

25 Year Plan for the Great Lakes

Executive Summary

The Great Lakes — Ontario, Erie, Huron, Michigan and Superior — together form the largest body of fresh surface water in the world. In New York State, Lake Erie, Lake Ontario and the St. Lawrence and Niagara Rivers are key resources, with approximately **80** percent of the state's fresh surface water and more than **700** miles of mainland coast. In their drainage basins, which comprise about **40** percent of New York's total land area, the ecosystems of the two lakes sustain natural life, provide recreation and support local and regional economies.

The 25-Year Plan

Recognizing the importance of this resource, Governor Mario M. Cuomo directed the New York State Department of Environmental Conservation (DEC) to prepare a Great Lakes Management Agenda and 25-Year Plan for the region. **The volume** summarizes the recommendations of the 25-Year Plan, and sketches the information and policies from which the recommendations are derived.

Representatives from **12** New York State agencies responsible for managing aspects of the Great Lakes ecosystem and the Governor's Great Lakes Basin Advisory Council participated in preparation of the Plan, which was reviewed in public meetings during summer, **1991**. The Plan will serve **as** the management framework to promote the long-term vitality of the New York Great Lakes ecosystem.

The 25-Year Plan recommends programs to assist in achieving six goals; which pertain to specific issue areas **as well as** processes:

Goal 1: Formulate a "Shared Vision"

*Ensure that the quality of life **and** standard of living of people are improved **by** developing a shared vision **of** the Great Lakes ecosystem, **so** that society's actions **and** attitudes strengthen the viability and sustainability **of** this ecosystem's unique and valuable resources.*

Goal 2: Restore the Integrity of the Waters

Achieve chemical, physical and biological integrity of the waters of the Great Lakes-St. Lawrence to improve and sustain healthy diverse plant and animal communities and provide for safe public use and benefits.

Goal 3: Manage Water Resources

***Manage** the **Basin's** water resources to meet current and *future* human and ecosystem needs, recognizing its true value (costs) and **mjor** uncertainties regarding its abundance, levels and impacts.*

Goal 4: Preserve and Improve Natural Resources

Ensure that natural and cultural resources of the ecosystem are managed to achieve healthy and diverse biological communities, and compatible coastal uses and benefits.

Goal 5: Sustainable Economic Development

Achieve environmentally sustainable economic development through ecologically sensitive public and private decision-making that balances social, economic and environmental concerns.

Goal 6: Improve Intergovernmental Relationships

Secure New York's role as an essential partner in the complex interstate, national and international relationships and strengthen the state government\local government wrking relationship to assure integrated and coordinated management of the Great Lukes-St. Lawrence River basin.

Scope of the 25-Year Plan

Subcommittees prepared reports and recommendations covering four issue areas in the Great Lakes ecosystem: 1) water quality, 2) water quantity, 3) natural and cultural resources and 4) sustainable economic development. In addition, through subcommittee deliberations and public comments, two recurring needs emerged: 1) to improve educational and outreach efforts related to the **Lakes**, and 2) to improve working relationships between all levels of government in the basin. Using comments from the public and the subcommittees, recommendations were developed in all issue areas.

The 25-Year Plan **focuses** on a geographic area encompassing **Lakes** Erie and Ontario, the Niagara and St. Lawrence rivers, tributaries up to the first barrier impassable to fish and adjacent shoreline, including landlocked waters and subterranean waters, to the extent that coastal waters and adjacent lands are strongly influenced by each other. The plan also takes into consideration activities that impact this area but are outside the above defined boundaries.

The 25-Year Plan provides the strategic framework for a broad range of public actions to be undertaken in the next 25 years to protect and effectively manage New York's Great **Lakes** ecosystem. It **contains short-term** (within 1-5 years) and long-term (5-25 years) recommendations for government actions. Implementing the Plan's recommendations will require, in some **cases**, expanded statutory and regulatory authority. To the extent that the Plan calls for new programs or additional resources, these needs must be assessed throughout the span of the Plan **as** part of federal, state and local governments' annual legislative, budgetary and policy development processes. **As** is the case for all assessments and decisions on public policy and program needs, priorities must be established and hard decisions made on the allocation of limited resources.

State of New York's Great Lakes Basin

In the **400** years since Europeans first explored the Great **Lakes** region, the lakes have provided important economic, recreational and other quality of life benefits and have been subject to significant human impacts. Today, New York's Great Lakes basin (Figure 1) exhibits the following characteristics:

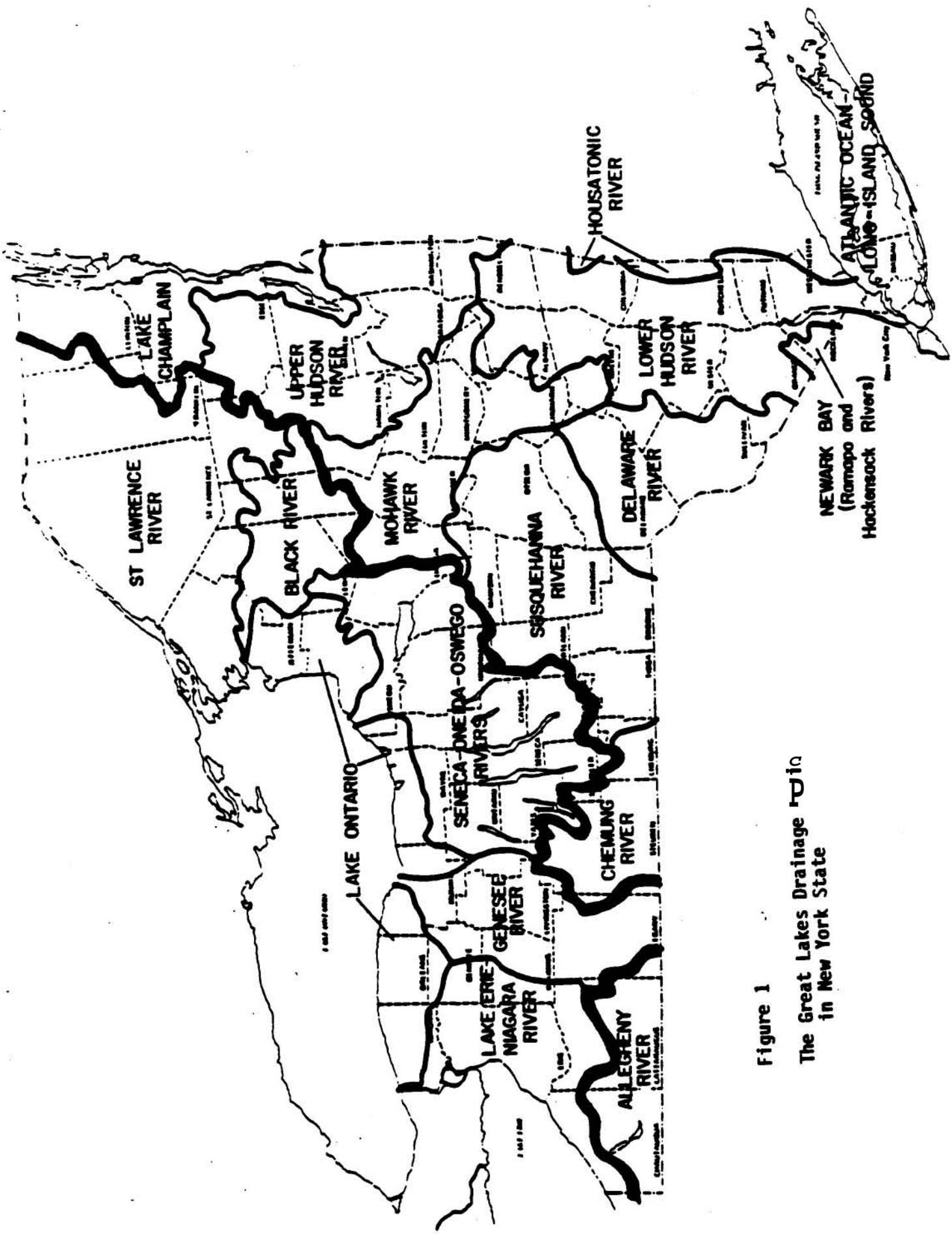


Figure 1
The Great Lakes Drainage Basin
in New York State

- Population has grown only slightly in the past 30 years, but population concentration has shifted dramatically from the city centers to suburbs and outlying **areas**.
- In recent decades, the economic base has shifted from goods-producing sectors to services. Manufacturing productivity increases have helped stabilize the output of goods and materials; output levels are a more important factors affecting environmental quality than employment levels. Agricultural production in the region remains highly diversified, but has declined in extent, both in number and acreage of farms.
- Lake levels can vary substantially over short-term, seasonal and long-term periods. Both stability and excessive variation in lake levels can cause important environmental, social and economic impacts.
- The Lake Erie shoreline is primarily composed of materials that resist erosion. Much of Lake Ontario's shore, in contrast, is composed almost entirely of unconsolidated glacial deposits that are highly susceptible to erosion. Low-lying areas along Lake Ontario's eastern end are erosively stable, but are also **flood** prone and subject to severe damage from short-term **storm** surges. The eastern shore dunes provide unique wildlife habitat.
- While water quality in the basin's lakes, streams and rivers has improved markedly in the past two decades, significant pollution problems remain, relating primarily **to** persistent toxic contamination of the water column and sediments in many Lake Ontario, Niagara River and **St. Lawrence** River locations. More than **400** toxic chemicals have been found in Lake Ontario and the Niagara River, most importantly **PCB** and Mirex; while **PCB** concentrations in lake biota are declining, Mirex has proven **to** be a stable contaminant whose concentrations in fish remain fairly constant at levels in excess of federal action levels. Acid deposition in lakes and ponds in the eastern end of the drainage basin and nonpoint discharges basinwide also continue to be problems.
- **Surface** water **use** in the basin appears to have declined between **1975** and **1985**, probably because major water-consuming industries reduced production or closed during that period. Water use data, however, **is** fragmentary **and** imprecise.
- Water-based recreation, including boating, spordishing and swimming, remains important to the basin's resident population and tourism economy.
- Wetlands in the,basin have been subject to extensive alteration during the past four decades — according to one estimate, between **59** and **79** percent of wetlands have been altered since the early **1900's**.
- Many **rare species** of fish, **wildlife and** plant **communities** are found within the basin. **These** species, **as** well **as** more common natural resources, have been adversely impacted by development, including farming, industrial activity and suburban **growth**. Many important habitats, however, still exist and need to be protected.

Goal 1: Formulate a "Shared Vision

Creating a "shared vision", a consensus for shaping the future of the region is essential to successful implementation of the **25-Year** Plan over time.

A strategy to inform and activate the public should:

- Improve public understanding of the value of the Great **Lakes**, the concept of an ecosystem and threats to its viability and sustainable development - a recognition that we are one element of the ecosystem, our actions impact the resources and its future.
- Promote increased public involvement at all levels of governmental decision-making - increase governmental accountability, greater public support of resultant policies.
- Encourage individuals and commercial interests to make their own actions consistent with protecting the Great **Lakes** - cultivate a sense of ownership and responsibility.
- Foster the concept of stewardship of resources and the value of sustainable development - **as** custodians, the people must protect this finite resource for future generations.

Society was grouped **into** two audiences and strategies were developed for: (1) decision-makers, such **as** government officials, corporate officials, small businesses and individuals; and (2) communicators and facilitators, such **as** outreach specialists, media, educators and interest groups.

