

Workshop on the Governance of High Seas Biodiversity Conservation Cairns, Australia June 16-19 2003

Meeting Record

This workshop focused on governance arrangements for conserving biodiversity on the high seas (that is, biodiversity beyond the limits of national jurisdiction, including both the water column and the Area). Over 150 participants from 36 countries debated the main threats to biodiversity, emerging issues and the range of existing legal and institutional arrangements that have relevance to biodiversity conservation beyond national jurisdiction.

The workshop participants considered a range of conservation tools and suggested ways forward. The conclusions of the workshop include suggestions for action in the short term as well as consideration of longer term goals to more effectively conserve high seas and deep oceans biodiversity (which currently remains unprotected).

Day 1 – June 16 2003

The Hon. Virginia Chadwick, Chair, Great Barrier Reef Marine Park Authority, welcomed the workshop delegates to Cairns and the Great Barrier Reef. She referred to the call from the World Summit on Sustainable Development to conserve biodiversity in vulnerable marine and coastal areas both within and beyond national jurisdiction, and noted that the workshop would take practical steps to this end.

She paid tribute to the governments, nongovernmental organizations and international agencies which had come together as partners to facilitate this workshop. She discussed the importance of investigating governance “gaps”, noting also the importance of moving beyond definitions and characteristics of high seas biodiversity to suggest practical approaches to achieve better conservation measures.

Finally, Ms. Chadwick noted that the Great Barrier Reef is the largest marine park and the largest world heritage area in the world. She encouraged delegates to draw on the management experiences of the Authority in their deliberations of management practices where these may be relevant to high seas and deep oceans ecosystems.

Day 2 – June 17 2003

The meeting was opened by **Mr. Seith Formyle from the Gimuy Walubarra Clan of the Yidinji Nation**, the traditional owners of the area where the workshop was held. Mr. Formyle welcomed all the participants to Cairns and wished them well in their discussions on high seas biodiversity conservation. He noted the importance of this issue to the indigenous community and encouraged the participants to find ways to move forward on this issue.

Following Mr. Formyle's address, **Ms. Donna Petrachenko, the Workshop Chair (Special Envoy for Asia-Pacific for Fisheries and Oceans Canada and Visiting Deputy Secretary from Environment Australia)**, welcomed the 150 participants from 36 countries and set the scope for the workshop discussions.

She noted that now is the time to take action to conserve biodiversity on the high seas, and quoted Maurice Strong that the "deep seas are the areas of last resort" (*Where on Earth Are We Going?* 2001). Ms. Petrachenko emphasized that the discussions for this workshop will indeed be timely and important, given the fact that approximately 70% of the world's oceans are beyond national jurisdiction, and that we have only limited knowledge of the biodiversity of this area.

Ms. Petrachenko summarized the recent calls for action by the international community to address high seas biodiversity conservation, including targets in the World Summit on Sustainable Development Johannesburg Plan of Implementation; the recent commitment by the G8 Summit in France to establish a network of marine protected areas by 2012; and the guidance provided by the Convention on Biological Diversity and its Subsidiary Body on Scientific, Technical and Technological Advice.

She noted that the workshop is a World Summit on Sustainable Development "type 2" partnership initiative hosted by Australia and involves legal, scientific and policy experts. The objective of the workshop is to accelerate practical international action for the conservation of high seas biodiversity. While the adequacy of current management frameworks will be discussed, Ms. Petrachenko emphasized that the focus of this workshop is in recommending how to improve coordination and effectiveness to better conserve biodiversity in areas beyond national jurisdiction.

Scoping the Key Activities Scene

Dr. Alan Butler (CSIRO Marine Group, Australia) demonstrated a new virtual site that allows users to navigate around a high seas area. This new site highlights particular types of deep ocean ecosystems including hydrothermal vents, seeps and seamounts as well as human activities that impact on these ecosystems.

Dr. Butler explained that CSIRO had developed this site to assist participants at the workshop in their discussions on high seas biodiversity conservation, and also to assist managers, users and decision-makers to better visualize some of the attributes and connections of deep ocean ecosystems. He noted that this is a fictitious site with a diverse variety of high seas and deep oceans ecosystems in close proximity.

He discussed one particular component of the virtual site, which includes pelagic and deep seas fisheries and deep seas biodiversity in trenches and canyons. This particular area also allows users to consider some of the impacts of oil drilling, dredging, sound waves, shipping, toxic waste and seafloor cables on these ecosystems.

Dr. Butler concluded his presentation by encouraging participants to consider the interactions in such an environment as they discuss governance activities for the conservation of high seas biodiversity throughout this workshop.

Prof. S. Kim Juniper (University of Quebec, Canada) spoke about major deep sea faunal habitats and related governance issues. In particular, he discussed hydrothermal vents and cold seeps. He discussed both divergent and convergent tectonic activities and the geological energy forces that are produced, noting that these two deep ocean features are found in all plate boundaries around the world.

Prof. Juniper noted a recent discovery that animals and microbes which colonize seafloor vents produce energy by chemosynthesis. This is different from any other known ecosystem (in that volcanic heat, not solar energy, drives the ecosystem) and therefore there is high biomass and rapid growth. In particular, he noted that hydrothermal vents have been identified along all of the major spreading ridges in the world, with approximately 500 species discovered thus far (noting that 90% are found only in these environments). He suggested that, while mining activities are not an immediate threat to vent ecosystems, the mineral deposits will certainly be mined more extensively in the future and the impact of this activity should be the subject of further study.

Prof. Juniper further discussed cold seeps, noting that tectonic disturbance leads to extensive oil and gas reservoirs in these environments. This untapped resource in gas hydrates will also result in further extraction activities; the effect

of such activities and impact of relevant technologies also requires further investigation.

Mr. Steve Raaymakers (Marine Environment Division, IMO) delivered a presentation on maritime transport and high seas governance in relation to the IMO Regime. He noted that shipping carries more than 90% of world trade and is the most energy-efficient and ecologically sound mode of freight transport, though it is also the most intensive human use of the high seas.

Pollution, accidents and emergencies are a critical threat from ships to biodiversity, though most accidents occur in coastal areas. Seabirds are the main high seas resource at risk from surface pollutants such as oil. He noted that nuclear waste and toxic pollution requires a greater focus regarding any future governance arrangements on the high seas. Operational discharges, including garbage and marine debris, also presents a serious threat to high seas biodiversity. The high seas convergence zones contain a vast accumulation of pollutants and Mr. Raaymakers suggested that this is something that requires greater attention.

He also discussed invasive aquatic species carried in ballast water and the potential impacts of ballast water exchange at sea in re-ballasting zones – this has not been investigated in great detail, and Mr. Raaymakers suggested that this issue requires further study.

