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Caribbean Region (LBS)

Petén, Guatemala, 30 October to 1 November 2007

**DRAFT REGIONAL ACTION PLAN  
FOR MARINE LITTER MANAGEMENT IN THE WIDER CARIBBEAN REGION**



## ***Draft Regional Action Plan for Marine Litter Management in the Wider Caribbean***



Developed by Seba B. Sheavly for the UNEP CAR/RCU –  
Marine Litter Pilot Project (DEC 2006)

- 1<sup>st</sup> Revision (MAR 2007)
- 2<sup>nd</sup> Revision (JUL 2007)
- 3<sup>rd</sup> Revision (AUG 2007)

## ACKNOWLEDGEMENTS

The development of this *draft* “Regional Action Plan for Marine Litter Management in the Wider Caribbean” was part of a pilot project initiative conducted by the United Nations Environment Programme-Caribbean Regional Coordinating Unit (UNEP-CAR/RCU) with support from UNEP’s Regional Seas Programme. The primary goal of this pilot project was to assist in the environmental protection and sustainable development of the Wider Caribbean Region related to the prevention and reduction of marine litter.

As part of this project, a review document was prepared on the existing status of marine litter issues and programmes – including a compilation of the available historical marine litter data; a draft plan for developing national monitoring programmes was prepared; participation in the annual International Coastal Cleanup event was promoted; and a workshop to discuss the draft action plan was conducted in Aruba jointly with the International Maritime Organization/Regional Marine Pollution Emergency, Information and Training Center where marine litter issues and Annex V of MARPOL were reviewed. Copies of the documents developed for this project are posted on the UNEP-CAR/RCU website for public review: [www.cep.unep.org/operational-components/amep/marine-litter](http://www.cep.unep.org/operational-components/amep/marine-litter).

Development of the draft “Regional Action Plan” has involved a host of international, regional and national experts who work on marine litter and other related conservation issues in the Wider Caribbean Region. These experts included key UNEP staff, an international marine litter consultant, various government representatives associated with coastal zone management, environmental protection, fisheries, solid waste management, and tourism. Representatives from regional and national conservation NGOs that manage marine litter programmes and activities and conduct annual beach cleanups were also engaged as National Consultants for Marine Litter. This team of Consultants (listed below) was established to foster engagement and participation across the Region through surveys conducted at the country level, providing a “voice” for the project with their valuable input and ideas.

### ***Wider Caribbean Marine Litter – National Consultants:***

- Barbados – Osmond Harewood, Caribbean Youth Environment Network
- Belize – Hilberto Riverol, The Scout Association of Belize
- Dominica – Terry Raymond, Dominica Youth Environment Organisation
- Guyana – Trevor Benn, GuyberNet
- Jamaica – Diana McCauley and Carlette Faloon, Jamaica Environment Trust
- Nevis – Miriam Knorr, Nevis Historical & Conservation Society
- Saint Lucia – Marcia Dolor, Caribbean Youth Environment Network
- Trinidad & Tobago – Zakiya Uzoma-Wadada, Caribbean Network for Integrated Rural Development

Sincere appreciation and gratitude are afforded to all those who have been involved with this project during the past year. Only by working together we will be able to develop a strong and effective regional programme that will serve to help protect the valuable marine resources of the Caribbean – for its people and the precious ecosystems and wildlife that live there.

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## **List of Acronyms**

<b>AMEP</b>	Assessment and Management of Environmental Pollution
<b>GESAMP</b>	Group of Experts on the Scientific Aspects of Marine Protection
<b>GPA</b>	Global Programme of Action for the Protection of Marine Environment from Land-based Activities
<b>GPA/IGR-2</b>	Global Programme of Action for the Protection of Marine Environment from Land-based Activities/Second Intergovernmental Review Meeting
<b>ICC</b>	International Coastal Cleanup
<b>IGM</b>	Intergovernmental Meeting on the Action Plan for the Caribbean Environment Programme
<b>IMO</b>	International Maritime Organization
<b>IOC</b>	Intergovernmental Oceanographic Commission
<b>IMO/REMPEITC</b>	International Maritime Organization/Regional Marine Pollution Emergency, Information and Training Center
<b>IOC/IOCARIBE</b>	Intergovernmental Oceanographic Commission/IOC Sub-Commission for Caribbean Sea and Gulf of Mexico
<b>IOC-UNEP/CEPPOL</b>	Intergovernmental Oceanographic Commission - United Nations Environment Programme/Assessment and Control of Marine Pollution of the Caribbean Environment Programme
<b>LBS</b>	Protocol Concerning Pollution from Land-Based Sources and Activities
<b>NGO</b>	Non-Governmental Organization
<b>OECS</b>	Organization of Eastern Caribbean States
<b>RAPMaLi</b>	Regional Action Plan for Marine Litter Management in the Wider Caribbean
<b>UNEP-CAR/RCU</b>	United Nations Environment Programme-Caribbean Regional Coordinating Unit
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNICPOLOS</b>	United Nations Open-Ended Informal Consultative Process on Oceans and Law of the Sea

## EXECUTIVE SUMMARY

Marine litter (also known as 'marine debris') is defined by some researchers as "any manufactured or processed solid waste material (typically inert) that enters the ocean environment from any source" (Coe & Rogers, 1997), and is one of the most pervasive and potentially solvable pollution problems plaguing the world's ocean and waterways. The ubiquitous presence of marine litter, coupled with its physical, ecological, cultural, and socio-economic complexities, poses one of the most severe threats to the sustainability of sensitive habitats and wildlife and the people of the Wider Caribbean and indeed – the whole world.

