

MARINE GENETIC RESOURCES IN AREAS BEYOND NATIONAL JURISDICTION

AN ANNOTATED BIBLIOGRAPHY

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Glossary

ABNJ	Areas Beyond National Jurisdiction
ABS	Access and Benefit Sharing
CBD	Convention on Biological Diversity
CCM	Common Concern of Mankind
CHM	Common Heritage of Mankind
CIL	Customary International Law
COP	Conference of the Parties
DCs	Developed Countries
DOALOS	Division for Ocean Affairs and Law of the Sea
DSM	Deep Sea Mining/Minerals
EEZ	Exclusive Economic Zone
EF	Endowment Fund
EIA	Environmental Impact Assessment
EU	European Union
FSA	Fish Stocks Agreement
FOTHs	Freedom of the High Seas (UNCLOS Part VII)
GA	United Nations General Assembly
ICP	Open-Ended Informal Consultative Process on Oceans and the Law of the Sea
IGOC	Inter-governmental Oceanographic Commission of UNESCO
IHO	International Hydrographic Organisation
IP	Intellectual Property
ISA	International Seabed Authority
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IWG	Ad hoc open-ended informal Working Group to study issues relating to conservation and sustainable use of marine biological diversity in areas beyond the limits of national jurisdiction
LDC	Less Developed Countries
LOS	Law of the Sea
MPA	Marine Protected Area
MGR	Marine Genetic Resources (<i>NB: sometimes called MBR – Marine Biological Resources</i>)
MSR	Marine Scientific Research
OLOS	Oceans and Law of the Sea
PTO	United States Patent and Trademark Office

RSG	Report of the Secretary-General
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SG	Secretary General
TRIPS	Agreement on Trade Related Aspects of Intellectual Property Rights
UCH	Underwater Cultural Heritage
UNCLOS	United Nations Convention on the Law of the Sea
UNDRIP	United Nations Declaration on the Rights of Indigenous People
UNGA	United Nations General Assembly
WCN	World Charter for Nature
WGABS	Working Group on Access and Benefit Sharing
WTO	World Trade Organisation

#	Citation	Summary	Approach Advocated	Notes
1.	Aricò (2008)	Science-based indicators for measuring the sustainability of human activities are of prime importance for policy. Conventional techniques will remain useful, but newer techniques (genomics, proteomics, biodiversity informatics) are increasingly seen as an important source of information.		- Until recently there was a dichotomy in international fora, such as the CBD, between 'pure' scientific research and policy-driven research; now there is broad agreement that scientifically sound measures of the state of the environment are necessary for effective management regimes (477) - It is important that actors agree on concepts and methods for standardised environmental monitoring (478); currently there is a lack of mechanisms to coordinate investigations on marine pollution (479) - It is the UN's responsibility to provide a forum for the scientific community to address marine environment policy problems (480)
2.	Bonney (2006)	Considers whether the current legal regime sufficiently regulates MGR and suggests ways to remedy the deficiencies of the current regime. The potential role of MPAs, EIAs, benefit sharing, IP and emerging principles of international law are examined.	(In order of preference) - Prohibit bioprospecting; - expansion of ISA mandate; - development of a new treaty; - creation of a new international institution (to which existing principles of international law would be applied)	- Either the ISA or a new institution would: (76-77) - control access to and use of biological resources; - have authority to prohibit bioprospecting or MSR due to environmental risks; - monitor visits to deep sea features; - conduct MSR to monitor the health of deep sea ecosystems; - require completion of EIAs; - set up and monitor MPAs where bioprospecting is prohibited; - require bioprospectors to pay licence fees; funds could cover institutional costs - The following principles would be applied to the development and operation of such an institution: (77-82) - cooperation; - duty to protect ABNJ; - prevention of environmental harm; - precautionary principle; - sustainable development; - ecosystem approach; - EIA - Financial imperatives mean it is unlikely that states will agree to prohibiting patenting of MGR, however, it is possible to attach conditions to patents (82) - Alternative to requiring patent owners to pay to a central fund: a new institution (or ISA) could collect licensing fees to be paid into a central fund before activities are carried out (85)