He discussed the main objective of the International Maritime Organization (IMO), that is to regulate shipping, and referred to a range of IMO conventions that relate to activities on the high seas. He also noted a range of national and commercial incentives to comply with international environmental standards for ships and shipping activities.

In particular, Mr. Raaymakers suggested that particularly sensitive sea areas (PSSAs) could provide a basis for developing protected areas on the high seas. He noted that there are currently five existing PSSAs in coastal areas, and such areas could also go beyond the limits of the territorial sea.

Finally, he noted governance gaps created by the IMO regime. Specifically, the IMO regime has been ineffective at addressing invasive species and addressing marine debris. Under the MARPOL Convention, he also suggested that the scale of environmental standards be changed from the current system where the distance from land determines the level of conservation to be followed. Mr. Raaymakers called for an international move to “total oceans management” and “total planet management”.

Secretary-General Satya Nandan (International Seabed Authority) discussed activities of the International Seabed Authority (ISA) in relation to the resources and environment of the deep seabed. He explained that the ISA is the only organization that focuses completely on the common heritage of mankind (the

Area) and therefore the rules and regulations adopted through the ISA could have an impact on the sustainability of deep ocean ecosystems.

Secretary-General Nandan noted that there are a number of existing conventions that relate to high seas areas and that it is essential that the international community adopt measures for high seas and the Area that are consistent with UNCLOS and the ISA's responsibilities.

He recommended that sites of critical importance and sensitivity be identified (noting the need to develop specific criteria) that the international community can focus upon in the first instance.

Scientific research on genetic resources of the Area, or bioprospecting, falls under an uncertain international legal regime. It is almost impossible to distinguish between commercial and scientific activities and he suggested that a protocol and a code of conduct be developed to more specifically regulate investigative activities, regardless of their purpose. Such a code would not restrict marine scientific research, but would work to improve sustainable access to genetic resources.

Secretary-General Nandan noted that the ISA can protect certain areas in the high seas that it deems to be sensitive. He speculated that any protected area in the high seas that the ISA established would be as legal as marine protected areas in national jurisdictions.

Finally, Secretary-General Nandan commented that a report to the UN General Assembly could be a first step to deal with the problem of fishing on seamounts, noting the success of the resolution to ban driftnet fishing.

Dr. Alan Butler discussed the effects of fishing on the high seas. He noted that fishing imposes a huge mortality on the species fished, affecting the size of species populations which impacts therefore on ecosystems as a whole. His presentation focused primarily on demersal fishing and he noted that several species of fish in the deep oceans share characteristics such as being strong swimmers and their ability to rely on limited resources. They have a long life, slow growth and have low fecundity (for example, orange roughy live for approximately 100 years).

These characteristics mean that these species are not adapted for exploitation (cannot recover quickly or easily). He noted the rapid decline in orange roughy fished from the South Tasman Rise (an area managed jointly by Australia and New Zealand) over a period of five years.

Dr. Butler noted that relatively little is known about the effects of bycatch on high seas ecosystems (such as animals and coral that live on seamounts, ridges and plateaus). For example, on the Tasmanian Seamounts, 24-43% of the species there have only recently been discovered, and it is likely that many of these organisms do not move extensively between seamount sites. This may also make them particularly vulnerable to bycatch.

He also discussed the effect of prawn trawling between reefs in the Great Barrier Reef Marine Park and the effect on organisms in the soft sediment. CSIRO is conducting an ongoing study, but general conclusions reached thus far include dominance by smaller, faster growing species and general reductions in species diversity.

Dr. Butler recommended that we need to consider ecosystem management overall and not just specific fish species – this includes ecosystem diversity; species diversity; genetic variability within species; directly impacted species; ecologically dependent species; and trophic level balance.

During the lunch break, **Mr. Richard Carson (Fisheries and Oceans, Canada)** gave a presentation on Canada's first deep ocean marine protected area, the Endeavour Hot Vents. He discussed the range of biodiversity in this area, noting that the vents are dynamic features and therefore provide habitats for a diverse range of organisms. He noted that the new MPA is a multiple use area, and that part of this area would remain unexplored, even for further scientific study, as light for investigative activities is itself damaging to the endemic organisms.

Prof. Hjalmar Thiel (University of Hamburg, Germany) delivered a presentation on human impacts on high seas biodiversity.

Firstly, he discussed the impacts of climate change, on ocean environments. He predicted that as climatic changes increase, there may be a freshwater increase in the oceans and carbon dioxide increase in the atmosphere which may reduce or stop the oceanic thermohaline circulation. This would in turn result in lowered ventilation of the deep ocean and therefore loss of biodiversity.

Secondly, he discussed the impacts of anthropogenic noise in the ocean on organisms. Such impacts include physiological stress; reduced larval growth; and a change in communication patterns (such as whale songs) and whales change their song patterns. He noted specifically that injuries to fish, including damage to the inner ear, has been proven. He further stated that there is a strong correlation between noise impacts from military sonar applications and the stranding of whales as well as damage to their inner ears and internal organs.

In relation to mining, Prof. Thiel stated that the largest area that will be impacted by polymetallic nodule mining will be not larger than 200 square kilometres (single impact blocks). He suggested that species distribution should be larger than 14 kilometres ($14 \times 14 \text{ kms} = 200 \text{ square kms}$). An undisturbed zone of 28kms should function as a preservation zone between single impact blocks. He suggested that ecological research on kilometre scales and proposals for discussion of this model could be considered by the Legal and Technical Commission of the ISA.

Finally, he noted that MPAs should be considered in relation to the impact of single activities. He stated that we need to know more about endemic species

and the range of movement of species to be able to develop appropriate management frameworks that cover a large area.

Dr. Marjo Vierros (Convention on Biological Diversity Secretariat) spoke about emerging issues in the conservation and sustainable use of high seas biodiversity in relation to the Convention on Biological Diversity (CBD). In providing an overview of the objectives of the CBD, she noted that the Jakarta Mandate (agreed at the second Convention of the Parties in 1995) provides a framework for the CBD's programme of work in marine and coastal biological diversity. The Jakarta Mandate is implemented on national, regional and international levels and many countries have developed related national strategies and action plans to promote the sustainable use of marine biodiversity.

Dr. Vierros discussed the outcomes of the recent eighth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (held in March 2003) in relation to marine and coastal protected areas and conservation and sustainable use of genetic resources on the deep seabed. Specifically, the SBSTTA endorsed a global goal to establish by 2012 a marine and coastal protected area network, including the extension of such a network into the high seas (reflecting the target date set out in the WSSD JPOI). SBSTTA agreed that there are increasing risks to biodiversity in areas beyond national jurisdiction and priority areas should include cold water coral reefs, seamounts and hydrothermal vents.