The dominant source of marine litter documented in the historical beach cleanup data from the Caribbean Region is attributable to land-based-sources at 89.1%, with 10.9% attributable to ocean-based sources (UNEP, 2006). Land-based sources of debris are reported to have a profound impact on tourism (and other revenue earning sectors), as well as human health and safety. Ocean-based debris (e.g., fishing nets, gear and supplies, rope, fish traps, sheeting/tarps, and strapping bands) can also be very harmful to wildlife through entanglement and ingestion and can be damaging to sensitive aquatic habitats, including coral reefs and sea grass beds.

As part of the United National Environment Programme – Caribbean Regional Coordinating Unit (UNEP-CAR/RCU) Marine Litter Project, an assessment was conducted using background research, surveys and interviews with government representatives, UNEP National and Marine Litter Focal Points, and appointed National Consultants representing non-governmental organizations (NGOs) and regional organisations involved in marine litter monitoring and management. A series of issues surfaced in the research related to gaps and needs for effectively dealing with marine litter issues (policies, regulations and legislation; government/institutional responsibility; compliance and enforcement; monitoring and research; and education and outreach). The primary categories addressed in this draft of the "Regional Action Plan for Marine Litter Management in the Wider Caribbean" for these issues includes:

- Legislation, Policies and Enforcement
- Institutional Frameworks and Stakeholder Involvement
- Monitoring Programmes and Research
- Education and Outreach
- Solid Waste Management

Implementation of the Regional Action Plan for Marine Litter Management will be coordinated by the UNEP-CAR/RCU and includes the development of a process for assessment and evaluation for the plan, identification of targets, milestones and indicators. In addition, efforts to identify funding resources will be spearheaded by UNEP with support from member States. Further leveraging of resources will be explored for existing sources as well as the cultivation of new funding sources to support regional efforts for addressing marine litter issues.

## The Status of Marine Litter in the Caribbean

Marine litter (also known as 'marine debris') is defined by some researchers as "any manufactured or processed solid waste material (typically inert) that enters the ocean environment from any source" (Coe & Rogers, 1997), and is one of the most pervasive and potentially solvable pollution problems plaguing the world's ocean and waterways. The ubiquitous presence of marine litter coupled with its physical, ecological, cultural, and socio-economic complexities, poses one of the most severe threats to the sustainability of the natural resources of sensitive habitats and wildlife and people of the Wider Caribbean and indeed – the world as a whole.

To better cope with these developments, national strategies and opportunities must be created that encourage people to reduce and eliminate marine litter as one of the major pollutants of coastal and marine environments. Current efforts by governments and the private sector must continue to increase public awareness, establish debris abatement programs, and change behaviours that ultimately lead to marine litter impacting coastal areas and the ocean. Successful management of the problem requires a comprehensive understanding of both marine litter and human behaviour. Education and outreach programs, effective laws and policies, and governmental and private sector enforcement are the building blocks for any successful marine pollution prevention initiative.

According to the United Nations Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), land-based sources account for 60 to 80 percent of the world's marine pollution (GESAMP, 1991). This is also true in the Caribbean Region based on marine litter data collected through various volunteer beach and underwater cleanup activities conducted by local community groups and government agencies indicates that the dominant source of marine litter is from land-based activities (UNEP, 2006).

These data indicate that land-based-sources contribute 89.1% of the Caribbean marine litter, with 10.9% attributable to ocean-based sources (UNEP, 2006). Land-based sources of debris are reported to have a profound impact on tourism (and other revenue earning sectors), as well as human health and safety. Ocean-based debris forms (e.g., fishing nets, gear and supplies, rope, fish traps, sheeting/tarps, and strapping bands) can also be very harmful to wildlife through entanglement and ingestion and can be damaging to sensitive aquatic habitats, including coral reefs and sea grass beds.

Much of the debris reaches the ocean after being dumped along roadsides or into creeks, rivers, storm drains and culverts where it washes downstream and is carried into estuarine and ocean areas. Another source of land-based litter is by beach visitors when they neglect to dispose of their "picnic" trash and litter when they leave the beach. Marine litter is also carried from landfills (waste dumps) due to poor landfill management practices, high winds, storms or coastal flooding. Other marine litter comes from activities on the water, from vessels such as small power boats, sailboats and yachts, to subsistence and commercial fishing boats, large transport ships and passenger liners carrying commercial goods and vacationing passengers, offshore drilling rigs and platforms, fishing piers and marinas (Sheavly, 2005).

The primary forms of debris that are impacting public and private Caribbean beaches are associated with disposable eating utensils, grocery and trash bags, beverage containers (plastic, glass, and metal) and their assorted caps and lids, convenience food wrappers and other packaging, smoking product remnants, and abandoned clothing and shoes (UNEP, 2006).

The associated economic costs of marine litter are a perceived, yet poorly documented component of this issue. Beach maintenance costs related to tourism are a common concern for coastal communities, as are impacts to fisheries resources and sensitive coastal and marine habitats and marine wildlife – particularly entanglement of sea birds and air breathing sea turtles and marine mammals.

Successful management of marine litter requires a comprehensive understanding of this issue including an identification of the dominant forms of marine litter, their abundance and potential sources, and most importantly, the human attitudes, behaviours and activities producing it. In addition, implementing effective policies supported by international treaties and conventions, national, regional and local legislation and regulations, and governmental and private sector compliance and enforcement will also help to form the foundation for an effective and successful marine pollution prevention and mitigation initiative (Sheavly, 2005). Conducting effective documentation and monitoring activities to assess the types and amounts of marine litter, combined with coordinated public education programmes and effective waste management strategies can lead to the reduction and abatement of the marine litter problems impacting the continental coastal regions and small islands of the Caribbean Region.