3.	Bossar et al (2010)			• EU put forward proposal for an implementing agreement in 2008 at the IWG (33) NB: This statement is not available on EU website. • Developing countries generally argue for expansion of the definition of resources in Part XI and the inclusion of MGR in the CHM, while developed countries argue for FOTHS to apply (37) • Difficulty in determining what is pure MSR and what is bioprospecting (37) • Suggests that UNGA declaration could be an option (40)
4.	Bosselmann (1995)	Examines the international legal structure impacting the issue of biodiversity loss, in particular the CBD. Argues that biodiversity and biotechnology are potentially in conflict and that international law has previously catered for the expansion of the latter.		

5.	Elfernik (2007)	Neither Parts VII or XI of UNCLOS exhaustively define the uses that fall within their scope. This article analyses these provisions and concludes that Part XI's CHM principle is relevant for all uses of the area that concern exploration and exploitation. The provisions of UNCLOS on MSR and environmental protection offer sufficient flexibility to frame more detailed rules that do not require prior resolution of differences of views on the scope of Part XI.	MGR are included in the CHM	• As regards the Area: ○ The wording of UNCLOS Article 133 does not provide an exhaustive definition of the term 'resources' for the purpose of Part XI, nor does it state that Part XI is only applicable to mineral resources: the drafting history of Part XI includes references to living and non-living resources (152) ○ Subsequent State practice also supports the notion that Part XI includes MGR (153) • Summary of positions on MGR regulation: (162-169) ○ 1995 CBD Secretariat report – unclear whether or how CHM principle applies to MGR (162); ○ CBD Note – MGR are open-access resources and can be appropriated by anyone (163) ○ 2003 CBD Secretariat report – principles governing the Area are applicable to genetic resources in the Area (164); a specific regime could be based on the regime for the Area (164); MGR could be brought within the framework of the CBD (165); ○ 2006 IWG report – summarises the views of the States: MGR part of CHM (165); expansion of ISA mandate (165-166); FOTHS (166); clarification needed on legal status of MGR in ABNJ (166) • UNCLOS Article 87 implies that Part XI is part of the framework for assessing the scope of high seas freedoms in the area (173) • Part XI suggests that MGR are part of the CHM, however, there is some state practice that suggests MGR falls within Part VII (174) • While Part XI does not set out a regulatory regime for MGR, the principles of Part 2, Section 2 are applicable to their use, and any regime for MGR will have to be based on these principles (174)
6.	IDDRI (2008)			• FOTHS can no longer be understood in the same way as it was in the 17th century, given how threats to marine ecosystems have evolved (8) • TRIPS and principle of ownership incompatible with objective of protecting and conserving MGR as they bear a risk of reserving resources and knowledge (8) • International community now asking whether a new inter-state agreement is needed (8) • While ISA does not have authority re MGR in ABNJ, it is more involved in the issue than it might seem: it is involved in discussions with states and other authorities and has a broad mandate re MSR (8) • Need to submit any activity to a prior EIA (9)

7.	IUCN (2006)			• Collection of large samples of MGR should be subject to prior EIA (3) • The fruits of bioprospecting must be shared equitably (3)
8.	IUCN (2008) Marine Series No.1			• No specific EIA or monitoring of MSR/bioprospecting in ABNJ; UNCLOS does not specifically cover this; there is significant debate over whether MGR in ABNJ are part of the CHM (8) • No mechanism for prevention/minimisation of adverse impacts of MSR (13) • Not clear whether Part XI of UNCLOS covers bioprospecting (14) • Bioprospecting and MGR are not defined in UNCLOS or fully covered by the CBD (14) • No mechanism for prevention/minimisation of adverse impacts of bioprospecting (14) • No specific equitable sharing requirements, except potentially in the Area (14) • MGR not subject to ISA mandate (14; 61)
9.	IUCN (2008) Marine Series No.2			• 11 point practical plan to cover gaps in regulation: (vii-viii) • adopt a UNGA declaration on principles for ocean governance in ABNJ; • UNGA resolution on EIA; • develop UNGA review process, or expand mandate of ICP, IWG etc. • MPAs; • negotiate EIA agreement; • legally binding international agreement building on UNCLOS

