

4. SPECIAL PROJECTS AND REPORTS

A. Marine Protected Areas (NRC)

The National Research Council (NRC) of the National Academy of Sciences in the United States has published a report (ISBN 0-309-07286-7) titled *Marine Protected Areas: Tools for Sustaining Ocean Ecosystems*. Few persons would deny that the oceans are stressed by human activities and that new, or additional, management measures are required to ensure that the ocean's resources and ecosystem services are conserved. The concept of designating specific areas as marine protected areas (MPAs) and reserves proffers another tool with the potential for expanding the ability to manage marine resources. This report is intended to serve as a comprehensive and critical description and evaluation of MPAs and reserves as a management tool that can help to guide agencies as they move forward in developing plans for a national system of MPAs.

Among the report's conclusions are the following:

1. Based on evidence from existing marine area closures in both temperate and tropical regions, marine reserves and protected areas will be effective tools for addressing conservation needs as part of integrated coastal and marine area management.
2. MPA-based approaches will shift the focus from agency-specific problem management to interagency cooperation for implementing marine policies that recognize the spatial heterogeneity of marine habitats and the need to preserve the structure of marine ecosystems.
3. Effective implementation of marine reserves and protected areas depends on participation by the community of stakeholders in developing the management plan. Federal and state agencies will need to provide resources, expertise, and coordination to integrate individual MPAs into the frameworks for coastal and marine resource management in order to meet goals established at the state, regional, national, or international level. The lead agency will need to first identify all stakeholders, both on-site and off-site, and then utilize methods of communication appropriate for various user groups.
4. Choice of sites for MPAs should be integrated into an overall plan for marine area management that optimizes the level of protection afforded to the marine ecosystem as a whole because the success of MPAs depends on the quality of management in the surrounding waters.
5. The optimal size of marine reserves and protected areas should be determined for each location by evaluating the conservation needs and goals, quality and amount of critical habitat, levels of resource use, efficacy of other management tools, and characteristics of the species or biological communities requiring protection.
6. Zoning should be used as a mechanism for designating sites within an MPA to provide the level of protection appropriate for each management goal.

7. The performance of marine reserves should be evaluated through regular monitoring and periodic assessments to measure progress toward management goals and to facilitate refinements in the design and implementation of reserves.
8. Research in marine reserves is required to further the understanding of how closed areas can be most effectively used in fisheries and marine resource management. Modeling studies are needed both to generate hypotheses and to analyze outcomes for different reserve designs and applications.
9. Integration of management across the array of federal and state agencies will be needed to develop a national system of MPAs that effectively and efficiently conserves marine resources and provides equitable representation for the diversity of groups with interests in the sea.

For further information, visit the National Academy of Sciences/Ocean Studies Board Internet Web Site at <http://www.national-academies.org/osb>.

B. Pollution Prevention (GAO)

The U.S. General Accounting Office (GAO) has published a report (GAO-01-283) dated February 2001 and titled *Environmental Protection: EPA Should Strengthen Its Efforts to Measure and Encourage Pollution Prevention*. Each year U.S. industry generates billions of pounds of toxic waste, which can pose risks to the health of workers, consumers, and the public. Traditionally, efforts to control pollution have focused on the treatment or disposal of pollutants after they are created, often with “end-of-pipe” pollution control technologies. In recent years, however, federal and state regulators have given greater attention to controlling pollution at the source by avoiding the creation of pollutants in the first place – an approach commonly referred to as pollution prevention. This report examines the extent to which U.S. companies have adopted pollution prevention measures, the major incentives encouraging companies to use pollution prevention strategies, and the major disincentives that discourage their use of these strategies.

While end-of-pipe pollution control strategies have helped further the nation’s environmental goals and promote facilities’ compliance, they do not necessarily keep “controlled” pollutants from entering the environment. The Pollution Prevention Act of 1990 (PPA) established a national policy that pollution should be prevented or reduced at its source. Under the PPA, pollution that cannot be prevented should be recycled or treated in a safe manner; disposal or other releases should be used only as a last resort. The Act also directed the U.S. Environmental Protection Agency (EPA) to develop and implement a strategy promoting source reduction, which it defined as any practice that reduces: (1) the amount of any hazardous substance, pollutant, or contaminant from entering any waste stream or being released into the environment prior to recycling, treatment, or disposal, and (2) the hazards to public health and the environment associated with the release.

