

Pacific Region

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1 About

1.1 Overview

The sea has always been an intrinsic part of life, for the people from the 21 island states and territories of the Pacific. The Pacific Ocean provides food, transport, and a source of pride and identity for her five million Pacific Island inhabitants.

Melanesian, Micronesian and Polynesian cultures have all traditionally emphasized wise resource use and environmental stewardship. However, industrialization, urban drift and rapid population growth threaten our many ecosystems that were once largely unspoiled and sustainable. Habitats are being destroyed at a rate of knots by logging and agriculture. The marine environment is being polluted from both land and sea based sources, fish and wildlife are being over-harvested, invasive species are pushing out native biota, and climate-induced sea level rise threatens to drown our low-lying islands and coasts.

The Pacific Regional Environment Programme (SPREP), a regional intergovernmental organization now based in Apia, Samoa, was initially established in 1982 as a programme of the Pacific Commission to confront these threats. SPREP is the primary regional organization concerned with environmental management in the Pacific, and serves as the Secretariat for three Conventions.

The Action Plan is reviewed by the member countries and territories every four years, and has identified four broad priorities for the region: natural resources management, pollution prevention, climate change and variability, and sustainable economic development. The 1986 Convention for the Protection of the Natural Resources and

Environment of the Pacific region entered into force in 1990. The 1976 Convention on the Conservation of Nature in the Pacific called the Apia Convention, came into force in 1990. It deals with protected areas, representative samples of natural ecosystems, geological formations, and sites of aesthetic, historic cultural or scientific value. The 1995 Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the Pacific Region (Waigani Convention) entered into force in 2001.

Two challenges lie ahead. One is waste management, which has an enormous impact on the region's health and tourism potential. With few options for disposal and tiny landmasses, waste minimization and the proper disposal of all types of waste be it solid, household or hazardous will be critical. Countries need to have programmes put in place or at least budgets allocated to support or develop current infrastructure, and to look at ways to overhaul many waste management practices now being carried out. Unless waste management is given the priority required the way of life for communities located mainly on tiny landmasses will only become more difficult.

Climate change and sea level rise is an even greater problem that threatens not only sustainable development but possibly the very survival of low-lying atolls. The region is already witnessing more frequent and intense extreme weather events. The challenge for the region is to develop and implement appropriate, affordable, and cost-effective adaptation measures with very limited resources.

As SPREP continues the pursuit of environmentally sound sustainable development throughout the region and will pay particular attention to the challenges of trade liberalization, globalization, tourism development, population growth, the impact of genetically modified organisms, urbanization and settlement patterns. Appropriate policy and legal frameworks for action at national and regional levels are being developed and SPREP continues to work hard to strengthen environmental education and awareness raising, so that all the people, who are both resilient and have fortitude, can be empowered to safeguard their natural resources, lifestyles and economic development.

1.2 Key Dates

1982	Pacific Regional Environment Programme (SPREP) adopted
1986	Noumea Convention and protocols adopted
1990	Noumea Convention and protocols entered into force
24-28 September 1990	Intergovernmental Meeting on the SPREP Action Plan, Noumea, New Caledonia
November 1996	9th SPREP Meeting. Nuku'alofa, Kingdom of Tonga
1997	SPREP Action Plan 1997-2000
15-18 September 1998	10th SPREP Meeting. Apia, Samoa.
9-12 October 2000	11th SPREP Meeting. Apia, Samoa
2001	Revised Action Plan 2001-2004

2001	12th SPREP Meeting. Apia, Samoa
2002	13th SPREP Meeting. Apia, Samoa
September 2003	14th SPREP Meeting and 4th Ministerial Meeting,
	Any additional important dates?

1.3 Geographic and General Information

Region: Pacific

Participating States: American Samoa, Northern Mariana Islands, Australia, Cook Islands, Palau, Federated States of Micronesia, Papua New Guinea, Fiji, Pitcairn Islands, French Polynesia, Solomon Islands, Guam, Tokelau, Kiribati, Tonga, Marshall Islands, Tuvalu, Nauru, Vanuatu, New Caledonia, Wallis and Futuna, New Zealand, Western Samoa, Niue

Large Marine Ecosystems: LME #40: Northeast Australian Shelf/Great Barrier Reef, LME #41: East-Central Australian Shelf, LME #46: New Zealand Shelf, LME #10: Insular Pacific-Hawaiian

GIWA Region: Subregion 63: Tasman Sea, Subregion 60: Great Barrier Reef, Subregion 59: Coral Sea Basin, Subregion 62: Small Island States, Subregion 37: Hawaiian Archipelago

Map

1.3.1 Oceanographic Information

The North Equatorial Current is fed in the east by the California Current, and the return flow of the North Equatorial Counter-Current and in the Central Pacific by a branch of the North Pacific Current. This current flows west as a broad and powerful current which covers a zonal band between 8-10°N and the Tropic of Cancer to the west of 180°. The South Equatorial Current flows as a broad westerly current between the Tropic of Capricorn and 10°S (Wauthy 1986).