10.	IUCN (2008) Marine Series No.4			• Agreement would need to cover ecosystem approach, EIA and enforcement; would pay specific attention to MSR and MGR (11) • Any provisions on MSR must be practical and not burdensome; scientific community must be engaged in developing the provisions (15) • No universally agreed definition of bioprospecting; not used in UNCLOS/CBD, though 'marine resources' is defined in CBD (15) • MGR in water column part of high seas, whereas there is debate over whether MGR in the seabed comes within Part XI of UNCLOS (16) • Resources in Part XI defined as non-living, so ISA has no mandate re MGR; but potential role of ISA in regulation should be considered (16) • Number of states have suggested that a benefit sharing regime could be administered by the ISA given the symbiosis between MGR and mineral resources (16) • Distinguishing pure MSR and commercial bioprospecting will be difficult; another option is to simply provide for profit-sharing if and when commercialisation occurs (16) • ITPGRFA provides an example of benefit sharing agreement, including an international fund (16) • TIPS and Budapest Treaty could be relevant; possibility of establishing a fund for royalties derived from IP rights (16) • Prior impact assessment and self-regulation could mitigate adverse impacts of MSR/bioprospecting (17)
11.	IUCN (2010)			• Way forward must ensure MGR is used to the benefit of all mankind (8) • Genomes should not be patentable (8)
12.	Jabour-Green and Nicol (2003)	Examines issues surrounding bioprospecting for MGR in ABNJ, which is attracting attention in international law because of the lack of clarity in the interplay between sovereign rights and IP rights in inventions developed from MGRs. Focuses on Antarctica, where the status of resources is legally unclear.		• Currently, MGR in ABNJ could tenuously be said to be open for use by anyone (1) • Suggests designs for regulation of MGR in Antarctica: access fees paid into a common fund; clearing house mechanism, individual regimes of treaty participants etc. (2)

13.	Jeffrey (2002)	Paper examines the ability of existing legal frameworks to achieve the stated objectives of the CBD, to minimise potential conflicts between the stated objectives and IP rights and to accommodate the need for regulatory oversight of bioprospecting, particularly with respect to the private sector.		- Article is focussed on MGR in areas of national jurisdiction - Genetic resources have traditionally been considered CHM (758) - Some LDCs have argued for an amendment to TRIPS to ensure that there is a fair and equitable benefit sharing arising out of the use of genetic resources (773)
14.	La Fayette (2009)	Due to the seriousness of threats to marine ecosystems, States are considering whether existing measures are sufficient. Some are calling for an implementing agreement to UNCLOS to address the conservation and sustainable use of marine biological resources beyond national jurisdiction. Paper analyses options for a legal regime.	Implementing agreement to UNCLOS to cover MGR	- ICP 8 (2007): some states considered that MGR fell within FOTHS, some considered that they are part of the CHM, some considered them to be a part of the Area under UNCLOS Part XI and some considered MGR to require a new regime (225) - Certain principles and rules of UNCLOS and the CBD, as well as fisheries and other agreements, are applicable to the conservation and sustainable use of MGR in ABNJ (225); however, these do not cover all current issues and are at the level of general principles: a dedicated regime could be founded through an implementing agreement to UNCLOS (226) - Commercial value of MGR from ABNJ is difficult to ascertain as companies do not reveal the origins of the MGR they utilise (232); however, given the extensive processes required to conduct research, it can be said that there must be significant profits to be made in the commercialisation of MGR (232) - While UNCLOS does not specifically address biodiversity issues, its jurisdictional framework and general principles also apply to the conservation and sustainable use of biodiversity, including in ABNJ (234) - Discusses existing provisions potentially relevant to MGR (237-253) - The EU in particular advocates a comprehensive implementing agreement to UNCLOS to cover all pressures and threats based on the precautionary and ecosystem approaches (257) - Some industrialised States advocate FOTHS and reject any form of regulation (260-261); however, nothing in UNCLOS suggests that FOTHS applies to the Area, it instead states that the Area is the CHM (261) - Fundamental ethos of UNCLOS is that the seas should be regulated (261) - Given the extent of regulation in UNCLOS, it would be odd if MSR and bioprospecting were to be left unregulated (263) - Some States consider that UNCLOS Part VII, section 2 (living resources of the sea)

