REGIONAL SEAS

UNITED NATIONS ENVIRONMENT PROGRAMME

# *Assessment of the economic impacts of Hurricane Gilbert on coastal and marine resources in Jamaica*

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# PREFACE

In 1974, at the request of several Caribbean Governments, preparations were initiated by Decision (8)II of the Second Session of the Governing Council of UNEP for the formulation of an Action Plan for sound environmental management in the Wider Caribbean region.

The geographic coverage of the Wider Caribbean region was drawn to include all of the insular and coastal States and Territories of the Caribbean Sea, the Gulf of Mexico and their adjacent waters from the U.S. Gulf coast states and the islands of the Bahamian chain, south to the French Department of Guiana.

This Action Plan was prepared in close consultation with the Governments of the region and with the support and assistance of the United Nations Environment Programme (UNEP), the Economic Commission for Latin America and the Caribbean (ECLAC) and other international and regional organizations such as the Food and Agricultural Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (Unesco), the Department of International Economic and Social Affairs (UN/DIESA), the United Nations Industrial Development Organization (UNIDO), the International Maritime Organization (IMO), the Pan American Health Organization (PAHO) of the World Health Organization (WHO) and the World Conservation Union (IUCN).

At the Intergovernmental Meeting on the Action Plan for the Caribbean Environment Programme held in Montego Bay, Jamaica in April 1981, twenty-two States and Territories adopted the Action Plan and identified a programme of priorities for its implementation.

The Cartagena Convention and its associated Protocol entered into force on 11 October 1986. This legal instrument has now been ratified by 15 Governments (Antigua and Barbuda, Barbados, Colombia, Cuba, France, Grenada, Jamaica, Mexico, the Netherlands, Panama, Saint Lucia, Trinidad and Tobago, the United Kingdom, the United States of America, and Venezuela).

Hurricanes, known elsewhere as cyclones or typhoons, are a major environmental constraint on development. Preparations for such extreme natural events, and precautions to minimize their impacts on human well-being, the economy, and the environment, are an essential part of environmental planning for sustainable development in countries where they occur. The careful documentation of hurricane impacts can help planners to prepare for similar natural catastrophes in the future.

This document has been prepared by Mr. P.R. Bacon as a contribution to the Caribbean Environment Programme. The objective of the report is to summarize the economic and environmental impacts of Hurricane Gilbert, which struck Jamaica on 12 September 1988.

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## SUMMARY

1. Hurricane impacts on beaches, coastal water quality, coral reefs, seagrass beds, wetlands, coastal vegetation, fisheries and waterbirds are documented, following rapid survey.

2. Erosion of over 50% of beaches occurred, with damage worst on the east and north coasts.

3. Natural recovery of beaches is in progress.

4. Coastal water quality deteriorated, especially as a result of sediment-laden terrestrial run-off.

5. Recovery of water clarity occurred in about three weeks, except near river mouths, where high turbidity continues.

6. Coral reef damage was disastrous on the east and north coast.

7. The recovery of reefs since Hurricane Allen (1980) has been set back by Hurricane Gilbert.

8. There has been severe loss of all types of reef organisms, and some loss of reef fish.

9. Seagrass beds were damaged only superficially.

10. Mangroves were severely damaged, with loss of up to 60% of trees in some areas. Damage is worst on the east and north coasts.

11. Damage to mangroves was largely to upper parts of the trees, the ground and aquatic habitats were less affected.

12. Waterfowl and other wetland animals were little affected.

13. Natural recovery of mangrove areas is proceeding.

14. Coastal woodland and strand was severely damaged on the east and north coasts.

15. Considerable loss of fishing gear and fisheries infrastructure occurred, particularly on the east and north coasts.

16. Artisanal fishing was disrupted for three to four months following Hurricane Gilbert.

17. There is little evidence of damage to primary fisheries resources (scalefish, lobster, conch, etc.).

18. Oyster culture and artificial reef structures were damaged on the south coast.

19. Damage to seabirds and shorebirds appears to be minimal.

20. Available data is inadequate for accurate assessment of the economic impacts of Hurricane Gilbert on coastal and marine resources in Jamaica.

21. Immediate losses of coastal and marine resources are estimated at about US$200 Million.

22. Long-term losses can be expected to be much higher.

23. Most of the resources are expected to recover naturally, although the economic loss period may be several years in some cases.

24. Investment in recovery effort is recommended only for a few resources, such as beaches and fisheries.

25. Recovery of watershed forests should be aided in order to reduce adverse run-off effects on coastal waters.

26. The report highlights the need for further study of coastal and marine resource economics.

27. Key areas for research on marine resources and impacts of disasters are listed.

28. The report is supported by 10 appendices containing detailed information on impacts of Hurricane Gilbert.

29. The report is the first compilation of data and professional opinions on the effects of hurricanes on a wide range of coastal and marine resources in Jamaica.

30. The report is intended as a framework for more detailed analysis of the economic impacts of Hurricane Gilbert.

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