The Interplay of the United Nations Convention on the Law of the Sea and the Convention on Biological Diversity

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I. Introduction

In response to a growing sensitivity concerning the protection of the environment, international environmental law has in recent years been faced with a proliferation of multilateral treaties. International environmental law is in a stage of progressive development; new international treaties respond to modern insights on the existence and nature of threats to the environment. As a result of the growing number of new and existing agreements environmental instruments often overlap with regard to their subject and scope. When addressing certain issues the agreements' underlying philosophy and objectives may differ as well as actions taken or envisaged thereunder. Although this lack of coherency was to be expected, however, mitigation measures or efforts to prevent future overlaps and potential collisions are underdeveloped.

The following article does not intend to deal with the subject in general but focuses on the specific interplay of the United Nations Convention on the Law of the Sea of 1982[1] and the Convention on Biological Diversity of 1992.[2]

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1 *ILM* 21 (1982), 1261 et seq.

2 *ILM* 31 (1992), 818 et seq.

J.A. Frowein and R. Wolfrum (eds.), Max Planck Yearbook of United Nations Law, 445–480.
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The existing discrepancies and gaps may create problems concerning an effective conservation and management of marine life. The scope of both instruments overlaps to some extent as far as *marine living resources* are concerned. However, principles, objectives and approaches concerning *management* and *conservation* differ.

The protection of *genetic resources* with a view to maintaining genetic diversity and the sampling of genetic resources for scientific reasons is not directly addressed by the Convention on the Law of the Sea. Whether the regime on living resources includes the regulation of marine genetic resources is subject to some argument. The protection of living resources from over-exploitation indirectly protects the respective genetic resources. As unsustainable fisheries can reduce genetic diversity by changing population characteristics, the protection of sustainable yields indirectly promotes the genetic variability of the targeted species. Yet, as the Convention refers to living resources with the implicit meaning of fisheries or in a conservation sense, microbial genetic diversity in the deep sea-bed like those organisms found in hydrothermal vents might be outside the Convention's ambit. Hence, an unknown variety of marine genetic resources would not even indirectly be protected by the Convention. From the perspective of substantial environmental protection as to some extent provided for in the Convention on the Law of the Sea, one can argue in favour of a generally inclusive interpretation. Apart from that, the provisions on marine scientific research may be able to add to a system of management of genetic resources.

Several authors having approached the problem of management and conservation of marine genetic resources, so far, have argued that neither the Convention on the Law of the Sea nor the Convention on Biological Diversity provide adequate protection for genetic resources of the high seas or of the international deep sea-bed and its subsoil and that the international community should take respective actions.[3] Oth-

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[3] D.K. Anton, "Law for the Sea's Biological Diversity", *Colum. J. Transnat'l L.* 36 (1997/98), 341 et seq., (365 et seq.); L. Glowka, "The Depth of Ironies: Genetic Resources Marine Scientific Research and the Area", *Ocean Yearbook* 12 (1996), 154 et seq.
The International Sea-bed Authority has at least realized that the biodiversity of the deep sea-bed requires protection against possible negative effects from deep sea-bed mining (see Report of the Secretary-General of the International Sea-bed Authority under article 166 para. 4 of the United Nations Convention on the Law of the Sea (Doc. SBA/5/A/1, of 28 July 1999, para. 37 et seq.).

ers have concentrated on the efforts under the Convention on Biological Diversity to improve upon the protection of marine biological diversity.[4] This article, taking into consideration their underlying philosophies and objectives, will establish whether and to what extent the two instruments, including the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 (1995 Agreement on Fish Stocks),[5] provide for an adequate protection of *marine biological – and especially genetic – resources* and which of the instruments prevails in this respect. The aspect of precedence and balancing of the conventions requires not only an assessment of the rules under the respective instruments but also of the rules in international law governing the interpretation of international treaties, respectively of the Vienna Convention on the Law of Treaties.[6]

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4 A.Ch. de Fontaubert/D.R. Downs/T.S. Agardy, "Biodiversity in the Seas: Implementing the Convention on Biological Diversity in Marine Coastal Habitats", *Geo. Int'l Envtl. L. Rev.* 10 (1997/98), 753 et seq.

5 *ILM* 34 (1995), 1547 et seq. Further instruments are the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, 1993 and the Code of Conduct for Responsible Fisheries, adopted at the 28th Sess. of the FAO Conference (Res. 4/95). On the relationship of these instruments with the Convention on the Law of the Sea see W. Edeson, "Towards Long-Term Sustainable Use: Some Recent Developments in the Legal Regime of Fisheries", in: A. Boyle/D. Freestone (eds), *International Law and Sustainable Development: Past Achievements and Future Challenges*, 1999, 165 et seq.; on the interface between the Convention on the Law of the Sea and Agenda 21 see A. Yankov, "The Law of the Sea Convention and Agenda 21: Marine Environmental Implications", ibid., 271 et seq., (273 et seq.).

6 UNTS Vol.1155 No.18232.

II. Management and Protection of Marine Living and Genetic Resources under the UN Convention on the Law of the Sea

1. The Provisions on Marine Living Resources under the Regime of the UN Convention on the Law of the Sea

As far as the management and conservation of marine living resources is concerned, the Convention on the Law of the Sea provides for three different regimes, one on fishing in territorial as well as archipelagic waters, one on fishing in the exclusive economic zones and another one on high seas fishing. Both are based on a different approach concerning their implementation since marine living resources in waters under national jurisdiction are managed by the Coastal State concerned, whereas the management and protection of marine living resources of the high seas is vested in those states whose nationals are fishing the respective area.[7] These two latter regimes have been supplemented and further connected by the 1995 Agreement on Fish Stocks. Apart from that, several international agreements on the universal or the regional level dealing with various aspects of exploitation, management and conservation of marine living resources have been adopted.[8]

In the territorial as well as in archipelagic waters Coastal States exercise exclusive sovereignty over the management of the respective marine living resources. The relevant provisions of the Convention on the Law of the Sea dealing explicitly with the exploitation of living resources refrain from giving any indication as to which policy should be pursued by the Coastal States in this respect. This failure, in principle, opens the way for the application of conservation measures according to the Convention on Biological Diversity. However, as will be discussed below, Part XII of the Convention on the Law of the Sea, dealing with the protection and preservation of the marine environment, gives further guidance on policies for species protection.

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7 R. Wolfrum, "The Protection of the Marine Environment after the Rio Conference: Progress or Stalemate?", in: U. Beyerlin et al. (ed.), *Recht zwischen Umbruch und Bewahrung – Festschrift für Rudolf Bernhardt*, 1995, 1003 et seq., (1007 et seq.).

8 See for example the Convention on the Conservation of Antarctic Marine Living Resources, *ILM* 19 (1980), 841 et seq.; the 1989 Wellington Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific, *ILM* 29 (1990), 1454 et seq.

The situation is different as far as the exclusive economic zone is concerned. According to article 56 of the Convention on the Law of the Sea, in the exclusive economic zone the Coastal State has sovereign rights for the purpose of exploring and exploiting, conserving and managing natural resources, whether living or non-living. This general rule faces two limitations, one concerning straddling stocks and highly migratory species,[9] and the other one concerning the conservation and management policy to be pursued by Coastal States. According to arts 61 and 62 Convention on the Law of the Sea, the management, and in particular the conservation, of marine living resources in the exclusive economic zone is not completely left to the discretion of the Coastal States concerned. Contrary to the territorial and archipelagic waters Coastal States are under an obligation to establish an appropriate management and conservation regime. Article 61 Convention on the Law of the Sea provides for some guidance as to the content of such a conservation regime. In general, this provision obliges Coastal States to abide by two principles, namely, to protect marine living resources against over-exploitation (para. 2) and to maintain and restore populations of harvested species at levels which can produce the maximum sustainable yield (para. 3). In defining the maximum sustainable yield the relevant environmental and economic factors may be taken into account. The environmental factors referred to in para. 3, and further specified in para. 4, are the interdependence of stocks (i.e. the effect exploitation has on species associated with or dependent upon harvested species) and generally recommended international minimum standards. The effect fisheries have on species and marine ecosystems due to ecological interdependency is considerable; stock depletion affects *inter alia* coral reefs, mangroves, estuaries as well as mammal species and turtles.[10] By taking

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9 See arts 63 and 64 Convention on the Law of the Sea, respectively. These provisions place a duty on the Coastal State and the respective Distant Water States to seek agreement on the management of the respective fish stocks. This embraces an obligation to negotiate. The ICJ has emphasized in the North Sea Continental Shelf Cases that "the Parties are under obligation to enter into negotiations with a view to arriving at an agreement ... they are under an obligation so to conduct themselves that the negotiations are meaningful" (ICJ Reports 1969, 3 et seq., (47 at para. 85 (a)). Thus the regime on highly migratory species and straddling stocks under the Convention on the Law of the Sea provides for a solution through procedural means rather than by establishing substantive standards.