### **Regional Background**

As part of the United National Environment Programme – Caribbean Regional Coordinating Unit (UNEP-CAR/RCU) Marine Litter Project, an assessment was conducted through background research, surveys and interviews with government representatives, UNEP National and Marine Litter Focal Points, and appointed National Consultants representing non-governmental organizations (NGOs) and regional organisations involved in marine litter monitoring and management. A series of issues surfaced in the research related to gaps and needs for effectively dealing with marine litter issues. The primary categories for these issues included the following:

- policies, regulations and legislation,
- government/institutional responsibility,
- compliance and enforcement strategies,
- monitoring and research, and
- education and outreach.

The aforementioned categories are consistent with the issues identified in a previous regional effort implemented by the Intergovernmental Oceanographic Commission (IOC) in 1994. The designation of the Wider Caribbean Region as a “Special Area” under Annex V of the MARPOL Convention in 1993 established the platform for future activities related to marine debris in the region. “Special Area” status mandated that port facilities for ship-generated waste management be established in a majority of countries in the region.

The purpose of the *Marine Debris: Solid Waste Management Action Plan for the Wider Caribbean* was to “specify the main activities needed to reduce, and eventually eliminate marine debris from the Wider Caribbean shores and waters by guiding responsible international organizations, local governments and private sector organizations in allocating resources where they are most needed in order to justify management strategies” (UNESCO, 1994). To foster the development of this Action Plan, the Intergovernmental Oceanographic Commission – United Nations Environment Programme/Assessment and Control of Marine Pollution of the Caribbean Environment Programme (IOC-UNEP/CEPPOL) Marine Debris Programme convened a series

of workshops where this plan was developed, revised and finalized. The resulting Action Plan was fairly comprehensive, but did not reflect all that was ultimately needed to combat the marine litter problem of the region – it was a “work in progress” that would need to be periodically assessed, updated and revised as the marine litter issue evolved in the Caribbean. Intergovernmental Oceanographic Commission/IOC Sub-Commission for Caribbean and Gulf of Mexico (IOC/IOCARIBE) was recommended to take responsibility for the overall implementation and coordination of this effort, working with regional partners and governments.

This earlier Action Plan represents a strategic example of how collaborative efforts could be conducted between United Nations bodies and programmes, as well as governmental and non-governmental organizations, and tourism and waste management industries in dealing with a multifaceted pollution issue of this magnitude (UNESCO, 1994). A series of 15 action items were developed to facilitate the development of an integrated assessment and control programme for marine debris. A number of these were initially funded and implemented, but the initiative failed to continue due to regional management issues and inadequate financial resources. The current UNEP-CAR/RCU and Regional Seas Programme effort will hopefully be able to continue where that effort left off.

The handling and processing of ship-generated wastes requires that an integrated waste management system be established in the local community of the port. This system would also be of benefit to that community. A sustainable waste management system in the Caribbean would require extensive financial and human resources, along with an extensive collaboration and commitment of the Caribbean community.

### **A Strategic Approach to Marine Litter Reduction & Control**

Essential components in the development of national and regional strategies for the reduction and control of marine litter include the development of a framework for identifying and engaging key stakeholders, an understanding of the fundamental issue – the sources and impacts of marine litter, a mechanism for assessing the problem, toolbox of potential interventions, and a support base of the government and the private sector related to fostering legislation and securing resources.

To effectively reduce and control marine litter and its environmental impacts, key stakeholders from diverse groups must be engaged in this process. A comprehensive list includes local citizens; governments, agencies and authorities (national, regional, and municipal); organisations (international/national, civic, religious, nongovernmental, and consumer); institutions (research, education, and medical); businesses (hotels and restaurants, outdoor recreation, manufacturers, and vendors); and industries (fisheries, dive, tourism, and waste management). The Caribbean Region possesses an extensive array of national and regional NGOs and non-profit organisations that can help to facilitate community involvement in addressing environmental and conservation issues. Collaborations between these groups and government agencies, and related businesses and industries form an essential foundation for an effective initiative to conduct and maintain community-based efforts to reduce and control marine litter.

A review of the available data and other information on debris found worldwide indicates that the dominant types and sources of debris come from what we consume (including food wrappers, beverage containers, cigarettes and related smoking materials), what we do with our trash while transporting ourselves by sea, and what we use to harvest from the sea (fishing line/nets and

gear). Business and industry affiliated with the aforementioned products and services must play a critical role in marine litter management and abatement.

The “corporate mission” of today includes an ethic of social and environmental responsibility related to how their products might affect the environment and how they address those issues within their industry and the communities in which they reside. Many examples currently exist where corporate involvement in addressing a pollution issue has led to strategies to reduce and eliminate the impacts; they have assisted in developing education programmes for their employees, as well as the communities where their activities take place, and to changes in products to address the pollution issue. Those examples can be cited in the beverage, tobacco, plastics, hospitality, and waste management industries as demonstrated through programmes supported or implemented by representative companies as The Coca-Cola Company, Philip Morris, ITW Hi-Cone, Dow Plastics, Royal Caribbean Cruise Lines, and Waste Management, Inc. among others.

National programmes need to be developed in the Caribbean Region to monitor marine litter types, abundance and occurrence patterns. An ongoing, scientific assessment would be useful in establishing or updating waste management policies and conservation strategies throughout the Region. Through monitoring, sources of marine litter can be identified and the effects of that debris to a specific geographic area can be studied.