				applies to MGR, yet it is clear this is intended to apply to fisheries (264) • MGR must be regulated, lest it be destroyed: the experience with fisheries shows that general principles need further elaboration (266) • The G77 and China argue that MGR are part of the CHM and, on some occasions, have argued that MGR fall within UNCLOS (Part XI) and that bioprospecting should be regulated by the ISA, though nothing in UNCLOS supports this (266) • It would be anomalous for bioprospecting was the only activity not considered part of the CHM; it is logical that MGR be included in the CHM (269) • The goals of UNCLOS (equitable and efficient utilisation of the oceans' resources) would be hindered if resources in ABNJ are appropriated by the wealthy states (269) • Regulation of MGR should not be in the same form as that for DSM: regulation of a living resource must account for the vulnerability to change and disturbance (269-270) • Regulation of MGR must also account for the close relationship between bioprospecting and MSR (270) • Some States have argued that bioprospecting should fall under the regime for MSR (UNCLOS Part XIII) because, up to the point of commercialisation, the research and analysis processes are broadly similar; however there are a number of requirements under the MSR provisions that make this inappropriate for regulation of commercial activity (270-271): ○ information dissemination; ○ the principle of benefits for all; ○ transfer of knowledge, especially to developing States; ○ provision of equipment and training to developing States; ○ the principle that MSR cannot be the basis of any claim to part of the marine environment. • If bioprospecting were to be regulated, some means of sharing the benefits would have to be devised (272) ○ Non-financial benefits: apply all the requirements of UNCLOS Parts XIII and XI (cooperation etc.); (273) ○ Financial benefits: require a fee or licence, pay into a royalties fund, such as the EF established by the ISA (273) • Clear that dedicated regulation is needed; it could follow a format similar to UNCLOS Parts XII and XIII but be specific to MGR in ABNJ, and could be in the form of an implementing agreement (275) • New regulation would provide for, a forum for discussion and coordination,
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				provisions to address new issues, EIAs, monitoring of the state of marine ecosystems, a mechanism to review the implementation of conservation measures, a benefit sharing mechanism(275) • Such an agreement must emphasise the need for conservation and include the precautionary and ecosystems approaches (276) and would specifically cover MSR and bioprospecting and the sharing of benefits thereof (277) • Expansion of the mandate of the ISA could be considered the most appropriate mechanism for implementation as it already exists and is involved with MSR; the ISA could work with the IGOC to develop a Code (279) • An ecosystem approach would also require that a means is found to link a seabed/MGR regime to the sectoral regimes in the water column above (279)
15.	Lawson and Downing (2002)	Patents compliant with TRIPS are unlikely to achieve the objects of sharing the benefits from exploiting the genetic resources of the seas because of the significant gaps in UNCLOS and the failure to take into account broad patent claims by non-residents in benefit sharing arrangements. The reliance on UNCLOS and the CBD for the regulation of benefit sharing undermines the internationally agreed mandate that the genetic resources of the seas are to be shared and used for the benefit of all.	Close gaps in existing law; implement benefit sharing provisions of the CHM doctrine in relation to MGRs in ABNJ	• UNCLOS and CBD consider MGRs in ABNJ to be part of the CHM (230) • But broad patents undermine this (231) • Law must be changed to ensure that CHM is fully implemented, and not undermined by patents (233)

