reef taxa can be extrapolated. These data, combined with oceanographic data of the oceans such as depth, salinity, currents, nutrient availability, can be modelled to identify and map the areas where it is most likely for cold-water coral reefs to exist.

### **Products and outputs:**

The results, products and outputs of the above activities would feed into and complement the proposed cold-water coral reef GIS (cf. Appendix 3) with a view to focussing further research and 'ground-truthing' studies.

The review of literature, expedition reports and museum collections will provide occurrence and distribution data with a varying degree of confidence, e.g. not in all cases will it be able to identify whether references and specimens represents then living, dead or fossil corals. Nevertheless, included in the GIS and appropriately flagged, these findings will be able to focus future cold-water coral reef studies, especially in parts of the oceans currently less well known.

The modelling of the environmental factors and conditions which determine and limit the distribution of reef-building cold-water corals will be able to predict and identify areas with a varying degree of possibility for cold-water coral reefs to occur. The mapping of these areas and their inclusion in a cold-water coral reef GIS will enable to focus future research and management.

Ad-Hoc committee's tasks: initiate the study, and submit the results for expert revision and publication on cold-water coral database/GIS.

## Development of ICRI Guidelines for Cold-Water Coral Reef Research and Monitoring

**Objective:** To provide internationally agreed guidance to prevent or minimise the intentional or accidental impact on cold-water coral reefs caused by scientific research and monitoring.

**Approach:** A set of guidelines for cold-water coral reef research and monitoring should be established in close cooperation with the scientific cold-water coral reef community and taking into account relevant existing guidelines, amongst others those established for hydrothermal vent communities.

The guidelines should describe the various techniques and methods available for study (including sampling) and monitoring of cold-water coral reefs, including their pros/cons, financial and resource considerations and their potential impacts on the ecosystem. In addition, it might be beneficial to annex to these guidelines further information and contacts for specialised marine technological equipment.

**Products and Outputs:** Following adoption of the programme of work on cold-water coral reefs at the ICRI General Meeting in the Seychelles (25-27 April 2005), draft guidelines could be prepared in consultation with the authors of the UNEP cold-water coral reef report. The draft guidelines could be presented by ICRI at the 3<sup>rd</sup> International Symposium on Deep-Sea Corals (28 November – 2 December 2005, Miami, Florida, USA) for comment and subsequent review and revision, as appropriate, with a view to being finalised and adopted at the earliest at the ICRI General Meeting in Palau in November/December 2005.

Ad-Hoc committee's tasks: initiate the development of, and review/evaluate draft guidelines, present the draft guidelines at the 3<sup>rd</sup> International Symposium on Deep-Sea Corals Dec. 2005, review and present the draft guidelines to ICRI for finalisation and adoption.

## Draft List of ICRI members and Countries with Cold-water Coral Reefs

ICRI Member Countries (those with cold-water corals indicated in bold)	Countries with Cold-water Corals <sup>4</sup> (non-ICRI member countries indicated in bold)
Anguilla <b>Australia</b> Barbados Belize Bermuda Bonaire British Virgin Islands Brunei Darasalam Cayman Islands Government <b>China</b> <b>Colombia</b> Comoros Egypt Fiji <b>France</b> Germany India <b>Indonesia</b> <b>Jamaica</b> <b>Japan</b> Kenya <b>Madagascar</b> Malaysia Maldives Marshall Islands Mauritius <b>Mexico</b> Montserrat Netherlands Antilles Nigeria <b>Norway</b> Palau Papua New Guinea Philippines <b>Seychelles</b> <b>South Africa</b> Sri Lanka St Kitts St Lucia <b>Sweden</b> Tanzania Thailand Trinidad & Tobago Turks and Caicos Islands <b>UK</b> <b>USA</b> Vietnam	<b>Angola</b> Australia <b>Brazil</b> <b>Canada</b> <b>Cape Verde</b> <b>Chile</b> China Colombia <b>Cuba</b> <b>Denmark (Greenland; Faroer)</b> <b>Dominican Republic</b> <b>Ecuador</b> France <b>Ghana</b> <b>Guyana</b> <b>Haiti</b> <b>Honduras</b> <b>Iceland</b> Indonesia <b>Ireland</b> <b>Italy</b> Jamaica Japan Madagascar <b>Mauritania</b> Mexico <b>Morocco</b> <b>New Zealand</b> <b>Nicaragua</b> Norway <b>Portugal</b> <b>Russia</b> Seychelles South Africa <b>Spain</b> Surinam Sweden UK USA <b>Venezuela</b> <b>Western Sahara</b>

The term "countries" includes states and territories.