The Equatorial Current flows west between 5°N and 5°S and is generated by the entrainment force of the east winds that come from the Southern Hemisphere and reach the equator. Centered on the equator beneath this westward flow is an easterly subsurface jetstream which is known as the Cromwell Current or Equatorial Undercurrent. In addition to this subsurface eastward movement of water, there are two easterly flowing equatorial counter-currents, observable at the surface between 3°N and 8°N (North Equatorial Counter Current) and north of 10°N (South Equatorial Counter Current) (Wauthy 1986).

An important long-term meteorological influence on the region is the El Niño oscillation. In the western Pacific, the marine currents and their heat content undergo marked seasonal and interannual variations. The ocean circulation can reverse itself in the equatorial zone for periods that can exceed one year. The phenomenon is accompanied by an eastward propagation of warm waters, variation in the sea level, displacement of the low atmospheric pressure zones and drought in the western areas. A further consequence of this phenomenon is the disappearance of the equatorial upwelling which is usually rich in plankton that support marine life (Bleakley 1995).

The Pacific region is characterized by very warm surface waters of low annual thermal amplitude. The temperature on the southern boundary descends to only 22°C in the austral winter south of New Caledonia and near Australia. Temperatures higher than 29°C are found over almost half the Pacific region in each hemisphere during the respective summers. Some cooling takes place throughout the year in an equatorial belt east of the dateline, due mainly to equatorial upwelling and, to a lesser extent, westward advection by the Equatorial Current of the colder waters of the eastern Pacific. Surface water salinity throughout the region varies between 34-36‰. The minimum occurs in the western parts of the region around Micronesia where precipitation significantly exceeds evaporation. Maximum salinities are associated with subtropical gyres in the north (around the Marianas islands) and south (east of French Polynesia) where evaporation is intense and exceeds moderate precipitation (Wauthy 1986).

1.3.2 Coastal Geography and Geology

The Pacific includes a multitude of small islands scattered over a vast expanse of ocean. Islands are mostly grouped in archipelagos which form Micronesia in the northwest and Polynesia in the east and the larger islands of Melanesia, which extend from Fiji to New Guinea and form part of the structural mass of the Australian continent (Bleakley 1995).

Island arcs form an almost continuous chain of islands or shallows stretching from New Zealand, through Tonga, the Solomon Islands, the Bismarck Archipelago, Palau and the Marianas to Japan. This is the area of such adjacent seas as the Tasman Sea, Coral Sea, Solomon Sea and Philippine Sea. The island arcs are bounded on the east by deep trenches, the most distinctive of which are the Marianas Trench (10,915 m), Palau Trench (8,050 m), Bougainville Trench (9,103 m), New Hebrides Trench (9,165 m), Tonga Trench (10,882 m) and Kermadec Trench (10,047 m) (Bleakley 1995).

To the east of the island arcs seamounts in the form of ocean ridges stretch over considerable distances. Their width varies from 200-500 km and they are more or less parallel, running in a NW-SE direction. These seamounts sometimes form the basements of atolls (Carolines, Marshalls, Kiribati and Tuvalu, Tokelau-Cook, Line Islands and Tuamotu-Gambier). Seamounts support archipelagos such as Fiji, Vanuatu, New Caledonia and the Loyalty Islands, while ridges (such as Lau Ridge) isolate plateaux where the depth exceeds 2,000 m (Northern Fiji and Chesterfield) and even 4,000 m (New Guinea Basin, Solomons Basin, New Hebrides Basin, Fiji Basin and Coral Sea Basin) (Wauthy 1986). Other less extensive relief features created by volcanic activity form the basements of more isolated island groups (Society Islands, Samoa, Marquesas, Hawaii) (Bleakley 1995).

1.3.3 Ecosystem Diversity

1.3.3.1 Coral Reefs

Coral makes up a great proportion of Pacific islands, either by active growth of the reef itself or by accumulation of reef debris by mechanical forces such as waves and currents. The majority of the Pacific Islands fall within the 20°C isotherm that defines the limits of tropical waters suitable for coral reef development. Coral reef ecosystems are dominant in shallow coastal waters except along sedimentary coastlines where mangrove swamps are common or where steep shoreline topography or seasonally cold water temperatures prevent reef development or coral growth. Within the central Indo-Pacific, coral faunas are essentially homogenous at both generic and species level. The most obvious trend is the decreasing diversity of scleractinian corals from the western Pacific, adjacent to the Indo-Malayan centre of coral reef evolution and diversity, to the central and eastern Pacific; and from the equator north and south to more temperate. In the Tuamotu and Society Island groups diversity is fairly high and there are a wide variety of reef types, but further east in the Marquesas reef diversity is poor. The Line Islands (part of Kiribati) probably serve as a source for much of the coral reef biota of the eastern Pacific (UNEP/IUCN 1988 referred by Bleakley 1995). The reefs of the central Pacific tend to be more strongly dominated by algae rather than corals as in the west (Veron 1986 referred by Bleakley 1995).