16.	Lehman (2007)	MGR are the most immediately exploitable and lucrative of the deep sea bed, yet UNCLOS and the CBD fail to regulate them comprehensively. MSR and bioprospecting should be regulated in a way that does not threaten advances but also protects ecosystems. A number of regulatory tools should be implemented and three parallel pathways forward must be pursued to narrow the legal gap.	Strengthen existing frameworks; establish a patents system; negotiate a protocol or implementation agreement to UNCLOS.	• Questionable whether any burden should be placed on MSR through regulation. Regulation should be regulated in a manner which allows research to enrich our knowledge in the necessary way, but also protect valuable marine ecosystems (60) • The following must be taken into account: (60) ○ MSR and bioprospecting have to be defined, according to whether the focus is knowledge or commercialisation; ○ The scientific community must be involved, otherwise resistance be encountered. • Three potential regulatory tools are suggested: ○ MPAs – either internationally under UNCLOS or regionally; (61-62) ○ IP rights/patents – patents would be conditional upon disclosure of origin; (62-63) ○ EIAs – used to create management plans for MPAs and as a precondition to granting of patents (63-64).
17.	Lowry (2007)	Explores the current legal regime and identifies gaps. Suggests an implementing agreement and expands on some of the core elements of such an agreement.	Framework for an implementing agreement to UNCLOS to cover MGR.	• Current legal regime for MGR is complex and fragmented, with little concrete guidance for protection (124) • Suggestions include: (124) ○ amendment of UNCLOS; ○ amendment the FSA; ○ a CBD protocol; ○ a UNGA resolution placing a moratorium on bottom trawling; ○ an implementing agreement to UNCLOS. • An implementing agreement is advocated which would: (125) ○ adopt precautionary and ecosystem approaches; (125-126) ○ promote sustainable fishing practices; (126-127) ○ set up MPAs; (128-129) ○ strengthen regional governance structures; (127-128) ○ establish criteria for EIAs (129-131). • Also briefly discusses issues surrounding adoption, compliance and enforcement (131-132)

18.	Matz (2002)	Current law on MSR is not suitable for MGR in ABNJ. A new treaty is necessary.	New international instrument, following a CHM approach; expansion of ISA mandate (or new institution)	• A new regime on MGR in ABNJ has to be developed, in contrast to MGR within national jurisdiction, which is covered by UNCLOS and the CBD (293) • Proposals have come forward that such a regime should represent the one for mineral resources in the Area under UNCLOS, the underlying concept of which is the CHM approach (293-294) • MGR are not currently accorded the CHM label by UNCLOS or the CBD (294) • CHM approach should be the underlying philosophy of a regime for MGR in ABNJ (295) • A new binding global agreement should be made ASAP (296) • A working group should begin drafting a text (296) • Such an agreement could be implemented as a protocol to UNCLOS or the CBD, but because these conventions take different approaches (CHM cf. CCM), a new treaty that harmonises the two is preferable (296) • New convention must include provisions regarding: (297) ○ MSR; ○ a licensing system to gather information on MSR projects; ○ risk and benefit sharing concerning the commercial use of MSR results. • Benefit sharing and technology transfer are sensitive issues that will call for harmonisation with TRIPS (297) • Expansion of IOC mandate would be piecemeal and not far-reaching enough (297) • New framework could be implemented by the organs of the new treaty, or by a new institution (297) • ISA's mandate could be expanded, but there may be potential conflicts if the ISA were to regulate mining and MGR, due to their interrelated nature (297-298)
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19.	McLaughlin (2003)	Many MGR are within the jurisdictional control of one or more developing nations. The current international regulatory regime is based on the traditional rule of capture. This, combined with exclusive access arrangements and strong IP laws, creates a legal environment that is inequitable, economically and biologically inefficient, and liable to cause dispute. Note: article is not about MGR in ABNJ, but MGR within national jurisdiction.	Regional or ecosystem-based cooperative management approaches	• Developing states widely dissatisfied with TRIPS (305) • Trips dramatically strengthens international protection of IP rights and it is highly likely that patents on the products of MGR will be enforced worldwide (306) • Fine line between MSR and bioprospecting (311) • Draws a comparison between MGR and other fugacious resources, such as oil and gas and migratory wild animals (316) • Discusses the laws relating to oil and gas (319) and water (321) • Law relating to MGR is still based on capture, precisely the opposite of oil and gas etc. which now have detailed rules (322) • State practice: of around 33 States regulating MGR, most provide for national/subnational jurisdiction over maritime resources (323) • Regional- or ecosystem-wide approaches reduce inefficiencies (324) and enhance data collection and capacity building (324-325) • As many MGR sources are located in developing countries with little capacity, cooperative approaches allow the pooling of resources (325) • Discusses how such an arrangement might be established (326-328)
20.	Molenaar (2007)	Article identifies shortcomings in the current legal framework for MGR and identifies solutions for some of these problems. Reform should balance the traditional approach of strengthening obligations with optimising existing rights and/or granting new rights to ensure that a balance is struck between protection and socio-economic utilisation.		• Focus of article is on fisheries (99-105) and Integrated Marine Protected Areas in ABNJ (105-106), not on regulation of MGR • Any implementing agreement to UNCLOS must be careful not to overlap with existing regimes (98) • Many states are unconvinced that an implementing agreement to UNCLOS is necessary (referring to EU's proposal to commence negotiations) (98)