### ***Proposed Regional Action Plan for Marine Litter (RAPMaLi) Management in the Wider Caribbean***

The UNEP-Regional Seas Programme and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) have developed and implemented a number of activities to manage marine litter, including a series of regional actions on marine litter in several Regional Seas Conventions (reference). These activities are global in application and include an assessment of marine litter; presentations at a number of international meetings, including the United Nations Open-ended Informal Consultative Processes on Oceans and Law of the Sea (UNICPOLOS) and the Global Programme of Action for the Protection of Marine Environment from Land-based Activities/Second Intergovernmental Review Meeting (GPA/IGR-2) in Beijing, China (<http://www.iisd.ca/oceans/igr2/oct17.html>). The UNEP-CAR/RCU, with support from the Regional Seas Programme and as a function of the Secretariat of the Cartagena Convention for the Protection and Development of the Caribbean Sea, is developing a Regional Action Plan for Marine Litter for the region. For more information on the regional marine litter project being developed by UNEP-CEP, please refer to their programme highlights, project descriptions and background documents accessed on the UNEP-CEP website. <http://www.cep.unep.org/features/2006/regional-seas-programme>

The development of a regional action plan has included an extensive review of international institutional, legal and policy arrangements for the management of marine litter, international treaties and conventions, national legislation and policies, and identification of government and quasi-government agencies and NGOs that work with national marine litter problems. Data on the quantity and composition of marine litter in the Caribbean region based on the International Coastal Cleanup, an annual event coordinated by the United States NGO –Ocean Conservancy, was compiled into a regional report that has been posted on the UNEP-CAR/RCU website and distributed to the UNEP National & Marine Litter Focal Points (see Appendix A). The results of that research identify the primary source of marine litter as being land-based in origin (UNEP, 2006). A review of existing national and regional monitoring programmes for

marine litter highlighted a deficiency in coordinated national monitoring efforts across the region. Most marine litter initiatives were focused on irregular monitoring activities, with a primary focus of cleanups and debris removal and less on the use of the data as a decision-making and management tool.

Regionally, an extensive network exists in the Caribbean with numerous health, environmental, conservation, education, tourism, and waste management agencies, organisations and associations that have connections with the marine litter issue – its creation, handling, abatement, and prevention. Through their regional and local programmes and initiatives for solid waste and natural resource management and other related activities, these organisations form a powerful base for regional interaction and collaboration in dealing with the marine litter problems that plague the region. The report, “Marine Litter in the Wider Caribbean: A Regional Overview” is posted on the UNEP-CEP website: <http://www.cep.unep.org/features/2006/regional-seas-programme>.

## **ACTION PLAN STRATEGIES**

The following recommendations are presented as a regional framework for marine litter management in the Caribbean Region. Most of the proposed actions will need to be implemented at the national level, with a select group applicable on the regional level. These actions incorporate a prevention and/or responsive approach to addressing marine litter issues plaguing the Caribbean. UNEP-CAR/RCU will function as a coordinator of information and facilitator of new strategies and initiatives for addressing marine litter issues in the region and ensuring synergies with other regional strategies and initiatives for pollution prevention, reduction and control and an integrated approach to solid waste management in the region.

### ***Legislation, Policies & Enforcement***

Numerous laws regulate litter and debris on both land and sea. Unfortunately, laws do not guarantee compliance. In addition to enforcement and penalties, a sense of environmental stewardship among ocean users is essential for laws to be effective. There are a host of national regulations and policies that are country-specific addressing solid waste management and other pollution concerns. However, specific marine litter legislation is very rare or not existent. Even when legislation exists, enforcement and compliance is often lacking. Training of all designated enforcement officers to deal with the public on this issue will be required to help promote compliance and stewardship.

The status of MARPOL Annex V is currently being assessed by the IMO to determine how ocean-related issues can be better addressed. The Global Programme of Action for the Protection of the Marine Environment from Land-based Sources and Activities encompasses the issues associated with land-based sources of marine litter and is working to deal with this global problem through UNEP’s Regional Seas Programme.

An extensive array of international and national policies currently exists in the Caribbean that forms a strong basis for dealing with marine litter problems. However, compliance issues exist in this region as they do in every other part of the world. In discussions with law enforcement representatives, who are besieged with a plethora of more serious, life threatening issues on a daily basis, the idea of processing tickets for littering violations or other waste management infractions were viewed as an impracticality. The importance of litter prevention and abatement must be elevated as a priority for coastal management.

***ACTION 1: Evaluate existing legislation, regulations and enforcement practices that deal with marine litter and strengthen or enact new legislation/regulations as needed.***

Existing waste management legislation needs to be evaluated for its effectiveness and whether or not it is being enforced. In most cases, substantial legislation and regulations exist, but are poorly enforced. A review of existing legislation at the national level is proposed to determine if these regulations need to be updated or revised to provide support for marine litter prevention and monitoring efforts. Enforcement practices should be reviewed at the national and local levels to see how to better address compliance issues of existing litter laws by both the public and private sectors.

***ACTION 2: Establish and/or enhance government sponsored “litter wardens or patrols” in coordination/collaboration with municipal police/security forces and establish the infrastructure for compliance.***

Explore the establishment (and in some cases, re-establishment) of government agency-sponsored “litter wardens or patrols” to enforce anti-litter regulations at public beaches and park areas using education campaigns to foster compliance. These agents could also be responsible for conducting public education efforts to help address activities that produce litter problems. Specialized programming would be needed for public beaches and maritime activities engaging boaters, yachters, and fishermen.

***ACTION 3: Participate in the review of MARPOL Annex V and implementation of Annex V Special Area status for the Caribbean Region.***

MARPOL Annex V is currently being reviewed by the International Maritime Organization (IMO). It is suggested that the UNEP – Regional Seas Programme through the Caribbean Environment Programme (UNEP-CAR/RCU) and interested national Governments participate in this review so that relevant information being collected in the regions on marine litter can be made available to the IMO. Working through the Intergovernmental Maritime Organization/Regional Marine Pollution Emergency, Information and Training Center (IMO/REMPETIC), UNEP-CAR/RCU will support efforts to survey the region’s port waste reception capacity and assess readiness for the Special Area designation to formally enter into force.