For further information refer to:

Veron, J.E.N. 1986. *Corals of Australia and the Indo-Pacific*. Australian Institute of Marine Science.

Veron, J.E.N. 1993. *A Biogeographic Database of Hermatypic Corals. Species of the Central Indo-Pacific, Genera of the World*. Australian Institute of Marine Science, Townsville, Australia. 433pp.

UNEP/IUCN 1988. *Coral Reefs of the World. Vol. 3. Central and Western Pacific*. IUCN, Gland, Switzerland and Cambridge, U.K./UNEP, Nairobi, Kenya. (Easter Island is in Vol. 1: Atlantic and Eastern Pacific).

1.3.3.2 Seagrass

Seagrass beds become less frequent and poorer in species from west to east across the Pacific. Seagrasses are present in the western and central Pacific, reaching the limit of their distribution in Kiribati, Wallis and Futuna, Western Samoa and Niue and being absent in the following terrestrial biogeographic provinces in the Pacific Marine Region: Tuvalu-Tokelau, Phoenix-Line-Northern Cook, Cook-Austral, Society Islands, Tuamotu, Marquesas and Pitcairn-Gambier-Rapa (Dahl 1980 referred by Bleakley 1995).

1.3.3.3 Mangroves

Mangroves are a common coastal ecosystem in the western part of the region but become increasingly scarce eastward and are absent in the eastern part of the region except where they have been introduced. Mangroves reach their natural eastern limit in the Central Pacific in American Samoa, where the local form of the red mangrove *Rhizophora mangle samoensis* is recognized as a distinct species (Scott 1993 Bleakley 1995). The most widespread Pacific genus is *Rhizophora*, with *Rh. mucronata* reaching only to western Melanesia, and *Rh. apiculata* and *Rh. stylosa* extending further east. *Rh. stylosa* has been introduced into the Society Islands, but no mangroves reach the Cook Islands. *Rh. mangle*, from Pacific Central America, has found its way to Fiji and Hawaii. Of the other important genera,

Bruguiera is found in Melanesia and reaches east through Fiji and Samoa; *Lumnitzera* has a similar range; *Sonneratia* and *Ceriops* do not spread east of Melanesia; but *Avicennia*, stopping short of Fiji, reaches south to New South Wales, Australia and northern New Zealand (Schwartz 1982 Bleakley 1995).

For further information refer to:

Devoe, N.N. 1992. *Mangrove assessments on Yap, Kosrae and Pohnpei, Federated States of Micronesia*. UNEP Regional Seas Reports and Studies 147: 1+19.

Watling, D. 1985. *A Mangrove Management Plan for Fiji*. Phase 1. Government Press, Suva, Fiji. 67 pp.

1.3.4 Species Diversity

1.3.4.1 Invertebrates

Giant clams are particularly important resources in the Pacific. Two species of giant clam are widespread in the Indo-Pacific; four species are restricted to greater Southeast Asia in the western Pacific; two species have very limited ranges: *Hippopus porcellanus* which includes Palau, and *Tridacna tevoroa* known only from Fiji and Tonga. Other invertebrate species include the coconut crab, pearl oyster, helmet shell, trumpet shell, green snail, conch shell, trochus and molluscs. Mollusc endemism is thought to be 42-20 % for Easter Island and the Marquesas respectively (Bleakley 1995).

1.3.4.2 Fish

The total fish fauna of the Pacific region is an estimated 4,000 species (Kulbicki 1992 referred by Bleakley 1995). From the Indonesia-Philippines area there are two gradients of decline in species diversity of reef fish. The sharpest gradient is eastward, with the number of reef fish declining from approximately 2,500 in the Philippines to 460 in Hawaii and 125 at Easter Island. The second path of decline is northward or southward from the equator, this gradient not as strong as the longitudinal one (Bleakley 1995).

1.3.5 Birds

A number of important breeding sites have been identified within the region. The Pacific islands have a high proportion of species that are threatened with extinction, 14% of the region's bird species – representing 24% of the world's globally threatened species (SPREP 2003).

1.3.5.1 Marine Mammals

Over half the world's known species of whales are found in the region. Species include; Blue, Fin, Sei, Humpback, Minke, Bryde's and Sperm whales. Dolphin species found in the region includes Risso's dolphin, bottlenose dolphin, Indo-Pacific humpbacked dolphin, striped dolphin, pan-tropical spotted dolphin, spinner dolphin, Frazer's dolphin, and Irrawaddy dolphins. The dugong is found in the region in the

waters of Australia, Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia and Palau. Throughout much of its range in these SPREP member states, relic isolated populations still remain. The region supports the world's largest remaining populations of dugongs. Of the five world dugong populations tentatively identified, two occur partly in the SPREP region (SPREP 2003). The endemic Hawaiian monk seal is limited in nesting and feeding to a few islands in the NW Hawaiian Islands, which are protected as part of the Hawaiian Islands National Wildlife Refuge. In addition, the waters to a 18.3 m depth around the islands in the refuge have been designated as critical habitat for the monk seal (Bleakley 1995).