21.	Pfirter (2006)	Provides an overview of the legal implications of the management of the living resources of the Area, in the framework of UNCLOS.	New international instrument	• The commercial nature of bioprospecting distinguishes it from MSR (23) • MGR are not regulated by the current framework: (26) ○ MGR are not included in UNCLOS Part XI; ○ at the time of the negotiation of UNCLOS, attention was focused on mineral resources, not MGR; ○ definition of resources for Part XI had already been adopted when hydrothermal vents were discovered. • Last UNGA Resolution on OLOS reiterated the importance of formulation (by the ISA) of environmental protection policies (28) • Provisions should be drafted aimed at preserving the basic CHM concept with regards the Area and its resources through fair and equitable utilisation of MGR (28)
22.	Prows (2007)	The challenges facing the seabed in ABNJ stem from substantive overlap and conflict between UNLCOS Part XI and other international law. Part XI seems to provide clear grounds to refute the assertion of international patent rights for seabed organisms and this could cause fragmentation of IP rights under UNCLOS/TRIPS. The necessity for consensus can also be an effective tool for encouraging countries to work together on managing the development of the law of the sea.	Patents system that encourages innovation and fair sharing	• Countries with bioprospecting industries assert either that Part XI accommodates bioprospecting (under FOTHS or MSR), or that UNCLOS is simply not relevant (291) • Developing countries disagree, asserting that the fruits of MSR either cannot be owned, or should be viewed as part of the CHM and regulated by the ISA (291) • UNCLOS provides fairly clear grounds for denying patentability for products derived from pure MSR or organisms collected in the area (291; 293) • Neither UNCLOS nor TRIPS provides reliable rules for governing bioprospecting (291-292) • There may be enough impetus in the developed/developing divide for a new bargained consensus that would universally recognise bioprospecting patents while equitable sharing some of their benefits with developing countries (292) • If developing countries seek to deny patentability (under UNCLOS articles 241 and 137(1) (293) and industry in developed countries would stand to benefit from such patenting, significant gains could be realised through cooperation (294) • Such a compromise would undoubtedly seek to ensure an effective patent system for bioprospectors while not unfairly appropriating the genetic commons (294-295)

23.	Putterman (1995)	To date, only a few attempts to incorporate genetic resources into national economies, and to link the trade in genetic resources to community development, are noteworthy. Usually such attempts centre around the creation of collaborative research agreements between source country institutions and Northern corporations. This paper illustrates that material transfer agreements can be used as convenient tools with which the citizens of developing countries can facilitate equitable collaborative research and development with genetic resources	Material transfer agreements	• MTAs are contracts used routinely by the biotech industry in Northern countries to facilitate the sharing of biological research material for mutual gain (150-151) • MTAs can be concise and flexible, making them ideal for use by developing countries to encourage research and development with genetic resources (151) • MTA is reproduced (156-168)
24.	Ridgeway (2009)	Analyses outcomes of the 8 th ICP meeting on MGR, discussing common ground and tensions between developed/developing states and environmental/commercial interests. More debate is necessary, but practical measures can be suggested in the meantime.		• Diverging views on patents: seen as both critical to spurring innovation and information sharing and as a disincentive to information and benefit sharing (317) • ICP 8 did not give a unified idea for regulation, however, UNCLOS was commonly discussed as the regime for thinking about legal aspects of MGR in ABNJ (319) • States expressed different views on which provisions of UNCLOS apply to MGRs (FOTHS, CHM etc.) (320) • While generally agreed that UNCLOS is the appropriate framework for MGR regulation, views differ as to its adequacy (321) • There is an underlying division of views on whether focus should be on a new instrument for regulation, or whether existing commitments could be improved (322)

