CRISP
Coral Reef InitiativeS for the Pacific
Initiatives Corail pour le Pacifique

COMPONENT 2C
Marine Bioprospection

PROJECT 2C1
Legal framework - Upgrading the legislations

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MEMO

LEGAL PROTECTION FOR MARINE BIODIVERSITY

Author: Prof. Jean-Pierre BEURIER
University of Nantes

IRD Institut de recherche pour le développement
The University of the South Pacific
UNIVERSITÉ DE NANTES

The CRISP programme is implemented as part of the policy developed by the Secretariat of the Pacific Regional Environment Programme for a contribution to conservation and sustainable development of coral reefs in the Pacific.

The Initiative for the Protection and Management of Coral Reefs in the Pacific (CRISP), sponsored by France and prepared by the French Development Agency (AFD) as part of an inter-ministerial project from 2002 onwards, aims to develop a vision for the future of these unique ecosystems and the communities that depend on them and to introduce strategies and projects to conserve their biodiversity, while developing the economic and environmental services that they provide both locally and globally. Also, it is designed as a factor for integration between developed countries (Australia, New Zealand, Japan and USA), French overseas territories and Pacific Island developing countries.

The CRISP Programme comprises three major components, themselves composed of projects, which are:

Component 1A: Integrated Coastal Management and Watershed Management
- 1A1: Marine biodiversity conservation planning
- 1A2: Marine Protected Areas (MPAs)
- 1A3: Institutional strengthening and networking
- 1A4: Integrated coastal reef zone and watershed management

Component 2: Development of Coral Ecosystems
- 2A: Knowledge, beneficial use and management of coral ecosytems
- 2B: Reef rehabilitation
- 2C: Development of active marine substances
- 2D: Development of regional data base (ReefBase Pacific)

Component 3: Programme Coordination and Development
- 3A: Capitalisation, value-adding and extension of CRISP Programme activities
- 3B: Coordination, promotion and development of CRISP Programme

CRISP Coordinating Unit (CCU)
Programme manager: **Eric CLUA**
SPC - PO Box D5
98848 Noumea Cedex
New Caledonia
Tel./Fax: (687) 26 54 71
E-mail: ericc@spc.int
www.crisponline.net

COMPONENT 2C
Marine Bioprospection

PROJECT 2C-1 :
Legal framework - Upgrading island country legislation for the sharing of benefits from development of active marine substances

PROJECT 2C-2:
Taxonomy - Improvement of knowledge of benthic reef invertebrate and algae taxonomy

PROJECT 2C-3 :
Technological aspect - Identification of active marine substances

PROJECT 2C-4 :
Institutional strengthening - Training of Pacific island resource persons

Component contact person:
Cécile DEBITUS
IRD - UMR 152
University Paul Sabatier
Toulouse II
Science Faculty
31062 Toulouse cedex 9
France
Tel.: (33) 5 62 25 98 11
Fax: (33) 5 62 25 98 02
E-mail: cecile.debitus@ird.fr

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LEGAL PROTECTION FOR MARINE BIODIVERSITY

By
Jean-Pierre Beurier
Professor at the Nantes Law Faculty
CDMO

The marine hydrosphere was the source of life on the planet and is still an extraordinarily rich ecosystem. The history of biodiversity is linked to that of evolution, with diversity in living things increasing very slowly through the eras according to the needs of life on earth, as determined by the impossibility of hybridisations between natural species. The diversity curve[1] showed very strong growth during the Mesozoic and the Cenozoic eras, despite five periods of massive species extinction related to major disasters. After each disaster, diversity resumed its expansion, facilitated by continental drift and climate change. From the diversity in oceanic hydro-biological conditions stemmed the great marine biodiversity, whose expansion did not follow terrestrial biodiversity trends. While the gradient of terrestrial biodiversity may well clearly show a maximum concentration at the Equator and a gradual reduction towards the poles, marine biodiversity seems to be at its maximum in the temperate latitudes. The cold seas contain a great abundance of plankton, particularly in upwelling zones and cold currents, whereas the tropical seas are much poorer because of their low plankton biomass. In the tropical latitudes, only the coral ecosystem is a major source of biodiversity. Recent research has proved the existence of previously unsuspected rich deep bottom marine life[2], and a similar richness south of 60° latitude south. We know how rich the hydrothermal springs are in previously unknown life forms not dependent on photosynthesis, as we are familiar with the life forms generated for the same reasons by the decomposition of cetacean carcasses. With regard to the deep sea bottom, some authors go as far as to think that the abyssal and hadal zones could contain very high biodiversity, thus sweeping aside the preconceived ideas in which originated the international negotiations on biodiversity conservation[3].