***ACTION 4: Expand ratification and promote effective implementation of MARPOL Annex V and the LBS Protocol of the Cartagena Convention by all Caribbean States.***

Assess and renew efforts for MARPOL Annex V ratification and enforcement throughout the Caribbean Region. Currently three States (Costa Rica, Haiti and Grenada) have not yet ratified MARPOL Annex V and only Panama, Trinidad and Tobago and France (on behalf of the French Caribbean territories) have acceded to the LBS Protocol.

***ACTION 5: Ensure that debris and ecosystem health issues are integrated into emergency management plans and procedures.***

Large amounts of debris can enter the ocean in natural disasters (e.g., volcanoes, tsunamis, and hurricane storm surges). Legislation, policy, and procedures need to be implemented to deal with this issue on emergency basis. Stockpiles of experts and equipment and training are needed. Ecosystem impacts need to be recognized as important effects by disaster management agencies. The value of ecosystem services is a strong argument to justify inclusion of these issues in emergency management.

***ACTION 6: Establish a clearinghouse of information on effective strategies and practices for enforcement of waste management practices.***

Sharing Best Management Practices (BMPs) that have worked in one locality might provide some guidance for use in another locale. UNEP-CAR/RCU can provide a mechanism for compiling examples of various strategies for access across the region.

***Action 7: Help mobilize resources for improving the capacity of effective enforcement of waste management practices.***

***Institutional Frameworks & Stakeholder Involvement***

Government management of the marine litter issue in most States is dispersed among multiple agencies or not identified specifically. Many agencies have partial responsibility for select components, which leads to a division of resources and ineffectiveness in overall management of marine litter-related issues. It has been suggested that there needs to be reduced fragmentation and identification of clear lines of responsibility and authority in order to be more effective. Collaborations between NGOs and government agencies where authority is defined and authorized between these groups could strengthen management and control efforts.

***ACTION 1: Develop and implement a model of a national management plan for marine litter.***

- ***Establish country-specific, integrated waste management programmes and projects that are within the context of a National Waste Management Strategy.***
- ***Identify the key lead/responsible agency.***
- ***Engage key stakeholders where a national agency is designated as the lead for this national effort.***
- ***Establish or strengthen existing National Committees to ensure representation of all stakeholders and to identify clear roles and responsibilities.***
- ***Conduct research and analyses related to marine litter that will be used to guide future policy decisions.***
- ***Develop and implement an incentives programme to reduce marine litter.***
- ***Develop economic instruments to provide opportunities for marine litter initiatives***

A model for integration of the marine litter issue is needed to promote effective collaboration between agencies and other parties. A concerted effort needs to be made to model collaborative relationships between solid waste management authorities (public & private), government resource management agencies, conservation NGOs, and private sector groups if the Caribbean Region is to successfully and effectively combat this pervasive pollution issue.

Better established governmental responsibilities and the prioritization of the need for marine litter control as part of comprehensive litter management plans is needed so that relevant agencies and cooperating organisations can collaborate effectively. In several States, national waste management strategies currently exist and should be the “umbrella” for inclusion of specific marine litter management strategies.

***ACTION 2: Establish the infrastructure for compliance with existing marine litter management legislation at the national and community levels.***

Appropriate programmes and waste management practices (i.e., access to receptacles in public areas) need to be established and mainstreamed into other sectors such as tourism, health, and transportation.

***ACTION 3: Establish a Caribbean Marine Litter Regional Working Group to coordinate and advise on appropriate actions for marine litter management.***

Through the formation of a UNEP-CAR/RCU-coordinated “Marine Litter Regional Working Group”, National and Marine Litter Focal Points could facilitate a review of existing government responsibilities for alignment of solid waste management strategies for marine litter control and abatement.

***ACTION 4: Provide training for judiciary/magistrates/enforcement officers and sensitization for politicians on marine litter issues.***

It is essential that the legal community be briefed on the impacts on the economy, natural resources and human safety of marine litter problems. In addition, local politicians need to understand marine litter issues and related national waste management strategies.

***ACTION 5: Present information on the marine litter issue at key environmental meetings and conferences in the region.***

Regional attention should be focused on this issue through presentations and reviews at Intergovernmental meetings and conferences. UNEP-CAR/RCU’s biannual Intergovernmental Meeting on the Action Plan for the Caribbean Environment Programme (IGM) would be one such forum for this discussion. In addition, an annual regional meeting could be implemented to showcase current issues and interventions (see Education and Outreach section).

**Monitoring Programmes & Research**

A national marine litter monitoring programme can support an expanded understanding of the problem and function as an ongoing component of management strategies that deal with this pollution issue. Monitoring can be used to clarify the problem of marine litter – e.g., what are the types, what are the sources, how widespread is the problem. Data and research on marine litter can be used to help formulate management solutions – which must in turn be implemented by management agencies with support from private sector. Objectives for monitoring must be clearly delineated. Policy could be developed through monitoring efforts to produce legislation or funding for source-reduction programmes, to assess trends, to identify pathways by which debris gains access to the water, to assess wildlife and habitat impacts, to identify point sources, to quantify economic impacts and to help enforce regulations (Farris and Hart, 1995; Coe & Rodgers, 1997; and Sheavly, 2005).

Few formal marine litter “monitoring” programmes currently exist within the Caribbean Region. However, over the years several programmes have been conducted by numerous States. Numerous community clean-up programmes exist, but do not usually include the compilation of any data on the types and amounts of marine litter for programme analysis and management responses. A listing of existing programmes are presented in the report, “Marine Litter in the Wider Caribbean: A Regional Overview” posted on the UNEP-CEP website:

<http://www.cep.unep.org/features/2006/regional-seas-programme>.

The leading effort to assess marine debris is conducted annually through the International Coastal Cleanup, which has been conducted since 1989 in 28 countries in the region.