Objectives and Issues: Decisionmakers

*Objective 1: Help **decisionmakers** better understand the content of the 25-Year Plan and how their decisions affect the achievement of its goals.* Decisionmakers often do not recognize the large role they play in Great Lakes management. Without an understanding of the Plan and a recognition of how their past and present actions impact the achievement of the Plan's goals, decisionmakers may not take the necessary actions.

*Objective 2: Help **decisionmakers** become aware of the sources of information and technical assistance as well as when they **might** be help@.* There are numerous sources of Great Lakes **information** with differing content creating a massive job of sorting and organizing.

*Objective 3: Help **decisionmakers** understand what they can do differently to facilitate the achievement of the goals of the 25-Year Plan.* Recognition of those past decisions or actions harmful to the environment **is** critical toward changing the ways they operate in the future.

*Objective 4: Encourage **decisionmakers** to demonstrate leadership and take independent action to further the goals of the 25-Year Plan.* The appropriate actions are defined, and leaders are needed to make the actions a reality.

Objectives and Issues: Communicators/Facilitators

*Objective 1: Help **communicators and facilitators** understand that the goals of the 25-Year Plan are part of their responsibilities and that they **must** play a role in their implementation.* **As** a bridge between segments of the public and the decisionmakers, **communicators/facilitators** need to be informed on **the** content of the **Plan** and their role in educating and activating groups and getting individual groups to work in **unison**.

Objective 2: Develop a mngce of information andprogmming for use by communicators/facilitators. Depending on the audience there are different informational needs and delivery systems.

Objective 3: Help ~~communicator~~facilitatorilitatorbe aware of and utilize the sources of information on the Great Lakes and to communicate these to decisionmakers. There is a great deal of information on the Great Lakes but if it is unorganized or inaccessible it does not achieve its purpose.

Objedive 4: Help communicators/facilitators understand the objectives and efforts of other groups and ways to encoumge the coordination of adion. There are a myriad of groups involved in Great Lakes issues. The diversity can be advantageous if common goals are identified and pursued cooperatively.

Goal 2: Restoring the Integrity of the Waters

New York's Great Lakes basin consists of six sub-basins. Each sub-basin has its own characteristic water quality status as summarized below:

Table 1

Great Lakes Sub-basin Water Quality Concerns and Problems

Basin	Principal Water Quality Concerns	Cause of Water Quality Problem	Greatest Water Quality Progress
Lake Erie-Niagara River	Toxic substances	Past manufacturing/discharge, inactive hazardous waste sites, contaminated sediments	80% reduction in toxic discharges, increased control over nutrient loading
L. Ontario & Minor Tributaries	Toxic8 bioaccumulation	Contaminated sediments, Heavy metals -(some natural) exceed water quality standards	Toxics in firb have decreased, increased control over nutrient loading
Genesee River	Toxic8 in lower river	Comb id sewer overflows, eutrophication, soil erosion	Overall steady improvement, ended 28 municipal Rochester dischuger
Seneca/Oneida/Oswego Rivers	Onondaga Lake highly contaminated, hypereutrophic	Municipal and industrial discharges to Onondaga Lake	Overall basin relatively good wter quality
Black River	Acidification, toxics	Acid precipitation	Control of point sources resulting in recovery of fishery
St. Lawrence River	Acidification; toxics	Acid dcp; PCBs in sediment	Control of pt. source conventional and toxics

Government programs addressing water quality problems are extensive and complex. Programs are in place to guide state, regional, federal and international efforts to deal with conventional pollutants and toxic contaminants. Major programs are summarized below:

Title 2
Water Quality Programs

Program	Issue	sponsoring Agency	Method Used	Authori- zation	Notes
State Pollution Discharge Elimination system (SPDES)	Point source discharger, toxics , conventional pollutants	NYS Department of Environmental Conservation	Point source permits; individual toxic control strategies; pretreatment regulations	US Clean Water Act [Sec. 304(1)]	Pretreatment: 56 in state
Municipal Sewage Treatment Construction	Point source discharger, conventional pollutants	NYS DEC USEPA (before 1987)	Primary and secondary treatment	1972 NYS EQBA, Fed. WPC Act; NYS Revolv. Fund	\$2.6B spent in GL Bark, \$1.2B ded
Nonpoint source Management	Conventional, toxic from other than point sources	NYS DEC; USEPA, USDA, SCS	and mgmt. practices; watershed planning, rec-control measures	1987 US WQ Act [Sec. 3191 CWA	4-yr. ached.; NYS received \$1.1M in FFY 1990
NYS coastal Nonpoint source Plan	Nonpoint toxic, other, in coastal regions	NY Dept. of state, NYS DEC	Mgmt. practices, specific to coastal areas	Fed. Coastal Zone Mgmt Act [Sec. 6217]	Plan due late 1993
Inactive Hazardous Waste Site Remediation	Toxic	NYS DEC, Depts. of Health, Law; USEPA	Cleanups, containments	NY Abd. Situ Act, 1986 EQBA, CERCLA, RCRA	
Air Deposition	Acid Precursors, toxic	NYS DEC; USEPA	controls on mixer, acid precursors	NY-Acid Dep. Act US-Clean Air Act	long range transport into basin
Oil Spill program	Petroleum, toxic substances	US Coast Guard, NYS DEC	Response, cleanups after spills	NYS Navigation Law [Art. 121	GL tribs., navigable water
GL Water Quality Initiative	Toxic substances	USEPA, NYS DEC, other G.L. states	Coordination in implementing GLWQA and degradation policies, implementation procedure	GLWQA, GL TSCA, CWA, Great Lakes Critical Program Act	Regional, basinwide consistency in reg. programs

Four Party Initiatives	Toxic substances	DEE ; USEPA Env. Canada; Ont. Mi. of Env.	Identify priority toxics, determine sources and fate	Declaration of intent, strategy for GLWQA	Strategy in place for Niagara R., L. Ontario
GL Water Quality Agreement (GLWQA)	All pollutants	UC	Calls for toxic discharge bans, virtual elimination of persistent toxics	1909 Boundary Waters Treaty	Agreement on bi-national water quality objectives
GL Toxics substances Control Agreement	Toxic substances	Eight Great Lakes States	Coordinate toxics controls, research	Agreement signed May, 1986	Great Lakes protection Fund established \$100M for toxics research
Phosphorous Reduction	Eutrophication	GLWQA signatories	Point, nonpoint source controls	Annex 3 , GLWQA	Lake Ontario concs. lower , below agreement goal
Remedial Action Plans	Use impairments, mainly from toxics	GLWQA signatories	Workplans for Areas of Concern	Annex 2 , GLWQA	6 areas of concern in New York

Objectives and Issues: Water Quality

Objective 1: Maintain steady, irreversible progress towards zero discharge of toxic substances to the waters of the Great Lakes Basin. Related issues include:

Policy and political dimensions — methods to achieve zero discharge; uniform progress by all jurisdictions; how broad loading reductions should/must be; timing of zero discharge requirements. Zero discharge must focus on point and nonpoint discharges of persistent toxics, harmful manmade substances **known** to accumulate in the biota.

Technical dimensions — to date treatment generally cannot eliminate persistent toxics, therefore zero discharge implies that the substance will be reused and recycled completely or will not be manufactured, transported or otherwise used.

Legal, administrative and management dimensions — a universal zero discharge requirement for a particular substance will require changes in state regulations.

Intermedia dimensions — zero discharge of toxics to the Great Lakes basin waters should not be achieved by shifting toxic contamination to other media, such as air or land.

Objective 2: Continue the progress made to date in reducing excessive inputs of traditional nutrients to the Great Lakes Basin. Nutrients, especially phosphorous, **can** cause eutrophication of lakes, with increased algae and oxygen depletion. Shallow, warm and naturally fertile Lake Erie is especially vulnerable to nutrient overload. New York has significantly reduced traditional nutrients, principally through **improved technology** and reductions of phosphorous in detergents. The extent to which phosphorous reductions **are** required in permits and whether New York should adopt stringent nonpoint source controls to limit phosphorous **are** unresolved issues.

Objective 3: Restore the Great Lakes sediments and their affected waters to a condition where the beneficial uses by humans and the health and propagation of other species are not impaired by human activities. Contaminated sediments are a major nonpoint source contributor of toxics to water bodies. Related issues include:

Lack of information, analysis and sediment standards — Great Lakes monitoring programs are just beginning to yield information about the location and concentrations of contaminated sediments throughout the basin. There is no common data base accessible to agencies in all jurisdictions.

Remediation of contaminated sediments — the remedial options presently available are not satisfactory: in-place remediation carries the risk of future escape of toxics; and dredge-removal, the risk of loss during dredging and the need for a disposal site. New technologies on the horizon may not have these disadvantages.

Stormwater discharges — at this time, DEC does not regulate all stormwater discharges. The state promotes best management practices, such as stormwater management plans for land development projects, to abate pollution from this source.

Atmospheric deposition — implementation of controls over air pollutants will help to abate airborne deposition of pollutants in the basin.

Natural resource damages — DEC is seeking recovery of natural resource damages from responsible parties who caused such damages within the Great Lakes basin. Monies recovered are to be used to restore or replace the injured resources.

Disposal sites for contaminated material removed from oil/chemical spill affected areas — ideally, there should be a disposal area within 50 miles of any prospective spill site to minimize transportation costs and travel time.

Objective 4: Attain an oligotrophic environment, that is low in nutrients and organic productivity, within the offshore waters of Lake Ontario and eastern Lake Erie to insure stable and self-sustaining biological communities. Attain a mesotrophic environment, that contains a moderate supply of nutrients and has a moderate level of organic production, within certain near shore waters and embayments of Lake Ontario and eastern Lake Erie to insure stable and self-sustaining biological communities. Related issues include:

Indicator species - the selection of ecosystem health indicator species including the use of stocked fish species versus naturally self-sustaining species as an indicator should be carefully evaluated.

Relationship to nutrient control — data on components of the food web/nutrient cycling systems in both lakes should be evaluated for changes over time resulting from nutrient control practices.

Other barriers — because many jurisdictions regulate lake use and discharge of nutrients to the Great Lakes, New York's ability to control the lakes is limited.

Information and monitoring — information about the state of the lakes and their response to various actions is needed to affect improvements.

Objective 5: Publicize the value of Great Lakes water resources and promote the need for the cooperation and support of the general public in improving and protecting those resources. Related issues include:

Basic information needs — the public needs to understand the fundamental relationship between human actions and resource conditions.

Special interests — good policy development requires a forum where special interests are heard, but not allowed to be the sole factor in policy formulation.

Resource **needs** for public **participation** — resources and mechanisms must be provided to enable government agencies to persist in efforts at participatory policy-making.

Resistance **to change** — changes will occur more easily if **costs** are equitably shared.

Goal 3: Manage Water Resources

Water quantity management affects key human activities, including water supplies, flood protection, navigation, transportation, power generation, agriculture, and recreation as well as elements of the ecosystem, including wetlands and other habitats. Governments manage Great Lakes water quantity for multiple and often conflicting purposes by means of a complex collection of institutional arrangements. Quantity management addresses lake levels and flows, as well as withdrawals of water for human use. Only 1.5 percent of Great Lakes water is replaced annually by precipitation and therefore may be used before there is a net loss. As the downstream Great Lakes state, New York is affected by water management decisions of other states and provinces, and of United States and Canadian federal governments.