<sup>4</sup> 41 countries, as given in Table 2 in Freiwald, A., Fosså, J.H., Grehan, A., Koslow, T., Roberts, J.M. 2004. *Cold-water Coral Reefs*. UNEP-WCMC, Cambridge, UK



**Draft Invitation Letter for ICRI Membership to be Sent to Cold-water Coral Range States by the ICRI Secretariat**

Below is a draft for an invitation letter to be sent by the ICRI Co-chairs to the Ministers of Environment (or equivalent) of countries in which waters cold-water coral reefs have been found, but which are not yet members of ICRI. With reference to the table in Appendix 6, these countries are: **Angola, Brazil, Canada, Cape Verde, Chile, Cuba, Denmark (Greenland; Faroer), Dominican Republic, Ecuador, Ghana, Guyana, Haiti, Honduras, Iceland, Ireland, Italy, Mauritania, Morocco, New Zealand, Nicaragua, Portugal, Russia, Spain, Venezuela and Western Sahara.**

For some of these countries cold-water coral reefs might be of a low priority, nevertheless, ICRI should not discriminate between these countries and invite all of them. *In order to ensure greater uptake of the letter, the text should be translated into Spanish and French.*



INTERNATIONAL CORAL REEF INITIATIVE

[www.icriforum.org](http://www.icriforum.org)

[ name ]

[ address ]

[date]

Dear Minister,

**ICRI ACTION ON COLD-WATER CORAL REEFS**

Coral reefs in tropical shallow waters are often called “the rainforests of the sea” for their extraordinary biological diversity. However, until quite recently, few people were aware that there are fascinating coral reefs also in the colder, darker depths of our oceans. These reefs form large, complex and fragile ecosystems which teem with an abundance of life, very similar to their well known tropical cousins in appearance, species richness and importance to fisheries.

Research in recent years, as summarized in the enclosed report, has shown that these extraordinary cold-water coral reefs are a critical ecosystems in the colder and deeper parts of our oceans. However, many of these reefs have scars or have been partly or completely destroyed by commercial fishing activities, especially from the use of bottom trawls. In the light of the vulnerability of these reefs and the practical irreversibility of their damage, the General Assembly of the United Nations in 2003 and 2004 called upon States and competent international organizations to urgently consider ways to integrate and improve, on a scientific basis and in accordance with the United Nations Convention on the Law of the Sea and related agreements and instruments, the management of risks to the marine biodiversity of cold-water corals.

For over 10 years, the International Coral Reef Initiative (ICRI) has been the international framework for governments, international organizations (including UN agencies, Conventions and non-governmental bodies), academia and other stakeholders to work together towards reversing the degradation of tropical coral reefs. ICRI is pleased to announce that it has now included cold-water coral reefs within its remit, thereby providing an international umbrella for a concerted, international approach in the protection, conservation and sustainable management of these threatened reefs. The actions and initiatives to be taken by ICRI the next two years are set out in the attached work programme on cold-water coral reefs, which was agreed at the ICRI General Meeting in the Seychelles, 25-27 April 2005.

The enclosed report identifies that cold-water coral reef ecosystems have been found in the waters of your country. We therefore would like on behalf of ICRI and the ICRI co-host countries to invite you and your country:

1. to consider becoming a member of ICRI. As a voluntary and non-contributory organisation, ICRI has the minimum amount of administration, and membership comes with no financial strings attached. Further information about ICRI and the rules and benefits concerning ICRI membership are given on [www.icriforum.org](http://www.icriforum.org);
2. to nominate a national contact or focal point for matters related to cold (and warm) water coral reefs.