For more information link to: <http://www.sprep.org.ws/topic/marine.htm>.

1.3.5.2 Reptiles

The Pacific area supports the world's largest remaining populations of green, hawksbill and loggerhead turtles. There are six marine turtle species that feed and migrate through the Pacific waters. These are the green turtle, the hawksbill turtle, the leatherback turtle, the loggerhead turtle, the Pacific Ridley turtle and the flatback (SPREP 2003).

For more information link to: <http://www.sprep.org.ws/topic/marine.htm>.

1.3.6 Information on Participating States

Country	Land area (km ²)	Total Population 2000	MPAs (Source: Bleakley 1995).	Sea area (EEZ) in thousands km ²	Gross domestic product.		
					Total (thousands AUD)	Per capita (AUD)	Year
American Samoa	200	64,100	Fagatele Bay National Marine Sanctuary, Rose Atoll national Marine Sanctuary, American Samoa National Park	390	135,000	3,453	1985
Cook Islands	237	18,700	Aitutaki trochus sanctuary, Palmerstone trochus sanctuary, Manuae trochus sanctuary, Suwarrow Atoll National	1,830	122,484	6,844	1999*

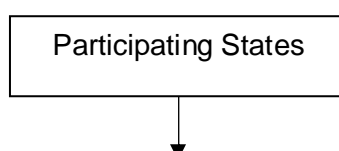
			Park				
Federated States of Micronesia	701	118,100	Trochus reserves, Kosrae Island	2,780	353,692	3,051	1999
Fiji Islands	18,333	824,700		1,290	2,445,234	3,138	1997*
French Polynesia	3,521	233,000	Atoll de Taiaro Biosphere Reserve, Reserve territoriale de Scilly(Manuae)	5,030	5,494,667	23,949	1999
Guam	541	148,200	Haputo Ecological Reserve Area, Orote Ecological Reserve Area, Guam Territorial Seashore Park, War in the Pacific National Historical Park	218	3,999,067	26,795	1995
Kiribati	811	90,700	Kirimati (Christmas Island) Wildlife Sanctuary	3,550	61,069	718	1998*
Marshall Islands	181	51,700		2,131	149,009	2,470	1999
Nauru	21	11,500		320	481,600	35,144	1996
Niue	259	1,900		390	8,835	4,229	1991
New Caledonia	18,576	212,700	Reserve Speciale de Faune et de Flore de l'Ilot Maitre: Only the reefs are now protected, Reserve Speciale Tournante de Faune Marine, Reserve Speciale Marine Yves Merlet, Parc Territorial du Lagon Sud	1,740	4,233,455	21,031	1997
Northern Mariana Islands (CNMI)	471	76,700		777	732,432	13,231	1994
Palau	488	19,100	Ngerukewid Islands Wildlife Reserve, Ngerumekaol Grouper Spawning Area, Trochus Sanctuaries	629	202,031	10,921	1998
Papua New	462,243	4,790,800	Talele Islands Nature	3,120	5,176,351	1,104	1999

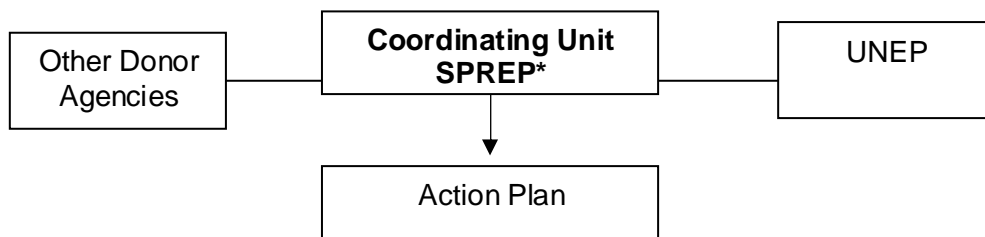
Guinea			Reserve and Provincial Park, Nanuk Island Provincial Park, Bagiai WMA, Long Island Wildlife Management Area (WMA), Maza WMA, Ndrolowa WMA				
Pitcairn	39	47		800	-	-	-
Samoa	2,935	169,200		120	374,477	2,142	1998
Solomon Islands	28,370	447,900		1,340	457,609	1,193	1994
Tokelau	12	1,500		290	-	-	-
Tonga	649	100,200	Fanga'uta and Fangakakau Lagoons Marine Reserve, Ha'atafu Beach Reserve, Hakaumam'o Reef Reserve, Malinoa Island Park and Reef Reserve, Monuafe Island Park and Reef Reserve, Pangaimotu Reef Reserve	700	242,551	2,437	1999*
Tuvalu	26	9,900		900	20,796	1,905	1997
Vanuatu	12,190	199,800	President Coolidge and Million Dollar Point Reserve, Narong Marine Reserve	680	367,247	2,012	1998
Wallis and Futuna	255	14,400		300	-	-	-

Source: Adapted from SPREP (2003) and Bleakley (1995).