Among the report's results are the following:

1. Limited quantitative data exist on the extent to which U.S. industry has sought to use pollution prevention methods to reduce pollutants discharged from its facilities. Specifically, Toxics Release Inventory (TRI) data show that, in each year between 1991 and 1998, approximately one-quarter to one-third of reporting firms implemented at least one pollution prevention measure. According to studies conducted by a variety of organizations, additional opportunities exist for pollution prevention that could provide cost-effective ways to help meet environmental requirements. EPA officials noted that the limitations of available data inhibit both their ability to ascertain the extent to which companies use pollution prevention practices, and their attempt to target efforts to further encourage these practices. Agency officials acknowledged that revisions in the information which companies provide TRI could significantly help address these needs.
2. For many companies, the opportunity for a financial return is the primary impetus for pursuing pollution prevention. Another key factor is the prospect that pollution prevention could improve a company's public or community image. Representatives of several firms told GAO, for example, that the public availability of TRI data on facilities' discharges provided a powerful incentive to minimize releases of toxic pollutants. Other factors that facilitate or encourage firms to pursue pollution prevention include: (a) laws and regulations that reduce allowable pollutant discharges while allowing companies the flexibility to achieve the reductions through pollution prevention; and (2) the proliferation in recent years of business strategies, such as environmental management systems, under which firms look comprehensively at the environmental impacts of their products and services.
3. Technical challenges associated with new and sometimes unproven techniques are one of the principal barriers hindering the wider use of pollution prevention. While some pollution prevention techniques involve relatively simple, common sense practices, others can involve significant changes, such as revamped production practices or changes in raw materials. These technical challenges are sometimes compounded by the preference among key decision-makers to rely on "tried and tested" methods. Second, pollution prevention methods may be rejected because they are not considered sufficiently profitable. The decision to adopt a pollution prevention measure may require more justification than a calculation that its benefits exceed its costs. Third, regulations that prescribe the use of specific techniques to meet pollutant emission limits sometimes have the unintended effect of discouraging pollution prevention. The PPA requires that EPA review its regulatory proposals and determine their effect on source reduction. However, EPA has not systematically tracked its compliance with this provision and therefore does not know the extent to which source reduction has, in fact, been considered in the promulgation of EPA regulations.

For further information, contact Mr. David G. Wood, Director of Natural Resources and Environment, U.S. General Accounting Office, Washington, DC 20548, (telephone: (202) 512-3841).

C. Environmental Outlook (OECD)

The Paris-based Organization for Economic Cooperation and Development (OECD) has issued a report titled *Environmental Outlook*. Using an economy-based vision of developments to 2020, the document identifies the economic, social, and technological drivers of environmental change, the specific sectors that put the greatest pressure on the environment, and the resulting environmental impacts. The report shows that the most critical environmental concerns facing OECD countries are the unsustainable use of renewable natural resources, the degradation of ecosystems, and the disruption of the environmental systems that support human life. The report identifies the key environmental challenges for industrialized countries over the next two decades using the traffic light system. In this system, pressures on the environment, states of the environment, and society's responses are classified as "red light," "yellow light," and "green light" issues. The most urgent problems – referred to in the *Outlook* as the "red lights" – include over-fishing, tropical deforestation, biodiversity loss, climate change, urban air quality, waste generation, ground water pollution, and chemicals in the environment.

For each of the "red light" issues examined, examples of appropriate policy instruments for addressing the problems are identified, and, where possible, their potential effects are quantitatively assessed. The report outlines a policy package or combination of instruments – regulatory, economic, and others – which can be used to tackle many of the most pressing environmental problems. The policy mix suggested involves the combination of a robust regulatory framework with a variety of other instruments, such as stronger pricing mechanisms to influence the behavior of consumers and producers, voluntary agreements, tradable permits, eco-labels and information-based incentives, land use regulation, and infrastructure provision. In particular, the *Outlook* recommends the removal of environmentally harmful subsidies and a more systematic use of environmental taxes, charges, and other economic instruments.