25.	Rimmer (2009)	Article considers the intersection of IP law, contract law, environmental law and international law in the field of biodiscovery, with particular reference to the Sorcerer II expedition.	Better global, national, and local regulation of access to genetic resources; a global bio-collecting society to regulate access MGR under the CBD.	- Article discusses: - applicable rules of the CBD (154-156); - the Bonn Guidelines (156-158); - UNCLOS, TRIPS and UNDRIP (158-160); - specific arrangements between the Sorcerer expedition and states (168-172); - the Australian regime and agreement with the expedition (172-185). - Suggests that the expedition highlights the need for better global, national, and local regulation of access to genetic resources and a global bio-collecting society to regulate access MGR under the CBD (186).
26.	Rochette and Bille (2008)		Precautionary and ecosystem approaches; protected areas; define conditions for access to MGR; implementing agreement to UNCLOS	General agreement that UNCLOS provides the basis for regulation of access to MGR in ABNJ (781)
27.	Rosendal (2006)	Biodiversity conservation, ABS and protection of IP rights are all internationally agreed objectives, but are not necessarily compatible. This paper examines whether current proposals for handling IP rights legislation, e.g. disclosure of origin and certificates of legal provenance, contribute to finding a balance between these interests. Concludes that a successful multilateral system for ABS depends on compatible legislation in user and provider countries to counterbalance strengthened patent protection systems worldwide.	Patents system that encourages innovation and fair sharing	Pragmatic balance must be sought between the needs of users and providers of genetic resources (429)

28.	Safrin (2004)	Addresses the relationship between patent- and sovereignty-based systems of ownership of genetic material, arguing that as developed countries issue more patents, developing countries, which house most of the world's potentially useful genetic material, 'close-off' their resources. This spiral results in sub-optimal utilisation, conservation and improvement. Note: article is not about MGR in ABNJ, but MGR within national jurisdiction.	Framework for a more open system for genetic material	• There are three key reasons why the current IP/sovereignty dichotomy should be tempered by a more open system: (668) ○ the current systems suffers from multiple problems (described at 652-663); ○ these problems lead to poor utilisation; ○ a more open system would encourage innovation, promote conservation and facilitate collaboration between developed and developing countries • A 'novel framework' for a more open system for genetic material: ○ the policy determinations of the US should include an 'international regarding' component (i.e. Congress the PTO and/or courts should take into account the reactions of other countries to patent policy); (673) ○ transfer to a situation where enclosure of genetic resources is the exception rather than the rule and where emphasis is not on remuneration for genetic material but on the opportunity to add value to such material (680)
29.	Salpin and Germani (2007)	Considers the implications of patenting the results of MSR in terms of UNCLOS, concluding that policy clarification is needed in order to ensure provision of incentives to researchers and a fair sharing of the benefits of the results with all states.	Patents system that encourages innovation and fair sharing	• Some states believe that MGR in ABNJ are part of the CHM, while others argue that it is within FOTHS (15) • IP rights and UNCLOS may be incompatible for the following reasons: (20) ○ patenting may be a claim to part of the marine environment or its resources (Article 241); ○ patenting may interfere with MSR or other activities (Articles 240, 256, 257); ○ confidentiality requirements for patentable inventions run counter to information sharing (Articles 244, 143) • Patenting runs counter to the principles of UNCLOS (21)