It is known that terrestrial biodiversity is endangered by the massive species extinctions which we have been witnessing since the early 20th century, with the collapse in diversity thought to be 10,000 times greater than in the past and the speed and scale of the event, implying that natural offsetting mechanisms cannot keep up. Consequently, marine biodiversity, very promising as it is for the development of bio-molecular engineering, carries even more hope because it is less threatened in the short term than terrestrial biodiversity and because deep sea bottoms are not yet subject to effective exploitation. The 1992 biodiversity convention, bearing the clear imprint of development law and UNEP's 'third-worldist' concepts, introduced a legal regime more appropriate for organising trade in wild life forms than truly protecting them. In fact, the convention considers the use of biological diversity as

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[1] Courtillot V.: 'La vie en catastrophes' Fayard 1995, p. 37.

[2]- May R.: 'Bottoms up for the oceans' Nature vol. 357, 1992 p. 278.

'Biological diversity: differences between land and sea': Phil. Trans. R. Soc. Lond. 1994, p. 343

- de Fontaubert A.C. et Downes D.R.: 'Biodiversity in the seas': UICN, Environmental Policy and Law, n° 32, 1996, p. 15.

[3] Rex M. : *Nature et Le Monde* 27 October 1995. Thermo-resistant bacteria and bacteria included in rock have obvious value for genetic engineering.

a natural resource within the meaning of Resolution 1803 (XVII) of the United Nations General Assembly dated 14 December 1962. As a consequence, the states with territorial jurisdiction exercise their sovereignty over these resources and exploit them on the basis of their own economic policy. While it is the case that states must establish a system of protected areas in their main biological diversity areas, these areas are under their sole control. Also, Article 8 Para. i sets the tone: "Each Contracting Party shall, as far as possible… Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity…"; when the Convention imposes obligations, these apply only to means and are also conditional: "as far as possible" or "as appropriate". The priority of course remains open market access to the genes of wild life forms by the resource-owning country. Marine resources do not escape this general arrangement: indeed, United Nations General Assembly Resolution 3016 (XXVII) dated 18 December 1973 (1972 – translator) extends the principle of the 1962 Resolution to marine resources in areas under the jurisdiction of the Coastal State. For this reason, both the exploring and exploiting of living species in the coastal sea out to 200 miles from the baselines are reserved to the Coastal State (Art. 56 of UNCLOS). Beyond this boundary, the exploring and exploiting of living organisms as part of the development of bio-molecular engineering techniques is subject only to the rules of the law of the high seas. Major ambiguity remains with respect to deep bottom organisms under the high seas; the international area and natural mineral resources are part of the common heritage of mankind (Art. 136 of UNCLOS), but this article clearly refers to mineral resources, while living resources and especially soil micro-organisms are not covered by the text. UNCLOS is however deeply marked by 'productivism' and much less by the conservationist ideology which would emerge in environmental law in the early part of the 1980decade.

It would consequently seem appropriate first to address biodiversity and conservation of the marine environment, through conventional conservation measures for relatively undisturbed environments, then rehabilitation measures for environments disturbed by human activity and lastly those which seek to avoid the introduction of non-endemic species.

A subsequent step should be the investigation of biodiversity and the rules pertaining to the exploitation of the marine environment, by analysing the measures concerning the sustainable exploitation of marine genetic resources.

PART 1: CONSERVATION OF THE MARINE ENVIRONMENT

The conservation of marine biodiversity implies first and foremost the protection of environments hitherto relatively undisturbed by human activity, the purpose being to restrict human activities in such areas. Conservation also implies the rehabilitation of environments disturbed by heavy pollution, particularly land-based pollution, as well as restricting the arrival of exotic species.