Overall, SBSTTA noted that the ecosystem approach should be used as a basis for cooperation of parties and for extending protected areas beyond national jurisdiction. Dr. Vierros cautioned that SBSTTA 8 recommendations could be changed when considered at COP7 early next year.

Mr. Colin Trinder (Department of Defence, Australia) discussed the impact of military activities on high seas biodiversity. He noted that military activities are unique and therefore the potential impacts on environments are unparalleled and must be addressed in a specific way. Many militaries around the world recognize the need to not compromise the ecological integrity of the oceans in conducting their operational activities.

Mr. Trinder noted that much of what we know about the high seas was inspired by, or had its genesis in, some form of military activity. For example, most charts of the ocean have been developed by militaries around the world.

The main risks to biodiversity conservation from military activities include training exercises including oil spills, transfer of fuel at sea and explosions (though these are conducted on rare occasions and should not have detrimental effects on an entire species). He noted that collisions with large marine animals is relatively rare. The impact of sonar on marine animals is still under investigation, though many militaries take measures to reduce their impact in this regard.

Mr. Trinder speculated that if militaries were asked to enforce biodiversity conservation on the high seas, significant thought needs to go into the logistics and the ships that will be asked to perform that task. The lead times for ships to perform offshore maritime patrol is quite long (for example, the Australian Navy is now ordering ships to be ready in 2013). He proposed a jurisdictional model for high seas patrol/enforcement based on existing boundaries based upon existing search and rescue zones. In discussion, Mr Raaymakers noted that the IMO is currently developing pollution control sites and they have used the national search and rescue zones for this.

Mr. Trinder concluded that despite the exemptions under UNCLOS in relation to military vessels, warships have an obligation to minimize risks to high seas biodiversity and implement best practice.

Scoping the Institutional and Governance Gaps

Mr. Michael Bliss (Australian Permanent Mission to the UN, New York USA) delivered a presentation on institutional gaps in the international system regarding the conservation of biodiversity in the high seas and deep oceans. He noted that his presentation would also be delivered on behalf of the co-author, **Mr. Alfonso Ascensio (Mexican Permanent Mission to the UN, New York USA)**.

Firstly, Mr. Bliss discussed the global processes in relation to oceans management and the law of the sea. The UN General Assembly annually debates and adopts a resolution on oceans and law of the sea and the UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea provides advice and input to inform this debate.

Relevant international institutions include the ISA, IMO, the IAEA, UNEP, the IOC and DOALOS and convention secretariats, including those for the CBD and the Basel Convention. Mr. Bliss noted that, of those, the ISA is the only institution that has an exclusive focus on areas beyond national jurisdiction. He also noted that the World Summit on Sustainable Development had recently reiterated a call to conserve vulnerable marine ecosystems in areas beyond national jurisdiction.

He discussed threats to high seas biodiversity including trawling on the sea floor and around sea mounts; land-based pollution; and marine scientific research for genetic resources.

Mr. Bliss identified a range of institutional gaps including those in sectoral regulations (for example in relation to the exploration and exploitation of genetic resources of the deep oceans); and gaps between the actions of relevant institutions and political will (for example in relation to ensuring effective flag state implementation).

He also noted the lack of appropriate coordinating structures and highlighted the UN General Assembly's call for the creation of "an effective, transparent and

regular inter-agency coordination mechanism on oceans and coastal issues within the UN system". Improved coordination is particularly important for high seas areas because there is no institutional structure for all relevant agencies to talk about threats to these areas.

To overcome these existing gaps, Mr. Bliss suggested that both conceptual and organizational changes would be necessary. Specifically, integrated oceans management, ecosystem-based management, the precautionary approach and equity concerns should form a conceptual foundation for approaches to manage high seas biodiversity. Specifically, he suggested that relevant institutions should identify a focal point on biodiversity of the high seas and deep oceans, and called upon DOALOS to convene an inter-agency working group on high seas biodiversity under a broader oceans coordinating mechanism.

As a matter of priority, he recommended that all relevant institutions should work together to collect further scientific and ecological information and develop a plan for integrated management. Finally, he emphasized the need for states to provide political support and ensure adequate funding for coordinated efforts to conserve and manage high seas biodiversity.

Mr. Philip Burgess (co-chair of UNICPOLOS 4, Australia) presented the outcomes from the recent meeting of the UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea in relation to high seas biodiversity conservation.

Mr. Burgess explained that the two themes for the 2003 UNICPOLOS meeting were the protection of vulnerable marine ecosystems and maritime safety. Issues related to high seas biodiversity were raised in the discussion of both themes. Specifically, participants noted the continuing problem of how we, as a global community, address areas beyond national jurisdiction. Significantly, IUU fishing and the lack of flag state enforcement are immediate threats to high seas biodiversity.

Marine protected areas and particularly sensitive sea areas were both discussed as potential conservation tools. He noted that at the recent meeting, there was disagreement about the legalities of each respective approach in areas beyond national jurisdiction.

Mr. Burgess emphasized the Importance of institutional collaboration and coordination on oceans and reiterated that the multilateral system is important to achieve change. He cited the General Assembly resolution on driftnet fishing as an example of an effective global conservation outcome.

Overall, UNICPOLOS provides a useful forum for a range of actors including states, UN agencies and NGOs to exchange information and ideas in relation to diverse marine issues.

Ms. Lee Kimball (independent oceans analyst, USA) delivered a presentation on the governance of high seas biodiversity conservation and offered a framework for identifying and responding to governance gaps.

She emphasized the importance of actually defining high seas and noted the complications in relation to interactions with the legal continental shelf. Ms. Kimball discussed a range of threats to high seas biodiversity and highlighted submarine cables as a focal point for developing partnerships with industry in the high seas.

Governance gaps surround activities related to bottom trawling; bioprospecting; marine scientific research, marine archaeology, and deepsea tourism. Noting these gaps, she presented a series of perspectives, or “lenses”, through which we can view high seas biodiversity issues. Important considerations include how UNCLOS actually manages conservation; the need to look at habitat, species and ecosystems together with all relevant issues and the actual scale of activities to be regulated; the need to look together at regulating activities as well as regulating the areas in which activities take place.

She noted that high seas multiple use management is elusive – there is a gap analysis between agreed threshold protection and threats to biodiversity in this area. To overcome this limitation, she recommended that immediately, protection measures should be developed under existing instruments; and a coordination point and the establishment of marine protected areas be considered in the longer term.

Dr. Charlotte de Fontaubert (Greenpeace International, USA) discussed the jurisdictional loophole in relation to fisheries on the high seas. Noting that the depletion of coastal fisheries are increasingly forcing fleets onto the high seas, she focused her presentation on seamounts as fragile ecosystems that could easily be destroyed completely. She identified the main threats to high seas biodiversity as illegal fishing, particularly industrial trawlers; commercial fishing fleets; and the lack of a protective governing body.