10 A. Rengifo, "Protection of Marine Biodiversity: A New Generation of Fisheries Agreements", *RECIEL* 6 (1997), 313 et seq.

into account the effect of exploitation on dependent and associated species the Convention on the Law of the Sea has taken a first step towards an ecosystem approach. The guidance provided for by the Convention on the Law of the Sea concerning the management regime is less explicit. It is for the Coastal State to establish its capacity to harvest the living resources of the exclusive economic zone and to decide whether it gives access thereto to other states. Although the second sentence of article 62 para. 2 Convention on the Law of the Sea is phrased in mandatory terms, the Coastal States' obligation to open access for other states to the surplus can not be enforced. Article 297 para. 3 lit.(a) Convention on the Law of the Sea qualifies the respective powers of Coastal States as being of a discretionary nature.

The protection of the diversity of ecosystems referred to above, as opposed to the mere protection of species, encompasses not only the species composing communities but also the interactions between the species and the physical structures of the ecosystem.[11] The ecosystem approach as applied *vis-à-vis* marine living resources means in general that biological and ecological interactions between species as well as such interactions between stocks, in the same as well as in neighbouring jurisdictional zones, and the ecological conditions of the physical surroundings have to be reflected in the fishery policy. Dependent and associated species to those protected for human exploitation are addressed by the Convention on the Law of the Sea, yet, they represent only a small percentage of all living organisms that build the marine community in an ecosystem. The physical structures and conditions of ecosystems are not referred to at all in article 61 Convention on the Law of the Sea. Since fishing alters the relative abundance of species in marine communities and, additionally, fishing gear can physically destroy or alter habitats and disrupt bottom-dwelling communities,[12] ecosystems can be significantly changed, even if policies comply with the provisions of the Convention on the Law of the Sea on the interdependence of species. Other expressions of the opening of the Convention on the Law of the Sea towards an ecosystem approach are to be found in article 196 para. 1 on the introduction of alien species into ma-

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11 S. Iudicello/M. Lytle, "Marine biodiversity and international law: instruments and institutions that can be used to conserve marine biological diversity internationally", *Tulane Envtl. L. J.* 8 (1994), 124 et seq.

12 A. Rieser, "International Fisheries Law, Overfishing and Marine Biodiversity", *Geo. Int'l Envtl. L. Rev.* 9 (1997), 251 et seq., (254); G. Rose, "Marine Biodiversity Protection through Fisheries Management — International Legal Developments", *RECIEL* 8 (1999), 284.

rine ecosystems and in article 194 para. 5 that provides for the protection of fragile marine ecosystems. In spite of these indications pointing towards the application of elements of an ecosystem approach, neither the regime on marine living resources nor the one on the protection of the marine environment of the Convention on the Law of the Sea are based upon the ecosystem approach. This is quite astonishing since the earlier Convention on the Conservation of Antarctic Marine Living Resources of 1980[13] is clearly based thereon. The 1995 Agreement on Fish Stocks which implements arts 63 and 64 Convention on the Law of the Sea is more clearly based upon the ecosystem approach still, it mitigates the situation for specific species or stocks only. This is the area where the regime on fisheries of the Convention on the Law of the Sea and the Convention on Biological Diversity differ.

With regard to the further protection of marine living resources according to the Convention on the Law of the Sea, the general rules of Part XII of the Convention dealing with the protection and preservation of the marine environment are applicable to the formulation of the national fishery policy in the territorial waters, the archipelagic waters and the exclusive economic zone. Although Part XII of the Convention does not explicitly refer to fishing as an activity which requires regulation to fulfil the commitments entered into under this Part, the wording of several of its provisions shows clearly that its general principles are fully applicable. This has been confirmed by the International Tribunal for the Law of the Sea in 1999.[14] Article 193 Convention on the Law of the Sea emphasises that the sovereign right to exploit marine living resources does not release states from the obligation to protect and preserve the marine environment. The respective obligations accordingly represent a limit to the exercise of sovereign rights. In contrast to the first impression, the preservation and protection of the marine environment, including the management and protection of marine living resources, is thus not fully left to the discretion of the states concerned. Part XII contains one concrete provision on the protection and preservation of marine living resources, namely article 194 para. 5. According to it, measures are to be taken to protect and preserve rare or fragile

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13 See note 8.

14 Order of 27 August 1999, Southern Bluefin Tuna Cases (New Zealand v. Japan; Australia v. Japan), Requests for Provisional Measures, *ILM* 38 (1999), 1624 et seq.; in para. 70 thereof the Tribunal states that "... the conservation of the living resources of the sea is an element in the protection and preservation of the marine environment".

ecosystems as well as depleted, threatened or endangered species and other forms of marine life. This provision is not to be understood as to require reactive measures only, but to call additionally for preventive action.[15]

The situation is different for the continental shelf as compared to the regime on fisheries in the exclusive economic zone. Although the regime on the continental shelf covers some marine living resources, namely sedentary species,[16] it does not provide for guidance concerning their management and conservation. Taking into account the different legal nature of the continental shelf and the exclusive economic zone, it is not appropriate to apply article 61 Convention on the Law of the Sea by way of analogy. Although both areas are to some extent treated as subject to the same provisions, as far as marine scientific research is concerned, an otherwise clear distinction must be respected. Accordingly, the rights and duties of Coastal States concerning the management and conservation of sedentary species are analogous to those concerning marine living resources in the territorial sea and in archipelagic waters. However, species covered by the continental shelf regime fall under the protection provided by the general principles in Part XII of the Convention on the Law of the Sea.

The regime concerning the conservation and management of marine living resources on the high seas differs from the one for marine living resources in exclusive economic zones only as far as implementation is concerned, not, however, concerning the standards to be applied. Article 119 para. 1 lit.(a) and (b), the provision on conservation of living resources of the high seas which limits the freedom of fishing as set out in article 116 Convention on the Law of the Sea,[17] corresponds to article 61 paras 3 and 4 Convention on the Law of the Sea. These provisions require states whose nationals are engaged in fishing on the high seas to maintain or restore populations of harvested species at levels which can

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15 Wolfrum, see note 7, 1009.

16 The notion of 'sedentary species' is defined in article 77 para. 4 Convention on the Law of the Sea.

17 The formulation of article 116 already emphasises that the freedom of fishing on the high seas is limited. These limitations derive from Section 2 of Part VII Convention on the Law of the Sea on conservation and management of the living resources of the high seas, the obligations under other international agreements and the respect for the rights and interests of Coastal States. As to the development of the legal regime governing high seas fisheries see D. Nelson, "The Development of the Legal Regime of High Sea Fisheries", in: Boyle/Freestone , see note 5, 113.

produce the maximum sustainable yield as qualified by relevant environmental and economic factors. In determining such factors, the special requirements of developing countries, the existing fishing patterns, the interdependence of stocks and generally recommended international minimum standards are to be taken into account. As under the regime on the exclusive economic zone, states have to take into consideration the effects on species associated with or dependent upon harvested species; such species are to be kept above levels where their reproduction is seriously threatened.

The 1995 Agreement on Fish Stocks constitutes a supplementation to the regime on fishing of the Convention on the Law of the Sea.[18] It provides for a more detailed regulation and is on the one hand to some extent wider concerning the underlying approach but on the other hand is consistent with the Convention on the Law of the Sea.[19] The drafting and final adoption of the Convention on the Law of the Sea was triggered by the decline of several fish stocks, the lack of coordination of national fishery policies and policies concerning the management and conservation of fish stocks on the high seas and, in particular, the lack of compliance control and enforcement of international standards concerning high seas fishing. The main feature of the 1995 Agreement on Fish Stocks is that it seeks to ensure a harmonious development of coherent conservation and management measures for the high seas and the exclusive economic zone, based upon cooperation.[20] Some guidance is given to that extent. For example, states must take into account the biological unity and other biological characteristics of the stocks and the relationship between the distribution of the stocks, the fisheries and the geographical particularities of the region concerned. The reference to the notion of "biological unity" emphasises that the Agreement is more clearly based upon the ecosystem approach than the Convention on the Law of the Sea. The Agreement provides for conservation and management measures for species belonging to the same ecosystem as the protected straddling and highly migratory fish stocks.[21] Furthermore, the protection of biodiversity in the marine environment is one of its objectives. The diversity of ecosystems can be regarded as one

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18 See note 5. The interpretation of arts 63 and 64 of the Convention on the Law of the Sea has been a source of some controversy; for further details see Nelson, see note 17, 123.