According to this analysis, adopting this policy package could deliver significant environmental benefits at relatively low economic costs in OECD countries. A policy simulation was undertaken to examine the potential effects of some of the key elements of the combined policy package, i.e., the removal of all subsidies identified in OECD countries, the application of an energy tax linked to the carbon content of fuels, and a tax on all chemical use. The environmental benefits from this policy mix would be substantial. As a result of implementing the policy mix, carbon dioxide emissions from OECD countries would be 15% lower in 2020 compared with the Reference Scenario, sulfur oxide emissions would be 9% lower, and methane emissions 3% lower. Largely because of the effect of the chemical tax on fertilizer use in agriculture, nitrogen loading to waterways would be almost 30% lower in 2020 compared with the Reference Scenario. With this policy package, the economic costs of achieving these environmental benefits were estimated to be quite low – less than a 1% decrease in GDP in OECD regions overall in 2020 compared to the Reference Scenario. Thus, implementing such a policy package would be cost-effective and lead to significant environmental improvements by 2020.

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Development, 2 Rue Andre-Pascal, 75775 Paris, France, (telephone: 33-1-45-24-16-00, electronic mail: lars.mortensen@oecd.org).

D. Ballast Water Management Policy (GLC)

The Great Lakes Panel on Aquatic Nuisance Species, a federally chartered body staffed by the Great Lakes Commission (GLC), has released its strategy, dated March 2001, to advance aquatic nuisance species (ANS) prevention and control efforts through ballast water management. The comprehensive policy statement features 41 recommendations that will guide the development of criteria for ballast water management practices and treatment technologies, ensure consistency among laws and programs in Great Lakes-St. Lawrence River basin jurisdictions, and promote the development of technology options and identification of research needs.

The Panel was officially convened in late 1991 by the GLC in response to section 1203 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-646). The Panel, a binational body comprised of representatives from government (state, provincial, federal, tribal), business and industry, universities, citizen environmental groups, and the larger user community, primarily operates through coordination, while providing guidance on research initiatives, policy development, and information/education programs on a regional basis.

According to the policy statement, the introduction of ANS is an urgent issue posing a significant risk to the environmental and economic health the Great Lakes-St. Lawrence River system. The Great Lakes ANS Panel recognizes that ballast water (water and entrained solids) from oceangoing commercial vessels is a primary vector for the introduction of ANS to the Great Lakes-St. Lawrence River system. Organisms discharged with ballast water, and those left in the residual water and sediment after ballast discharge, are a threat to the integrity of the ecosystem and many water-dependent sectors of the economy. While introduction of new species via ballast water is of considerable concern in the Great Lakes-St. Lawrence River region, the spread of established ANS populations within the system via ballast water also demands attention. The Panel is further concerned over other commercial and recreational activities (e.g., aquaculture, recreational boating) and their role in providing pathways for ANS introduction and spread in the Great Lakes-St. Lawrence River system.

More information is needed to determine the extent to which current regulations and guidelines concerning ballast water exchange have mitigated the introduction and spread of ANS in the Great Lakes-St. Lawrence River system. Additional discoveries of ANS continue to occur, as does the spread of established populations from lake to lake; therefore, the Great Lakes ANS Panel recommends new policy initiatives to address the issue of ballast water management and its effectiveness.

Science-based criteria must be established to develop standards upon which regulations/guidelines are based. These criteria will provide the benchmark by which ballast water exchange, management practices, and treatment technologies can be evaluated with the ultimate goal of eliminating ANS discharges. Once criteria are established, a system-wide ballast water management program can be developed, consisting of policies, regulations,

guidelines, and options for management practices and treatment technologies. This regional program can be implemented through a coordinated, binational approach that is adopted in partnership by governmental entities, the maritime industry, the research community, non-governmental groups, and other appropriate stakeholders. The program must ensure the safety of vessels and crew, and must be effective, efficient, scientifically based, environmentally sound, and economically viable. Further, it must be accompanied by the application of compatible regulations or guidelines at national and international levels.