She presented the jurisdictional dilemma that at least 50% of the globe is high seas areas that remain unprotected and unregulated. She noted, however, that there is a mandate to act and cited the 2001 IUCN and WWF publication; article 16 of UNCLOS (which establishes freedom to fish on the high seas and calls on states to manage the Area); measures adopted by RFMOs; Agenda 21; the 1995 UN fish stocks agreement; UN General Assembly resolution 57/141, and the recent decision of the CBD SBSTTA.

She recommended that the range of upcoming international meetings, including the World Parks Congress in South Africa in September 2003 and the conference on deep seas fisheries in New Zealand in December 2003 provide an opportunity to pursue a new international treaty to close the most fragile high seas areas to fishing. She stressed the need to also consider overfishing in coastal areas as a continued driver for exploitation of high seas resources.

She further recommended that the international community institutionalize international cooperation in this regard. Dr. de Fontaubert concluded by calling for the adoption of high seas, noting that such conservation tools MPAs offer an opportunity to be proactive about fisheries conservation

Dr. Jeremy Coleman (Woodside Energy, Australia) gave a presentation at an evening reception regarding the role of the extraction industry in conserving biodiversity on the high seas.

Dr. Coleman emphasized the willingness of the industry overall to take precautions to avoid environmental to high seas ecosystems. He noted that the private sector has collected a vast array of information on high seas areas and encourage the exchange of information among industry, scientists, governments and relevant organizations.

Day 3 – June 18 2003

Prof. Stuart Kaye (Law Faculty, University of Wollongong, Australia) delivered a **special commentary** on implementing high seas biodiversity conservation and global geo-political considerations.

Prof. Kaye noted a range of constraints to an effective regime to conserve biodiversity in the high seas. Under the UN Convention on the Law of the Sea, states operating in the high seas are afforded freedom of navigation; freedom of overflight; freedom to lay submarine cables and pipelines; freedom to construct installations and artificial islands; freedom to fish; and freedom to conduct scientific research. States can regulate any related activities only through the actions of states own nationals or vessels under their flags. When considering the establishment of an MPA on the high seas, he stressed the need to be aware of limitations which will be imposed on these freedoms.

Specifically, in relation to fishing, Prof. Kaye predicted that distant water fishing nations will be resistant to any regulation that limits their ability to fish on the high seas. Though only about 10% of the world's fish catch comes from high seas areas, many of these nations are unable to maintain a stable fish population in their own EEZs and therefore express a need to fish on the high seas. Geographically disadvantaged states (26 countries) under UNCLOS will also likely resist any perceived "creeping" of any regulations into high seas areas, including the establishment of marine protected areas. When considering the establishment of MPAs on the high seas, relevant parties also need to consider the role of RFMOs.

Prof. Kaye predicted that any regime which limits navigation will be resisted by, notably, the USA; and limitations to marine scientific research activities will be resisted by both states and commercial operations. Any "misuse" of scientific programs to undertake de facto harvesting of stocks is also a risk to conservation

activities. He noted that the ISA has a legitimate interest in the environmental protection of the Area and any efforts to set up conservation arrangements such as MPAs would have to be done in cooperation with the ISA.

Summary of Keystone Documents

Ms. Kristina M. Gjerde, J.D. (IUCN High Seas MPAs Programme, Poland) reported on a workshop in Vilm, Germany in 2001 that discussed marine protected areas on the high seas.

The workshop participants included lawyers and scientific experts who discussed threats to high seas biodiversity including fishing, mining, shipping, marine scientific research and tourism. Participants debated the legality of establishing MPAs on the high seas, and noted the flexibility of the MPA concept (referring to the six categories of IUCN protected areas).

Participants developed the “Vilm methodology” to determine whether a new legal instrument might be necessary to protect certain types of high seas biodiversity. Specifically, they discussed the problem of fishing on seamounts and analyzed the relevant legal instruments (UNCLOS and UN fish stocks agreement) and the array of relevant conventions (such as the CBD and the CMS) and institutions (such as the FAO; ISA; IMO; IOC; the UN General Assembly; RFMOs; and regional seas organizations).

The workshop noted that UNCLOS provides the framework for action on the high seas and recommended that conservation measures be undertaken urgently which respect the rights of all legitimate users. Further, they agreed that some actions may be most effective if undertaken at the regional level in the first instance followed by actions at global level.

The participants also discussed the relevance of PSSAs as a tool to protect a significant area and suggested that IMO procedures could act as a model for other agencies to develop criteria for particularly vulnerable areas as well as a model for the development of a framework of high seas MPAs.

During the discussion, Charlotte de Fontenbaut (who also participated in the Vilm workshop) noted that to target a valuable seamount for an MPA as a first step could actually become a target for fishers and suggested that a first step should be to establish an MPA on a site which is perhaps not as rich in biodiversity.

Dr. Simon Cripps (Global Marine Programme, WWF International, Switzerland) provided an overview of the WWF/IUCN report on the status of natural resources on the high seas which was published in 2001. Dr. Cripps thanked **Ms. Charlotte Breide (also of WWF International)** as a co-author of his presentation.

This publication is comprised of an environmental perspective and legal and political considerations. The contributors listed natural resources in specific types of areas, identified the threats and potential threats to high seas biodiversity; and examined the current international legal framework.

The environmental component identified a number of high seas resources including fish stocks; seabirds; seamounts; cetaceans; and cold water corals. In his presentation, Dr. Cripps focused specifically on seamounts and cold water corals. In relation to seamounts, the main threat is strip-mining – when industrial deep water trawlers scrape the benthos, fish stocks are eradicated. Commercial trawling is the main threat to cold water coral reefs.

The report's legal conclusions noted the need for a precautionary approach; and endorsed MPAs as a flexible tool to address the uncertainty of high seas biodiversity sustainability. Dr. Cripps noted that states have a duty to cooperate in managing resources of the high seas and that international law is not an impediment to related action.

The report suggested that a trial site for an experimental MPA be developed around a seamount where fishing has not yet taken place. He suggested that the first trial sites could include the Grand Banks; Heard and McDonald Islands; or the Tasman Rise.

Dr. Cripps recommended that action needs to be taken immediately to abolish flag states of convenience; establish pilot conservation sites; and develop a framework agreement. He advocated the use of conservation measures through existing processes including FAO, RFMOs; UNICPOLOS; WPC; and the CBD. He concluded by noting a recent call from Greenpeace to develop a precautionary moratorium on seamount fishing.