19 Rengifo, see note 10, 318.

20 See arts 7 and 8 of the 1995 Agreement on Fish Stocks.

21 Article 5 lit.(e) of the 1995 Agreement on Fish Stocks.

component of biodiversity; the 1995 Agreement on Fish Stocks, however, does not give any definition of the term. This leaves some room for respective decisions or regulations implementing this Agreement. They can further elaborate on the interplay between the protection of ecosystems and the protection of biological diversity. In addition to the partial incorporation of an ecosystem approach, the Agreement relies heavily upon the precautionary approach.[22] The emphasis put on precaution, the protection of ecosystems and sustainability of high seas fishing makes the 1995 Fish Stocks Agreement one of the "new generation" of sustainable fishery agreements.[23] Although the 1995 Agreement has retained the concept of maximum sustainable yield as a valid reference point, it does not face the same critique as the respective provisions of the Convention on the Law of the Sea. This reference point is to be considered a limiting reference point which constrains utilization within safe biological limits.[24]

Particularly problematic is the status of marine living resources of the deep sea-bed – the so-called Area. Since not more than one per cent of the photosynthetically produced carbon in offshore waters reaches the deep sea-bed it is considered to be sparsely populated.[25] Particular interest has in recent years been attached to living communities developed in connection with hydrothermal vents. These organisms do not depend on plant photosynthesis but on the primary productivity of chemosynthetic bacteria able to synthesise organic compounds from carbon dioxide, using energy derived from hydrogen sulphide dissolved in the hydrothermal fluid emanating from the vents. Other biological communities have been discovered in petroleum seeps, sedimentpore water seeps and in deep anoxic basins along oceanic margins.[26] Due to the adverse conditions under which these organisms have evolved they have developed characteristics like e.g. heat resistance that makes them particularly interesting for all different aspects of research: basic research, applied scientific research and biotechnological use.[27] Part XI of the Convention on the Law of the Sea, dealing with the deep sea-bed and its resources, does not contain provisions concerning marine living

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22 Article 5 lit.(c) in connection with article 6 of the 1995 Agreement on Fish Stocks.

23 Rengifo, see note 10, 313.

24 See Nelson, see note 17, 126/127 with further references.

25 Glowka, see note 3, 156 with further references.

26 Glowka, see note 3, 157.

27 G. Henne, *Genetische Vielfalt als Ressource*, 1998, 327.

resources. In fact, article 133 lit.(a) Convention on the Law of the Sea conceives "resources" to mean only mineral resources in whichever form. This means that the regime for the exploration and exploitation of the mineral resources of the Area which is based upon the common heritage principle is not applicable to marine living resources of the deep sea-bed. Its provisions concerning access, sharing of benefits and cooperation of states and private entities with other states and with the International Sea-bed Authority do not apply. The limitation of the regime for the Area to mineral resources is due to the fact that at the time of its adoption there was little knowledge on marine biological resources of the deep sea-bed and the interest concentrated on the economic potential of exploiting polymetallic nodules. No need was felt to provide for a particular regime for marine living resources of the deep sea-bed. Accordingly, the marine living resources of the deep sea-bed are covered by the high seas regime on management and conservation of marine living resources and by the general principles of Part XII Convention on the Law of the Sea; yet it is doubtful whether the said legal rules are appropriate. Although the scope of the regime can be broadened, since article 162 para. 2 lit.(o) (ii) Convention on the Law of the Sea provides for the respective institutional competence to establish rules on other than polymetallic nodules, this would not cover biological resources – at least not directly. The reference to "resources" in this provision has to be understood in the light of the legal definition in article 133 lit.(a) Convention on the Law of the Sea which limits the scope of Part XI, and, consequently, the jurisdictional power of the International Sea-bed Authority concerning the management of mineral resources. When the Representative of the Russian Federation on 17 August 1998[28] requested the elaboration thereunder of rules and regulations on hydrothermal vents this was meant to cover polymetallic sulphides rather than marine living resources of hydrothermal vents. Nevertheless such rules and regulations may be useful for the management of genetic resources of hydrothermal vents. The International Sea-bed Authority, when establishing a regime on the mineral resources of hydrothermal vents, is under an obligation to provide for a protection of the respective marine living resources against negative consequences of an exploration and exploitation of the former. This will not, though, amount to a management system concerning marine living resources and thus will fall short of the management system possible for terres-

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28 See Doc. ISBA/4/A/CRP.2 of 24 August 1998.

trial biological diversity under the Convention on Biological Diversity. Nevertheless, it may result in some protection.

2. Genetic Resources and Marine Scientific Research under the UN Convention on the Law of the Sea

The collection of samples for marine genetic research does not take the form of exploitation as used in the context of fishing. In this respect, it resembles more scientific research activities than commercial fishing although both activities are undertaken for commercial ends. There is no likelihood under the present system of bioprospecting that respective activities lead to overexploitation or have the same negative impacts on marine living resources as witnessed concerning the use of modern fishing techniques and equipment. As a consequence, it has to be considered whether the provisions of the Convention on the Law of the Sea on scientific research offer applicable and appropriate mechanisms for the management of genetic research on marine living resources.

According to article 238 Convention on the Law of the Sea, all states have the right to conduct marine scientific research subject to the rights and duties of other states. In general terms the expression "marine scientific research" is most often used to describe activities to expand scientific knowledge of the marine environment and its processes and includes *inter alia* oceanography, marine biology, marine chemistry, scientific ocean drilling and coring, geological and geophysical surveying.[29]

Jurisdiction of Coastal States over foreign marine scientific research depends on the maritime zone in which it is conducted as well as on the nature of the research activity. The Convention vests particular rights in Coastal States based upon the distribution of jurisdictional powers concerning the territorial sea, the exclusive economic zone and the continental shelf.[30] In the territorial sea the Coastal States have the exclusive

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29 J.A. Roach, "Marine Scientific Research and the New Law of the Sea", *ODILA* 27 (1996), 59 et seq., (60).

30 For the drafting history of the regime on marine scientific research see A.H.A. Soons, *Marine Scientific Research and the Law of the Sea*, 1982, 154 et seq.; as to an assessment of the regime see, amongst others, W. Plessmann/V. Röben, "Marine Scientific Research: State Practice v. Law of the Sea?", in: R. Wolfrum (ed.), *Law of the Sea at the Crossroads: The Continuing Search for a Universally Accepted Regime*, 1991, 373 et seq.; R.

right to regulate, authorise and conduct marine scientific research. Any marine scientific research by other states or international organisations or nationals of other states may be conducted only with the express consent and subject to the conditions of the Coastal State concerned.[31] The Coastal States are under no obligation to provide access to marine resources of the territorial sea for genetic research nor are they under any obligation to facilitate such access. Further, the Convention on the Law of the Sea expressly states that passage through territorial waters for the purpose of carrying out research activities does not qualify as innocent passage.[32]

As to the exclusive economic zone and the continental shelf, the Coastal State concerned has jurisdiction with respect to marine scientific research; however, its authority is subject to limitation, if compared with the regime in the territorial sea and archipelagic waters. Marine scientific research may only be conducted with the express consent of the Coastal State concerned but, as opposed to the provisions concerning the territorial waters, states can be obliged to grant this consent. Article 246 paras 3-5 Convention on the Law of the Sea distinguishes between scientific research to increase the knowledge on the marine environment (purely scientific research) and scientific research which is of direct significance for the exploration and exploitation of the natural resources of the given exclusive economic zone or the continental shelf. In the latter case the Coastal State may withhold its consent subject to state discretion, whereas in the former the state is, under normal circumstances, obliged to grant permission. The objective of this provision is to make the regime on marine scientific research compatible with the regime concerning the use of the exclusive economic zone and the con-

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Wolfrum, "Der Schutz der Meeresforschung im Völkerrecht", *GYIL* 19 (1976), 99 et seq.; T. Treves, "Principe du consentement et nouveau régime juridique de la recherche scientific marine", in: D. Bardonnet/M. Virally (eds), *Le nouveau droit de la mer*, 1983, 268 et seq.; Roach, see note 29, 59; on the relationship of marine scientific research and intellectual property rights see M. Gorina-Ysern, "Marine scientific research activities as the legal basis for intellectual property claims?", *Marine Policy* 22 (1998), 337 et seq., practical guidance for the implementation of the respective provisions of the Convention on the Law of the Sea is provided by the UN Office for Ocean Affairs and the Law of the Sea, *The Law of the Sea: Marine Scientific Research — A Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea*, 1991.

