Ecosystems and Human Well-being: Wetlands and Water

Synthesis

MILLENNIUM ECOSYSTEM ASSESSMENT

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Ecosystems and Human Well-being: Wetlands and Water

Synthesis

A Report of the Millennium Ecosystem Assessment

This report has been prepared to provide Contracting Parties to the Convention on Wetlands (Ramsar, Iran, 1971), and all those responsible for and involved in implementation of the Convention and concerned with the future sustainability of wetlands and water, with a synthesis of the findings of the Millennium Ecosystem Assessment

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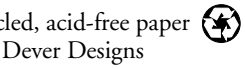
Suggested citation:

Millennium Ecosystem Assessment, 2005.
Ecosystems and Human Well-being: Wetlands and Water Synthesis.
World Resources Institute, Washington, DC.

Library of Congress Cataloging-in-Publication data.

Ecosystems and human well-being : wetlands and water synthesis : a report of the Millennium Ecosystem Assessment.
p. cm.
ISBN 1-56973-597-2
1. Wetland ecology. 2. Wetlands. 3. Wetland conservation. I. Millennium Ecosystem Assessment (Program)
QH541.5.M3E275 2005
333.91'816--dc22
2005030935

Printed on recycled, acid-free paper 
Book design by Dever Designs

Manufactured in the United States of America

Contents

Key Messages

- *Wetland ecosystems (including lakes, rivers, marshes, and coastal regions to a depth of 6 meters at low tide) are estimated to cover more than 1,280 million hectares, an area 33% larger than the United States and 50% larger than Brazil. However, this estimate is known to under-represent many wetland types, and further data are required for some geographic regions. More than 50% of specific types of wetlands in parts of North America, Europe, Australia, and New Zealand were destroyed during the twentieth century, and many others in many parts of the world degraded.*
- *Wetlands deliver a wide range of ecosystem services that contribute to human well-being, such as fish and fiber, water supply, water purification, climate regulation, flood regulation, coastal protection, recreational opportunities, and, increasingly, tourism.*
- *When both the marketed and nonmarketed economic benefits of wetlands are included, the total economic value of unconverted wetlands is often greater than that of converted wetlands.*
- *A priority when making decisions that directly or indirectly influence wetlands is to ensure that information about the full range of benefits and values provided by different wetland ecosystem services is considered.*
- *The degradation and loss of wetlands is more rapid than that of other ecosystems. Similarly, the status of both freshwater and coastal wetland species is deteriorating faster than those of other ecosystems.*
- *The primary indirect drivers of degradation and loss of inland and coastal wetlands have been population growth and increasing economic development. The primary direct drivers of degradation and loss include infrastructure development, land conversion, water withdrawal, eutrophication and pollution, overharvesting and overexploitation, and the introduction of invasive alien species.*
- *Global climate change is expected to exacerbate the loss and degradation of many wetlands and the loss or decline of their species and to increase the incidence of vector-borne and waterborne diseases in many regions. Excessive nutrient loading is expected to become a growing threat to rivers, lakes, marshes, coastal zones, and coral reefs. Growing pressures from multiple direct drivers increase the likelihood of potentially abrupt changes in wetland ecosystems, which can be large in magnitude and difficult, expensive, or impossible to reverse.*
- *The projected continued loss and degradation of wetlands will reduce the capacity of wetlands to mitigate impacts and result in further reduction in human well-being (including an increase in the prevalence of disease), especially for poorer people in lower-income countries, where technological solutions are not as readily available. At the same time, demand for many of these services (such as denitrification and flood and storm protection) will increase.*
- *Physical and economic water scarcity and limited or reduced access to water are major challenges facing society and are key factors limiting economic development in many countries. However, many water resource developments undertaken to increase access to water have not given adequate consideration to harmful trade-offs with other services provided by wetlands.*