A) Protecting the quality of the environment

Inaccessible marine areas have *de facto* been protected from human damage, with conservation measures being either national or international.

1°) Parks and reserves: the Convention on Biological Diversity is not very assertive in this sphere and leaves the State Party the choice of biodiversity conservation methods *in situ* (Art. 8, Para. a). The rules arising from UNCLOS are primarily productivist and, with regard to the marine environment, their main purpose is to permit its sustainable rational exploitation (Art. 192 and 194). This is the reason why the introduction of natural parks and reserves results from unilateral acts by states or stems from regional cooperation. Indeed, existing marine parks were demarcated within waters under the sovereignty of Coastal States[4]. The results obtained vary and are highly dependent on the accompanying regulatory standards. The binding measures (ban on coming within one metre of coral: Saint Lucia, Virgin Islands, Turks and Caicos; mooring bans: France, United States; demarcation into various zones: Saba, Netherlands Antilles) have yielded good results. Frequently, however, the parks are the victims of their own success as excessive visitor numbers alone cause massive destruction of the sites visited by their very admirers. This is not surprising, as the park introduces a natural protected area in which activities damaging to ecosystems can be restricted or banned, but the consequence of which is access by the general public, attracted by this quality guarantee, when they did not previously visit. Only infrequently are there measures to restrict the number of tourists present at the same time in the protected area (here we can refer to the caves of the Medes Islands in Spain where the number of divers per day is limited, but this is more a regulated diving area than a true national park). For this reason the French Iroise marine park project offers more hindrances than benefits in terms of species protection.

Nature reserves are a much more effective way of protecting marine ecosystems, because the site considered as offering outstanding scientific interest will be partially or completely separated from human activity. In marine reserves, commercial and recreational fishing are banned, sea traffic is restricted and channelled and even recreational diving can be banned. When the site is carefully chosen, outstanding results can be obtained with the conservation of the ecosystem (Cerbère-Banyuls reserve since 1974; Scandola reserve since 1975, Lavezzi and Cerbicales reserves since 1984 in the Corsica regional park; in Caravelle reserve since 1989 in the Martinique regional park). It may be a matter of supplementary measures for the protection of the central zone of a park, but also specific measures for a particular area outside the park. These provisions introduce into the internal order of states general measures to protect outstanding sites as stemming from international conventions, such as Article 2 of the Paris Convention for the Protection of the World Cultural and Natural Heritage (1972); Article 3 of the Ramsar Convention (1971) on Wetlands of International Importance; articles 4 and 5 of the Convention on the Conservation of European Wildlife and Natural Habitats (1979).

2°) Marine Protected Areas[5]: Article 2 of the CBD (?? –translator) states that protected areas are managed under specific conservation goals, including protective measures for endangered species, the maintenance or restoration of endemic populations to a viable level and the protection of habitats, breeding areas and biological diversity. With the benefit of the flexibility in the system, a range of activities can be maintained providing that they are compatible and that a special place is given to the traditional uses of local human communities[6]. The CBD gives the main responsibility for *in situ* diversity conservation to the

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[4] Many national parks have been set up, such as: Trinidad and Tobago, law of 1970 ; United States, law of 1972; Australia, law of 1975; Kenya, law of 1976 ; Barbados, law of 1980 ; Saba, Netherlands Antilles, 1987.

[5] Scovazzi T.: ‘Marine protected areas and present international law’ in *Nouvelles technologies et droit de l’environnement marin*, Kluwer 2000, p. 179.

[6] Fontaubert A.C., Downes D.R.: ’Biodiversity in the seas’ UICN Environmental policy and law paper n°32, 1996, p. 15.