31 Article 245 Convention on the Law of the Sea.

32 Article 19 para. 2 lit. (j) Convention on the Law of the Sea.

tinental shelf. Since bioprospecting is not meant to exclusively increase the general scientific knowledge on the environment of a given zone, but rather is commercial-use oriented, it should come under article 246 para. 5 Convention on the Law of the Sea. That is to say, the Coastal State concerned may withhold its consent and it is under no obligation to facilitate access to genetic resource in its exclusive economic zone.[33] The same is valid for access to genetic resources located on the continental shelf as far as this area does not extend beyond 200 nautical miles from the baselines. For projects to be conducted on the continental shelf beyond the 200 mile limit states can only exercise their discretion to withhold consent for research projects if they have publicly designated the area in question as an area "in which exploitation or detailed exploratory operations focused on those areas" are occurring or about to occur in a reasonable period of time.[34]

As far as the high seas are concerned the conduct of marine scientific research is free.[35] Equally free is marine scientific research concerning the Area.[36] Research on marine biological resources of the deep sea-bed does not come under the jurisdiction of the International Sea-bed Authority since its jurisdictional power does not extend to marine living resources of the Area.[37]

The provisions of the Convention on the Law of the Sea on marine scientific research are predominantly aiming at a distribution of jurisdictional powers rather than at the protection of the research object and at the distribution of benefits resulting from such research. The only general duty States parties to the Convention have is to promote and facilitate marine scientific research as such, according to article 239. This obligation does not even allow the conclusion that research by foreign national scientists must be facilitated. Regulations for the promo-

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33 Henne, see note 27, 328; different G. Verhoosel, "Prospecting for Marine and Coastal Biodiversity: International Law in Deep Water", *International Journal of Marine and Coastal Law* 13 (1998), 100 et seq. who seems to qualify bioprospecting as purely scientific research. The whole issue is, however, somewhat futile since Coastal States enjoy considerable discretion in qualifying research as being application oriented or purely scientific. The means to challenge the exercise of the respective discretionary power is limited (article 297 para. 2 lit.(b) Convention on the Law of the Sea).

34 Article 246 para. 6 Convention on the Law of the Sea.

35 Article 238 in connection with article 87 Convention on the Law of the Sea.

36 Article 256 in connection with article 143 Convention on the Law of the Sea.

37 See above at I.1.

tion of marine scientific research can be focused on conditions for national scientists and still comply with article 239 of the Convention on the Law of the Sea. There is no customary law of the sea that deals with genetic resources or access thereto. Therefore, they do not cover the scope covered by the Convention on Biological Diversity.

III. Management and Protection of Marine Living and Genetic Resources under the Convention on Biological Diversity

The Convention on Biological Diversity reflects an integrated approach concerning the protection of biological diversity in providing for the conservation of biological resources, the protection of ecosystems and by obliging States parties to adopt and implement the principle of sustainability in the use of biological resources. The Convention applies to terrestrial as well as marine environments and, accordingly, to terrestrial as well as marine living and genetic resources. The ecosystem approach is most clearly promoted since, according to article 2 Convention on Biological Diversity, biological diversity means the variability among living organisms, including the diversity within species, between species and of ecosystems. Applied to the marine environment the term refers to the variability of organisms as indicated and to the marine ecosystems' diversity in a state, a region or the world.[38] The negotiations preceding the conclusion of the Convention on Biological Diversity had almost exclusively focused on terrestrial biological diversity; marine and coastal biodiversity were introduced later in the negotiating process and never intensively discussed.[39] The issue was, however, taken up by the Conference of the Parties to the Convention on Biological Diversity at its second session in Jakarta 1995. The Conference expressed deep concern "... at the serious threats to marine and coastal biodiversity caused by factors, including physical alteration, destruction and degradation of habitats, pollution, invasion of alien species, and over-exploitation of living and marine coastal resources." It endorsed a work program elaborated by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) which focused on

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38 The definition given by Ch.C. Joyner, "Biodiversity in the Marine Environment: Resource Implications for the Law of the Sea", *Vand. J. Transnat'l L.* 28 (1995), 635 et seq., (638 is somewhat wider).

39 Verhoosel, see note 33, 91.

five thematic issue areas: integrated marine and coastal area management; marine and coastal protected areas; sustainable use of marine and coastal living resources; mariculture; and alien species.[40]

Three primary objectives, namely the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits derived from the utilisation of genetic resources (article 1) are the focus of the Convention. States parties are encouraged to cooperate through competent international organisations to achieve the said objectives of the Convention. In the case of the marine environment several international organisations already exist which may serve as an appropriate forum, such as the IMO, the International Whaling Commission as well as regional or species oriented organisations.

The Convention states that contracting parties must pursue the conservation of biological diversity by establishing a system of protection areas or areas where special measures need to be taken to conserve biological diversity and promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings (article 8). Contracting parties are also required to rehabilitate and restore degraded ecosystems and to promote the recovery of threatened species (article 8 lit.(f)). To achieve these objectives the Convention provides for a network of trade-offs. States hosting genetic resources may bargain access to genetic resources against the sharing of benefits[41] derived from their use. The possibility of benefiting from the

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[40] See Report of the 2nd Mtg. of the Conference of the Parties, Annex II, Decision II/10, Doc. UNEP/CBD/2/19. This program, the so-called Jakarta Mandate on Marine and Coastal Biological Diversity, remained on the agenda of the Conference of the Parties since then, see for example the Report of the Executive Secretary on the implementation of the programme of work on marine and coastal biological diversity on the occasion of the 4th Conference of the Parties, 1998, Doc. UNEP/CBD/COP/4/5.

[41] See arts 15, 16 and 19; such benefits may, for example, include participation in scientific research (article 15 para. 6); the fair and equitable sharing of research results (article 15 para. 7); participation in commercial and other benefits derived from genetic resources (article 15 para. 7); access to, and transfer of, technology making use of the genetic resources provided (article 16 para. 3) and access to the results and benefits arising from biotechnologies based upon genetic resources provided (article 19 para. 2). Access for and transfer for technology that is relevant to the conservation and sustainable use of biological diversity (article 16 para. 1) shall be provided for, not as a matter of benefit sharing but rather as an undertaking under

utilisation of genetic resources in itself is meant to constitute an incentive for the conservation of biological diversity and to ensure that biological resources under the jurisdiction of the host state are used in a sustainable manner. To stabilise a system of access and benefit-sharing several provisions of the Convention on Biological Diversity restate that states have sovereign rights over and the sovereign right to exploit their biological resources.[42] This principle is, however, to a certain extent balanced by the statement in the Preamble of the Convention that biological diversity has an intrinsic value and that the conservation of biological diversity is the common concern of humankind and by the commitment entered into in article 15 para. 2 Convention on Biological Diversity that each contracting party shall endeavour to create conditions to facilitate access to genetic resources. Albeit from another point of view both, national sovereignty over genetic resources and the obligation to facilitate access, are necessary elements to make the incentive based system established by the Convention on Biological Diversity a viable means.

Two provisions in the Convention on Biological Diversity are of central significance for the creation of conflicts between both agreements as well as for their conciliation: article 4 and article 22 Convention on Biological Diversity. Since article 4 regulates the scope of application according to national sovereignty, the distinction of different marine zones of national sovereignty and competence according to the Convention on the Law of the Sea have a crucial effect on the scope of the Convention on Biological Diversity. Article 4 contains an important limitation of the Convention's scope; it requires a differentiation between areas under national jurisdiction of a state and areas beyond, that

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the common responsibility of all States parties to promote the protection of biological diversity.

42 The fourth preambular paragraph and article 15 para. 1 reaffirms that states have sovereign rights over their own biological resources, whereas article 3 Convention on Biological Diversity refers to the sovereign right to exploit such resources. This reference to national sovereignty concerning natural resources, in fact, paraphrases a principle frequently voiced in resolutions or declarations of the United Nations General Assembly such as A/RES/2542 (XXIV) of 11 December 1969, Declaration on Social Progress and Development (article 3 lit.(d)); A/RES/3281 (XXIX) of 12 December 1974, Charter of Economic Rights and Duties of States (article 2) as well as in Principle 21 of the Declaration of Stockholm although the objective pursued by including this principle in the Declaration of Stockholm differed from the one previously pursued with this principle.

is to say under national jurisdiction of another state or areas beyond the limits of national jurisdiction. Maritime areas under national jurisdiction are the archipelagic waters, the territorial waters, the exclusive economic zones and the continental shelves. In areas under national jurisdiction the Convention applies to "components of biological diversity". With respect to areas beyond national jurisdiction States parties are obliged to cooperate either directly or through competent international organisations concerning the conservation of components of biological diversity.

Additionally, each State party is responsible for processes and activities regardless of where their effects occur, namely in areas under national jurisdiction, beyond national jurisdiction or in areas under the jurisdiction of another state (not necessarily a State party of the Convention on Biological Diversity).[43] It is evident that the "processes and activities" referred to are only those having been undertaken under the jurisdiction (not necessarily territorial) of the given state. The decisive element of article 4 lit.(b) Convention on Biological Diversity is that it distinguishes between where the process or activity took place and the place of its impact.