Lake levels and flows are governed primarily by natural forces such as short-term weather disturbances, seasonal changes and long-term precipitation/evaporation patterns. Short-term weather patterns influence the distribution of lake water, but longer-term climatic variations can change the amount of water in the lakes and lead to lake level variations of as much as six feet. Flows in the St. Lawrence River affect the water levels in Lake Ontario and are controlled by regulation of river structures according to the UC Plan 1958-D.

Table 3

Water Quantity Programs

Program	Issue Addressed	Sponsoring Agency	Method Used	Authorization	Notes
Lake Level Regulation	Lake levels and flows	(JC); St. Law. R. Bd. of Control	Use, obstruction, diversion approval	1909 Bound. Waters Treaty, Plan 1958-D	
Lake Level Reference Study (Phase II)	Lake levels	IJC Study Board	Study to report methods of alleviating consequences	1909 Boundary Waters Treaty	Recommendations yet to be made
GL Charter				GL Governors' TUL Force	Promotes cooperative plan
GL Water Mgmt/Cons Act				ECL Article 15, Title 16	Required by PL99-662
Water Res Mgmt Strategy	Water supply problems/needs	NYS DOH, NYSDEC, Water Resources planning Council	Balance supply, demand	ECL Article 15, Title 29,	Strategies issued January, 1989
Metropolitan Water Supply Program	Public water supply	NYS DEC	Consider water supply in permit issuance	ECL Article 15, Title 15	Goal: equitable allocation, quality
Public Water Supply Protection	Drinking water quality	NYS DOH	Rules and regulations	safe Drinking Water Act, NYSPHL Article 11	Many basin communities need to upgrade treatment
Water Conserv.	Water demand and conservation	NYS DEC	Conservation programs in permits; planning; fixtures; register withdrawals	ECL S.15-0314	Cons. Program covers municipalities, not self-suppliers
Coastal Erosion Hazard Areas	Flooding/loss of shoreline	NYS DEC	Map, regulate hazard areas	ECL Article 34; 6NYCRR Part 505	44 NY Great Lakes municipalities have hazard areas
Local Waterfront Revitalization	Coastal development	NYS Dept. of State, local government	Detailed land use planning	CZM SUE, federal LW	
State Emergency Management	Disaster preparedness	SEMO	Help counties plan	Executive Law, Article 2-B	All counties' plans completed, 9/90
Energy/Power	Developing hydroelectric power	NYS Power Authority	Licensing	Public Authorities Law - Pub Law 85-159	Two hydro, one nuclear plant

Port Development	Developing public ports	NYS Dept. of Transportation	Waterfront revitalization plans	Rebuild NYS Bond Issue	Plans being developed
Navigation	Navigation safety	US Coast Guard, Army Corps of Engineers	Inspect, rescue, mv aids, dredge	Federal law, regs	NY GL has 25 dredging projects

Objectives and Issues: Water Quantity

Objective 1: Manage Lake Ontario flows and levels to satisfy environmental needs while recognizing other important economic, energy and social dimensions. There is no ideal lake level to support all human uses and natural resource needs. Therefore, laws, regulations, and other policy decisions must take into consideration both the lake ecosystem and the often-conflicting needs of the many users. Related issues include:

WC 1958-D regulatory plan limitations and omissions — to accomplish its objective of moderating seasonal high and low water levels in the Great Lakes, the 1958-D plan uses 11 criteria to set minimum and maximum flows for different seasons and time periods. The plan to date appears to have lowered water levels in wetlands and marshes causing decreased productivity of these resources. Changing the plan to protect wetlands should include an evaluation of costs and benefits.

Limited capability to control flows or levels because of natural conditions — without massive and expensive public investment in control structures or extensive diversions, there is little that government can do to change the overall level and flow of the Great Lakes. Structures and diversions can harm the environment and can be economically costly. Public policy must accommodate continuing changes in the lakes' levels and flows.

Information and research needs — because of insufficient information and inadequate analytical tools, it is difficult to systematically estimate the benefits and costs when weighing the competing interests of natural systems and human uses. Such estimates are necessary to evaluate the feasibility of mitigating natural forces and to decide whether to change regulations to meet new needs.

Competing interests in different levels and flows — to change regulations, governments must have consensus regarding costs and distribution of benefits from regulatory changes.

Winter navigation and dredging — business and transportation interests, chiefly located in the upper Great Lakes, support extending the St. Lawrence Seaway navigation season. New York and other states have opposed this extension, primarily because ice breaking and winter ship movements harm shoreline, wetlands and other important habitats.

Objective 2: Promote the tenets of the Great Lakes Charter: integrity of the Great Lakes basin; cooperation among jurisdictions; protection of the water resources of the Great Lakes; prior notice and consultation, and cooperative programs and practices. Signatories agreed to register withdrawals exceeding 100,000 gallons per day, to manage and regulate interbasin diversions and consumptive uses greater than 2 million gallons per day, and to review and consult with the other states/provinces about withdrawals greater than 5 million gallons per day. Related issues include:

Inconsistent provisions in federal law, court decisions and the Charter — agreements and requirements that apply to the Great Lakes use different trigger levels and procedures for notification of diversions and different criteria to justify regulatory controls. As a result, there may be confusion regarding the requirements necessary for gaining approval of a proposed diversion.

Interest on the part of western and southern states in obtaining additional water supply — the Great Lakes states must assess future water demands and their own needs for the basin's water resources.

Flexibility of the Charter principles to address important needs — changing natural conditions and emergencies may warrant revisiting the implementation of the Charter's prior notification procedure.

New York State needs full authority to implement the Charter — although DEC has the authority to require registration and reporting of withdrawals and uses, existing authority does not include regulation of withdrawals and consumptive use by self-supplied industrial, commercial and agricultural users.

Objective 3: Manage in-basin withdrawals and consumptive uses to meet open-competing multi-purpose needs, giving priority to water demand reduction and other conservation programs. Related issues include:

Lack of sufficient state authority to manage water resources — the three state agencies with direct responsibility for water supply and resources (DEC, Department of Health and Public Service Commission) do not have ability to regulate withdrawal by self-suppliers or directly oversee other management areas, such as water conservation.

Incentives versus regulatory authority to promote conservation/water demand reduction — since conservation and demand reduction are at the core of water policy, options for achieving conservation and demand reduction need to be assessed.

Local government capabilities to adequately finance the upgrading or expansion of water supply infrastructure — Great Lakes basin municipalities need to replace obsolete and aging water supply infrastructure and provide drinking water that meets today's more stringent federal and state drinking water standards.

Technical and information needs — a sound technical base is needed to support improved water resource planning, program development and implementation.

Better water supply system management — many of the basin's 800-plus municipal and investor owned public water supply systems need to change water rates to better reflect value; to add metering; to improve water quality; to better manage water supply, or to improve emergency response capability. This is particularly true in systems servicing fewer than 5,000 people.

Objective 4: Insure that water quality constraints do not begin to limit water quality, and that water is of an adequate quality for dependent uses. Related issues include:

Traditional problem of poor quality limiting use — pollution problems in key locations have the potential to limit the use of New York's Great Lakes as a drinking water source for urban areas. Groundwater, too, can be made unusable by pollution: isolated cases of contamination demonstrate the vulnerability of groundwater supplies in the Great Lakes basin.

Implications of **zero** discharge and antidegradation policies — these policies will affect the availability of water for industrial and other uses if they result in requirements for more stringent (and more water-consumptive) wastewater treatment or recycling processes that use large amounts of water.

Objective 5: Implement long-term planning, control mechanisms and effective response efforts to insure that coastal residents, resources and properties are safeguarded from the effects of lake fluctuations, and that public funds spent on coastal protection achieve public purposes. Development along New York's Great Lakes shores occurred during periods of relatively low water levels, in a way that gave little consideration to the lakes' natural level fluctuations. Related issues include:

Effective hazard mitigation planning is needed at all levels of government — federal law mandates development of a Hazard Mitigation Plan to integrate components of existing disaster-related programs into a system of hazard mitigation and risk management, but implementation of this law has been slow.

Dependence on "after the fact" structural solutions to flood problems — flood control works may protect buildings and sites subject to flooding by cyclical high lake levels or storms, but only at great expense (possibly federal or state tax dollars) and with adverse environmental consequences. Often, flood works are unable to provide adequate protection.

Finding ways to increase the effectiveness of coastal erosion control programs — coastal erosion at many locations along the Great Lakes shoreline has been aggravated by development that has destroyed the natural protective capacity of primary dunes, barrier islands or bluffs. State law allows municipalities to set up controls that will minimize future erosion and limit property losses in erosion hazard areas, but by the end of 1990, only seven of the forty-four eligible governments were participating. Further, existing laws still create incentives for development of coastal hazard areas or impose public costs to protect private development in coastal hazard areas.

Objective 6: Strengthen public outreach and education programs on Great Lakes levels, fluctuations and other important water resource issues. Citizens need to understand the physical limits of efforts to manage lake levels and flows and the need for water conservation, as well as to participate in decisions about managing the basin's water resources.

Goal 4: Preserve and Improve Natural and Cultural Resources

Natural Resources

The Great Lakes offer outstanding opportunities for use and enjoyment of diverse and highly valued components of the natural system. While degradation of some elements has occurred in the past, efforts are underway to enhance valuable resources and/or mitigate their loss. Planned management offers great hope for continued improvement of damaged ecosystems and for development that will be complementary to the natural functions of land and water.

Gorges, wetlands, embayments and dunes are found along the shoreline, but, except at the eastern end of Lake Ontario, wide beaches are scarce. Some 40 state parks line New York's Great Lakes shores, sited to take advantage of unique and desirable physical features. The waters of the basin's lakes, rivers and streams constitute one of the state's most valuable fisheries. Many significant habitats are located in New York's

Great Lakes system. The Great Lakes region has a wide array of opportunities for observing wildlife and for waterfowl hunting.

Loss of fish and wildlife habitat, especially of wetlands (which may have declined by as much as 50 percent as a result of development since European settlement), is one of the greatest problem affecting Great Lakes natural resources in the basin. Other problems also affect the area's natural resources, including: toxic substances found in certain Lake Ontario fish and waterfowl; soil erosion; excess inputs of nutrients; introduction of exotic species; and loss of agricultural lands to development.

The area's abundant recreational resources are subject to certain limitations, notably: limitations on access; restricted boating, swimming and fishing facilities in urban areas; water quality problems in key areas; highways and other obstructions; soil contamination at former industrial sites.

Navigation has had a profound influence on the Great Lakes ecosystem. The St. Lawrence Seaway caused significant change in the St. Lawrence river; after major ecological adjustment, the system has apparently stabilized, but proposals to extend the navigation season raise great ecological concerns.

Historical, Archaeological and Cultural Resources

The Great Lakes region in New York contains a rich and diverse collection of important archaeological, historic and cultural resources, including historic and prehistoric archaeological sites, working landscapes, traditional lifestyles, historic buildings, structures and districts, and locations of significant historic events. Though they are enduring reminders of the region's past, these archaeological, historic and cultural resources are often unique and fragile. A site that has survived for thousands of years can be destroyed with one pass of a bulldozer blade. The character of a historic district can be ruined by one building addition that is insensitive to design.

The table below summarizes some of the major natural and cultural resource programs relating to the Great Lakes ecosystem.