State Party, which sets up a system of protected areas and facilitates the protection of ecosystems and natural habitats (Art. 8, paras. b and d) without specifying the content of the 'special measures' for the conservation of biological diversity. With regard to the marine environment, UNCLOS does not address the concept of protected areas, but well before the recently aroused interest of states in biodiversity, the parties to conventions on regional seas[7] adopted additional protocols on protected marine areas designed to conserve endangered species (Geneva 1982, then 1995 for the Mediterranean; Nairobi 1985 for East Africa; Paipa 1989 for the South Pacific; Kingston 1990 for the Caribbean area). The purpose of these protocols is to maintain or restore animal or plant populations to a satisfactory recruitment level in areas of particular interest for scientific or cultural reasons. In these areas the UNEP Regional Seas Action Plans urged the main states concerned to adopt norms for the protection of the fauna and flora in the same way as states that had already enacted legislation on parks and reserves. The value of 'specially protected areas' is to introduce broad flexibility into the choice of national measures that can as required be reduced to fishery, hunting or navigational regulations. On the other hand, the most recent protocols go much further, with the Kingston Protocol to the Cartagena Convention dated 18 January 1990 providing for collaboration between member states for the establishment of a list of areas for protection and species to protect, with its scope including all coastal areas out to the fresh water limit. In particular, this protocol (Art. 10) introduces a ban on commercial trade in the endangered species referred to in the three annexes[8]. Management of such areas assumes that there will be active participation by local communities (Art. 6) in the choice and monitoring of the relevant management systems, with UNEP also supervising the whole arrangement. The 1982 Geneva Protocol has been superseded by a protocol relating to specially protected areas and biological diversity in the Mediterranean adopted on 10 June 1995, whose scope is much broader. Protected areas can concern the high seas or coastal waters or indeed wetlands for the purpose of protecting endangered animal and plant species and to ensure sustainable use of biodiversity out to the fresh water limit. The parties compile inventories of the species comprising the area's diversity (Art. 3), with this novel element obliging states to specify the phylums considered specific and consequently to conserve them. States are required to cooperate if the designated areas are contiguous. When the selected area offers special value, they may establish an area of 'Mediterranean Importance' selected by consensus. The protective measures must contribute to the strengthening of the application of the other protocols and must include the drafting of management plans and continuous monitoring of ecological processes (arts. 6 and 7). At present there are some one thousand protected marine areas throughout the world, covering 340,000 sq. km. (less than 1% of the total ocean area).

Kenvhington R.: 'Managing marine environment' Taylor and Francis, New York, 1990.

[7] Juste Ruiz J.: 'L'évolution des conventions régionales protégeant l'environnement marin de l'Atlantique du nord-est et de la méditerranée' in *Nouvelles technologies et droit de l'environnement marin*, Kluwer, 2000, p. 137.

[8] Annex I contains a list of species requiring special protection, Annex II one of species requiring total protection and Annex III one of species whose capture or removal should be limited in order to ensure they are maintained at the highest possible level. These annexes were prepared in 1991.

Lambrechts C., 'La convention de Carthagène et ses protocoles : de l'information à la coordination', RJE, n° spécial, *Droit de l'environnement en Amérique tropicale*, 1994, p. 19.

B) Rehabilitation of disturbed environments

All forms of pollution and damage destroy ecosystems and ultimately lead to a collapse in biodiversity, first causing the disappearance of the most fragile species and enabling opportunistic species to fill the ecological niches thus left available. It is known that soil-originating pollution represents 80% of marine pollution, with the major impact occurring directly in the infra-littoral zone which is richer in biodiversity than the ocean waters. It is also known that mechanical damage has been largely responsible for the disappearance of the flora and fauna habitats of the foreshore, but also those of the migratory species which come to the coast in the breeding season. The example of embankments along the Mediterranean coastline is another illustration of such loss of biodiversity through the covering over of seagrass beds and the corraligen, which is nevertheless very productive of diversity in the living world. Faced with this kind of damage, states' reactions have always been nervous. The conventions against soil pollution are regional conventions, while only UNCLOS in Article 207 provides for states to adopt laws and regulations to prevent, reduce and control such pollution, which is too general to have any significant effect. The Paris Convention dated 22 September 1992 (OSPAR Convention) was the starting point for a full-scale campaign against this trend for the North-East Atlantic through a system of listing toxic substances, the most dangerous of which are subject to a ban on dumping; a system of authorisation and gradual reduction is introduced for the less dangerous. This convention also sets quality standards, dumping standards compatible with minimum environmental quality and standards for the use of substances in order to minimise their effect on the environment. A standing committee is responsible for monitoring statutory measures taken by states. The 1998 Contracting Parties' meeting produced a ban on dumping pollutants exceeding the reference values and imposed a non-pollution threshold to be achieved in 2012. Some conventions on the protection of regional seas based on the Barcelona model have adopted land-based pollution control protocols[9], however, despite the parties' aim to 'intensify surveillance and strengthen measures in their internal order', these protocols are not able to stem this pollution at source, leading to a major loss of biodiversity in the coastal marine environment. When measures really are taken however (treatment stations, clean technologies, waste processing), in contrast with mechanical pollution, the recolonisation of the environment by endemic flora and fauna can occur rapidly because of the stimulation of the living environment by the sea.