Mr. Graeme Kelleher (IUCN World Commission on Protected Areas, Australia) reported on the outcomes of a workshop on high seas marine protected areas held in Malaga, Spain in January 2003. The workshop participants, including scientific, legal and institutional experts, recommended that an action plan for high seas protected areas be developed, and noted that MPAs are useful as a conservation tool for conserving biodiversity on the high seas.

He noted that the WSSD identified 2012 as a target date for establishing a global representative system of MPAs and UN General Assembly resolution 57/141 (December 2002) supported this objective. These recent mandates provided the background and political incentive for the Malaga workshop.

The objective of the workshop was to highlight threats to high seas species and opportunities to establish high seas MPAs.

The participants concluded with three priority actions: to establish expert networks among key organizations, governments, scientists, nongovernmental organizations and the media to build support for high seas biodiversity conservation; to identify opportunities to reiterate the need for concerted action

within the UN system and other relevant fora; and to designate “test sites” for high seas MPAs.

Finally, the participants called upon the international community to work toward a framework convention for high seas biodiversity conservation.

Mr. Kelleher also presented the outcomes of the “Defying Ocean’s End” Conference which was held in June 2003 in Los Cabos, Mexico. The goal of the conference was to develop a practical agenda for conserving life in the oceans, including identifying specific priority interventions and determining the cost of implementing a broad strategy to reverse the general trend of declining ocean health.

Participants included a range of NGOs, international organizations, scientists and legal experts. The conference developed action plans which addressed targets and outcomes; target groups; actions; actors; time frames; costs and sources of resources. The conference covered a range of issues, including the land-ocean interface; zoning and ocean-use planning; maintaining and restoring functional marine ecosystems; ocean governance; the unknown ocean; and communication. Discussions built upon a series of case studies on the Caribbean, seamounts, Antarctica, Papua New Guinea, the Coral Triangle, and the Gulf of California. Mr. Kelleher highlighted the need to consider financial implications and incentives to better conserve life at sea and follow-up activity now includes an economic evaluation of potential conservation actions.

With respect to the high seas, the “Defying Ocean’s End” Conference agreed on the urgent need to protect seamounts and other hard-bottom areas of rich biodiversity from the impacts of destructive fishing techniques such as bottom trawling; the benefits of marine protected areas as a conservation tool; and the need for an oceans governance framework based on the principles of equity, precaution and ecosystem-based management.

During a lunchtime presentation, **Mr. Peter Taylor (Marine Protected Areas Section, Environment Australia)** provided an overview of the Australian Government’s MPAs network. He discussed the range of MPAs around Australia, noting the different climatic types and ecosystems covered by this national representative network. For example, the network includes Heard and McDonald Islands in the Southern Ocean as well as the tropical Great Barrier Reef.

Regional Challenges: Summary of Biodiversity Conservation Efforts

Dr. Charlotte Johnston (Joint Nature Conservation Committee, UK) gave an overview of the conservation efforts in the northeast Atlantic maritime area.

She discussed the area under the Oslo-Paris (OSPAR) Convention, noting that the Mediterranean is not included. Approximately half of the area covered by this Convention is in the high seas, including six of the ten types of habitats under the Convention (such as seamounts; cold water coral reefs; and deep sponge aggregates).

The barriers to establishing MPAs in this area include a lack of scientific knowledge; the difficulty in identifying an appropriate conservation tool for migratory species; and the lack of agreement about which areas and types of ecosystems need to be protected immediately. The OSPAR Convention also lacks the competence to control fisheries or maritime transport in the northeast Atlantic area. She concluded that, working within these limitations, an upcoming OSPAR ministerial meeting (to be held in late June 2003) will develop criteria for establishing marine protected areas in the high seas areas covered by the Convention.

Dr. Steve Nicol (Australian Antarctic Division) discussed the management of Southern Ocean fisheries and the harvesting of living resources in the Antarctic maritime area.

He explained that the Convention for the Conservation of Antarctic Living Marine Resources (CCAMLR) entered into force in 1982. This Convention applies to the area south of the 60th parallel, much of which is beyond the jurisdiction of states.

He described the problems associated with the exploitation of many species, including seals, whales, fish and krill in the Southern Ocean. Notably, IUU fishing is major problem in this area and CCAMLR has undertaken measures to combat this problem including compliance and enforcement by member states, vessel monitoring system and reporting on catch sizes.

Current issues in CCAMLR include advancement of the precautionary approach, spatial scale of management units, bycatch, economic and political control of illegal fishing; and the status of stocks. CCAMLR has achieved an ecosystem-based approach to management of this area and is now managing fish limits more effectively. CCAMLR is unique in that has attributes of a conservation organization and an RFMO.

Dr. Nicol concluded by noting the challenges to this area due to the extremely difficult physical environment of the Antarctic. The range of scientific uncertainties coupled with a range of political pressures and sensitivities also make it difficult to reach decisions by consensus.

Ms. Tiina Kurvits (Polar Program UNEP/GRID-Arendal) discussed efforts to conserve biodiversity in the Arctic Maritime Area.

Ms. Kurvits focused on the Arctic marine environment (including the Arctic Ocean which is bordered by 8 states). Marine biodiversity conservation in this region is threatened by unsustainable harvest, bycatch, climate change, shipping

and transportation and natural resource development. The harsh nature of the Arctic environment makes it very vulnerable to any additional pressures placed upon it.

She noted the range of international measures which are relevant to conserving biodiversity in this area (including CBD; CITES; UNCLOS; MARPOL and the OSPAR Convention). She suggested that to conserve biodiversity in high seas areas, more effective implementation of such agreements would be more appropriate than negotiating new international legislation.

She focused on cooperation on Arctic marine issues under the Arctic Council (a high-level, intergovernmental forum that addresses common concerns and challenges in relation to the sustainable management of this environment). There are a range of working groups under the Council concerning the conservation of arctic flora and fauna; protection of the Arctic marine environment; monitoring and assessment; emergency prevention, preparedness and response; and sustainable development. Ms. Kurvits noted that indigenous communities from the Arctic participate in the Arctic Council, as well as non-Arctic states including the UK and the Netherlands.

She discussed a new Arctic Marine Strategy which is currently being developed. This strategy, led by Canada and Iceland, will include an ecosystem-based approach to management. Overall, this Strategy will build upon existing arrangements and promote cooperation and collaboration. The Arctic Council is intends to finalize this Strategy by October 2004.

Dr. Nathan Evans (Marine Studies Program, University of the South Pacific, Fiji) discussed oceans management in the Pacific Islands maritime area. Dr. Evans explained that the Pacific islands region includes 30 million square kilometers of exclusive economic zones and that the ocean to land ratio is 55:1. The small island developing states in this region can also be seen as large ocean developing states.