1.4 Organization

1.4.1 Institutional Structure





SPREP* Pacific Regional Environment Programme

1.4.2 Coordinating Unit

The Pacific Regional Environment Programme (SPREP) is the coordinating unit for the region acting as secretariat. SPREP's mandate is to promote cooperation in the Pacific islands region and to provide assistance in order to protect and improve the environment and to ensure sustainable development for present and future generations. SPREP's vision is that people of the Pacific islands are better able to plan, protect, manage and use their environment for sustainable development. SPREP's unique focus is to sustain the integrity of the ecosystems of the Pacific islands region to support life and livelihoods today and tomorrow. For more information about SPREP link to the SPREP website: <http://www.sprep.org.ws>. SPREP operates two programmes: Island Ecosystems and Pacific Futures. For information on the Programmes link to: <http://www.sprep.org.ws/programme/programme.htm>. SPREP also acts as secretariat to the Apia Convention and the Waigani Convention.

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1.5 Financial Arrangements

Over 90% of SPREP funding comes from donors, most of it tied to specific projects linked to the Action Plan. The balance is from member's annual contributions. The level of member contributions had remained at US\$ 0.5 million since 1991 (SPREP 2000).

1.6 Wider Cooperation

Global Conventions and Initiatives

SPREP also serves as secretariat for the Convention on the conservation of nature in Pacific (**Apia Convention**) which entered into force in 1990 and the Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Waste and to Control the Transboundary Movement and Management of Hazardous Wastes within the Pacific Region (**Waigani Convention**) adopted in 1995 and needs to be ratified by five more countries. Some SPREP members are also Parties to range of global conventions and initiatives (SPREP 2000).

Horizontal Cooperation among Regional Seas Programmes

The Permanent Commission for the Pacific (CPPS) as Executive Secretariat of the Convention for the Protection of the Marine Environment and Coastal Zones of the South East Pacific **Lima Convention** and SPREP signed in 2001 a **Memorandum of Cooperation** in the framework of twining arrangement between two Regional Seas Organizations, promoted by UNEP as a result of recommendations of the Third Global Meeting of Regional Seas Convention on Action Plans which was held in Monaco. The horizontal cooperation comprises the development of joint activities; the coordination of bioregional meetings to review the state of the marine environment in the Pacific as a whole; exchange of information and the cooperation in capacity building in institutional aspects. The identified areas of cooperation are: Research and Monitoring of the Marine Pollution; integrated coastal and marine zones management; marine and coastal protected areas; climate change; biodiversity and natural resource conservation and environmental education.

2 Our Work

2.1 Programme Strategy

Link to Regional Seas Strategic Directions 2004-2007, downloadable document.

2.2 Action Plan

Action Plan for Managing the Environment of the Pacific islands Region: 2001-2004.

SPREP Members: (26) Australia, Cook Islands, Federated States of Micronesia, Fiji, France, French Polynesia, Guam, Kiribati, Republic of the Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Northern Marianas, Palua, Papua New Guinea, Pitcairn, Samoa and American Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, United States of America, Vanuatu, Wallis and Futana (SPREP 2000).

The Action Plan is revised every four years. The revision adopted in 2000 defines four main programme areas: nature conservation; pollution prevention; climate change and variability; and economic development (UNEP 2001).

For full text of the Action Plan 2001-2004

http://www.sprep.org.ws/att/publication/000124_2001_2004_Action_Plan_complete.pdf.

Background and information paper, constituting the Secretariat's Synthesis Report on the responses from members on their national evaluations of the current Action Plan is available at: <http://www.sprep.org.ws/members/ActionPlanReview.htm>.

Proposed Draft Action Plan 2005-2009 compiled by the Secretariat based on the evaluation responses from members on the review of the current Action Plan is available at: <http://www.sprep.org.ws/members/ActionPlanReview.htm>.

2.3 Convention

Convention for the Protection of Natural Resources and Environment of the Pacific Region

Short Title: Noumea Convention

Contracting Parties: (26) American Samoa, Northern Mariana Islands, Australia, Cook Islands, Palau, Federated States of Micronesia, Papua New Guinea, Fiji, Pitcairn Islands, French Polynesia, Solomon Islands, Guam, Tokelau, Kiribati, Tonga, Marshall Islands, Tuvalu, Nauru, Vanuatu, New Caledonia, Wallis and Futuna, New Zealand, Western Samoa, Niue

Year adopted: 24 November 1986 (UNEP 2001)

Entered into force: 22 August 1990 (UNEP 2001)

For full text of the Convention link to:

<http://www.oup.co.uk/pdf/bt/cassese/cases/part3/ch17/1315.pdf>.