Table 4

State Programs Relating to Great Lakes Natural and Cultural Resources

Program	Problem Addressed	Sponsoring Agency	Method Used	Authori- zation	Notes
Freshwater Wetlands	Habitat loss, loss of water recharge areas and shore erosion	NYS DE . USCOE	Permit to alter if >12.4 Acres	ECL Article 24, Clean Water Act	Acquisition also important
Fish Stocking program	Opportunity for recreational fishery	NYS DEC, USFWS	Egg taking, hatchery rearing, stocking, disease control	Env. Conservation Law	Goal: self-sustaining Lake Trout, Recreational fishery
Sea Lamprey Control	Salmonid mortality from parasitic lamprey	GL Fishery Commission	Chemical Lampricider	Federal Law, E L Article 15	

Access Plan	Inadequate waterway access	OPRHP, NYS DEC	G.L. Strategic Access plan: identify and develop sites	Env. Conservation Law	Need more sites, but must protect habitat
Agricultural Districts	Loss of ag land and use for agriculture	NYS Dept. of Agr. and Markets	Formation of Ag Districts offering tax incentives	NYS Ag District L W	
Open Space	Loss of open space and unique and high quality environ. features	NYS DEC, OPRHP, private organizations	Easements, fee acquisition, unit management plans	ECL	Draft open space plan issued, 35 G.L. areas identified
Coastal Management Program	unplanned development of coastline	NYS Dept. of State, NYS DEC	Consistency Review of government actions	US Coastal Management Act; LWRP	
Local Waterfront Revitalization (LWRP)	unplanned coastal development	NYS Dept. of State, municipalities	Detailed land use planning; intergovem. coordination, capital development	NYS Executive Law, Article 42. Waterfront Revital. and Coastal Resources Act	
Env. Quality Review	Loss of resources to development	NYS DEC	Impact identification, consideration	State Environmental Quality Review Act (SEQRA), ECL Article 8	Mitigation required
Historic Reservation	Loss of historic/ archaeological sites, structures	O M	Inventories ; designation; purchase; tax incentives	state, US Hi . Pres. Acta (SHPA, NHPA), PRHPL Article 14, SJIQRA	Triggered if US or NY permits, funds, owns site

Objectives and Issues: Natural and Cultural Resources

Objective 1: Establish and maintain self-sustaining fish and wildlife communities at optimum quality and quantity. This entails no net loss of wetland quantity or quality, restoring littoral zones and surrounding habitats to productive capacity, preserving the remaining dune ecosystems, retaining a critical mass of habitats, reestablishing self-sustaining populations of lake trout and Atlantic salmon, reducing contaminant levels, regulating taking and use of fish and wildlife. Related issues include:

Fish and wildlife habitat protection — conflicting demands for shoreline resources and dewatering of wetlands due to low water levels in Lake Ontario are the chief threats to Great Lakes habitats. Extended navigation and pollution also threaten habitats.

Salmonid population reestablishment — the federal government has been the principal supplier of lake trout fingerlings for stocking, and continued supply is necessary to reestablish population. Preventing over-exploitation is also critical.

Objective 2: Assure the safe utilization of natural resources. This requires reducing levels of persistent contaminants to prevent bioaccumulation; establishing consumption advisories where contaminants create a

health risk and keeping these advisories consistent for all users of a water body; widely disseminating up-to-date information on advisories. Consistency between consumption advisories **has** been a continuing issue.

Objective 3: Establish and maintain control over species occurrence and abundance. This requires managing species and regulating their harvest for optimum populations; introducing desired species in numbers that **can** be sustained by the forage base; creating an appropriate mix of introduced species; controlling abundance of exotic species, and preventing further introduction of exotic species without evaluation. Related issues include:

Mix **of** salmonids in the fishery — decisions on species composition in the stocking program affect the well-being of fishing support industries and local economies, **as well as** ecological balance.

Conflicts regarding harvesting methods — “snagging” of large salmon during fall spawning **runs** conflicts with traditional angling and sporting ethic.

Exotic **species** control — controlling the sea lamprey, which preys on salmonids, results in greater **fish** abundance and improved sporting experience. New York today is poorly protected against further releases of exotics into the state’s waters.

Objective 4: Maintain biological diversity within the ecological capabilities of the system. Maintaining diversity requires preventing complete loss of species and habitats, managing the system to assure habitat diversity and balance, managing species to assure balanced occurrence and abundance, and preventing destruction of plant and animal communities.

Objective 5: Protect, restore or enhance natural and man-made resources that contribute to the overall visual quality of the region. The Great **Lakes** system offers outstanding scenic beauty, but scenic attributes are not broadly recognized and protected. Land acquisition cannot realistically be advocated **as** the sole protection technique. Protecting scenic values will require extending state and federal scenic designation programs to the Great **Lakes** region; protecting or creating opportunities for public viewing of scenic **areas**; improving regulatory standards for **determining** scenic impacts; targeting scenic **areas** for protection and acquisition; improving coordination of visual resource identification, designation and protection programs; encouraging efforts to eliminate visually degrading conditions; eliminating visually intrusive signs from scenic corridors; educating regulators and developers about scenic values and design and siting standards **and** techniques; educating local officials about the role of communities in visual quality.

Objective 6: Improve public access to the Great Lakes coastal area and to its natural resources. This requires safe and convenient public access; resolving conflicting **uses** of land and water; assuring that financial incentives to public access and use development are equitable and do not promote environmental degradation; and improving compatibility among conflicting objectives of local, state and federal programs.

Objective 7: Create an appropriate blend of best shoreline uses that are dependent on the characteristics of the Great Lakes system. This requires allocating and maintaining sufficient area for fishing, boating and swimming to accommodate projected demands, particularly near urban **areas**; determining an acceptable level of boating activity in tributaries and embayments; allowing for communities’ ability to handle the impacts of developing new fishing access; linking tourist attractions throughout the region; preserving shoreline open space and agricultural land; providing for public access in residential development; making energy facility

decisions based on public need and environmental compatibility; ensuring the environmental compatibility of any extended navigation practices.

Objective 8: Preserve and maintain the cultural integrity of the Great Lakes system in hannony with other needs of society. This may require listing additional historic, archaeological and cultural resources on the State and National Registers of Historic Places; protecting listed historic properties; educating regulators, local officials, developers and citizens to value and protect historic properties; protecting historic properties already publicly-owned; developing a shipwreck identification and protection program; improving methods to identify, evaluate and protect archaeological, historic and cultural resources; protecting practitioners of traditional lifeways and working landscapes.

Goal 5: Sustainable Economic Development

Sustainable development occurs when natural and cultural resources are wisely used to maintain a healthy economy. The goals, objectives and strategies in the Plan aim to achieve a level of economic activity that, if continued over the long term, will:

- Maintain or improve the quality of the present environment;
- Maintain the availability of renewable resources for future generations, and
- Take into consideration, in resource use decisions, the value of non-renewable resources to future generations.

There may be a tradeoff between economic activity and environmental quality. Allocation of resources to achieve economic wealth in the short term can conflict with conserving, protecting and preserving resources for the long term.

Society's concern about the balance between preservation and use of natural resources has changed over time. Presently, society appears to be willing to modify its behavior to obtain a higher quality and safer environment than was the case historically. Business is affected by society's attitude towards the environment in two ways. Stricter environmental regulations may result in additional compliance **costs** for business, which may ultimately be passed on to the consumer. In addition, business is growing more sensitive to its public environmental track record, and acts in response to public opinion in order to maintain a favorable public image.

There are several forces at work that affect sustainable economic development in the Great **Lakes** basin. These include:

Changing Economic Structure. Similar to national and state trends, industry and agriculture in the Great **Lakes** basin have been undergoing structural changes. **Goods** producing industries have declined significantly and agricultural lands have been subject to increasing development pressures.

Land Use Planning and Regulation. New York's complex arrangement of governmental authority hampers regional land use planning because it requires involvement of counties, cities, towns and villages. **Local** governments may not take into consideration the implications of land use decisions on **areas** outside their

borders. Often, development that adds to the **tax** base of one local jurisdiction may impose natural resource costs on neighboring localities.

US-Canada Relations. The Great **Lakes** basin is very sensitive to changes in **US** trade relations with Canada. Recent relaxation of trade business and controls **has** increased Canadian economic activity in the Niagara Frontier and Plattsburgh **areas**.

Recreational Development. Improved water quality has increased recreational demands on the Great **Lakes**, raising issues related to access, use conflicts and environmental degradation. Because public access to lake shores is limited in many parts of the basin and acquisition of new access sites becomes increasingly difficult **as** waterfront land prices rise, use of existing access points is likely **to increase**, bringing with it conflicts among competing recreational uses. Greatly increased recreational use could degrade environmental quality.

State government programs related to the economy traditionally focus on activities such **as** creating and retaining jobs and enhancing income. In recent years, these programs have placed increased emphasis **on** coordination of resources and activities, and on resolving conflicts. Today, public works infrastructure, land use and environmental quality are recognized **as** critical components of economic structure. The following table highlights some state programs:

Table 5

**State Economic Development Programs and Coordinating Mechanisms
Affecting New York's Great Lakes**

Program	Problem Addressed	Method Used	Sponsoring Agency	Authori- zation	Notes
Economic Development	Economic development strategy	Economic Developmmt Zones, rtrvica to business	Office of Economic Development, <i>NYS</i> a p t of Economic Dev., UDC, JDA	Statutory including 1987 Omnibus Economic Development Act	Global New York Initiative
Regional Economic Development councils	promoteeconomic development	Econ. dev. councils (10 statewide)plus plans	Governor Cuomo	Executiveorder	Mandate: help C d i t e state/local, private sector involvement
Regional Working Cabinets	Coord. state econ. dev. activities	Coordinate state services	DED		Committees on specific services
<i>NYS coastal program</i>	Balance natural res.protection, econ. dev.	Policies, decision criteria for gov't actions	<i>NYS Dept of state</i>	NYS Exec. Law Article 42	Policies to promote water-related dev.
State Env. & d. Rev. P... (SEQR)	Identifying problem w/ proposed dev.	Impact identification, mitigation	<i>NYS DEC</i>	ECL Article 8. SEORA	

Other state resource-related programs that **affect** land development and resource allocation in the Great **Lakes** coastal area include: maintenance **and** development plans for **coastal** parks and facilities administered by *NYS*

Office of Parks, Recreation and Historic Preservation; DEC unit management plans for state wildlife management areas, fishing access sites, forests and special natural areas; **NYS** Department of Transportation development planning and infrastructure construction; **NYS** Power Authority power production and distribution plans.

State regulatory programs also **affect** economic development decisions, not only by requiring environmental protection but by limiting such activities **as** bed and bank disturbance or filling, **dams** and bulkheads, development in or near wetlands and coastlines. While SEQRA helps to resolve some of the coordination problems among programs and agencies, greater coordination is necessary to make full use of the powers of these programs to protect Great lakes resources while preventing unnecessary interference in economic functioning.

In addition to State programs, many regional **and** local economic development programs exist in the *Great Lakes* basin, including the Western New York Economic Development Corporation, Horizons Waterfront Commission and the St. Lawrence-Eastern Ontario Commission.

Local land use planning and regulation provide extensive guidance for development throughout New York's Great Lakes coastal area. In addition, special function plans such **as** those for parks and other public recreation, transportation and traffic management, urban renewal and sewer and water systems also influence growth. Each of New York's ten coastal Great Lakes counties has a planning agency. The majority of the **78** Great **Lakes** shoreline communities have adopted development controls such **as** zoning or nuisance development ordinances, subdivision regulations or site plan review. Little information is available on the extent to which these controls and other means of moderating the impacts of development are applied in practice in the Great Lakes communities.