The differentiation between components of biological diversity on the one hand and processes and activities potentially harmful to biological diversity on the other, has been considered arbitrary.[44] The exclusion of the direct protection of components of biological diversity outside areas of national jurisdiction e.g. the high sea, reflects existing international law concerning the exercise of state jurisdiction. Based upon its territorial sovereignty a state can determine the rules concerning management and use of resources within its territory which includes the land and the territorial waters. As far as resources are concerned the respective state according to the Convention on the Law of the Sea and international customary law exercises jurisdictional power in respect of the exclusive economic zone and the continental shelf. The jurisdictional power extends to components of biological diversity as well as processes and activities that may affect them. The emphasis of

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[43] It must be acknowledged, however, that this implication would have been clearer, if article 4 lit.(b) had not only referred to "areas of its national jurisdiction", but also continued to say-or beyond the limits of its national jurisdiction-.

[44] L. Glowka/F. Burhenne-Guilmin/H. Synge in collaboration with J.A. McNeely/L. Gündling, *A Guide to the Convention on Biological Diversity*, 1994, 27; Glowka, see note 3, 165.

article 4 lit.(b) of the Convention on Biological Diversity that it is of no relevance where such effects materialise — in areas under the jurisdiction of that or another state or in areas beyond national jurisdiction — reflects the general obligation under arts 192 and 195 Convention on the Law of the Sea. According to these provisions states have to protect and preserve the marine environment — which includes marine biological diversity — and not to transfer damages or hazards from one jurisdictional area to another.

As a result of the thematic and geographical scope the application of its provisions to the marine area can bring the Convention on Biological Diversity into conflict with the Convention on the Law of the Sea. This potential conflict of legal instruments has been foreseen and it has been found necessary to enshrine in the Convention on Biological Diversity a provision (article 22 para. 2) which is meant to solve such conflict. Article 22 para. 2 Convention on Biological Diversity rules that the Convention on Biological Diversity shall be implemented "... consistently with the rights and obligations of States under the law of the sea." This provision carries the obligation of States parties to implement the Convention on Biological Diversity in accordance with, and subject to, international customary law of the sea and the provisions of the Convention on the Law of the Sea, but only to the extent it would have a limiting effect upon the obligations and rights states enjoy thereunder.[45] The reference to "rights and obligations of States" rather than to the law of the sea as such, mandates the question whether this is to be understood as a limitation, since the Convention on the Law of the Sea is more than a network of rights and obligations of states. It is meant to establish, in particular, in respect of the management of the Area and the protection of the marine environment, a substantive legal regime. The interpretation of article 22 para. 2 of the Convention on Biological Diversity is crucial for the question raised here. A purely literal reading suggests that the Law of the Sea is not superior to the Convention on Biological Diversity, but that only the respective rights and obligations are preserved. We shall return to this issue in the Conclusions.

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[45] Therefore, the assessment given by Joyner, see note 38, 650, is too broad. See also in this respect the article of Vigni in this Volume.

IV. A Comparison of the Regimes on the Protection of Marine Biological Resources under the UN Convention on the Law of the Sea and the Convention on Biological Diversity

The regimes described so far differ in several respects. Fundamental differences relate to the underlying philosophies of the Conventions and their respective focus and structure. This has consequences for the approach to the protection of marine living and genetic resources as well as to marine scientific research and access to genetic resources for scientific reasons i.e. for bioprospecting, respectively.

1. The Protection of Marine Living Resources – Discrepancies and Similarities

The regime on marine living resources under the Convention on the Law of the Sea — and this is true for resources in areas under national jurisdiction as well as for areas beyond — are predominantly exploitation oriented. The Convention focuses on marine living resources harvested for human consumption or other human use. The emphasis is put upon upholding a maximum sustainable yield of stocks and to protect the resources in question against overexploitation. In contrast to this feature the protection of other stocks or species, in particular those that compete with human activities in the utilisation of harvested stocks, is weak. Both Conventions, the Convention on the Law of the Sea as well as the Convention on Biological Diversity, are clearly based upon an anthropocentric approach, yet with different implications due to the underlying scope, objectives and targets in time. The Convention on the Law of the Sea aims at short term efforts to secure stocks valuable for human consumption, whereas the Convention on Biological Diversity includes in its concept the potential needs of future generation as well as the recognition of an intrinsic value of biodiversity. As a result it aims at comprehensive long term efforts that protect all components of biological diversity and not only those that are momentarily considered valuable. Therefore the Convention on the Law of the Sea may be qualified as being resource oriented, whereas the Convention on Biodiversity focuses — generally speaking — on long term species and habitat preservation. The 1995 Agreement on Fish Stocks in this respect links both described approaches. On the one hand, the instrument

is still resource orientated and refers to the concept of maximum sustainable yield, while, on the other hand it incorporates an ecosystem and precautionary approach and emphasises the determination to ensure the long-term conservation and sustainable use of fish stocks;[46] aims which are compatible with those of the Convention on Biological Diversity.[47]

Article 8 lit.(d) Convention on Biological Diversity strives — amongst other things — for the maintenance of viable populations in natural surroundings. A "viable" population can be defined as one which maintains its genetic diversity, its potential for evolutionary adaptation and faces minimal risk of extinction from demographic fluctuations, environmental variation and potential catastrophe, including over-use.[48] To ensure such status, conservation actions, in particular recovery programs, may be called for to ensure either the survival of species or the continued existence of those habitats that are critical for the survival of certain species. This is where the Convention on Biological Diversity and the Convention on the Law of the Sea differ. Both oblige States parties either under the principle of maximum sustainable yield or under the principle of viable population to keep stocks on a level which not only guarantees their survival but also their development. However, according to the Convention on Biological Diversity this obligation refers to the marine life in general, whereas under the Convention on the Law of the Sea it refers to harvested stocks only. The 1995 Agreement on Fish Stocks has improved this situation, however, mainly in respect of additional stocks and not to marine life in general.[49] Accordingly, the management and protection requirements of the Convention on Biological Diversity concerning marine living resources exceeds those under the law of the sea regime. Since the significant increase in marine catch and the resulting over-exploitation of living resources is one of the major ecological impacts on the marine environment,[50] the traditional approach to achieve sustainable yields from ex-

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46 See article 2 of the 1995 Agreement on Fish Stocks.

47 Rengifo, see note 10, 318.

48 Doc. UNEP/CBD/COP/2/12 para. 39.

49 Out of the number of fish stocks that have reached their yield limit, however, many species are classified as straddling and highly migratory stocks, see Rengifo, see note 10, 314.

50 The other major factor responsible for habitat destruction and the resulting loss of species is pollution from land-based sources that affect *inter alia* ecosystems of extreme richness near the coasts such as estuaries, mangroves or coral reefs.

ploited fish stocks only, must be questioned in favour of a modern more comprehensive approach.[51] The Convention on Biological Diversity and, to a limited extent, the Agreement on Fish Stocks reflect a modern approach that includes ecosystem and habitat protection and, as a result, aims at long term conservation of marine living resources rather than striving to safeguard short-term economic interests.

Another area of discrepancy derives from the conservation obligations under the Convention on Biological Diversity. The implementation of the obligation to provide for protected areas, to promote the protection of ecosystem and natural habitats and to rehabilitate and to restore degraded ecosystems may come — and in the case of the establishment of protected areas which intend to exclude shipping necessarily comes into conflict with the Coastal States' obligation to allow innocent passage in the territorial sea or in archipelagic waters, to respect the right of archipelagic sea lanes passage, of transit passage and the freedom of navigation in the exclusive economic zones. The conflict between different uses of the maritime area, as between areas of environmental protection and freedom of navigation, is just one example of a variety of competing uses of the sea and coastal waters.[52] According to the Conference of the Parties of the Convention on Biological Diversity the selection of marine and coastal protected areas, within the framework of integrated marine and coastal area management, shall focus on critical habitats for marine living resources.[53] Specific areas of environmental protection are not explicitly envisioned by the Convention on the Law of the Sea. States can take measures "... necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life"[54], yet such measures must not be an "unjustifiable interference with activities carried out by other states in the exercise of their rights and in pursuance of their duties in conformity with this Convention".[55]

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51 As a result Rieser, see note 12, 251, proposes that international fisheries legal norms take into account the wider, ecological impacts of fishing.

52 Other conflicts include a clash of interests between fisheries and oil or gas exploration, between recreational use and accidents that result from transport e.g. tanker spills, conflicts between aquacultures and traditional capture fisheries etc.; see B.A. Vestal, "Dueling with boat oars, dragging through mooring lines: time for more formal resolution of use conflicts in States' coastal waters?", *Ocean & Coastal L. J.* 4 (1999), 1 et seq., (2).