Protocol for the Prevention of Pollution of the Pacific Region by Dumping

Contracting Parties: American Samoa, Northern Mariana Islands, Australia, Cook Islands, Palau, Federated States of Micronesia, Papua New Guinea, Fiji, Pitcairn Islands, French Polynesia, Solomon Islands, Guam, Tokelau, Kiribati, Tonga, Marshall Islands, Tuvalu, Nauru, Vanuatu, New Caledonia, Wallis and Futuna, New Zealand, Western Samoa, Niue

Year adopted: 1986 (UNEP 2001)

Entered into force: 1990 (UNEP 2001)

For full text of the Protocol link to:

<http://sedac.ciesin.org/entri/texts/pollution.dumping.south.pacific.protocol.1986.html>.

Protocol Concerning Co-operation in Combating Pollution Emergencies in the Pacific Region

Contracting Parties: American Samoa, Northern Mariana Islands, Australia, Cook Islands, Palau, Federated States of Micronesia, Papua New Guinea, Fiji, Pitcairn Islands, French Polynesia, Solomon Islands, Guam, Tokelau, Kiribati, Tonga, Marshall Islands, Tuvalu, Nauru, Vanuatu, New Caledonia, Wallis and Futuna, New Zealand, Western Samoa, Niue

Year adopted: 1986 (UNEP 2001)

Entered into force: 1990 (UNEP 2001)

For full text of the Protocol link to:

<http://sedac.ciesin.org/entri/texts/combating.pollution.emergencies.south.pacific.protocol.1986.html>.

2.4 Issues and Threats

2.4.1 Habitat and Species Conservation

The Pacific is home to a high proportion of endemic and threatened flora and fauna – for some islands over 80% of species are endemic. However, Pacific island biodiversity is under intense pressure from natural and human-induced disturbance, alien species introductions, population growth and other factors, and its flora and fauna are among the most highly threatened in the world. Furthermore, the small size and isolated nature of the islands makes them extremely vulnerable to these threats (SPREP 2003). For further information link to:

<http://www.sprep.org.ws/topic/NatCons.htm>.and
<http://www.sprep.org.ws/topic/Biodiv.htm>,

In a number of areas of the Solomon Islands, locals hunt dolphins and other small cetaceans. The animals are herded into confined bays where they are killed, with the primary objective of obtaining their teeth and meat. Dolphin teeth have long served as currency throughout Malaita and Makira. They are also woven into collars or headbands used in blood bounties. Necklaces of dolphin teeth remain essential to the payment of bride price amongst some Malaitans and Makirans. Most of the cetaceans taken in the Solomons are apparently long-snouted oceanic forms, including spinner, pan-tropical spotted, striped, common and rough-toothed dolphins, along with false killer whales. Risso's dolphins were also taken occasionally, but their low numbers of teeth make them of relatively little value to the Malaitans and Makirans. Melon-headed whales are also reported to have been taken in the past but are rarely taken today. Dugongs and turtles have been hunted extensively in the region both for traditional and subsistence purposes and more recently for commercial gain. The combination of increasing human populations and the introduction of new technologies, like outboard motors and gill nets, has severely affected several species (especially dugongs and turtles) resulting in fragmentation of populations and even local extinction. They are now considered endangered throughout their range and many small and/or isolated populations are vulnerable to extinction. Marine mammal-based tourism is increasing and mirrors global trends where whale watching for example is estimated to be worth more than US\$1billion annually. Significantly the development of marine mammal tourism in the region is mostly associated with endangered species, e.g. dugong and/or during parts of the life cycle vulnerable to disturbance e.g. humpback mating and calving (SPREP 2003).

For further information link to: <http://www.sprep.org.ws/topic/marine.htm#7>.

Over 95% of the world's recent bird extinctions have occurred on islands and around 30% of Pacific birds are currently threatened with extinction. In the Pacific little attention is paid to environmental risk assessment studies and subsequently human populations are still encroaching on residual old-growth forest, with serious implications for bird life and other native biodiversity. The impact of invasive species is the biggest threat to bird populations in the Pacific. Many islands in the Pacific that harbour significant populations of native bird species have been entirely or relatively free from invasive species. Hence, they are particularly vulnerable to new invasions, especially from mammalian predators like rats and cats. Other problems the Pacific faces with declining bird populations is unsustainable hunting of particular species for food; the need for much higher levels of public awareness and education; the need for regulations and laws which are enforced to protect birds and their habitats; the need to protect and restore whole island communities represented by Important and

Endemic Bird Areas; clarification of the taxonomic and conservation status of many birds and a shortage of experts trained in standard methodologies who are permanent residents in the Pacific (SPREP 2003). For further information link to: <http://www.sprep.org.ws/topic/bird.htm>.