Established by the Ocean Conservancy in the U.S., the International Coastal Cleanup (ICC) campaign consists of many partners and participating countries that focus on public awareness of the marine debris issue and the collection of data on debris amounts, types and sources. One of ICC's primary goals is to trace pollution to its source and work to prevent it from occurring. Volunteers record marine debris information on data cards that identify the types, sources, and activities that produce the debris found along beaches and waterways. Information on the data card is grouped by the behaviour associated with the debris, including recreational, beach-going activities, smoking-related activities, ocean and waterway activities, activities associated with legal or illegal dumping, or activities resulting from improper disposal or handling of medical or personal hygiene materials. Data from the ICC provides the base framework for government action to limit marine debris and to educate the public about litter and pollution prevention.

***ACTION 1: Design and implement a strategy to develop national marine litter monitoring pilot projects in the Caribbean Region, including standardized methods for data collection and reporting.***

The need for establishing national marine litter monitoring programmes was noted by a majority of the respondents during the regional marine litter research. This information could be collected on a regular basis and used for programme development and assessment of interventions and waste reduction strategies. Strategic national monitoring programmes could be developed to assess marine litter types, abundance, sources and whether current interventions, practices or policies are being effective. A proposal for developing national marine litter monitoring programmes has been prepared for further development and consideration by national governments and is posted on the UNEP-CEP website. These programmes will be further guided by the development of Global Marine Litter Monitoring guidelines by UNEP Regional Seas. <http://www.cep.unep.org/features/2006/regional-seas-programme>.

***ACTION 2: Develop a regional, web-based database as a clearinghouse for marine litter information and research.***

A regional database needs to be established so that this information will be accessible throughout the Region. Coordinated and maintained by UNEP-CAR/RCU, this database will promote the use and value of marine litter monitoring for programme development and assessments of interventions. This database would be used as a repository of the marine debris data collected annually through the ICC, allowing for a direct processing of this information. This information would then be shared with the Ocean Conservancy for compilation into their global report.

***ACTION 3: Engage all stakeholders at community, national and regional levels in monitoring and research efforts.***

Communication efforts to engage NGOs, government agencies, and regional intergovernmental organizations will be needed to develop a good foundation of interested parties in this regional effort. UNEP-CAR/RCU will develop a web-based communications foundation for engaging these groups and sharing information related to the plans for the Regional Action Plan for Marine Litter.

***ACTION 4: Solicit information/research from fisheries, wildlife, and other resource management agencies and programmes throughout the region on the impacts of marine litter on wildlife and ecosystems.***

Research needs to be conducted to determine the various impacts of marine litter on wildlife and habitats and other indicators (e.g. invasive species transport and toxicity due to ingestion of materials). This information would be included in the marine litter regional database. In addition,

efforts to conduct this type of research could be promoted to facilitate the acquisition of updated information for management programmes.

***ACTION 5: Utilizing the Marine Litter Economic Guidelines developed by UNEP-Regional Seas, UNEP-CAR/RCU will field test an assessment of the economic impacts of marine litter, including costs for cleanup efforts, maintenance of recreational beach areas, costs for lost or abandoned fishing gear, and the costs associated with the loss of recreational uses of coastal areas through a phased assessment.***

Economic information that tracks the costs associated with solid waste management activities, special cleanups and maintenance of beach areas, and costs associated with loss of recreational usage of coastal areas, and lost commercial fishing nets and gear would be useful to government agencies dealing with solid waste, fisheries and marine litter issues.

In most States the Ministry responsible for Finance is one of the most critical Ministries to be engaged in financing conservation efforts. Adequate resources will be required to support management and educational efforts to address marine litter issues. Research on the economic impacts of marine litter can assist in justifying the need for adequate appropriations based on tourism and coastal management concerns. In addition, the economic impacts of marine litter need to be assessed to help prioritize and quantify the economic impact of this issue within government programmes, business and industry groups, and the public.

***ACTION 6: Conduct a GAP analysis of overlap of high density ML areas with areas of high sensitivity (endangered species, key habitats, etc) in order to prioritize clean-up and mitigation efforts.***

***ACTION 7: Review and disseminate research and information on the identification, removal and disposal of marine litter to enable more effective recovery efforts and disposal of marine litter.***

### **Education & Outreach**

A regional strategy needs to be developed for a marine litter education campaign that can be accessed by government agencies, NGOs and other related organizations in the Caribbean. This campaign would incorporate an expansion in promotion and participation in the annual International Coastal Cleanup and be implemented through a variety of venues, including radio and television advertisements (PSAs), web-accessible materials, and printed educational materials (brochures, posters) that can be used by government agencies, NGOs, and business and industry groups. In addition, specialized educational components (curriculum aids/activity sheets) are needed for use by traditional educators to support the integration of this issue into the school curriculum.

Many organisations and government groups routinely conduct public education campaigns to support their missions and programme objectives. Over the years, outreach materials for marine litter have been developed by many coastal zone management and solid waste management programmes, and conservation NGOs. These valuable educational tools are still in existence in varying states, but are not readily available to a wide range of potential users. An effort to obtain these materials and compile them for access in the region would be an effective strategy to help groups target this pervasive issue through outreach and education activities.

***ACTION 1: Develop and implement community-based public education campaigns for marine litter prevention, including specialized marine litter prevention programmes for key user-groups and stakeholders.***

Community-based education programmes are necessary if the public is to become fully engaged in the process to protect their own environment and existence. Cultural issues have a significant role in addressing the public's behaviour regarding littering laws and compliance. In any education campaign, the cultural aspects of the audience being addressed must be taken into account and should include coordination with law enforcement agencies.

If an education campaign is to be successful, it must be directed to the groups that are viewed as part of the problem and/or solution. Development of a stewardship ethic in the public requires that the public be reached on their terms so that they have an incentive for compliance – What is in it for me? Why do I care?