For more specific information on ICRI or related to the cold-water coral reef report please contact the ICRI Secretariat ([icri@unep-wcmc.org](mailto:icri@unep-wcmc.org)).

We look forward to hearing from you.

On behalf of ICRI and the ICRI co-host countries,

Rolph Payet  
ICRI Co-chairman  
Seychelles

John Roberts  
ICRI Co-chairman  
United Kingdom

Enclosure

**Draft Invitation Letter to be Sent by the ICRI Secretariat to Cold-water Coral Partners and Academia  
with a view to Encouraging their Support and Input to ICRI's Work on Cold-water Coral Reefs**

Below is a draft letter to be sent by the ICRI Co-chairs to **André Freiwald, Jan Helge Fosså, Anthony J. Grehan, J. Anthony Koslow and J. Murray Roberts**, co-authors of the report "Cold-water coral reefs: Out of sight – no longer out of mind", with an invitation for those experts to forward/circulate this letter in digital form to their network of contacts within the scientific cold-water coral reef 'community'.

*A translation of the text below into Spanish and French could be considered.* Although most scientists of the cold-water coral reef 'community' will be able to read English, Spanish and French versions would ensure greater uptake of this letter, especially if the relevant scientists have to get into contact with their administrations.



INTERNATIONAL CORAL REEF INITIATIVE

[www.icriforum.org](http://www.icriforum.org)

[ name ]  
[ address ]

[date]

Dear Madam or Sir,

**ICRI ACTION ON COLD-WATER CORAL REEFS**

The General Assembly of the United Nations in 2003 and 2004 called upon States and competent international organizations to urgently consider ways to integrate and improve, on a scientific basis and in accordance with the United Nations Convention on the Law of the Sea and related agreements and instruments, the management of risks to the marine biodiversity of seamounts, cold water corals, hydrothermal vents and certain other underwater features.

For over 10 years, the International Coral Reef Initiative (ICRI) has been the international framework for governments, international organizations (including UN agencies, Conventions and non-governmental bodies), academia and other stakeholders to work together towards reversing the degradation of tropical coral reefs. ICRI is pleased to announce that it has now included cold-water coral reefs within its remit, thereby providing an international umbrella for a concerted, international approach in the protection, conservation and sustainable management of these vulnerable and threatened ecosystems. The actions and initiatives to be taken by ICRI the next two years are set out in the attached work programme on cold-water coral reefs, which was agreed at the ICRI General Meeting in the Seychelles, 25-27 April 2005.

The ICRI programme of work supports, *inter alia*, the implementation of the recommendations made in the report "Cold-water coral reefs: Out of sight – no longer out of mind" ([www.unep-wcmc.org/press/cold\\_water\\_coral\\_reefs/report.htm](http://www.unep-wcmc.org/press/cold_water_coral_reefs/report.htm)). The programme comprises a number of ambitious actions and tasks, many of them dependent on sound and reliable expert advice, input and information from the scientific community. We therefore would, on behalf of ICRI and the ICRI co-host countries, like to invite you to actively engage in ICRI's work on cold-water coral reefs and:

1. to provide the task managers/leader identified in the programme of work, or the ICRI Secretariat, with relevant information from your cold-water coral reef research;
2. to contribute to the work of the ICRI Ad Hoc Committee on Cold-water Coral Reefs. A dedicated electronic discussion forum has been set up for this committee on [www.icriforum.org](http://www.icriforum.org). Please note that participation in this or any other ICRI discussion forum requires a simple user registration process (cf. button on front page) via a self-determined username and password;
3. to provide input to upcoming ICRI General Meetings and related side events. Details and agendas for these meetings and events are announced on [www.icriforum.org](http://www.icriforum.org), where you can also find background information about ICRI and its range of activities.

For more specific information related to ICRI, its work and upcoming meetings please contact the ICRI Secretariat ([icri@unep-wcmc.org](mailto:icri@unep-wcmc.org)).

We look forward to hearing from you.

On behalf of ICRI and the ICRI co-host countries,

Rolph Payet  
ICRI Co-chairman  
Seychelles

John Roberts  
ICRI Co-chairman  
United Kingdom

Enclosure