2.4.2 Invasive Species

Invasive species threaten many species with extinction. They interfere with the species that make up ecosystems and change the way they function. They have negative impacts on the resources people rely on to live – food, clean water, and shelter. They can carry diseases and can directly harm humans. 90% of species that have become extinct since 1800 were island birds, and 90% of these have fallen victim to an invasive species. Many endemic bird species are in trouble in the Pacific, some directly threatened by predators such as rats and stoats, whilst others are threatened by loss of habitat and food due to smothering of their forests by introduced vines. Ship rats are one of the biggest threats to the survival of birds of the region – they eat eggs and young birds, especially of ground breeding species. They recently arrived in Kiribati's Christmas Island, which was formerly the largest seabird breeding colony in the world – 18 species of seabird were seen in numbers of up to 6 million. Meanwhile over in the Indian Ocean's Christmas Island, which was famous for its red land crabs, the crazy ant developed huge super colonies that covered the ground and killed all the red land crabs in its path, although, millions of dollars later, it is hoped to be under control. For further information link to: <http://www.sprep.org.ws/topic/Invasive.htm>.

2.4.3 Integrated Coastal Management

The intersection of aquatic and terrestrial ecosystems at the shoreline bring together two very different, complex and yet highly interrelated ecosystems. Unfortunately, these ecosystems are increasingly subject to a range of human activities which pose very significant threats to their long-term sustainability. The most serious of these issues are the loss of biodiversity, solid and liquid waste management, over-exploitation of living resources and destructive harvesting practices, introduction of alien species and destruction of habitat and coastal degradation due to poor land practices that lead to pollution and siltation. Other driving forces throughout the region include high population growth generally, but specifically in urban areas due to urban drift, and a shift from subsistence to cash economies. A complicating factor is that the region's development is constrained by small size and remoteness to international markets. Resolution of these complex problems is complicated because of the many institutions (or in some instances, the lack of) and interests that are interconnected and must be considered during the problem-solving process. Responsibility for managing the many relevant activities is frequently divided among different national and local institutions. The result is that one institution's actions may have significant adverse impacts on the resources of another. Thus in addition to the problem of remote causes and effects, there may be little opportunity or incentive for inter-agency cooperation that could avoid or minimize the externalities. The management responses from Pacific island countries have also been hampered by an overall lack of appropriate legislation for ICM, and insufficient capacity to implement existing management strategies (SPREP 2003). For further information

link to: <http://www.sprep.org.ws/topic/coastal.htm>. and <http://www.sprep.org.ws/topic/awareness.htm>,

2.4.4 Fisheries

Today as in the past, marine resources retain their traditional importance for the diet, cultures and economies of Pacific island peoples. The Pacific now contains some of the last relatively intact fisheries in the world's oceans, and as such they are increasingly threatened. The commercial use of living marine resources has increased to rival the combined value of all the region's other renewable resources. For many island countries and territories, fishery resources offer the greatest potential for economic development, given their control of enormous maritime zones. The challenge of managing these resources on a sustainable basis is formidable (SPREP 2003). For more information on Pacific marine resources link to: <http://www.sprep.org.ws/topic/marine.htm#7> and <http://www.spc.int/marine.htm>.

2.4.5 Pollution

Pollution is also one of the major threats to sustainable development in the Pacific islands region. The increase in the sources and extent of pollution are threatening the Pacific islands' efforts to maintain healthy societies, to stimulate development and new investment and a sustainable future for its people. The main types of pollution within the region are shipping-related pollution, hazardous chemicals and hazardous wastes and solid waste management and disposal. The region's coastal and marine resources are threatened by introduced marine species, ship wrecks, marine accidents and spills, ships' waste and antifouling paints on vessels. Increasing quantities of solid waste, poor control of chemicals imported into the region and the lack of capacity to manage pollutants are primary problems. The limited land area of many of the islands combined with a lack of appropriate technology for waste recycling has resulted in a proliferation of plastics, paper, glass, metal and even drums of hazardous chemicals. Much of this rubbish slowly breaks down and leaches into the soil and into drinking water. What does not break down takes up space. The foul-smelling organic wastes attract disease-carrying pests such as mosquitoes, rats and flies. Piles of household rubbish may develop on beaches and in mangrove swamps (SPREP 2003). For further information link to: <http://www.sprep.org.ws/topic/pollution.htm>, <http://www.sprep.org.ws/topic/Presistent.htm>, and <http://www.sprep.org.ws/topic/solidwaste.htm>.