Specialized educational programmes for subsistence and commercial fishing could be developed to help address derelict fishing gear and equipment issues related to wildlife entanglements and habitat damage. Other outreach programming for recreational boaters and beach-goers has been shown to be effective in addressing specific marine litter issues. Public education campaigns are suggested for public beach areas, boating and marinas, and parks where the impacts of littering could be demonstrated in posters and bill boards showing the impacts of marine litter on wildlife and habitat areas. Other user-groups can be identified based on local issues and activities.

***ACTION 2: Develop a regional campaign for the International Coastal Cleanup (ICC).***

Since 1989, 28 countries in the Wider Caribbean have participated on various levels in the ICC. UNEP-CAR/RCU supported this event for several years, assisting with cleanup activities in Jamaica and more recently in collaboration with the Marine Litter National Consultants for the 2006 ICC. UNEP-CAR/RCU should seek to mobilize funding that could facilitate more significant collaboration with national organizers of ICC and help to develop a regional public awareness campaign for marine litter prevention.

***ACTION 3. Incorporate cultural issues, including popular culture icons in outreach programming to promote behavioral change.***

This strategy needs to be implemented for all national programmes.

***ACTION 4. Incorporate ML issues into other community calendars and environmental events.***

Share calendars with UNEP-CAR/RCU on a regular basis to help promote opportunities to share information on marine litter issues.

***ACTION 5. Explore opportunities for integrating issues on marine litter into formal education curricula and programming.***

Coordinate efforts with regional and national education associations to assist in development of curriculum support materials and activity guides on marine litter prevention.

***ACTION 6. Collate best management practices, case studies and lessons learned on marine litter management at the community and national levels and communicate these with UNEP-CAR/RCU for regional compilation and dissemination.***

Existing examples of programmes and strategies need to be compiled and sent to UNEP to be made available and accessible across the Region and for posting on their website.

### ***Solid Waste Management Strategies***

Many believe and would like to continue to believe that the islands of the Caribbean are the closest thing to paradise. However, standards for the waste reduction, collection and proper storage and disposal of garbage are rated as poor to fair. It's difficult to work in some neighborhoods; there is a shortage of facilities and equipment for collection and disposal. The sea is also being polluted by garbage from the land and what is dumped by ships. All of this threatens our health, our livelihood and the surrounding beauty.

<http://www.oceansatlas.org/unatlas/uses/uneptextsph/wastesph/2596carib.html>

Marine litter is a significant component of the solid waste management issue in the Caribbean region. However, solid waste management strategies for most of the region do not effectively integrate marine litter management. For the States of the Caribbean, it is critical that there be an integration of marine litter management strategies with solid waste management strategies. An effort to coordinate programme activities, waste management strategies, and resources would prove beneficial for the peoples and natural resources of the Wider Caribbean Region.

***ACTION 1. Maintain/develop specialized marine litter waste management strategies for public events – either as a separate strategy or part of an existing waste management strategy.***

Improve and/or expand waste management strategies for the public at local beaches, sporting events and festivals where appropriate receptacles are used with coordinating and efficient removal and processing activities implemented. An environmental theme of “Zero Waste” has been used at some beach music festivals and sporting events in the U.S. to help with the after-show cleanup efforts. These were fairly successful and had the support of the participating bands and sports teams.

***ACTION 2. Research hotel, restaurant and cruise industry BMP's for waste management practices and strengthen collaboration with the tourism sector for sharing of best practices and lessons learned.***

Review how the tourism industry handles their commercial waste management practices to determine if any updates in practices are needed. A sharing of information on their strategies would be helpful to other groups working on waste management issues in coastal areas.

***ACTION 3. Develop and promote activities for national/regional recycling, reuse and waste diversion.***

Effective waste minimization, reuse and recycling programmes need to be developed and/or expanded to handle waste materials (plastics, glass, metal and other materials). These programmes must include an educational strategy for implementation and supporting an integrated waste management approach.

***ACTION 4. Identify/promote international environmental certification programmes which include waste management and minimization.***

Identify and review existing regional and international waste minimization programmes for possible inclusion into national marine litter/waste management strategies (e.g. Blue Flag and Green Globe Certifications).

***ACTION 5. Maintain/develop specialized waste management strategies for marine litter problems associated with seasonal and/or weather-related events.***

Establish emergency response waste management strategies, where necessary, that deal with the aftermath of heavy storms and hurricanes and the debris that is produced during these disasters.

## **CONCLUSION**

Implementation of the Regional Action Plan for Marine Litter Management will be coordinated by the UNEP-CAR/RCU including the development of a process for assessment and evaluation of the plan, including identification of targets, milestones and indicators. In addition, efforts to identify funding resources will be spearheaded by UNEP-CAR/RCU with support from member States where a leveraging of resources will be explored for existing sources as well as the cultivation of new funding sources to support regional efforts for addressing marine litter issues.

A matrix analyzing the proposed “Regional Action Plan for Marine Litter Management in the Wider Caribbean” is provided as an attachment. This document prioritizes the various issues presented in this report as “high”, “medium”, or “low” as rated by the UNEP CAR/RCU Focal Points and Marine Litter Focal Points, and other stakeholders in the Region. Each action is identified as needing to be implemented regionally, nationally or both. The action has a time frame listed as to when this activity will take place and an estimate of the associated costs and potential sources.