Although it focuses on protection of a genus more than on biodiversity, the Monaco Convention dated 24 November 1996 on the Protection of Biodiversity in the Mediterranean and the Black Sea, an extension of the 1979 Bonn Convention on the Protection of Migratory Species in Europe, can be noted. In fact, its main goal is to protect cetaceans through the coordination of measures by States Parties. The aim is to create a sanctuary for marine mammals in the Mediterranean and to apply the precautionary principle there.

C) Protection against the introduction of exotic or parasitic species

Since the beginning of the century, a large number of animal and plant species have been deliberately or accidentally transported outside their natural area of distribution and this has led to changes in local ecosystems. Organisms such as brown algae (*Laminaria japonica* and *Undria pinnatifada*) settling on vessel hulls was the first cause of introduction, while the digging of the Suez Canal gave opportunistic species such as molluscs (*Pinctada radiata*) and even sharks (*Carcharinus melanopterus*), an opportunity to enter the Mediterranean, to such

[9] Athens 17 May 1980 for the Mediterranean (amended in 1996); Lima 22 July 1983 for the South-east Pacific; Bucharest 25 April 1992 for the Black Sea.

an extent that these species have been identified by the generic term 'Lessepsian migrants'. The introduction of a new species for farming such as the oyster *Crassostrea gigas* in France from 1970, to replace species *C. angulata,* decimated by parasites, led to the involuntary introduction of the Pacific algae *Sargassum muticum* whose proliferation hinders marine crop development. The arrival with the D-Day landings of the North American filter-feeding mollusk *Crepidula fornicata* caused damage along all the Atlantic coasts of Europe, especially as a commensal competing with oysters. It is also known that the tropical green algae *Caulerpa taxifolia* accidentally emptied out of aquaria, is proliferating in the French Mediterranean to the detriment of the endemic Posidonia genus, without the true consequences yet having been assessed. Finally, the changes in species distribution in the plankton are due to ballast-shedding operations by oil tankers which, by jettisoning their ballast, cause a mixing of water and therefore of plankton, leading there again to a proliferation of opportunistic species to the detriment of endemics, modifying ecosystems and the functioning of food chains. On land as at sea, the reaction to these dangerous transfers is to ban undesired introductions as far as possible and to very strictly control deliberate introductions.

International law now takes into account this danger by outlawing in principle the introduction of any exotic species liable to endanger the survival of endemic species. The Bern Convention dated 19 September 1979 on the Conservation of Wildlife and Natural Habitats in Europe, requires contracting parties to undertake (Art. 11.2.b) to strictly control the introduction of non-native species; UNCLOS is even more precise, as Article 196 Para.1 requires states to take all necessary measures to "prevent…the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment[10], which may cause significant or harmful changes thereto". The CBD also provides for such a ban (Art.8): 'each contracting party shall prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species'. While it can be noted that the Rio Convention was the first to propose the eradication of a threatening species if necessary, it can be regretted that this article delays State action by contenting itself with action taken 'if possible and if appropriate', which considerably restricts the scope of Article 8. The Barcelona Protocol of June 1995 on biological diversity in the Mediterranean also imposes eradication (Art. 13), if the non-endemic species may cause damage to ecosystems. With regard to introductions through bulk carrier ballast-discharge operations, the IMO adopted a convention on 13 February 2004[11] for the inspection and management of ballast water and sediment. This agreement requires such water either to be handled at the port of call or that ballast-shedding be organised in ecologically compatible waters through regular replenishment of the ballast. The convention requires inspection through certifications by the port of call authority. This system clearly presupposes the existence of land reception and inerting facilities for ballast water, which is not often the case.