Objectives and Issues: Sustainable Economic Development

Objective 1: Ensum that economic development decisions Wh in the Gnat Lukes coastal ama incorpomte the principle of natuml msource carrying capacities. Developing the information necessary **to** determine natural resource carrying capacity is time-consuming and costly, and the concept itself is complex and difficult to express and measure. However, it is possible to establish wrying capacities for critical finite areas around the Great Lakes, such **as** embayments, tributaries, bluffs or stretches of beach, and to identify activities that may strain these areas or resources. In addition to establishing absolute levels of capacity for different **areas** of resources, there is a **need** to recognize the public perceptions of "what is enough" and **to** consider cumulative and persistent effects of certain impacts which may extend beyond their initial assimilation areas.

Objective 2: Guide development to appropriate sites whem'existinginfrastructure is underused or where new infrastructure can be provided without unduly stressing natuml and man-made msources. Today, maintenance and **construction** have fallen behind and infrastructure has become **a** constraint on, rather than a catalyst for, economic development. Although the importance of infrastructure to quality of life and economic development is well understood, the concept of capital facilities planning involves a new, proactive approach to land use planning. Related issues include:

Responsibility for providing new infrastructure and maintaining existing infrastructure — local governments are rethinking their acceptance of **total** responsibility for the **costs** associated with local infrastructure.

Belated recognition of the need for infrastructure — need is often not recognized until after development has taken place, when construction **costs** are significantly higher.

Unplanned infrastructure siting — the opportunity to use infrastructure siting to shape development is often not seized.

Resistance to siting — localities rarely build multijurisdictional infrastructure projects, such as waste disposal facilities.

Development restrictions in **areas** with adequate infrastructure — excess infrastructure capacity in some developed areas of the Great **Lakes** region, such as the Niagara Frontier, where industry is contracting, may not be usable because other factors, such as the presence of hazardous waste sites, reduces desirability for development.

Objective 3: Minimize risks to project sponsors, to the public and to the Great Lakes ecosystem caused by failure to adequately perceive potentials for natural or man-made disasters or inadequacy of the resource base to support an activity. Development in the Great **Lakes** area is accompanied by certain risks, both to the development investment and to the environment. Examples of development risks include: shoreline developments that **can** be damaged by erosion or flooding; commercial navigation, recreational boating, agriculture and fishing, which are accompanied by risks from weather; lake water diversion, over-fishing, mineral resource depletion and overdevelopment or inappropriate development of water frontage, all of which risk over-using a resource; industrial production, municipal waste discharge and other activities that can pollute land, air or water. Developers often take these risks, in part because existing laws and programs distribute disaster **costs** over a larger population than just the risk takers, especially over the long term. **Risk** assessment and avoidance **can** be incorporated under **SEQRA** review.

Objective 4: Encourage state and local government to guide development and expand their capabilities through environmental management and land use planning which incorporate new concepts of carrying capacity, sustainability, risk minimization and consideration of economic and social equity. Related issues include:

Complexity of land **use** planning — in New York State, land use planning is a local responsibility. Often, little consideration is given to the limits of infrastructure or natural resources to support development. Many local governments are attempting to manage land use with very limited resources, and these efforts **can** be neutralized by the threat of legal action by development interests.

Equity — individual landowners or developers may gain at the expense of the public; one locality may realize **tax** revenues **from** a project that is costly to other municipalities.

Multiple and overlapping jurisdictions — the law assigns decision-making functions to many different levels of government, including federal, state, county, city, town and village. Further complications are introduced by local special assessment districts for schools, fire, sewer and water.

Mistrust of federal and state government — local officials often avoid participation in state and federal programs, fearing the imposition of mandates without accompanying resources.

Objective 5: Implement and monitor the application of environmental regulatory and management programs and land use controls at state and local levels that incorporate carrying capacity and risk minimization precepts and relationships. In general, state and federal regulations focus on resource management and limiting degradation of resources, while local governments hold most control over the location, size and nature of development. The New York State Department of Environmental Conservation issues more than 27 types of permits, most of which apply to local development. Other state agencies also administering programs that protect natural resources or public health and safety may also affect development proposals. The State Environmental Quality Review and other procedures can help to coordinate these programs, but these procedures need to be better understood. Greater knowledge of carrying capacities in critical areas and improved means of minimizing the risk of development are needed to effectively apply regulations, especially land use controls.

Objective 6: Limit displacement of shore- and harbordependent uses and other waterdependent uses which support economic activity. Waterdependent uses need special protection because the real estate market often places a higher value on non-waterdependent uses and communities may receive higher tax revenues from non-waterdependent uses. Local governments have the largest role in achieving this objective. It should be noted that some waterdependent uses are not environmentally benign, raising a possible conflict between objectives.

Objective 7: Educate public and private decision-makers and the general public on the values and importance of the Great Lakes resources and ecosystem and the effects their decisions and actions may have on such resources. Understanding alternative values in the use of Great Lakes coastal resources is essential to providing environmentally sustainable economic development. For example, lining an urban shoreline with condominiums may provide highly desirable housing, but it also may foreclose or drastically reduce needed public access. It is often difficult for individuals and communities to recognize the broader environmental consequences of a development proposal, and regulation of private property is a controversial issue in many people's minds.

Goal 6: Improve Intergovernmental Relationships

The multifaceted and pivotal role played by all levels of government in shaping the future of the Great Lakes-St. Lawrence touch on nearly every aspect of the ecosystem. Individual citizens, through the electorate, play a crucial role in directing the actions of all levels of government. In order for the goals of the 25-Year Plan to be realized, the following must be achieved:

- All parties must recognize their roles and responsibilities; from international bodies to New York's counties, towns, cities and villages as well as every citizen, in assuring that the actions necessary to protect and improve the ecosystem are taken.
- All levels of government must come to understand that their actions, even if they appear to be limited in scope, have a regional and global context and potential effects.
- All levels of government must maintain open communication with one another and work to utilize existing institutions and coordinating mechanisms.

International and Interstate Institutions

International Joint Commission - in a quasi-judicial capacity, resolves disputes over the boundary waters between the two nations. It also conducts investigations of water resource concerns and other issues as referred by the governments of the United States and Canada.

Great Lakes Fisheries Commission - manages the fisheries of the Lakes for sustainable production, conducts research and presents research results, eradicates the sea lamprey and publishes scientific reports and technical studies.

Council of Great Lakes Governors - provides a forum for coordination of actions related to resource protection and economic development. The member States signed the (1) Great Lakes Charter, containing coordinated principles for water quantity management and a process for the review of major withdrawal proposals, (2) The Great Lakes Toxic Substances Control Agreement establishing policy goals for water quality and toxic contamination, and (3) The Great Lakes Protection Fund, a \$100 million endowment to support regional and state toxics research and projects.

The Great Lakes Commission - coordinates the development and management of the water resources of the basin. The GLC also conducts research and helps develop policies on other environmental issues, economic development, tourism and transportation.

Federal Government Institutions and Agencies

The President and United States Congress - sets the major priorities for environmental protection and resource management on a national level through enactment of laws and funding appropriations.

U.S. Federal Executive Agencies - The major federal agencies are as follows: U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Department of Commerce National Oceanographic and Atmospheric Administration, Department of the Interior - Fish and Wildlife Service and U.S. Geological Survey, United States Coast Guard.

Canadian Government Agencies - the federal government exercises primary jurisdiction over fisheries, navigable and international waters. Provincial governments have primary authority in the areas of pollution control and natural resource management. The major agencies are as follows: Environment Canada, Ontario Ministry of the Environment, Ministère de l'Environnement du Québec.

New York State Institutions and Agencies

New York State Government - The Governor and Legislature set priorities and policies with respect to environmental protection and natural resource management through enactment of laws and the State's budget. Many New York institutions and agencies have missions that are relevant to the Great Lakes basin. Agencies with missions related to the development and implementation of the 25-Year Plan are as follows: Department of Environmental Conservation, Department of State, Department of Agriculture and Markets, Office of Parks, Recreation and Historic Preservation, State Energy office, Power Authority of the State of New York, Department of Health, Department of Economic Development, Department of Transportation, State Emergency Management Office, St. Lawrence-Eastern Ontario Commission and the office of General Services. Several other state sponsored organizations and councils also play important roles in the development and implementation of programs relevant to the Great Lakes: Great Lakes Basin Advisory

Council, Governor's Coastal Resources Task Force, Great Lakes Research Consortium and Sea Grant Colleges.

Improving National, Bi-National and Multi-State Relationships

The Great Lakes-St. Lawrence is a region shared by two nations, eight states and two provinces. Actions by any one of these entities may have major effects on the other parties and the entire region. New York and Pennsylvania, the "Eastern Great Lakes States", may not be easily viewed as "sister" Great Lakes states by "mid-western" Great Lakes interests. Although this may be the perception, forty percent of the land area of New York State is within the Great Lakes basin, the state borders two of the lakes and two connecting channels and has the second greatest length of Great Lakes shoreline. Geographically, New York is the most downstream Great Lakes state, and is directly impacted by the upstream states' environmental policies and conditions. As a result, New York State must be considered as an integral part of the political landscape of the Great Lakes basin.

Congress and the executive agencies of the federal government need to fully recognize New York's role and interests in Great Lakes environmental and related economic issues. In recognition of the need for leadership on environmental matters, province to state and state to state agreements and initiatives have been found to be practical and effective forums to address and deal with important regional environmental issues. The Great Lakes Toxic Substances Control Agreement and New York's Acid Rain Agreements with Quebec and Ontario, are cases in point. Joint bi-national/state/province projects, such as the four party Niagara River Toxics Management Plan and the Lake Ontario Toxics Management Plan, are important mechanisms to address mutual Great Lakes environmental concerns.

Objectives and Issues:

Objective 1: Ensure that New York State is consulted and involved in all important Great Lakes regional, national and international agreements, activities and projects so that the State's need and views are effectively represented and known. Special conditions and needs surround each of the Great Lakes states. As a result, each state needs to be recognized and have the opportunity to participate in the host of Great Lakes institutions and forums. At the international level, the UN, at the national level, in Congress and federal agencies, and at the regional level, in interstate groups and agency regional activities, New York State's voice as a major Great Lakes state, must equitably be considered in Great Lakes discussions.

Objective 2: Achieve among all Great Lakes/provinces and national governments stringent and consistent environmental standards as well as effective enforcement of these standards. Since New York is downstream and downwind from all the other Great Lakes states, and most of Ontario, it has a great stake in the environmental standards established and enforced by upstream states and provinces. Persistent toxics from the upper Great Lakes flow into New York's waters and acid deposition in New York State originates from points in the Midwest. Many upstream states and provinces do not institute and enforce comparable and stringent environmental protection standards. Without similar measures, the value of New York's efforts to protect and restore the ecosystem are diminished. In addition, progressive and proactive environmentally conscious states/provinces run the risk of disadvantaging their economic base. The creation of a level economic playing field, by setting and enforcement of uniform, stringent standards is needed at the federal level. Strong national leadership on Great Lakes issues and program implementation is difficult at best with three different EPA regional offices serving the Great Lakes region. Differences in programmatic interpretation and enforcement from these regional offices, as well as, disparate and lenient environmental standards across the region sends a confusing message to the people residing and working in the basin.