53 Annex I to Decision II/10, Doc. UNEP/CBD/COP/2/19.

54 Article 194 para. 5 Convention on the Law of the Sea.

55 Article 194 para. 4 Convention on the Law of the Sea.

Whether areas for habitat protection are an "unjustifiable interference" is subject to interpretation. However, given the importance that the right of innocent passage claims throughout the Convention, it is unlikely that areas that exclude ships from innocent passage can be established. The Coastal States may adopt laws and regulations in respect of the preservation of the environment.[56] This right is balanced, however, by article 24 para. 1 lit.(a) Convention on the Law of the Sea according to which a Coastal State shall not impose regulations on foreign ships which have the practical effect of denying or impairing innocent passage. Although this provision is meant to cover different situations, it indicates at least that the establishment of protected areas from which shipping is totally excluded would be contrary to the objective of the Convention on the Law of the Sea and would, as a result, be considered unjustifiable.

The situation is not different in respect of archipelagic waters; article 52 para. 2 Convention on the Law of the Sea makes it quite clear that the interruption of innocent passage is possible only under exceptional circumstances, if at all. As far as archipelagic sea lane passage, transit passage or the freedom of navigation in exclusive economic zones are concerned Coastal States under the Convention of the Law of the Sea do not have the right to establish protected areas as mandated under the Convention on Biological Diversity, if they result in curtailing the freedom of navigation as provided for under the Convention on the Law of the Sea for these zones.

However, many activities that are capable of depleting marine living resources in protected areas, such as fishing or the catch of living resources for scientific research, can be prohibited because they are not covered by the activities considered to come under "innocent passage".[57] The same applies to wilful pollution activities capable of destroying critical habitats that are conducted in the respective protected areas.[58] It follows that at least some activities adverse to marine ecosystem protection can be excluded from protected areas in the territorial waters without interfering with the freedom of navigation. The Convention on Biological Diversity does not define the term "protected areas". Although certain measures must be undertaken to fulfil the commitment to establish and manage protected areas, the Convention does not oblige States parties to establish areas that are free from any human

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56 Article 21 para. 1 lit.(f) Convention on the Law of the Sea.

57 Article 19 para. 2 lit.(i) and lit. (j) Convention on the Law of the Sea.

58 Article 19 para. 2 lit.(h) Convention on the Law of the Sea.

use.[59] As a consequence, there is not necessarily a conflict of obligations between the Conventions but a conflict of objectives or targets. From the perspective of environmental protection, however, conflicts of objectives often have the same negative effect as conflicts that arise from incompatible obligations and result in insufficient protection regimes.

The meeting of Experts on Marine and Coastal Biological Diversity considered, at its first meeting, the establishment of marine protected areas concerning certain high seas and deep sea-bed areas e.g. deep ocean trenches or certain hydrothermal vents.[60] The establishment of such areas is not covered by the Convention on Biological Diversity and conflicts with the regime of freedom of the high seas under the law of the sea. Since no state can claim sovereignty over parts of the high seas and there is no international organisation that governs the high seas water column, there is no power to establish any form of a formally protected area. Any agreement on such areas can only be founded on a respective consent of the states involved and will only be binding upon them. There is, however, one area where the Convention on Biological Diversity may enforce the regime on marine living resources under the Convention on the Law of the Sea. Since states, according to the Convention on Biological Diversity, are obliged to protect the components of biodiversity in areas under their jurisdiction, this may limit the discretionary powers of the Coastal States, in particular in respect of the protection of marine living resources in the territorial waters and the archipelagic waters. The situation in respect of hydrothermal vents in the Area is rather complicated. Although the International Sea-bed Authority has no power to manage the living resources of these vents, it may deal with the mineral resources thereof. Therefore, measures taken to protect such living resources will have to accommodate possible mineral activities and *vice versa*. Due to the intensive interrelationship of marine life in hydrothermal vents, it will be difficult to reconcile a regime on the exploration of the mineral resources of these vents with a protective system for marine life.

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59 The Conference of the Parties on the occasion of its 2nd Mtg. suggests to establish a system of protected areas of different categories and to develop guidelines for the establishment and management of those areas, without giving further details on their actual management and use, Doc. UNEP/CBD/COP/2/12 para. 31; the Report of the Executive Secretary on the implementation of the programme of work on marine and coastal biological diversity at the 4th Conference of the Parties does not exclude the sustainable use of protected areas, Doc. UNEP/CBD/COP/4/5 para. 44.

60 Doc. UNEP/CBD/JM/Expert/1/5, Annex V, Section IV, C.

The obligation to cooperate with other states in the conservation and management of marine living resources in the highs seas, as provided for in article 118 Convention on the Law of the Seas, is compatible with the provision in article 5 Convention on Biological Diversity that calls for state cooperation in respect of areas beyond national jurisdiction. These corresponding duties to cooperate might be a major mechanism for a future coordinated approach to the protection of marine resources.

2. A Comparison Concerning the Use and Protection of Marine Genetic Resources

Both conventions have in common that the States parties' sovereignty over genetic resources is assured in the coastal waters and the exclusive economic zone. However, both instruments differ considerably concerning the protection of and access to genetic resources, and respectively, concerning marine genetic research. Whereas the Convention on the Law of the Sea does not directly protect genetic resources at all and regulates them only indirectly by its provisions on living resources and scientific research, the Convention on Biological Diversity considers genetic resources, their protection and use as one of the central considerations in biodiversity protection.

As already discussed, there is no obligation to facilitate access to genetic resources in the territorial waters or exclusive economic zone under the law of the sea, whereas article 15 para. 2 of the Convention on Biological Diversity — one of the essential structural elements of the framework for biodiversity protection — calls for the facilitation of access, stating that states "... shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other contracting parties and not to impose restrictions that run counter to the objectives of this Convention". Although article 15 Convention on Biological Diversity does not oblige States parties to grant access to genetic resources, its provisions go further than the Convention on the Law of the Sea. The obligation not to impose restrictions that run counter the objectives of the Convention is of special significance. One of the objectives is to protect biodiversity via the incentive to make use of genetic resources and to share benefits with and transfer technology to developing countries of origin. A rigorous restriction of access to genetic resources of the territorial waters and the archipelagic waters runs counter the objectives as the system of access, benefit shar-

ing and cooperation i.e. an incentive based framework of protection, would not be promoted and, hence, the protection of biological diversity be diminished.

According to article 56 Convention on the Law of the Sea the national jurisdiction covers the exclusive economic zone. As a result the provisions on access to genetic resources as established by the Convention on Biological Diversity apply, in principle, to the exclusive economic zone.[61] Concerning the access to genetic resources, the rules on marine scientific research under the Convention on the Law of the Sea state in article 246 para. 3 that Coastal States shall, in normal circumstances, grant their consent for marine scientific research. The obligation to establish regulations and procedures to ensure that consent is granted without unreasonable delay or denial[62] is still in conformity with the obligation to facilitate access to genetic resources under the Convention on Biological Diversity. Yet, article 246 para. 5 lit.(a) Convention on the Law of the Sea makes an exemption as far as the research project "is of direct significance for the exploration and exploitation of natural resources, whether living or non-living". This will in fact be the case for the majority of bioprospecting activities. It follows that the discretion states have to grant access to genetic resources for bioprospecting in the exclusive economic zone and the continental shelf collides with the obligation to facilitate access to marine genetic resources under national sovereignty according to the Convention on Biological Diversity.

Apart from that, one cannot but state that the regime on marine scientific research – although bioprospecting resembles sampling for scientific research – is not suitable for the management of marine genetic resources, since it lacks the protective component which is essential under the Convention on Biological Diversity.

For the high seas and the Area the legal situation for marine genetic resources is even more unsatisfactory. According to the Convention on Biological Diversity, states are not under an obligation to provide for the protection of components while under the Convention on the Law of the Sea the protection of marine living resources is selective.

For marine genetic resources outside national jurisdiction i.e. the high seas and the deep sea-bed, access to genetic resources to undertake scientific research is free under the Convention on the Law of the Sea.

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61 Henne, see note 27, 327.