30.	Scovazzi (2004)	While Bioprospecting is not specifically regulated by UNCLOS, there is an inextricable link between protection of the deep sea environment, MSR and Bioprospecting. The ISA, the principles it represents, as well as its existing competencies and responsibilities need to be taken into consideration when States consider regulation of Bioprospecting.	Expansion of ISA mandate	• MGR are outside the mandate of the ISA, however, the role of the ISA could be expanded in the future to meet new objectives under commonly agreed cooperative schemes (384) • Discussion of the relevance of the broader competencies of the ISA (i.e. UCH and MSR) to regulation of MGR (391-399) • The ISA should not necessarily become the overarching regulatory authority for Bioprospecting, but it should be taken into account: nothing prevents the ISA playing a cooperative role consistent with the general principles it represents (407) • ISA's SG: there is little difference between MSR and Bioprospecting in terms of environmental protection – the ISA is equipped to elaborate a code of conduct for MSR and Bioprospecting (407-408) • SBSTTA report suggests that three options are available: (408) ○ maintain the status quo; ○ apply UNCLOS Part XI (management of mineral resources); ○ apply regime of conservation and sustainable use of genetic resources under the CBD. • SBSTTA: expansion of ISA mandate advantageous as it is already operational and already has a mandate relating to the protection and preservation of the Area's marine environment. It would also allow integrated management of the Area, as called for under the Jakarta Mandate in respect of marine and coastal biodiversity (409) • SBSTTA: ISA could incorporate MGR through a marine protected area or licensing system, and act as a clearing house for international scientific cooperation (409)
31.	Smith (2000)	Article surveys the controversy over the patenting of innovations derived from MGR and assesses the implications of possible developments for the field of international intellectual property law and the future of the WTO.	Global harmonisation of substantive IP laws	

32.	Tanaka (2008)	As there is currently no specific legal framework, this article explores existing rules of international law applicable to the conservation and sustainable use of MGR.	General discussion of existing rules; advocates CHM to an extent.	- Article discusses: - rules relating to MSR and bioprospecting in the area (130-133); - role of the ISA in environmental protection in the area (133-136); - relevant CBD provisions (136-139); - legal effect of CHM in relation to MGR in ABNJ (139-141). - It is difficult to reconcile IP rights with the sharing of MSR – a specific legal regime may be necessary (138) - Concludes that States are obliged to cooperate with the ISA in conducting MSR in accordance with Article 143(2) (131)
33.	Zewers (2007)	Article expands on the discussions of the ICP meeting (June 2007) by exploring the substance and patentability of MGR in international IP law and by evaluating the current ownership debate within maritime law between developed and developing countries. Article proposes a pragmatic solution through compulsory licensing mechanisms within international IP law. Examines whether UNCLOS is the proper authority for the regulation of MGR ownership.	Compulsory licensing mechanism	- Currently there is a proposal that MGRs be placed beyond national jurisdiction and be shared among all countries – this would discourage bioprospecting (152) - The current IP situation creates a developed/developing country division (153) - Main point of disagreement at UNCLOS is whether it regulates MGR: (153) - While there is clearly a need to discuss ABS, the development of MGR into pharmaceuticals is more pressing: the best solution is to focus on this first, and then create compulsory licensing and benefit sharing regimes to maximise global profit (153) - Discusses the approaches taken to patentability within TRIPS by the US and the EU (159-164) - TRIPS does not exclude patents for MGR; MGR does not automatically come within the morality exception (164) - In ABNJ, regulation, under UNCLOS, is unclear and variable (169) - While ISA can regulate MSR, MGR is beyond its mandate (170) - Developing countries adopt broad view, arguing that MGR is within the CHM and should be regulated by the ISA, analogising MSR to MGR. As MSR is not defined, MGR should be included therein (Pakistan on behalf of China/G77: many other developing countries in support (171)); (170) - Developed countries argue for a ‘first come, first served’ system, based on the fact that it is not specifically enumerated (Germany, on behalf of the US and EU) (172) - The EU argues the MGR do not fall with the definition of the area as they are not ‘mineral resources’ (172) - Protection of MGR is afforded by codes of conduct promulgated by scientists and researchers(173)

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