Objective 3: The federal government needs to provide the technical and financial assistance to state governments and other institutions to develop and deliver programs that protect and effectively manage the Great Lakes as a natural resource. Federal agencies, absent a strong state role, often lack the resources, institutional wherewithal and familiarity with local conditions to effectively accomplish national environmental objectives. Delegation of federal responsibilities, with funding and technical assistance to state government, has been the underpinning of efforts to achieve national environmental objectives. In recent years, federal mandates have not been accompanied by adequate assistance for program implementation by the state.

Improving State Government's Great Lakes Related Programs

As the nexus between the federal government and local government in the Great Lakes basin, State government must ensure that New York's Great Lakes are comprehensively and effectively managed for the public benefit. No one entity within state government has the exclusive mandate, mission or resources to address the array of Great Lakes management needs. Environmental protection, recreation and tourism, economic development, species and habitat management, open space conservation and historic preservation, hydropower generation, drinking water protection, harbor and waterfront improvements are many, but not all, of the important factors in comprehensive ecosystem planning. These elements are the responsibility of many State agencies and, therefore, extensive coordination is required by all parties.

Objectives and Issues:

Objective 1: Improve coordination of State government policies and programs concerned with the Great Lakes Basin among state agencies and institutions. A number of agencies have jurisdiction over Great Lakes related programs. Defining the linkages and relationships between these programs and improving their interface is a difficult task. Crafting explicit state policy directives to guide each program's interactions is an admirable goal. However, the complexity of state government, and dynamics such as advancing technology, new knowledge of ecosystem trends and relationships, and changes in the societal attitudes make this an enormous task. Forums must also recognize the diversity of the State's Great Lakes basin as it drives policy and program needs. Local governments and the public may face what appears to be repetitive and duplicative requirements to satisfy different agency's regulatory objectives and mandates. Outreach and technical assistance efforts to local governments by state agencies need to be better coordinated.

Objective 2: Strengthen the delivery of Great Lakes related environmental and natural resource management programs while achieving efficiency in program costs. Many important programs and projects are in place, or being developed that relate to the Great Lakes ecosystem. Programs and projects are created and administered by professional people operating in diverse organizational units and climates. Staff disciplines and training in agencies with missions related to the Great Lakes, cover a wide range of fields; biology, engineering, planning, emergency management, economic development, chemistry and many other fields. Specialists may not fully understand the relationship of these fields of expertise to one another, the range of internal organizational units, and external agencies involved in Great Lakes affairs.

Improving the State Partnership with Local Government

The Great Lakes basin in New York State encompasses numerous county, city, town, and village governments. Local governments are responsible for the delivery of a myriad of services. Local governments are often called upon to implement state and, in some cases, federally mandated programs covering a wide range of education, social service, public health and the environment. Because New York is

a strong "home rule" state, local governments exercise a great deal of power in many areas that are critical to the protection and improvement of the Great Lakes ecosystem.

Objective and Issues:

Objective: Encourage and assist local governments to protect the environment and manage the natural resources under their jurisdiction using the full powers enumerated and delegated to them. Local governments possess many of the tools required for this task including comprehensive planning, land use regulation, environmental review authority and land acquisition opportunities. Much of the responsibility for the protection of the environment remains with local municipalities. Many communities have the ability to take charge of their own futures through comprehensive planning and land use regulation. This authority is a large undertaking, and local governments must recognize that in taking control of their own futures, communities, to a great degree, control the future of their own the ecosystem. The state, however, should share in this responsibility by providing technical and, to the extent feasible, financial assistance to local governments for Great Lakes related programs.

GOALS AND RECOMMENDATIONS OF THE 25 YEAR PLAN

Goal 1: Formulate a "Shared Vision"

Ensure that the quality of life and standard of living of people are improved by evolving a shared vision of the Great Lakes Ecosystem, so that society's actions and attitudes strengthen the viability and sustainability of this ecosystem's unique and valuable resources.

PROPOSED ACTIONS

Audience: All Decision Makers

Short-Term Actions

1. Provide information on the goals of the 25 Year Plan.
2. Support educational programs that explain the governmental decision-making process and governmental planning.
3. Promote interaction and understanding among citizens, schools, government, business and community organizations.
4. Provide information about ecosystem functions, risk assessment and the effects of consumptive use.

Long-Term Actions

5. Inventory and assess the adequacy of existing information delivery systems.

6. Offer intensive short courses, workshops and develop positive and negative case studies in order to facilitate action and leadership capabilities.

Audience: Elected Officials, Administrators and Regulators

Short-Term Actions

7. Provide information to state agencies on the goals of the 25 Year-Plan and what they can do to facilitate achievement of these goals.
8. Conduct briefing sessions for congressional and state representatives concerning the content of the 25 Year-Plan, the need for action and the legislative agenda.

Long-Term Actions

9. Provide the training for local government officials and regulators to familiarize them with the environmental consequences of actions, local environment administration and the rationale for environmental regulation in order to illustrate and encourage better decisions.

Audience: Corporate Officials and Small Business

Short-Term Actions

10. Ensure the cooperation of business in attaining environmental goals by: (a) providing information on why environmental regulation is needed and how it works; (b) helping businesses develop a proactive role in environmental protection; (c) helping to minimize risks; and (d) facilitating the concept of infrastructure development and improvement including remediation, energy efficiency, conservation and regulatory compliance activities.
11. Increase the involvement of business and industry in environmental planning.

Low-Term Actions

12. Provide technical assistance and facilitate technology transfer in developing sound environmental practices.

Audience: Individuals

Short-Term Actions

13. Through the media, distribute press releases and articles that deal with Great Lakes and ecosystem issues. Encourage broadcasters to deal with Great Lakes subjects.
14. Provide citizens with information on ecosystem functions, risk assessment and the effects of consumptive use.

15. Identify groups and behaviors that place individuals at specific risks, such as subsistence fishermen, and **assess** the adequacy and efficacy of delivery mechanisms for environmental health information. Provide improvements **as** needed.
16. Encourage people to develop Individual Action Plans to improve their **own** interaction with the ecosystem.
17. Organize a multi-media Great Lakes exhibit, accompanied by "Great **Lakes** ambassadors" that could be taken on promotional tours and to public events.
18. Empower **and** promote citizen involvement in governmental decision-making and planning **by** providing information on how **these** processes work.
19. Sponsor public forums, environmental fairs and programs on the Great **Lakes**.

Long-Term Actions

20. Strengthen *interpretive/education* center programs dealing with Great Lakes ecology, natural and human history at Environmental Education Centers, State Parks, State Historic Sites, other state public use facilities **and** along interpretive **trails** such as the St. Lawrence Seaway Trail.

Audience: All Communicators/Facilitators

Short-Term Actions

21. Provide briefing sessions and workshops on the goals **and** content of the **25** Year Plan.
22. Provide sample materials for Communicators/Facilitators to share with Decision-Makers.
23. Compile and produce a directory of organizations and groups with an interest in Great Lakes issues.
24. Facilitate the exchange of information **encouraging** networking activities and interaction through such means **as** tele-conferencing.

Long-Term Goals

25. Develop a central clearinghouse for information.
26. **Assess** the adequacy and **efficacy** of information delivery mechanisms.
27. Research and compile the best available information on the Great **Lakes**. Classify material according to its appropriateness for various audiences. **Update** on a routine **basis**.
28. Develop and improve information delivery programs **as necessary**.

Audience: Outreach Specialists

Short-Term Actions

29. Keep outreach specialists apprised of current and ongoing trends and activities in legislative and regulatory **areas**.

Low-Term Actions

30. Conduct workshops to educate and inform outreach specialists on the content of the **25 Year Plan** **as well as** to develop outreach strategies.
31. Encourage and facilitate networking activities through forums for outreach specialists.

Audience: Media

Short-Term Actions

32. Prepare and distribute press announcements, articles, brochures, video materials, a general information packet, fact sheets, a **summary** of major issues, and a directory of sources for further information and comment.

Audience: Educators

Short-Term Actions

33. Incorporate Great Lakes **issues** in existing programs that focus on "~~Water~~Week" and "~~Coast~~Week". Activities could include poster and essay contests, classroom teaching materials **and** public activities **and** events such **as** class visits **to** sewage and water treatment plants and to shorelines.
34. Encourage and facilitate the participation of school groups in "adopt a **stream**" and other resource protection programs.

Long-Term Actions

35. Encourage the inclusion of Great Lakes **issues** and information in existing curricula through Science ~~Fairs~~ and standard curriculum areas such **as** science and social studies.
36. Review existing environmental **education** cumcula (**UC** and etc.) and develop a classroom cumculum, **curriculum** modules **and** curriculum aids on Great Lakes issues that incorporate discussions of the environment, ecosystems, economic impacts and recreational **resources**.
37. Establish **a** competition for development of innovative **education** materials among interest groups and schools.

38. Provide in-service training workshops for teachers and promote environmental education as a cross discipline.
39. Continue to provide scholarships for children to attend DEC environmental education camps.
40. Reorganize the Great Lakes Education Directory by topic and/or grade level and make it available in an electronic format.
41. Incorporate Great Lakes issues in standardized tests and textbooks.
42. Strengthen environmental education center and interpretive center programs by including programming on Great Lakes issues.

Audience: Interest Groups

Short-Term Actions

43. Inform interest groups in the benefits of achieving the goals of the **25-Year Plan** and how achieving **these** will further their goals.
44. Develop brochures, pamphlets, tip strips and other literature specific to special interest groups that focus on their concerns about the Great **Lakes** while **also** touching on ecosystem **issues**.

Long-Term Actions

45. Establish a speakers bureau for Great **Lakes** issues.

Goal 2: Restoring the Integrity of the Waters

Achieve chemical, physical and biological integrity of the waters of the Great Lakes to improve and sustain healthy diverse plant and animal communities and provide for safe public use and benefits.

PROPOSED ACTIONS

Zero Discharge of Toxics

Short-Term Actions

1. Begin to **ban** the discharge of persistent toxic substances **from** point sources.

2. Maintain pressure on other Great Lakes states and Canada **to** make progress toward zero discharges.
3. Designate certain "High Quality" waters which would receive no new or additional discharge.
4. Incorporate Pollution Prevention and/or Waste Minimization requirements into water, **air** and solid and hazardous waste permits.
5. Adopt a policy of protecting existing water quality from degradation.
6. Improve the implementation of the State's program for pretreatment of industrial waste discharges **to** municipal treatment facilities.
7. Continue development of regulatory program that coordinates the review and issuance of multimedia permits.
8. Encourage the development and implementation of basin-wide water quality criteria and an antidegradation policy.

Long-Term Actions

9. Ban the discharge of all toxic substances from point and non-point sources, except for very limited exceptions, which **are** based on technological and economic considerations.

Excessive Nutrients and Trophic Environments

Short-Term Actions

10. Continue the 1 mg/l phosphorous limit on point source discharges.
11. Continue implementing the Department of Environmental Conservation's statewide Non-Point Source Management Program, giving priority **to** developing corrective plans for watersheds in the basin that have significant problems.
12. Develop the Statewide Coastal Nonpoint Source Management Plan and upon its approval by EPA and NOAA, begin implementation.
13. With EPA, participate in the development and implementation of Lakewide Management Plans.

Ipne-Term Actions

14. Continue monitoring efforts in order **to** determine point **and** nonpoint loadings of phosphorous. Conduct triennial phosphorous loading determinations and progress reports for **Lakes** Erie and Ontario.