62 Article 246 para. 3 Convention on the Law of the Sea.

The access to genetic resources outside national jurisdiction is not part of the complex system of access and benefit sharing under article 15 in connection with article 4 Convention on Biological Diversity. According to article 4 lit.(b), the Convention on Biological Diversity applies to processes and activities under the control of States parties outside the limits of national jurisdiction, hence, also concerning the activities on the high seas and the deep sea-bed. However, the provisions on access are based upon national sovereignty and cannot be transferred to access to genetic resources in the high seas. As long as scientific research does not collide with other objectives of the Convention on Biological Diversity it can be performed by contracting states' nationals beyond areas of national jurisdiction without further conditions. Since bioprospecting does not deplete the respective marine living resources, contracting parties would be free to sample genetic resources outside national jurisdiction. This circumstance is capable of severely diminishing the significance of access to genetic resources as an incentive for their protection.[63] If states can conduct bioprospecting on the high seas without having to agree on benefit sharing and technology transfer as they would have concerning resources under national jurisdiction, they undermine the objectives of the Convention on Biological Diversity as there is less incentive for developing states to protect genetic resources under their sovereignty. This reasoning is to some extent theoretical as many areas of genetic richness are located near coasts i.e. under the sovereignty of the Coastal State. Furthermore, scientific research on the high seas is more difficult and expensive to undertake. As a result developed states might in fact be more interested in gaining access to genetic resources in areas under national jurisdiction, accepting agreements on benefit-sharing and transfer of technologies, and consequently strengthen an incentive based system of protection of genetic resources. Yet, this discussion shows that the underlying rational of the Convention on the Law of the Sea can to some extent undermine the objectives and efforts of the Convention on Biological Diversity.

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63 See Verhoosel, see note 33, 102.

V. Conclusion: The Management of Marine Living and Genetic Resources under the Biodiversity and the Law of the Sea Regimes — A Conciliatory Approach

Both conventions discussed in this article establish regimes of management and protection of marine biological resources that can, on the one hand, collide but can also, on the other hand, supplement one another. This section discusses the general international rules and specific provisions on conflicts of agreements and their application to the interplay of the Convention on the Law of the Sea and the Convention on Biological Diversity. Further, it gives some answers, as the interplay of both conventions has changed the regime for marine living resources.

Generally there is no hierarchical structure of international law. Quite recently it has been recognized that both treaty and customary law are basically of equal legal validity.[64] As far as agreements are concerned all treaties are equally binding.[65] The only exemption to the rule of equality of international treaties is provided for by Article 103 UN Charter. This article, however, establishes a hierarchical structure with regard to the Charter of the United Nations only. All other treaties remain based upon an equal footing.

The 1969 Vienna Convention on the Law of Treaties, the 1986 Vienna Convention on the Law of Treaties between States and International Organizations or between International Organizations,[66] the respective customary law as well as the general principles of law are the sources regulating the international law of treaties. The Vienna Convention on the Law of Treaties applies to written treaties, governed by international law and concluded between states.[67] The Convention addresses issues that are important for the determination of the relation between the Convention on the Law of the Sea and the Convention on Biological Diversity such as conflicts and prevalence of treaties and treaty interpretation. However, with regard to the Convention on the Law of the Sea, the provisions of the Vienna Convention on the Law of

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64 K. Wolfke, "Treaties and custom: aspects of interrelation", in: J. Klabbers, *Essays on the Law of Treaties*, 1998, 31 et seq., (36).

65 I. Seidl-Hohenveldern, "Hierarchy of treaties", in: Klabbers, see above, 7 et seq., (8).

66 *ILM* 25 (1986), 543 et seq.; not in force.

67 Article 1 in connection with article 2 para. 1 lit.(a) Vienna Convention on the Law of Treaties.

Treaties are applicable partially and only between some states because the Vienna Convention on the Law of Treaties entered into force in 1980, i.e. during the negotiations to the 1982 Convention on the Law of the Sea. During the phases of adoption, opening for signature and the last day the instrument was opened for signature more and more states became party to the Vienna Convention on the Law of Treaties.[68] Furthermore, the Convention states in its article 4 that it will only take effect for treaties concluded between those states it has entered into force for. This effect is, however, mitigated by the fact that the Vienna Convention on the Law of Treaties represents to a significant extent international customary law.

As far as the conciliation of conflicts between international treaties is concerned the Vienna Convention on the Law of Treaties shows considerable gaps. Its provisions on the solution of conflicts in article 30 refer to successive treaties on the same subject matter only. The applicability and superiority of one of the colliding agreements depends on the status of the states as members or non-members to the agreements: if all States parties to the later agreement are as well States parties to the earlier, the earlier is only applicable as far as it is consistent with the later (article 30 para. 3). The same applies generally to the relation between States parties to both agreements, even if not all States parties to the earlier treaty have become a party to the later (article 30 para. 4 lit.(a)). Based on this rule the Convention on the Law of the Sea regulates in article 311 para. 1 its relation to the 1958 Geneva Conventions on the Law of the Sea. Finally, between those states that are not States parties to both agreements, their relation is governed by the treaty they are both parties to, according to article 30 para. 4 lit.(b) Vienna Convention on the Law of Treaties.

These rules do not help to define the relation between the Convention on the Law of the Sea and the Convention on Biological Diversity. Due to the limitation to treaties dealing with the same subject matter the provision in article 30 Vienna Convention on the Law of Treaties must be considered inapplicable when dealing with overlapping treaties on different aspects of environmental protection. The Convention on the Law of the Sea and the Convention on Biological Diversity cannot be regarded to be successive treaties on the same subject matter, even if their focus on the protection of the marine environment overlaps to

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68 B. Vukas, "The Law of the Sea Convention and the Law of Treaties", in: V. Götz/P. Selmer/R. Wolfrum (eds), *Liber amicorum Günther Jaenicke – Zum 85. Geburtstag*, 1998, 631 et seq., (637 et seq.).

some extent; the scopes and primary aims of both agreements are too different.

Although article 30 Vienna Convention on the Law of Treaties is the only article dealing with the solution of conflicts, the feasibility of interpretation to perform a conciliatory function must not be underestimated. Still, interpretation can only be employed to address conflicts, if the respective colliding provisions are unclear or vague. If the States parties to an agreement wilfully establish provisions that collide with other agreements and express their intention in clear unambiguous wording, interpretation can not be used to conciliate the conflict. The vague wording of the Convention on Biological Diversity, for example the repeated phrase "as far as possible and as appropriate" leaves considerable room for interpretation. Yet, like the provisions on conflicts, the rules on interpretation established by the Vienna Convention on the Law of Treaties are also said to leave certain gaps and room for ambiguity.[69] The basic rule of interpretation, according to article 31 para. 1 Vienna Convention on the Law of Treaties, states that treaties have to be interpreted "in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose". In particular, the teleological element to this rule is important when dealing with the interpretation of colliding treaty provisions and related matters. The determination of the object and purpose of an agreement is related to the common intentions of the contracting parties, although these common intentions might be equally difficult to specify.[70] This basic rule of treaty interpretation will, in the following, be repeatedly considered when specifying the relation between the Convention on the Law of the Sea and the Convention on Biological Diversity.

Apart from the general and insufficient rules in article 30 Vienna Convention on the Law of Treaties, many agreements contain clauses that specify their relation to other treaties. Although there is, with the exception of Article 103 UN Charter , no general hierarchy of treaties in international law, reference can be made to the superiority of other agreements in relation to the referring agreement.[71] In the case of treaty clauses that regulate the relation to other agreements, interpretation is

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69 I. Sinclair, *The Vienna Convention on the Law of Treaties*, 1984, 117.

70 Sinclair, see above, 130.

71 With regard to successive treaties on the same subject matter this possibility is also expressed by article 30 para. 2 Vienna Convention on the Law of Treaties.

an essential element of conciliation as far as the scope and applicability of other provisions are rendered unclear by the superiority of another treaty. Generally, the provisions of the referring instrument must be interpreted so as to conform with the superior treaty. This proceeding reflects the will of the parties with regard to the object and scope of the agreement laid down in the clause of precedence. Hence, the precedence of the agreement referred to is recognised, while the widest possible scope of application of the inferior instrument is maintained. This mechanism of interpretation is known in some national legal systems concerning the conformity of legal acts with the constitution. This model can be transferred to the international context, if superiority of certain agreements is established.[72]

A common provision is to prevent conflicts of obligations by establishing precedence of those instruments adopted prior to the respective treaty.[73] Like many other international agreements the Convention on Biological Diversity contains such a clause of precedence of those rights and duties that bind the contracting parties at the time of the ratification of the Convention on Biological Diversity (article 22). Yet, the agreement adds that this preference shall not be valid if "the exercise of those rights and obligations would cause a serious damage or threat to biological diversity". This exemption to the rule is unusual and can lead to a *de facto* precedence of the Convention on Biological Diversity in respect to other instruments. This conclusion is emphasised when considering that the phrase to "cause a serious damage or threat to biological diversity" is subject to a wide margin of interpretation by the contracting parties.

Article 22 para. 2 Convention on Biological Diversity deals specifically with the relation to the law of the sea. The implementation of the Convention on Biological Diversity must be consistent with the rights and obligations of states under the law of the sea. In contrast thereto, article 22 para. 1 Convention on Biological Diversity establishes superiority of certain agreements only for those states that are parties to both instruments.

As already indicated, the expression "rights and obligations of States under the law of the sea" can either be interpreted to limit the prevailing power of the law of the sea to rights and duties only, or to include in

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72 See for example Henne, see note 27, 328.