Unfortunately we know how few legal resources are available to combat these scourges that only preventive practices and the precautionary principle are able to avoid, because no eradication has ever been possible in the marine environment. Indeed, in March

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[10] UNCLOS innovates here in comparison with other conventions because, as far back as 1982, it provided for the introduction of new species and therefore of organisms genetically modified by humanity, which was not yet technically possible at that time.

[11] Doc. OMI BWM/CONF/2

1998 the Academy of Sciences concluded its report on Caulerpa by stating that “eradication is not a credible objective”.

The protection of marine biodiversity will not be effective without a body of rules governing the exploitation of oceanic genetic resources.

PART 2: THE CONSERVATION OF MARINE GENETIC RESOURCES

The issue here is neither nature conservation nor rational living resource stock management, but the conservation of marine biological diversity and the variability of living marine organisms of every origin, including marine ecosystems and the ecological complexes of which they are part, encompassing diversity within species and between species as well as that of ecosystems (adaptation of Art. 2 of the CBD). The Convention on the protection of biodiversity dated 5 June 1992 will change the lawyer’s perception of the identification of natural resources. UNCLOS took a quantitative approach to natural resources, banning unauthorised fishing activities in the waters under its jurisdiction, but the taking of specimens was not considered to be fishing especially when it concerned a species that was not directly marketable as part of the catch after returning from fishing. Biotechnologies deeply change this perception: marine invertebrates, cyanobacteria and the phytoplankton element become ‘natural resources’ within the meaning of Resolution 1803, because their DNA may contain a gene liable to produce marketable effects.

A) A market-based approach to biodiversity

Contrary to the draft convention put forward by the IUCN in 1982, the CBD takes away the sacred aura of biodiversity, which becomes a potential profit vehicle. Biodiversity is described as a ‘common concern of humankind’, an expression with no legal scope. The new system is based on the permanent sovereignty of peoples and nations over their natural resources and the transfer of biotechnologies. In this system, biodiversity becomes a commercial resource like any other, exploited by the State concerned under its environmental policy. Within this framework, the resource-owning State issues a prospecting licence after the payment of a fee by the researching State, following the signing of a bio-prospecting contract. Under the convention, if a marketable product is developed from the DNA of a specimen collected in that country, the benefits will be shared between the parties to the contract. At the same time as this development, intellectual property law has changed a great deal because the ‘living’ has become patentable in the countries of the European Union following Directive 98-44 of Parliament and Council dated 6 July 1998 on the legal protection of biotechnological inventions. Consequently, where marine biology is concerned, access to the research area is not unrestricted from the high water mark to the outer boundary of the Exclusive Economic Zone, whether the water column, the soil or the sub-soil is concerned.

Not only is research not uncontrolled in the areas under this jurisdiction (e. g: the French law dated 11 July 1986 on marine scientific research requires prior authorisation for foreign nationals, in areas under sovereignty and jurisdiction) with regard to Part XIII of UNCLOS, but again, where bio-prospecting is concerned, it is subject to payment of a fee. The second generation of bio-prospecting contracts is based on the assumption that there will be greater participation by local researchers and more involvement by local agencies in decision-making and broader dissemination of results in the resource-owning country[12]. In contrast, the CBD explicitly provides that the extra cost of biodiversity protection shall be the responsibility of the developed states. This provision, argued for by the Group of 77, is in fact conceived for the purpose of protecting land areas. Its scope over the marine sphere is however hard to gauge: how can you quantify the extra cost of land or oceanic pollution control measures or that of the ban on fishing in a protected area, as compared to the general cost?

On the other hand, in 1995, the 2nd Conference of the Parties adopted by consensus the 'Jakarta Mandate'(Decision II/10), a programme of action relating to the conservation and sustainable use of marine and coastal diversity. This programme contains 5 sections:

- Integrated management of coastal zones;
- Sustainable use of biological resources;
- Marine Protected Areas;
- Mariculture;
- Alien species.
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This programme, which is regularly reviewed (Kuala Lumpur 2004) is the subject of work by the Scientific, Technical and Technological Advice, set up for this purpose.