High seas areas in the Pacific exist mainly as enclaves, that is, surrounded by the EEZs of regional states. Regional organizations, including USP, SOPAC, FFA, SPREP, and SPC have relevance for these high seas areas and collaborate on the development of governance arrangements.

Dr. Evans discussed ocean activity in the region including tuna fisheries (this region supplies approximately 60% of the world's canned tuna which accounts for a significant component of national income. He noted, however, that distant water fishing nations account for 80-90% of the catch. Other activities include marine scientific research, the mining of seabed minerals and bioprospecting in the region; the main resources include manganese nodules and cobalt rich crusts. He stressed, however, that much is still unknown about the impact of these activities on associated ecosystems.

Each of these activities is governed in a different manner: tuna fishing is regulated in accordance with regional standards and the Western and Central

Pacific Tuna Convention (which is likely to enter into force late 2003 or early 2004); mineral extractions will mostly fall under national jurisdiction and a regional organization, SOPAC, facilitates regional marine scientific research.

He noted that research on maritime boundaries delimitation and the negotiation of continental shelf claims is ongoing; high seas enclaves in the Pacific may be subject to some of these claims. He recommended that high seas enclaves be reserved as areas free from fishing and noted that the Western and Central Pacific Tuna Convention provides a mechanism for protecting such areas. Dr. Evans predicted that the establishment of such high seas reserves in the region will improve regional oceans management (due to relief from fishing pressures and the simplification of fisheries surveillance requirements).

Finally, he noted the Pacific Islands regional Oceans Policy (which was endorsed by the Pacific Islands Forum leaders in August 2002) and invited interested parties to prepare for the regional Ocean Forum to be held in Fiji in February 2004 as a first step in implementing this new Policy.

During an evening reception, **Mr. Mathew Gianni (oceans analyst, Netherlands)** discussed the scope of the potential biodiversity loss in the deep oceans. He noted that, for example, seamounts house a high diversity of species. Should these ecosystems be destroyed, or even interrupted, the impact would be significant well beyond the immediate ecosystem. He cautioned that the present generation is indeed threatening the equity of access to the benefits of such resources of future generations. He emphasized that a lack of scientific awareness should not prevent the international community from taking immediate measures to conserve vulnerable high seas areas.

He called upon the international community to work with on-the-ground users of these ecosystems, primarily the fishing industry, to develop conservation measures which are suitable and can be implemented in a practical sense.

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Ms. Petrachenko opened the session by reminding participants of the importance of influencing public opinion to ensure that all sectors of the community are aware of the key threats to, and appropriate conservation actions for, high seas biodiversity. In particular, key users of high seas areas need to be closely involved in developing conservation measures. She reminded participants that they should be mindful of those groups we need to reach and involve those who may be affected by any recommendations this workshop may propose.

Dr. Ross Shotton (FAO, Italy) presented a **special commentary** on the upcoming conference on the governance and management of deepwater

fisheries (*Deep Sea 2003* to be held in New Zealand in December 2003). The New Zealand Ministry of Fisheries, Agriculture, Fisheries and Forestry Australia and FAO will jointly host the conference.

He noted that the deep sea (4000m deep) covers 53% of the sea's surface and is the largest ecosystem on earth. The deep seas constitutes the "last frontier" for capture fisheries as these great depths have provided protection in the past; advances in technology increasingly expose fisheries to intense pressure.

Dr. Shotton discussed some of the challenges surrounding governance arrangements of deep seas fisheries and highlighted the "regulatory vacuum" in the Southern Indian Ocean. He noted that in negotiating a convention and related commission for this area, difficulties have arisen between coastal and distant water fishing nations

The impetus for the upcoming conference in New Zealand is the need to develop appropriate strategies for maintaining deepwater habitats. The overall goal is to provide a strategic and operational overview and analysis of deepsea biology, habitat, and resource management and regulatory institutions at regional and international levels.

He noted a series of sectoral pre-conference support meetings, including a focus on marine bioprospecting; management of small scale fisheries; and assessment and management. He also emphasized that the deep sea conference and this workshop on the governance of high seas biodiversity conservation are closely linked.

The deep sea conference will report to the 26th session of the FAO Committee on Fisheries (cofi) to be held in Rome in 2005, as well as to other relevant organizations and fora including the UNICPOLOS.

During the discussion, Dr. Shotton stressed that the FAO focuses specifically on fisheries issues and does not necessarily have a mandate to consider broad environmental issues; the fishing industry, therefore, is most important stakeholder in the upcoming conference. He noted, however, that IUCN is also a major contributor to the conference and he hoped that their involvement would ensure the conference considered appropriate conservation measures.

Dr. Joseph H. Arbour (Atlantic Region, Fisheries and Oceans, Canada) gave an overview of sustainable oceans management in the northwest Atlantic maritime area.

He discussed specifically the Scotian continental shelf and deep slope area out to 200 nautical miles, which comprises a large marine ecosystem. This area is influenced by the cool Labrador current and the warm Gulf stream. He noted that this area is under high pressure from fishing activities, offshore oil and gas exploration, submarine cables and commercial shipping (the pressure from shipping is particularly intense due to the area's close proximity to the entry into the St. Lawrence seaway).

He discussed some Canadian initiatives to more sustainably manage oceans, including Canada's Oceans Act. Under this Act, the Fisheries and Oceans Minister leads and facilitates the development and implementation of plans for the integrated management of all activities or measures in or affecting estuaries, coasts and oceans habitats using an ecosystem-based approach. Dr. Arbour noted the range of conservation measures being implemented, including MPAs to conserve and protect areas of high biodiversity and biological productivity; representative marine areas administered by Parks Canada and marine wildlife sanctuaries established by Environment Canada. He noted that in 2001 Canada released its Oceans Strategy to improve their national oceans governance framework and better coordinate related activities across federal and provincial levels of government.

Dr. Arbour discussed the Gully marine area (covering 2360 square kilometres) which includes a deep sea canyon on the edge of a continental shelf off the east coast of Canada. It contains significant biodiversity including corals and a diversity of fish and whales species. Canada is working toward designation of this area as an MPA by late 2003, comprising multiple use zones. In particular, conservation measures are focused on its deep sea corals including large gorgonians.

He concluded that to effectively manage ocean environments, it is important to consult amongst all interested groups, including key users of the environment. It is imperative to build relationships and foster trust amongst the whole diversity of ocean users.

Dr. Monde Mayekiso (Department of Environmental Affairs and Tourism, South Africa) provided an overview of oceans management initiatives in the Western Indian Ocean maritime area.