73 See for example article 8 para. 2 Convention to Combat Desertification in Countries Experiencing Serious Draught and/or Desertification, particularly in Africa, *ILM* 33 (1994), 1328 et seq.

fact the law of the sea in general. The limitation to rights and obligations in a strict sense of meaning excludes general principles and institutional or administrative matters. This question has not yet been discussed in the respective literature. Authors seem to understand "rights and obligations" as being equivalent to the law of the sea in general.[74] It is doubtful, if the exclusion of general principles was intended by the contracting parties. A conflict of treaties that makes the application of clauses of superiority necessary most often arises, if rights and obligations collide but general principles can be used to interpret certain rights and obligations and, as a result, play an indirect role in the said collisions. Furthermore, general principles can also lead to conflicts of different conventions' objectives and the interpretation of agreements. Although it may be difficult to differentiate between principles and rights and obligations, the established rules on the interpretation of treaties need to proceed from the wording. Two arguments speak in favour of adopting a narrow interpretation of article 22 para. 2 of the Convention on Biological Diversity. The drafters could have easily chosen a different wording, if they had wanted to give the Convention on the Law of the Sea explicit precedence over the Convention on Biological Diversity. More importantly, if the commonly held wide interpretation is taken, the Convention on Biological Diversity could not be applied if the Convention on the Law of the Sea provides for a different regime. This does not take into account that the Convention on the Law of the Sea does not deal with genetic resources directly and that its rules on marine living resources do not fully fit. Hence, it would be somewhat illogical to have the former always replace the latter. Article 22 para. 2 of the Convention on Biological Diversity instead means that the two regimes exist in parallel and supplement and reinforce each other. Only if the application of the Convention on Biological Diversity does infringe upon the rights or obligations of states, the law of the sea rules prevail.

The Convention on the Law of the Sea also contains a provision on the relation with other international treaties: article 311. Only article 311 paras 2-4 deal with the relation to other treaties in general; para. 1 regulates the relation to the Geneva Conventions on the Law of the Sea

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74 See e.g. Glowka/Burhenne-Guilmin/Synge, see note 44, 109, who simply state "the law of the sea prevails in instances where the Convention's implementation conflicts with it"; Henne, see note 27, speaks of colliding norms of the law of the sea and the Convention on Biological Diversity; no distinction is made to the expression of rights and obligations she uses in the same context.

of 1958 and paras 5-6 deal with specific questions. In relation to all international agreements the Convention on the Law of the Sea claims priority.[75] According to article 311 para. 2 the Convention on the Law of the Sea does not alter the rights of other treaties as long as they are compatible and do not affect the application of basic principles or the enjoyment by other States parties of their right or the performance of their obligations under the Convention on the Law of the Sea. The same applies to agreements concluded between two or more States parties according to article 311 para. 3. Formulated in positive manner these provisions lead to the result that the Convention on the Law of the Sea claims the right to alter all those obligations arising from other treaties that are not compatible. Hence, all incompatible agreements shall as far as possible be interpreted to comply with the Convention on the Law of the Sea or the respective provisions cannot be applied at all. This implication is not limited to treaties concluded only between States parties to the Convention on the Law of the Sea.[76] It follows that global treaties like the modern environmental agreements and the Convention on Biological Diversity are affected by article 311 as far as the obligations they impose on contracting states that are also States parties to the Convention on the Law of the Sea collide with the latter. Concerning the relation to the Convention on Biological Diversity this conclusion is not fully coherent with article 22 para. 2 Convention on Biological Diversity.

On this basis the attempt is made to give a concrete answer as to whether and to what extent the Convention on Biological Diversity has modified the legal regime of the law of the sea on marine living and genetic resources or where the Convention on Biological Diversity gives way to the Convention on the Law of the Sea. In any case, the different approaches of the Convention on the Law of the Sea and the Convention on Biological Diversity cannot completely be brought into coherence; too different are the underlying philosophies and objectives. The Convention on the Law of the Sea primarily protects specific marine living resources to safeguard a human food source. The Convention on Biological Diversity exceeds this focus protecting all components of biological diversity i.e. all species, genetic diversity and ecosystems to safeguard long-term preservation and sustainable use.

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75 See Vukas, see note 68, 649, who states that the Convention on the Law of the Sea "pretends to play the role similar to the one of article 103 of the United Nations Charter".

76 Vukas, see note 68, 649 et seq.

In territorial and in archipelagic waters the Convention on Biological Diversity does not — at least not directly — modify the obligations of Coastal States to protect marine life. This would infringe upon the rights of Coastal States in this respect which the Convention on the Law of the Sea did not want to limit explicitly. At the time of its adoption the principle that states had the sovereign right to manage their resources was still dominant in its absolute form. For that reason the underlying principle of the Convention on Biological Diversity that biological diversity has an intrinsic value and that the international community is interested in its protection is not implemented with respect to marine living resources. One may argue, though, that according to arts 192 and 193 Convention on the Law of the Sea, the Coastal State is under an obligation to protect the marine environment, that there is a respective obligation to cooperate and that the Convention on Biological Diversity is the result thereof. Although this was not the intention of the Convention on Biological Diversity when it was drafted, its parties seem to have accepted this approach by approving the Jakarta Mandate under the Convention on Biological Diversity.[77] Despite the fact that under the Convention on Biological Diversity the Coastal States are not obliged to change or amend the policies concerning the conservation of marine life, they may use the Convention on Biological Diversity to do so. The provisions of the Convention on Biological Diversity may be implemented as far as the obligations to grant innocent passage to all ships are not collided with. The establishment of protected areas for marine biodiversity must not exclude the innocent passage of ships. Further, the Coastal States may use the Convention on Biological Diversity to strengthen the protection of marine life in the exclusive economic zone, but again they are not under an obligation to do so. As far as the establishment of protected areas is concerned, they face the same limitation as under the territorial waters regime.

The system of access to genetic resources as established by the Convention on Biological Diversity is not fully reconcilable with the respective regime in coastal or archipelagic waters. The commitment undertaken by states hosting genetic resources under article 15 Convention on Biological Diversity – albeit its limited nature – does not extend to genetic resources in territorial and archipelagic waters. However, here again the Coastal States may resort to the system under the Convention on the Law of the Sea. The rules on marine scientific research in the territorial sea state explicitly that research shall be conducted under the

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77 See note 40.

conditions set forth by the Coastal State. As a consequence the system of access and benefit sharing and transfer of technologies maintains its function as an economic incentive for the protection of genetic diversity as envisioned by the Convention on Biological Diversity. Concerning the exclusive economic zone and the continental shelf the possibility to deny access to genetic resources for the conduct of marine scientific research prevails over the obligation to facilitate access under the Convention on Biological Diversity.

Living and genetic resources of the high seas and the deep sea-bed are freely accessible, no matter whether genetic resources are considered to be a category of their own or considered to come under a wide interpretation of living resources.[78] For this area a gap exists as far as the management of marine genetic resources is concerned. Neither does the Convention on Biological Diversity oblige states to provide for the protection of components nor is the regime on marine living resources of the Convention on the Law of the Sea all-embracing. For this area it is not even possible to blend the Convention on Biological Diversity into the rules under Part XII of the Convention on the Law of the Sea, due to the restrictive wording of the Convention on Biological Diversity. Further cooperation and the joint negotiation on binding and soft law agreements concerning the biological resources of the high seas seems necessary to achieve a sustainable system of use and preservation.[79] The effectiveness of measures depends upon the degree of coordination and cooperation between both Conventions to promote a more coherent system of protection of marine living resources in the high seas. Further cooperation between the institutions of both agreements is also especially necessary to address issues like integrated marine and coastal area management, the establishment of protected areas in territorial waters and in the exclusive economic zone and bioprospecting.

Generally speaking, the Convention on the Law of the Sea provides for a framework that can be environmentally strengthened by the objectives of the Convention on Biological Diversity. The provisions on the sustainable use of resources outside national jurisdiction are especially open to further development, even by agreements that are wider in scope, as is clearly shown by the 1995 Agreement on Fish Stocks. In-

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78 Doc. UNEP/CBD/SBSTTA/2/15 para. 11.

79 Anton, see note 3, 370 et seq. theoretically favours a protocol to the Convention on Biological Diversity but at the same time considers it to be politically infeasible.

struments like the 1995 Agreement on Fish Stocks that introduce a long-term conservation approach to the law of the sea should be further promoted to link the differing objectives of the law of the sea and the Convention on Biological Diversity; especially with respect to areas beyond national jurisdiction. If linked by respective conciliatory agreements and strengthened by continuous cooperation, a viable framework for the protection of marine biological resources can be established under the Convention on the Law of the Sea and the Convention on Biological Diversity, depending on the will of the state community to negotiate for and comply with duties to conserve and sustainably manage marine areas.