15. Continue the 1 mg/1 phosphorous limit on point source discharges.
16. Establish indicator species that would be periodically monitored in order to determine the ecosystem health of the Lakes.
17. Implement habitat restoration recommendations included in Lakewide Management Plans.

Restoration of Resources

Short-Term Actions

18. Implement recommendations called for in the Remedial Action Plans for the **six Areas** of Concern in New York State using, to the extent possible responsible party or other sources of funding.
19. Continue remediation of listed hazardous waste sites using the Department's policy on the preferred hierarchy of remedial technologies.
20. Participate in the development of a Lakewide Management Plan called for in the Great Lakes Water Quality Agreement.
21. As authorized under CERCLA and the Clean Water Act, continue to pursue natural resources damage claims resulting from releases of hazardous substances and use the recovered funds to restore damaged resources.
22. Implement the requirements of Title **III** of the **1990** Clean Air Act concerned with atmospheric deposition of toxics in the Great **Lakes** and Title **IV** that is concerned with acidic deposition nationwide.

Long-Term Actions

23. With EPA, implement remedial recommendations included in the Lakewide Management Plan for Lake Ontario.
24. Continue remediation of listed hazardous waste sites.
25. Identify existing disposal sites and improve their capability to receive contaminated material from oil/chemical spill clean-ups, or develop new sites to ensure timely disposal of such wastes.
26. To the extent that revenue from natural resource damage claims is available, implement natural resource damages restoration plans **as** developed by NYSDEC for any Great **Lakes** sites.
27. Include public participation in the decision-making process where proposed discharge permits are expected to cause a degradation in water quality.
28. Support public participation and outreach efforts **to** the Remedial Action Plans.

Goal 3: Manage Water Resources

Manage the Basin's water resources to meet current and future human and ecosystem needs recognizing its true value (costs), and major uncertainties regarding its abundance, levels and impacts.

PROPOSED ACTIONS

Lake Levels/Flooding/Navigation

Short-Term Actions

1. Strengthen New York's presence and participation on the International Joint Commission's Reference Studies and our participation on the International Board of Control. Urge the federal government to increase the state participation on the UC Reference Study and develop consistent positions and framework from which New York State representatives can move forcefully to represent our needs; including the following:
 - Develop baseline criteria and standards from which environmental habitat can be identified.
 - Measure the impact that Lake level fluctuations have on fish and wildlife habitat in the Great Lakes and St. Lawrence ecological system.
 - Develop a process whereby habitat value can be objectively measured in UC cost benefit analysis. This should represent the "true cost" of habitat and other environmental values.
 - Develop shadow prices for environmental values by investigating alternative costs that would have to be absorbed if regulatory and structural changes were made to hold harmless those values that would be adversely affected by the changes.
2. Develop education programs to articulate the notion regarding the limited capability that the "control" structures have on levels. **Also**, develop "instant" warning systems regarding seiche events and other flooding events, benefits of zoning coastal erosion and flood prone areas.
3. Maintain the policy of prohibition against winter navigation because it is uneconomical and environmentally unacceptable.

Great Lakes Charter

Short-Term Actions'

4. Amend New York State Law to completely fulfill the Charter mandate **as** necessary and appropriate, including obtaining state regulatory oversight for all withdrawals and consumptive uses in the basin.
5. Through the New York State Water Resources Planning Council, adopt a comprehensive water resources management strategy.
6. Maintain an "No Diversion" Policy consistent with ECL Article **16**, Title **15**.

Managing Water Use

Short-Term Action\$

7. Identify Quantity Needs
 - yield analysis of surface and groundwater sources;
 - identify set-asides for in-stream uses; and
 - identification of interconnection possibilities.
8. Adequate Quality Needs and Issues
 - determine surface water **treatment/avoidance**;
 - continue and, where possible, strengthen watershed and aquifer protection programs; and
 - continue SPDES, Spill Prevention and Response, and Petroleum Bulk Storage Programs.
9. Identify and implement demand management and conservation measures
 - implement registration of water use;
 - identify infrastructure needs;
 - adopt universal metering statute;
 - develop and implement water audits and reporting to reduce waste; and
 - establish true cost of water criteria to be adopted by all water system.
10. Water Management (balance of supply and demand)
 - developing a water allocation **and** regulation program covering all water withdrawals;
 - achieve efficient systems management through enterprise accounting; and
 - **assess** the merits of a fee system based upon withdrawals and/or consumptive use to fund capital investment needs of public water supply systems.

'These actions have an ongoing long-term component.

Water Quantity and Quality

Short-Term Actions

11. Consider the environmental consequences, particularly the impact on water withdrawals and consumptive uses of moving towards zero discharge and identify strategies and mechanisms to minimize any unintended effects.

Coastal Hazards

Long-Term Actions

12. Incorporate hazard mitigation considerations into long-term planning control and response mechanisms at all levels of government.
13. Investigate current federal policy and law with the objective of revising it to promote rather than hinder non-structural solutions to level and flow problems.
14. Develop land use policies regarding flood hazards that allow local governments to implement controls based on consistent set back, utilization and development standards.

Public Education and Outreach

Short-Term Actions

15.
 - Foster an understanding of the physical and technical limits of governmental capabilities to **affect** levels and flows:
 - Provide information on competing **uses** of the **Lakes'** water and shoreline resources among various interests, and the environmental, economic and other implications of attempts to regulate levels and flows,
 - Publicize the **need** for conserving the basin's water resources, which is the best strategy to meet future **needs**, **minimize** excess **costs** of getting additional supplies and is environmentally beneficial; and
 - Demonstrate the interrelated roles **and** responsibilities of all levels of government, business and individuals in ensuring that the **basin's** water resources are better **managed**.

Goal 4: Preserve and Improve Natural Resources

Ensure that Natural and Cultural resources are managed to achieve healthy and diverse biological communities and compatible coastal uses and benefits.

PROPOSED ACTIONS

Establish and Maintain Sustaining Communities

Short-Term Actions

1. Protect the state's highest quality wetlands and immediately adjacent uplands through a mix of private, local, federal and Environmental Assistance Fund supported state acquisitions, easements other protective measures.
2. Revise current law and regulations applying to the Freshwater Wetlands Act to reduce the size of protected wetlands and increase the width of protected buffers.
3. Amend the Clean Water Act to allow environmental agencies to be delegated responsibility for the federal wetlands regulatory program so as to eliminate inconsistent dual state and federal programs.
4. Assure the appropriate use of SEQRA to guide decision-making on priorities for competing land uses adjacent to and impacting wetlands.
5. Develop a water level regime in the St. Lawrence River, Lake Erie, Lake Ontario and other Great Lakes that will preserve the ecological values of wetlands and associated littoral zones, shorelines and dune ecosystems.
6. Work toward eliminating damaging waste discharges to the entire aquatic ecosystem.
7. Assess priorities in developing management plans for significant coastal fish and wildlife habitats designated under the Coastal Management Program.
8. Influence human activities in essential fish and wildlife habitats to prevent detrimental conflict with priority values.
9. Restrict sand mining on remaining dune ecosystems along the shoreline of Lake Ontario where dunes are essential to the protection of adjacent wetlands.
10. Continue an aggressive program to control sea lamprey populations in Lake Ontario through effective available means.
11. Strongly support federal funding to allow the Great Lakes Fishery Commission to implement sea lamprey control at mandated levels, and to seek viable alternatives to chemical lampricides.

12. Increase numbers of Atlantic Salmon available for stocking in appropriate Great Lakes system waters by: **(1)** modernization of the Adirondack fish hatchery; and **(2)** use of the statewide fish propagation system involving several hatcheries.
13. Request additional stocks of lake trout from the federal government to meet needs of Lake Ontario.

Long-Term Actions

14. To the extent practical, continue to develop and implement cost effective remedial action plans to clean-up sources of pollution that contribute to continued contamination of aquatic organisms and their habitats.
15. Continue strong opposition to extended navigation ~~seasons~~ that will adversely impact fish and wildlife habitats and winter recreational use.
16. ~~Seek~~ alternatives to chemical control of ~~sea~~ lamprey that are effective yet uninhabiting to fish migration and reasonable public use.
17. Carefully monitor the predator-forage fish relationship in the Great ~~Lakes~~ and adjust stocking plans ~~as~~ needed to assure that the forage base does not collapse.

Assure Safe Utilization

Short-Term Actions

18. Monitor levels of,contaminants in fish flesh to determine concentration levels.
19. Issue meaningful and understandable health advisories on safe consumption of edible fish flesh.
20. Standardize criteria for establishing fish consumption advisories.
21. Improve distribution systems for health advisories on consumption of fish.

Control of ~~Species~~ Occurrence and Abundance

Short-Term Actions

22. Balance stocking policies to reflect the interests of all users.
23. Distribute species in a balanced way to assure a year round fishery.
24. Forbid introduction of exotic species that are without proof of acceptability.
25. Develop strategies for controlling or eliminating detrimental exotics that have become established.

Long-Term Actions

26. Analyze density and composition of weed beds for possible control measures.
27. Reduce levels of nutrients entering the Great ~~Lakes~~ System.
28. Regulate discharge of ballast from ocean vessels entering the seaway any place in the system.

Maintain Biological Diversity

Short-Term Actions

29. Protect habitats essential to perpetuation of fish and wildlife species.
30. Use existing authorities to protect essential habitats and rare unique communities.
31. Inventory habitat types to determine occurrence and abundance.
32. Establish fish stocking policies to assure a diverse fishery that will support year round economic vitality in the region.
33. Implement practices to control degradation of waterbirds to assure continued presence of a variety of species.
34. Use extraordinary means to protect and restore endangered and threatened species and their habitats.
35. Regulate public use of sensitive habitats **to** prevent destruction through overuse.

Low-Term Actions

36. Obtain legislative support for an essential habitats protection act and implement through appropriate regulation.
37. Manage habitats to preserve ecological conditions needed by desired habitats.
38. Develop a water level regime that will prevent destruction of essential habitats.
39. Develop a strategic plan to guide priorities in preserving distribution of habitat **types**.
40. Where practical, implement unit management plans **so** that management actions will not result in destruction of habitats.
41. Set fish and wildlife harvest regulations consistent with state and federal laws and policy and based upon sustained yield.

42. Request that the federal government create a National Estuarine Research Reserve in the St. Lawrence River to facilitate research and ecosystem interpretation.

Protect Visual Resources

Short-Term Actions

43. Extend state designation of scenic areas **and** scenic roads pursuant to Article 42 of the Executive Law and Article 49 of the Environmental Conservation Law.
44. Continue to prepare site specific management plans for certain state parks and other state-owned properties of scenic significance.
45. Expand scoping checklist for SEQRA to include more specific visual quality considerations.

Long-Term Actions

46. Prepare site specific plans for protecting and managing designated scenic resources.
47. Provide public access to scenery viewing areas.
48. Protect open space areas along scenic roads and contiguous to scenic areas already owned by the state.
49. Foster state legislation to control billboards along state highways, scenic roads and waterways.

Public Access

Short-Term Actions

50. Identify **areas** that would benefit from increased public access **and** continue efforts to expand public access at areas identified in the Great **Lakes** Waterway **Access Plan**.
51. Review through appropriate SEQRA analysis, proposed waterway access facilities to **minimize** adverse impacts to wetland and littoral habitats while reasonably meeting the demand for **boat** access.
52. Evaluate the applicability of the Public Trust Doctrine to accessibility of the shorelines of **Lakes** Erie and Ontario.
53. Provide additional fisherman access to high priority tributaries.
54. Ban snagging **as** an acceptable fishing technique on all tributary systems by **1994**.
55. Evaluate all incentive programs that **affect** land **uses** to determine those that are in conflict with public policy.