Research efforts on ANS prevention and control issues are in need of substantially increased funding. Research priorities include potential ballast water management practices and treatment technologies, determination of the efficacy of ballast exchange under different operating conditions and tank designs, ship design and engineering, assessment of vessels with “no ballast on board” as vectors for ANS introductions, the economic and environmental impact of ANS introductions, and the economic costs of prevention/control efforts. It is critical that results of such research are efficiently communicated to managers and policymakers to ensure the timely development and application of effective ballast water management measures.

For further information, contact Mr. Michael J. Donahue, President and CEO, Great Lakes Commission, 400 Fourth Street, Ann Arbor, MI 48103-4816, (telephone: (734) 665-9135, electronic mail: mdonahue@glc.org).

E. Energy for America’s Future (NEPDG)

On May 17, 2001, President Bush released the Report of the National Energy Policy Development Group (NEPDG) titled *Reliable, Affordable, and Environmentally Sound Energy for America’s Future*. The report states that a fundamental imbalance between supply and demand defines the nation’s energy crisis. If energy production increases at the same rate as during the last decade, the nation’s projected energy needs will far outstrip expected levels of production. This imbalance, if allowed to continue, will inevitably undermine the nation’s economy, standard of living, and national security.

The components of the National Energy Policy proposed by the NEPDG follow three basic principles:

1. The Policy is a long-term, comprehensive strategy. The energy crisis has been years in the making, and will take years to put fully behind the nation.
2. The Policy will advance new, environmentally friendly technologies to increase energy supplies and encourage cleaner, more efficient energy use.
3. The Policy seeks to raise the living standards of the American people, recognizing that to do so the nation must fully integrate its energy, environmental, and economic policies.

Applying these principles, the NEPDG urges action to meet five specific national goals. The United States must modernize energy conservation, modernize its energy infrastructure, increase

energy supplies, accelerate the protection and improvement of the environment, and increase the nation's energy security. Among the report's numerous recommendations regarding these five national goals are the following:

1. Direct federal agencies to take appropriate actions to responsibly conserve energy use at their facilities, especially during periods of peak demand in regions where electricity shortages are possible, and to report to the President on actions taken.
2. Increase funding for renewable energy and energy efficiency research and development programs that are performance-based and cost-shared.
3. Create an income tax credit for the purchase of hybrid and fuel cell vehicles to promote fuel-efficient vehicles.
4. Extend the U.S. Department of Energy's "Energy Star" efficiency program to include schools, retail buildings, health care facilities, and homes, and extend the Energy Star labeling program to additional products and appliances.
5. Fund the federal government's Intelligent Transportation Systems program, the fuel cell powered transit bus program, and the clean buses program.
6. Provide a tax incentive and streamline permitting to accelerate the development of clean combined heat and power technology.
7. Direct the Secretary of Transportation to review and provide recommendations on establishing Corporate Average Fuel Economy standards with due consideration to the National Academy of Sciences study of these standards to be released in July 2001.
8. Direct agencies to improve pipeline safety and expedite pipeline permitting.
9. Issue an Executive Order directing federal agencies to expedite permits and coordinate federal, state, and local actions necessary for energy-related project approvals on a national basis in an environmentally sound manner, and establish an interagency task force chaired by the Council on Environmental Quality. The task force will ensure that federal agencies set up appropriate mechanisms to coordinate federal, state, and local permitting activity in particular regions where increased activity is expected.
10. Grant authority to obtain rights-of-way for electricity transmission lines with the goal of creating a reliable national transmission grid. Similar authority already exists for natural gas pipelines and highways.
11. Enact comprehensive electricity legislation that promotes competition, encourages new generation, protects consumers, enhances reliability, and promotes renewable energy.