2.4.6 Climate Change

Many Pacific islands are extremely vulnerable to climate change, climate variability, and sea level rise and will be among the first to suffer the impacts of climate change and among the first to be forced to adapt or abandon or relocate from their environment. The islands are low lying or have coastal features and characteristics that make them particularly vulnerable to climate change, variability and sea level change. In addition to significant coastal impacts climate change will affect biodiversity, soils and the water supplies of small islands. Failure to adapt to climate change now could lead to high social and economic costs in the future. For the low lying atolls, the economic disruption could be catastrophic,

even to the extent of requiring population relocation into other islands or increasing the number of people emigrating from the islands. Some areas of coral reefs, may be so enfeebled by overfishing that they may not be able to recover from bleaching events in the future. Public pressure is mounting for action on adaptation. There is growing community and government concern about the need to reduce the islands' vulnerability and manage the risks posed by extreme events and long-term change (SPREP 2003). For further information link to: <http://www.sprep.org.ws/topic/climate.htm#3>.

2.5 Current Activities

SPREP operates two programmes, **Island Ecosystems** and **Pacific Futures**. the Islands Ecosystems Programme focuses on sustainably managing and conserving the terrestrial, coastal and marine ecosystems of Pacific islands. For further information link to: http://www.sprep.org.ws/programme/island_eco.htm. the Pacific Futures Programme will support member countries and territories with sustainable development policies for improved environmental governance, which paves the way for implementation mechanisms and resources at the national and community level. The Programme will improve the means to monitor and report on environmental performance and socioeconomic pressures on the environment, as well as improve the understanding and strengthen the capacity of Pacific island countries and territories to respond to climate change, climate variability and sea level rise. Assisting and enhancing the island members' capabilities to manage and respond to marine pollution, hazardous waste, solid waste, sewerage and other land-based sources of pollution will be essential components of the Programme, as will be providing tools to improve the means to respond to pressures, emerging threats and opportunities through integrated assessment and planning. For further information link to: http://www.sprep.org.ws/programme/pacific_futu.htm. A comprehensive list of projects that SPREP is currently executing is available at the link: <http://www.sprep.org.ws/sprep/projects.htm>.

3 Publications

3.1 Regional Seas Reports and Studies

Link to the Regional Seas Reports and Studies

3.2 Meeting Reports and Other Publications

For a full comprehensive list of all meeting reports and other publications link to the SPREP website: <http://www.sprep.org.ws>. Alternatively link to the SPREP library: http://www.sprep.org.ws/publication/pub_top.asp.

UNEP Regional Seas Reports and Studies: Co-operation for Environmental Protection in the Pacific No.97. UNEP 1988.

UNEP Regional Seas Reports and Studies: Environment and Resources in the Pacific No. 69. UNEP 1985

3.3 Website Links

SPREP <http://www.sprep.org.ws>.

WWF Pacific Programmes <http://www.wwfpacific.org.fj/>.

Forum Fisheries Agency (Solomon Islands) <http://www.ffa.int/www/index.cfm>

Forum Secretariat (Fiji) <http://www.forumsec.org.fj/>

Pacific Island Development Program (Hawaii)

<http://pidp.eastwestcenter.org/pidp/programs1.htm>

Pacific Geoscience Commission (Fiji) <http://www.sopac.org.fj/>

Secretariat for the Pacific Community (New Caledonia) <http://www.spc.org.nc/>

University of the Pacific (Fiji) <http://www.usp.ac.fj/>

4 Calendar of Events

For a list of upcoming events link to the SPREP website:

http://www.sprep.org.ws/event/2003_3rd.htm.

5 Advertisements

New Action Plan

13 September - Representatives from 21 Pacific islands and states are gathered in Tahiti for the annual SPREP meeting. One of the key items for the 70 delegates was the implementation of the proposed SPREP Action Plan for the next five years. "This 2005-2009 Action Plan is the blue print of where SPREP and our members want to be environmentally, what we need to do to get there, and some ideas on how we want this to happen," says Director Asterio Takesy. Increasing populations, struggling economies, and a surge in natural and induced hazards such as extreme weather events, are underlining the vulnerability of the fragile ecosystems the seven million island inhabitants rely on he said. "There has never been a more important time than now for us to come together as a region, because we face some very serious issues that effect every man, woman and child in this region."

For more information link to: http://www.sprep.org.ws/article/news_detail.asp?id=192.

6 References

UNEP (2001) Ecosystem-based Management of Fisheries. Opportunities and challenges for coordination between marine Regional Fishery Bodies and Regional Seas Conventions. UNEP Regional Seas Reports and Studies No.175.

SPREP (2003) Pacific Regional Environment Programme Website

<http://www.sprep.org.ws/members/map.htm> (Accessed

12/08/04)

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Wauthy, B. 1986. *Physical ocean environment in the Pacific Commission Area*.

UNEP Regional Seas Reports and Studies No. 83.

Bleakley, C. (1995). A Global Representative System of Marine Protected Areas. MARINE REGION 14: PACIFIC. Great Barrier Reef Marine Park Authority/The World Bank/The World Conservation Union (IUCN) 1995. (Accessed 07/07/04) <http://www.deh.gov.au/coasts/mpa/nrsmpa/global/volume4/chapter14.html>.