He noted that RFMOs have a species focus and do not take a holistic management approach. This has presented a particular challenge to South Africa, as one of the few African countries with heavily industrialized fisheries, involved in high seas and Antarctic fisheries. South Africa has a long history of fishing on the high seas (since early 1980s), and its fishers exploit stocks in the southwest Indian ocean. Following Dr. Shotton's discussion, he also noted the absence of a regulatory framework in this area.

Specifically, Dr. Mayekiso highlighted the Melville Bank on the Madagascar Ridge. South African fishers heavily exploit several species in this area. He noted that recently several of the species caught have also been recorded in other regions (including from the north Atlantic, the Mediterranean Sea and in waters off Australia and New Zealand). This discovery could suggest an ancient common fauna on the land and/or in the Pacific Ocean and recommended that urgent action be taken to conduct further research (there is currently a risk of losing these species due to overfishing).

Dr. Mayekiso discussed a range of regional challenges to better conserving biodiversity in the high seas. These include underrepresentation at international meetings (events are often held in Europe or North America); the lack of human and financial resources; states' lack of capacity to manage and monitor their exclusive economic zones; and the marginalization in allocation by RFMOs. He stressed that countries in the region are developing the capacity to harvest deep sea resources and that any new high seas conservation regimes need to have clear benefits for developing countries.

He proposed a global agreement on high seas biodiversity and, in the first instance, an associated UN General Assembly resolution. Reports on high seas biodiversity conservation and also high seas exploitation activities should be made regularly to relevant UN fora. He also stated that RFMOs must be encouraged to incorporate an ecosystem-based approach.

During the follow-up discussion, participants spoke about the need for good governance in relation to high seas biodiversity conservation. He noted that greater emphasis should be placed on involvement from developing countries and noted the lack of financial capacity to regulate any high seas activities. He emphasized that the high seas is indeed a common resource and therefore this global problem needs to be managed in a careful and considered manner.

Ms. Petrachenko concluded the session by reminding participants of the need to consider threats and conservation measures in relation to high seas fisheries resources in a holistic manner. She noted that, since well before the UN Conference on Environment and Development in Rio de Janeiro in 1992, the international community has approached sustainable development, including natural resource uses such as fisheries and environmental and conservation measures as necessarily interconnected. She urged the working groups to consider such issues in a holistic manner during their deliberations, noting that the time is ripe to focus on how to both benefit from biodiversity in the high seas and conserve it for future generations (an approach consistent with the objectives in the Convention on Biological Diversity). Finally, she encouraged working groups to focus on institutional and noninstitutional aspects of oceans management.

Mr. Jon Day (GBRMPA) gave a lunchtime presentation on the Great Barrier Reef, noting the multiple-zone management approach and the range of users of this unique ecosystem.

Working Group Reports and Suggested Ways Forward

Throughout the workshop, participants had been separated into five working groups to consider the current threats, challenges and existing legal and governance arrangements in relation to high seas biodiversity conservation. At

the conclusion of the workshop, these groups presented their findings including suggested actions that the international community can take, both immediately and in the longer term, to more effectively conserve and manage biodiversity beyond areas of national jurisdiction.

The **key threats** identified included:

- fishing, with bottom trawling of seamounts highlighted as a particularly destructive activity;
- illegal, unreported and unregulated (IUU) fishing;
- shipping;
- land-based sources of marine pollution;
- artificial modification of the marine environment, including the effects of climate change;
- impacts of marine scientific research;
- minerals extraction;
- bioprospecting;
- submarine cables and pipelines;
- marine debris;
- military activities;
- transportation of hazardous substances;
- lack of an agreed definition of the “genuine link” **and disagreement over the duties of flag States in the exercise of their jurisdiction and effective control over ships flying their flag**;
- alien invasive species, including from ballast water discharge;
- lack of awareness of the diversity of high seas species and the potential impacts of exploitation activities;
- whaling, particularly the lack of coordination between the International Whaling Commission and other relevant organizations; and
- lack of political and commercial willingness to better conserve high seas biodiversity.

Existing **governance frameworks** were discussed, and gaps in legal and institutional arrangements were identified. The **key challenges** in this regard include:

- lack of a global oceans coordinating mechanism, resulting in the continued sectoralization of UN agencies, Convention Secretariats, international organizations and initiatives such as the UNEP regional

seas programme; and potential overlap between international, regional and national activities;

- lack of adequate and effective stakeholder participation in oceans management at national, regional and global levels;
- differing mandates and capacity of regional fisheries management organizations;
- lack of a legal framework for bioprospecting on the deep seabed beyond national jurisdiction;
- lack of provisions for utilizing conservation tools, including the establishment of marine protected areas;
- lack of regulation over scientific and commercial research, including resource extraction techniques;
- lack of adequate responses to historic ocean dumping;
- limited capacity for developing countries to participate in sustainable oceans management, including regulatory regimes;

The working groups suggested a range of options to address these threats, challenges and governance gaps in relation to high seas biodiversity conservation. Scientific uncertainty and the potential devastating impact of a range of uses led participants to the conclusion that immediate action is necessary to conserve common high seas resources. It was further suggested, however, that longer term arrangements will be necessary to effectively manage high seas areas to ensure sustainability of the diverse range of biodiversity in these ecosystems, including seamounts, hydrothermal vents and deep sea corals.

The working groups strongly endorsed UNCLOS as the primary legal foundation upon which any future high seas conservation and management initiatives should be based. This may require the need for a range of implementing agreements such as the management of high seas fisheries.

The participants suggested a range of **short-term options (timeframe of 1-5 years)** to prevent unsustainable exploitation in the face of an agreed lack of certainty about high seas biodiversity species and ecosystems. These options included:

- establishment of a moratorium on bottom trawling and long-line demersal fishing on seamounts, deep sea ridges and plateaus. This proposal was highlighted throughout the workshop, and many participants raised the issue (noting particularly the devastating effects of bottom trawling) as one which requires urgent attention. Over the short term, a UN General Assembly moratorium on this practice could serve to temporarily solve the immediate threat to the benthic ecosystems recognized as highly likely to be rare, vulnerable, and rich

in endemic species; and would decrease the pressure on deep sea fish caused by unmanaged commercial exploitation.