12. Implement administrative and regulatory changes to improve the reliability of the interstate transmission system and enact legislation to provide for enforcement of electricity reliability standards.
13. Expand the Department of Energy's research and development on transmission reliability and superconductivity.
14. Issue an Executive Order directing all federal agencies to include in any regulatory action that could significantly and adversely affect energy supplies a detailed statement on the energy impact of the proposed action.
15. Open a small fraction of the Arctic National Wildlife Refuge (ANWR) to environmentally regulated exploration and production using leading-edge technology. Examine the potential for the regulated increase in oil and natural gas development on other federal lands.
16. Earmark \$1.2 billion of bid bonuses from the environmentally responsible leasing of ANWR to fund research into alternative and renewable energy resources – including wind, solar, biomass, and geothermal.
17. Enact legislation to expand existing alternative fuels tax incentives to include: (a) landfills that capture methane gas emissions for electricity generation and (b) electricity produced from wind and biomass. Extend the number of eligible biomass sources to include forest-related sources, agricultural sources, and certain urban sources.
18. Provide \$2 billion over 10 years to fund clean coal technology research and a new credit for electricity produced from biomass co-fired with coal.
19. Direct federal agencies to streamline the hydropower relicensing process with proper regard given to environmental factors.
20. Provide for the safe expansion of nuclear energy by establishing a national repository for nuclear waste, and by streamlining the licensing of nuclear power plants.
21. Enact multi-pollutant legislation to establish a flexible, market-based program to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides, and mercury from electric power generators.
22. Increase exports of environmentally friendly, market-ready U.S. technologies that generate a clean environment and increase energy efficiency.
23. Establish a new Royalties Conservation Fund and earmark royalties from new, clean oil and gas exploration in the ANWR to fund land conservation efforts.
24. Implement new guidelines to reduce truck idling emissions at truck stops.

25. Dedicate new funds to the Low Income Home Energy Assistance Program (LIHEAP) by funneling a portion of oil and gas royalty payments to LIHEAP when oil and natural gas prices exceed a certain amount.
26. Double funding for the Department of Energy's Weatherization Assistance Program, increasing funding by \$1.4 billion over 10 years.
27. Direct the Federal Emergency Management Agency to prepare for potential energy-related emergencies.
28. Support a North American Energy Framework to expand and accelerate cross-border energy investment, oil and gas pipelines, and electricity grid connections by streamlining and expediting permitting procedures with Mexico and Canada. Direct federal agencies to expedite necessary permits for a gas pipeline route from Alaska to the lower 48 states.

A copy of the NEPDG Report may be viewed on the U.S. Department of Energy's Internet Web Site at <http://www.energy.gov>.

F. America's Water Resources Challenges for the 21st Century (ACE)

The U.S. Army Corps of Engineers (ACE) has issued a report titled *A National Dialogue about America's Water Resources Challenges for the 21st Century: National Report on Identified Water Resources Challenges and Water Challenge Areas*. From June through November 2000, the Corps of Engineers conducted 14 regional listening sessions across the country, plus 2 national-level meetings, to give citizens the opportunity to voice their concerns about future water resources challenges facing the nation.

The views expressed in this report reveal topics and concerns on the minds of those attending the listening sessions. The intent of this document is to present these views in a consolidated form and to provide sufficient background information so as to place the issues raised in a context. The views contained in this document do not necessarily represent a regional recommendation or ACE policy. This document should not be taken as advocating any particular opinion or making any specific recommendation. It is offered in the spirit of promoting a continuing dialogue on issues of vital interest to the nation. As part of the Corps' process to update its Civil Works Strategic Program Plan, the ACE has used information from the listening sessions to develop its goals and strategies.

The report identifies 10 emerging water resources challenges: (1) transform the Marine Transportation System (MTS) to meet 21st century demands; (2) restore degraded environment resulting from past development and seek to protect the environment in new development; (3) achieve balance between social needs, economic development, and the environment within an entire watershed; (4) protect Americans from severe storms/natural disasters to minimize social, economic, and environmental impacts; (5) plan for, prepare for, and respond to emergencies resulting from natural disasters and technological emergencies; (6) consider and plan for the implications of aging water resources infrastructure, urban growth and development, and water

supply and treatment on a community's ability to be prosperous and sustainable; (7) ensure fair, adequate, and efficient permitting to protect wetlands and other waters of the United States from development and improper use; (8) provide recreation opportunities for all Americans and their guests on national lands and waters; (9) ensure significant communication, information, public input, and analysis for successful project development; and (10) streamline and improve federal water resources authorities, laws, policies, and funding to better align the federal government's priorities, goals, and objectives.

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