The 6th Conference of the Parties to the 1992 Convention held in The Hague in 2002 proposed guidelines for future bio-prospecting contracts in order to avoid the accusations of 'bio-piracy' levelled by certain states of the Group of 77: The objectives are as follows: improve the involvement of local communities, share benefits in a fairer way and favour data transparency.

Whether the issue is fishery resource conservation or biodiversity conservation, the measures envisaged attach greater importance to ecosystems, as desired by the ecologists. The enshrining in law of this concept is notable progress and examples are increasing:

- ICCAT now operates on the premise of the existence of only one species of northern bluefin tuna (*Thunus thynus*) for which migration research has proved that it ranges over the whole Atlantic whereas it had been assumed that there were two separate sub-species[13]
- Extension of scope to cold coral bottoms and seamounts in 'trawlable' areas of the northern hemisphere EEZs, in order to protect these biodiversity-rich zones against destruction by fishing gear assemblages.

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[12] - An example is the contract signed in 1997 between the American research institutes, USP and SIDR with the Fijian State. The objective was to identify medical uses for several hundred marine organism samples collected at sea in Verata Canton. The local community and an American NGO Biodiversity and Conservation Net were involved in this project. The goal is both to seek benefits for the local communities and foreign companies but also to protect marine biodiversity.

- As with the contract signed in 2005 by the French Development Agency and the Melanesian states: Coral reef initiative in the south Pacific, designed to assist these states to understand their marine biodiversity.

[13] Block B.A., 'Track of tuna n° 603 from 1999 to 2004' Nature 28 April 2005

The United Nations General Assembly took a similar position in Resolution 58/240 on the oceans and the law of the sea[14] in 2004, calling for urgent consideration by states of ways of protecting this singular biodiversity by applying an ecosystem approach by 2010 and proposing a moratorium on bottom trawling. Fisheries commissions have already reacted in this vein, for example, NEAFC in November 2004 adopted a measure to ban fishing in 5 sites under its jurisdiction harbouring deep ecosystems[15]. However the taking into consideration of outstanding ecosystems has its limitations because, when faced with economic pressures, the idea of focussing on hotspots and leaving the rest open to exploitation is ultimately very dangerous[16].

The system introduced by the CBD, based on: access to the resource – transfer of techniques – benefit sharing, can only come into play in the event of viable commercial production. This is far from being common because 'useful' discoveries are few and far between, take a long time to be taken up by industry and are very costly[17]. Under these conditions, it can be understood that international cooperation is stagnating, with each group of states sticking to its positions: importance of the equation access = transfer for the developing states; importance of added value through research for the developed states. The Bonn Guidelines adopted by the Conference of the Parties in 2002 endeavoured to overcome the climate of defiance by putting forward fair and equitable benefit-sharing on the basis of the partner's wishes and extensive divulgation of information, in particular regarding the geographical origin of genetic resources (Decision VI/24). Despite these provisions, the constant difficulty of setting up large-scale commercially-oriented research projects in the inter-tropical zone at the present time is proof that the attitude of states in this area does not change.

B) The complex regime governing the deep sea bottom international area

Article 136 of UNCLOS states that the soil and sub-soil falling outside the boundaries of national jurisdictions are part of the common heritage of humanity, together with the mineral resources found there. In fact, only non-living resources (solid, liquid or gaseous) are specifically referred to in Article 133. The water column overlying the international area forms the remaining part of the high seas. Section 2 of Part VII of UNCLOS concerns high seas living resources. Article 116 states that all States' nationals are entitled to fish on the high seas providing that they comply with their treaty obligations, the interests of coastal states and their obligation to cooperate in order to introduce sustainable resource conservation and management. At no time did this agreement, conceived with reference to conventional fishing, envisage the search for unknown genes. Consequently, the capture of rare or new macro or microbiological species in the high seas or in the international zone is done under unrestricted access and they can be exploited in compliance with the terms of the Convention on the Law of the Sea. In addition, the changes in patent law and especially the 'ADPIC'

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[14] Doc. UN A/RES/58/240

[15] Please refer in this regard to the interesting study by B Guilloux and K. Zakovska, « Développements récents du droit international relatif à la biodiversité marine », Revue en Sciences de l'Environnement Vertigo, vol 5, n° 3, December 2004

[16] The project is defended by English and American NGOs wishing to put forward 'hotspots' representing the greatest diversity on the planet, because the most genetically valuable species arte not necessarily endemic to these zones. A Kiss and J.P. Beurier, « Droit international de l'environnement » Pédone 3° édition 2004, p. 368.