- There is a lack of widespread implementation of an ecosystem-based approach to management of fisheries biodiversity in these areas consistent with the UN Fish Stocks Agreement and the UN FAO Code of Conduct for Responsible Fisheries. Such a moratorium would go some way to addressing the issue of equitability in relation to a relatively small number of technologically developed countries exploiting high seas resources with potentially major adverse impacts on a global reservoir of biodiversity on the global commons – the high seas – whose conservation, protection and sustainable use is a matter of interest to all nations.
 - It was suggested that such a moratorium could perhaps be linked to seamounts beyond a certain depth to enable some commercial activity to continue to a limited extent.
 - It was noted that the UN General Assembly has called for urgent action to manage the risks to the biodiversity of seamounts and other underwater features of the high seas. A moratorium would ensure that these fragile ecosystems are protected immediately while more permanent solutions are developed, agreed and applied.
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- identification of sites for pilot high seas marine protected areas. The creation of such sites would ensure that “pockets” of the high seas would be protected from exploitative activity in the immediate term, and appropriate management arrangements could then be considered over the longer term. To establish such sites would require a multidisciplinary approach considering science, economic and socio-political interests. It was suggested that a small international taskforce be formed to develop criteria for establishing such sites. Specifically, it was suggested that enclaves of high seas between supportive EEZ jurisdictions and which are not currently under intense pressure would be the best location to set up pilot high seas MPAs, and the sites. Such sites should be large enough to contain representative samples of biodiversity but also small enough to be able to identify bioregional characteristics and be able to monitor environmental change.
 - establishment of a global oceans coordinating mechanism, including DOALOS and other relevant UN agencies such as the FAO, ISA and UNEP as well as the WTO and regional organizations including RFMOs. Representatives from civil society should also be involved in moves to improve coordination on oceans issues. The recent joint collaboration between the CBD Secretariat and DOALOS was highlighted as effective coordination concerning the legal framework for bioprospecting that should continue.

- Such a mechanism could first focus on sections 7 (related to the high seas) and 11 (related to the Area) of UNCLOS. This mechanism should also explore at the earliest opportunity the establishment of a scientific risk-based approach to the management of threats to marine biodiversity. It was also suggested that update reports on high seas biodiversity conservation be submitted on a regular basis to relevant international fora including the UNICPOLOS and the UN General Assembly.
- improvement of the coordination and direction of marine scientific research programs and the facilitation of information exchange and technology transfer.
- identification of particularly sensitive sea areas beyond national jurisdiction. States could explore opportunities for protecting vulnerable marine ecosystems beyond national jurisdiction through the ISA framework. Specifically, it was suggested that the ISA could use the IMO PSSA process as a model to identify sensitive areas or those under particular threat or pressure from anthropogenic activities.
- enhancement of existing international legal arrangements, including strengthening and amending agreements to more adequately cover high seas biodiversity. Such options could include utilizing the Convention on Migratory Species to identify migratory corridors for certain species at certain times of the year; an implementing agreement under UNCLOS; and amendments to the MARPOL Convention, the World Heritage Convention and the Convention on Biological Diversity to better conserve high seas biodiversity.
- mobilization of public awareness and development of educational tools, including the use of websites and electronic media, training program, and a new oceans governance education network. It was suggested that UNEP and UNESCO should play a leading role in this regard. It was also suggested that an appointment of global oceans ambassador would assist in raising the profile of sustainable oceans management and need to conserve high seas biodiversity.

A range of **longer term arrangements (5-20 years)** to conserve high seas biodiversity were suggested. These options included:

- increasing the emphasis on integrated oceans management by:
 - enhance the legal and institutional arrangements and mechanisms; and
 - rationalize UN agencies based on such a framework.
- development of environmental standards, or criteria, for conserving high seas biodiversity based on an ecosystem approach. It was

suggested that these standards could be implemented through eco-labelling systems and regional organizations.

- establishment of an “oceans interpol” to share skills, experiences and information to improve states’ ability to enforce existing international legal obligations. Further investigation is also needed to determine how WTO mechanisms may help to enforce environmental management regimes.
- establishment of a central world oceans body to coordinate activities related to sustainable management.
- improvement of capabilities and capacity, including institutional strengthening, in developing countries in relation to sustainable oceans management.
- modification of geographic and species coverage of RFMOs to ensure an ecosystem approach and establishment of RFMOs for all unregulated fisheries.
- strengthen oceans governance research including current convention regimes and development of a global oceans policy;
- improvement of enforcement of agreed high seas conservation criteria on a global level through coast guards or a high seas enforcement agency.

Immediate actions were suggested as key activities for workshop participants to continue the momentum from the Cairns workshop. These short-term steps should include:

- promotion of the workshop outcomes at upcoming fora including the World Parks Congress (to be held in September 2003 in South Africa) and the Deep Seas conference (to be held in December 2003 in New Zealand).
- fostering regional workshops to discuss high seas biodiversity conservation, such as the upcoming Pacific Islands Regional Ocean Forum (to be held in February 2004 in Fiji).
- establish a cohesive framework to better coordinate activities, including workshops and meetings, which focus on high seas biodiversity conservation, and develop principles to foster integrity of participation and credibility of outputs from such fora.

Workshop Conclusions

Ms. Petrachenko summarized the outcomes of the workshop, noting the range of challenges and limitations associated with improving conservation

arrangements for high seas biodiversity. She noted that governments need to shift their approach to be proactive on this issue; high seas issues are not regarded as a crisis at this time, but rather under serious threat and governments therefore need to act before further damage to fragile ecosystems occurs.

She noted, in particular, the difficulty of agreeing on appropriate arrangements for an environment that remains largely unknown. It is therefore imperative that further research be conducted in high seas and deep ocean ecosystems.

She also discussed the limitations of adapting traditionally terrestrial conservation measures, such as protected areas, to ocean environments. For example, the IUCN categories of protected areas can provide difficulties in regards to discussing management tools. She encouraged participants to continue to focus on sustainability first and to develop appropriate tools around with specific conservation outcomes in mind.

Ms. Petrachenko drew together the range of comments throughout the workshop regarding the need for greater public awareness. She agreed that a virtual site would be a very useful educational tool, but noted that continued funding from interested parties will be necessary to establish such a mechanism.

She highlighted the problem of objects which were deposited in the ocean many years ago and the potential tremendous impacts that hazardous substances could cause to ocean environments. The effect of such events and the impact of various substances is largely unknown and she noted the need for further research in this area

Overall, she concluded that this workshop has provided a valuable opportunity to conduct and discuss appropriate governance frameworks. She suggested that further study and analysis is required to determine the appropriate legal frameworks that need to underpin various suggestions to better conserve biodiversity on the high seas. The outcomes from this workshop has built intellectual capital that will provide a sound foundation for moving forward; and provided a catalyst for collective action to better conserve and manage high seas biodiversity.

The following day will focus on ecosystem-based management and the outcome of such a focused discussion will also be valuable to the development of conservation measures in relation to the high seas.

Ms. Petrachenko thanked the Australian Government for hosting this workshop, noting the role of Environment Australia in pursuing the need to conserve high seas biodiversity in a range of international fora over the past few years.

Finally, **Mr. Burgess** urged participants to use this workshop as a catalyst for further concrete action to conserve the range of diverse species and organisms in areas beyond national jurisdiction.