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# ATTACHMENT A

## UNEP-CAR/RCU LBS Focal Points

Country	Name/Title	Affiliation
Anguilla	Mr. Karim Hodge, Director of Environment	Chief Minister's Office
Antigua	The Hon. Wilmoth Danies, Minister	Ministry of Works, Transportation and the Environment
Aruba (Netherlands)	Dr. C.A.S.D. Wever, Minister of Public Health & Environment	Ministry of Public Health & Environment
Bahamas	His Excellency, Mr. Koed Smith, Ambassador for the Environment	Ministry of Health & the Environment
Barbados	Mr. Leo Brewster, Director	Coastal Zone Management Unit
Belize	The Honorable John Briceño, Deputy Minister & Minister of the Environment	Ministry of Natural Resources, the Environment & Industry
British Virgin Islands (U.K)	Hon. J. Alvin Christopher, Minister	Ministry of Natural Resources and Labour
Cayman Islands (U.K.)	Mrs. Gina Ebanks-Petrie, Director of Department of Environment	Cayman Is. Department of Environment
Colombia	S.E. Sr. Fernando Araujo Perdomo, Ministro de Relaciones Exteriores	Ministerio de Relaciones Exteriores
Costa Rica	Dr. Jorge Rodríguez, Vice Ministro	Ministerio del Ambiente y Energía
Cuba	Dr. José Antonio Díaz Dugal, Presidente	Centro de Información y Gestión Ambiental
Dominica	Sen. Colin McIntyre, Minister	Ministry of Agriculture, Fisheries and the Environment
Dominican Republic	Sr. Maximiliano Puigo, Secretario de Estado de Medio Ambiente y Recursos Naturales	Secretario de Estado de Medio Ambiente y Recursos Naturales
France	Mme. Caroline Demartini, Chargé de Mission, Bureau de la Mar	Ministère de l'écologie et du développement durable
Grenada	The Honorable Mr. Gregory Bowen, Minister	Ministry of Agriculture, Lands, Forestry, Fisheries, Public Utilities, Energy & Marketing
Guatemala	Sr. Mario Dary Fuentes, Ministro	Ministerio de Ambiente y Recursos Naturales
Guyana	Dr. Roger F. Luncheon, Secretary to the Cabinet, Head of the Presidential Secretariat	Office of the President
Haiti	Mr. Yves-André Wainright, Minister	Ministère de l'Environnement

Regional Action Plan for Marine Litter Management in the Wider Caribbean

Honduras	Secretaria de Planificacion, Coordinacion y Presupuesto (SECPLAN)	
Jamaica	Dr. Leary Myers, Acting Chief Executive Officer	National Environment and Planning Agency (NEPA)
Mexico	Ing. José Luis Luege Tamargo, Secretario	Unidad Coordinadora de Asuntos Internacionales
Montserrat	Mr. Eugene Skerit, Permanent Secretary	Ministry of Agriculture, Land, Housing and the Environment
Netherlands	Mr. Cornelius Pieter Veerman, Minister	Ministry of Agriculture, Nature & Food Quality
Netherlands Antilles (Netherlands)	Mr. Ben D. Whiteman, Director	Directorate of Public Health of the Netherlands Antilles
Nicaragua	Sra. Amanda Lorío, Minstra	Ministerio del Ambiente y los Recursos Naturales (MARENA)
Panama	Sra. Zoila Aquino, Jefe de la Cooperación Interenacional	Autoridad Nacional del Ambiente
Saint Kitts and Nevis	The Hon. Nigel Carty, Minister	Ministry of Sustainable Development
Saint Lucia	The Honorable Ausbert d’Auvergne, Minister	Ministry of Economic Affairs, Economic Planning & National Development
Saint Vincent & the Grenadines	The Honorable Dr. Douglas Slater, Minister	Ministry of Health & the Environment
Suriname	The Honorable Clifford P. Marcia, Minister	Ministry of Labour, Technological Development & Environment
Trinidad & Tobago	Commodore Anthony Franklin, Director	Institute of Marine Affairs
Turks and Caicos (U.K.)	The Hon. Mr. David Jerimiah, Attorney General	Attorney General’s Chambers
United Kingdom	Mr. Shaun Earl, Sustainable Development & Commonwealth Group	Foreign and Commonwealth Office
United States	Mr. Patrick Cotter, International Affairs Specialist	U.S. Environmental Protection Agency
Venezuela	Dra. Jacqueline Faria Pineda, Ministra	Ministerio del Ambiente y de los Recursos Naturales

## UNEP-CAR/RCU Marine Litter Focal Points

COUNTRY	NAME	AFFILIATION
English		
Bahamas	Ms. Nakira-Gaskin-Wilchombe	Bahamas Environment, Science & Technology Commission, Ministry of Health & Environment
Barbados	Mr. Leo Brewster	Coastal Zone Management Unit
Belize	Virginia Vasquez	Belize Coastal Zone Management Authority
Guyana	Ms. Eliza Florendo	Environmental Management Division, Environmental Protection Agency
Montserrat	Ms. Melissa O'Garro	Department of Agriculture, Ministry of Agriculture, Land, Housing & the Environment
Saint Lucia	Ms. LaVerne Walker	Coastal Zone Management Unit/ Sustainable Development & Environment, Ministry of Physical Development, Environment & Housing
United Kingdom	Mr. Tommy Sanmoogan	Oversees Territories Department, Foreign & Commonwealth Office
United States	Ms. Elizabeth McLanahan	U.S. Department of Commerce, National Oceanic & Atmospheric Administration
Spanish		
Colombia	José Benito Vives de Andreis	Instituto de Investigaciones Marinas y Costeras
Mexico	Dr. Porfirio Alvarez Torres	Dirección General de Política Ambiental e Integración Regional y Sectorial, SEMARNAT
Panamá	Lic. Isabel Villalobos	Dirección Nacional de Protección a la Calidad Ambiental, autoridad Nacional del Ambiente
República Dominicana	Lic. Geraldo William Gutierrez	Conservación y Manejo de los Recursos Costeros y Marinos, Subsecretaría de Recursos Costeros y Marinos