[17] Guilloux B. et Zakovska K., op. cit. p. 7

(Legal Aspects of Intellectual Property relating to Trade) agreement dated 15 April 1994 make it possible to patent microbiological processes and the genetically modified organisms arising from such processes. The research field here is very broad, especially as recent work points to very high species diversity in the abyssal and hadal zones, not only around hydrothermal springs and cetacean remains, but also in the abyssal plain sediment. A great deal of research is in progress at the present time in this connection and the Subsidiary Body on Scientific, Technical and technological Advice of the CBD has since 2004 been seeking to draw up rules to regulate this 'gene rush' in order at least to protect deep water ecosystems and lay down conditions for the implementation of the principles of the CBD. The International Seabed Authority is working on proposals that would make it possible to extend its jurisdiction over environmental conservation and therefore deep water biodiversity. No agreement would however appear to be possible in the current status of the negotiations, not even a very minor one, on any revision, even partial, of UNCLOS which, it should be remembered, required nine years of hard negotiating and twelve years for ratification. This is reinforced by the fact that states are having increasing difficulty in funding major scientific research projects[18]. For these reasons, at the 8th Session of the Authority in August 2002, the parties acknowledged that deep water genetic resources (more than 500 new species were described between 1977 and 2002) could be the source of industrial compounds or medical applications and, consequently, that living resources should be protected by the provisions of UNCLOS. At its special session[19] in May 2004, the Authority convened an expert group on its future directions. The environment and the protection of biodiversity in the Area were debated. For Professor Scovazzi, the Authority should extend its role beyond the control over mineral resources, in an awareness that the exploitation of genetic resources can yield economic activity more quickly than the hypothetical mineral resources and that the Authority has jurisdiction over environmental conservation in the Area (Art. 145 of the July 1994 agreement), even if bio-prospecting is not specifically covered by UNCLOS, there is in his view a close tie between the protection of the seabed environment, scientific research and bio-prospecting. Its role could therefore be extended in the future. Of course, this is more a wish than a real plan to revise UNCLOS, but it can be perceived, if this author's analysis is extended, that the development of cooperation arrangements between states and the Authority to guide research on deep water genes would not be contrary to Part XIII of UNCLOS, the 1994 agreement on Part XI or the general spirit of Part XII of UNCLOS. But in the current state of the law, any discussion on the exploitation of deep water living resources can only fit into the mould of the principles of Section 2 of Part VII of UNCLOS (conservation and management of living resources of the high seas) that frames the freedom of exploitation of living resources.

Positive law does not at present offer any solutions apart from articles 118 and 119 of UNCLOS, but it would seem urgent for the International Authority to use its powers as recognised by Part XI of the 1994 agreement to conserve the environment in the Area and therefore deep ecosystem biodiversity also. Only exploitation of mineral resources can at present threaten these life forms, but every indication is that, while the exploitation of nodules

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[18] J.P. Levy : « Le destin de l'Autorité internationale des fonds marins » Pédone 2002, p. 188.

[19] www.un.org/ISA/sea/1799 dated 27 May 2004. T. Scovazzi expounded his ideas about the development of the Authority's role in: « Mining, protection of the environment, scientific research and bio-prospecting, some considerations on the role of the International seabed Authority » The international journal of marine and coastal law, vol 19, n° 4, 2004, p. 383.

may not topical, the use of polymetallic sulfurs is[20]. These occur on or at the foot of hydrothermal springs, whose lifespan is some twenty years on average. Consequently, in order to conserve biodiversity, the Authority should authorise only the exploitation of former now inactive springs from which life has *ipso facto* disappeared. Such an emergency measure, which falls clearly within the scope of its jurisdiction, could in addition be an incentive to states to impose the same rule for the hydrothermal springs located in their EEZs.

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[20] International Seabed Authority, « Marine mineral resources, scientific advances and economic perspectives » UNO, 2004, 118 p