- *Cross-sectoral and ecosystem-based approaches to wetland management—such as river (or lake or aquifer) basin-scale management, and integrated coastal zone management—that consider the trade-offs between different wetland ecosystem services are more likely to ensure sustainable development than many existing sectoral approaches and are critical in designing actions in support of the Millennium Development Goals.*
- *Many of the responses designed with a primary focus on wetlands and water resources will not be sustainable or sufficient unless other indirect and direct drivers of change are addressed. These include actions to eliminate production subsidies, sustainably intensify agriculture, slow climate change, slow nutrient loading, correct market failures, encourage stakeholder participation, and increase transparency and accountability of government and private-sector decision-making.*
- *Major policy decisions in the next decades will have to address trade-offs among current uses of wetland resources and between current and future uses. Particularly important trade-offs involve those between agricultural production and water quality, land use and biodiversity, water use and aquatic biodiversity, and current water use for irrigation and future agricultural production.*
- *The adverse effects of climate change, such as sea level rise, coral bleaching, and changes in hydrology and in the temperature of water bodies, will lead to a reduction in the services provided by wetlands. Removing the existing pressures on wetlands and improving their resiliency is the most effective method of coping with the adverse effects of climate change. Conserving, maintaining, or rehabilitating wetland ecosystems can be a viable element to an overall climate change mitigation strategy.*
- *The MA conceptual framework for ecosystems and human well-being provides a framework that supports the promotion and delivery of the Ramsar Convention's "wise use" concept. This enables the existing guidance provided by the Convention for the wise use of all wetlands to be expressed within the context of human well-being and poverty alleviation.*

Foreword

Since the inception of global assessments on ozone depletion and climate change, the global policy process has been better informed, and decision-makers are able to take more effective and timely decisions. The Millennium Ecosystem Assessment followed in the footsteps of these assessments and was designed to meet the need for information about the consequences of ecosystem change for human well-being. It sought in particular to strengthen the link between scientific knowledge and decision-making.

It provided an assessment, not just a review of existing knowledge and understanding, of the current state of our ecosystems and the many services they support and provide to people. It significantly enhanced our understanding of the direct drivers of change to wetlands and showed how they would fare under a range of future scenarios. It analyzed future challenges and response options that could allow us to maintain, to the greatest extent possible, the ecosystem services on which we all depend.

The Convention on Wetlands (Ramsar, I.R. Iran, 1971) has recognized from the start that the MA can and should provide the Contracting Parties to the Convention, and all involved in the conservation and wise use of wetlands, with new understanding and insights into how best they can meet the objectives of the Convention. The Convention's Standing Committee, Secretariat, and Scientific and Technical Review Panel have supported and contributed to the work of the MA throughout.

This report, synthesizing the findings of the MA on inland, coastal, and near-shore marine wetlands, is the key product of the MA for the Ramsar Convention. It draws on the work of approximately 1,360 experts who compiled the many chapters of the MA reports. The synthesis stresses the link between wetlands and water and will help us set the future agenda for Ramsar.

During its work, the MA made a significant contribution to the work of the Convention's STRP. Several of the MA's authors contributed to the STRP's work that will be considered by the Convention's COP9 in November 2005. Through this "cross-fertilization" of ideas it became apparent that the MA's conceptual framework provides a structure for the delivery of the Convention's central concept of "wise use" of all wetlands. Furthermore, the STRP has recognized that the ecosystem terminologies adopted by the MA provide a valuable approach to its work of updating and harmonizing the terms and definitions used by the Convention, notably those concerning ecological character and wise use. Finally, the existing Ramsar "Toolkit" of Wise Use Handbooks is enhanced and supported by the MA's advice on response options.

We therefore commend this synthesis report to you, and urge all those concerned with the Ramsar Convention and with securing the wise use of wetlands to read it and use its findings to raise awareness of the role of wetlands in securing sustainable water supplies as well as providing a range of other vital ecosystem services.

Peter Bridgewater
Secretary General

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Chair, Standing Committee