56. Require the dedication of public access **as** a condition of public funding for shore-stabilization and nourishment.
57. Amend the local government site plan review and subdivision review enabling statutes to allow local governments to establish trust funds for coastal public access and recreation activities.
58. Broaden the limitation on liability for injury and damage for those private landowners who allow the public to access and/or use their property for coastal related activities.

Low-Term Actions

59. Identify areas that would benefit from increased public access and continue efforts **to** expand public access at areas identified in the Great **Lakes** Waterway Access Plan.
60. Analyze potential conflicts between potential waterway access sites and wetland and littoral zone habitats.
61. Develop **an** access plan that will balance access needs with essential aquatic habitat values.
62. Acquire rights of access to shorelines that are suitable for swimming, fishing and other public recreational activities.
63. Evaluate use of cooperative agreements **to** gain public access to private shorelines.
64. Acquire fisherman access through purchase of fishing rights along high priority tributaries.
65. Eliminate use of incentive programs that conflict with public policy to protect and enhance **natural** resource values in the environment.
66. Assuming significant applicability, strengthen the public trust doctrine by:
 - codifying the doctrine in **NYS** Law giving **a** broad interpretation of the public's rights, clear limits on the State's ability to convey public trust lands, and a narrow interpretation of riparian rights, and/or
 - establishing a coastal policy setting forth the public trust doctrine and using CMP consistency provision **to** strengthen adherence; and/or
 - **seeking** appropriate opportunities to litigate the purpose of creating better **case** law.
67. Acquire remaining sand beaches where public swimming and other recreational activity **can** be suitable developed.

Blend of Shoreline Uses

Short-Term Actions

68. Continue to utilize the State Comprehensive Outdoor Recreation Plan **as** a vehicle to guide an appropriate blend of recreational activities.

69. Activate Policy 26 of the Coastal Management Program and accept the mapping for soil types and agricultural districts that exists for that purpose.

Low-Term Actions

70. Designate specific areas of the coast as water dependent use districts and give priority to such uses in these areas.
71. Protect water dependent uses against nuisance suits which claim that these uses are incompatible with adjacent non-water dependent activities.
72. Clarify and strengthen local governments authority to regulate harbor uses and activities contingent upon preparation and state approval of comprehensive harbor management plans.
73. Examine the feasibility of a set of incentives which direct new development to deteriorated, underused sites in urban areas where infrastructure already exists (some version of enterprise zones).
74. Encourage the development of approved waterfront revitalization programs in basin communities.
75. Establish incentives for local governments to prepare and implement approved Local Waterfront Revitalization Programs under the Coastal Management Program.
76. Encourage counties to adopt Right-&Farm statements identifying those agricultural activities undertaken in compliance with applicable federal, state, county and local regulations as being compatible with protecting the public's health, safety and welfare and as constituting "acceptable agriculture practices".
77. Require prospective purchasers of property in, or adjacent to, an agricultural district to sign a Notice of Accepted Farm Practices as one of the requirements to filling a deed, so as to avoid future nuisance.
78. Revise property tax policies to support continuation of agricultural activities.
79. Equalize withdrawal penalties between farmers who have made individual commitments to continue farming and farmers who participate in an Agricultural District.
80. Explore the creation of a Purchase of Development Rights (PDR) Program.
81. Undertake studies of region's ports to determine their future role as centers of commerce and industry.

Preserve and Protect Cultural Resources

Short-Term Actions

82. Continue the ongoing program to list additional important archaeological, historic and cultural resources in the State and National Registers of Historic Places.
83. Encourage expansion of cultural interpretation program along the Seaway Trail, particularly in areas with designated Urban Cultural Parks.
84. Develop better mechanisms for identifying and evaluating important archaeological, historic and cultural resources.
85. Encourage development of interpretive programs for archaeological, historic and cultural resources within the basin that emphasize appropriate use of natural resources and ecosystem principles.
86. Encourage awareness on the part of local governments and State agencies of the potential to utilize SEQRA and SHPA to protect important resources from loss by development activities.
87. Develop educational materials directed at local officials, developers **and** the general public that emphasizes the importance and value of protecting heritage, scenic and historical resources and the methods available for assuring such protection.
88. Explore mechanisms **to** improve the protection and preservation of archaeological, historic and cultural resources that are already in public ownership.
89. Continue to provide technical assistance to local governments in developing and implementing local preservation ordinances.
90. Develop a shipwreck program that is consistent with the Abandoned Shipwreck Act of **1987**.
91. Encourage participants in traditional life-ways to participate in the environmental review process for projects that may affect them.
92. Explore the feasibility of improving the quality of inventory information for archaeological, historic and cultural resources, especially shipwrecks.

Long-Term Actions

93. Acquire additional archaeological, historic resources for public interpretation and use, that better reflect the depth and breadth of the heritage of the region.
94. Expand buffer zones around important sites to assure integrity of setting.
95. As feasible, acquire sites and resources for long-term preservation and conservation.

Goal 5: Sustainable Economic Development

Achieve environmentally sustainable economic development through ecologically sensitive public and private decision-making that balances social, economic and environmental concerns.

PROJECTIONS

Carrying Capacities

Short-Term Actions

1. Identify locations within the Great ~~Lakes~~ coastal area where present or anticipated development pressures may make conduct of a detailed analysis of carrying capacities a high priority in order to establish a sound basis for future decision-making.
2. Identify areas of special environmental sensitivity, natural hazards or resource saturation or depletion lying within these locations of development pressure.
3. Identify the **types** of activities which will most affect the capacity of sensitive or intensively used resource areas or which will be most impacted by resource depletion or hazards.
4. Where feasible and scientifically defensible, establish acceptable levels of saturation or resource depletion which **can** be applied when further development decisions are required. Examine both the cumulative and the long-term ramifications of such saturation or depletion.
5. For any large new development proposals not within a previously identified area of development pressure, investigate their its potential for triggering a carrying capacity problem in and of itself, or in conjunction with other anticipated development proposals nearby.
6. Incorporate carrying capacity concepts into all local land use planning regulatory reviews (e.g., comprehensive plans, zoning, subdivision or site plan reviews) and **into** the conduct of SEQRA by all agencies.
7. Encourage development activities which will assist in restoration of impacted resources or will use non-renewable resources in a manner which preserves them for future generations.

Infrastructure

Short-Term Actions

8. Explore funding mechanisms to finance infrastructure needed to meet environmental and economic objectives.
9. Utilize cost/benefit sharing mechanisms **to** satisfy both public and private infrastructure needs.

10. Enforce regulations (**as** a last resort) to ensure provision of adequate infrastructure in a consistent and uniform approach.
11. Encourage the location of development in areas where public services and facilities essential to such development are adequate, except when such development has special functional requirements or other characteristics which necessitate its location in other coastal **areas**.
12. Promote activities to develop innovative, more environmentally safe infrastructure facilities (e.g., waste disposal facilities).
13. Encourage local governments to incorporate capital facilities planning into their decision making.

Low-Term Actions

14. Identify incentives which the state can use to facilitate local governments to invest in infrastructure.

Risk Assessment/Avoidance

Short-Term Actions

15. Identify hazard areas more completely and thoroughly.
16. Analyze the feasibility of requiring direct notification to purchaser of coastal properties of the potential for property impairments caused by fluctuating water levels, erosion, and other natural forces.

Long-Term Actions

17. Support development of hazard mitigation plans by local governments.
18. **Use** insurance, escrow accounts and other mechanisms to transfer public risks to developers and property owners, especially in high risk areas, in order to place less burden on the public-at-large.

Water-Dependent ~~Uses~~

Short-Term and Long-Term Actions

19. Local Waterfront Revitalization Programs should be used to **a** greater degree **to** identify and preserve areas for waterdependent uses.
20. The ~~transfer-ofdevelopment-right~~ technique should be used to reserve areas for water-dependent uses.

21. Local governments should question the traditional approach of taxing waterfront land at "highest and best use".

Planning and Decision-Making

Short-Term and Low-Term Actions

22. Continue to offer and where possible expand, technical assistance to local governments in such **areas as** local capacity building.
23. Encourage more proactive land use planning and resource management decisions at the local government level, including a requirement to consider the regional implications of local decisions.
24. Utilize **SEQRA** more **as** a planning coordination tool.
25. Encourage cooperative endeavors in regional planning.
26. Encourage adoption of and adherence to Local Waterfront Revitalization Programs.
27. Promote greater understanding of modern planning tools such **as** planned unit developments, transfer of development rights and use of development impacts fees.

Oversight and Regulation

Short-Term Actions

28. Synchronize and, where **necessary**, strengthen regulatory authority at appropriate levels to achieve coordinated and **ex - dited** decisions on development proposals.
29. Improve local understanding of **SEQRA** **as** a regulatory coordination device.
30. Through education and other means, improve the responsiveness of state agencies to the consistency requirements of the State's **Coastal** Management Program.
31. Provide technical assistance and strengthen enforcement programs.

Goal 6: Improve Intergovernmental Partnerships

*Secure New York's Role as an essential partner in interstate, **national** and international relationships and strengthen the State government/local government working relationship to assure integrated and coordinated management of the Great Lakes-St. Lawrence River basin.*

PROPOSED ACTIONS

Consider New York State Interests at the National and Bi-National Levels

Short-Term Actions

1. Work effectively with the State's congressional delegation on Great Lakes issues:
 - Communicate our concerns about federal agency actions to key delegation members;
 - Provide regular briefings to New York State's Washington office on Great Lakes legislation before Congress;
 - Hold an annual Great Lakes briefing for the Congressional delegation;
 - Encourage New York's delegation to be involved in Great Lakes issues and activities.
2. Encourage the EPA Great Lakes Action Committee (the 3 EPA regional administrators covering the Great Lakes, the Great Lakes National Program office and EPA Headquarter's program offices) to conduct annual briefings for the **U.S.** Policy Committee on interagency coordination of policy and programs.
3. Encourage an evaluation and assessment of the national, bi-national and multi-state bodies involved in Great **Lakes** matters to identify ways to streamline responsibilities.

Achieve Stringent and Consistent Environmental Standards

Short-Term Actions

4. Request the GLC undertake a comparison of state/provincial environmental programs to assure they move towards the goals and objectives of key agreements (i.e., GL Charter, GLWQA, TSCA, Clean Air Act) in the area of water quality, water conservation, air, pollution prevention and wetlands protection.
5. Encourage GLNPO of EPA to undertake an analysis of state and province compliance and enforcement of existing environmental statutes in the Great Lakes basin.
6. Have the Council of Great **Lakes** Governors with the assistance of the GLC, petition EPA to use their authority under TSCA to ban the nationwide manufacture and use of certain persistent toxic substances.
7. Work with the provinces to implement the environmental portion of the "Memorandum of Understanding on Cooperation between New York State and the Province of Ontario" and the "Agreement on Environmental Cooperation between **Quebec** and the State of New York" in order to comprehensively address mutual environmental concerns.

Federal Funding and Technical Support

Short-Term Actions

8. **Seek** continued and adequate funding by EPA with the necessary program flexibility for base environmental programs that benefit the Great Lakes.
9. **Seek** federal funding, with administrative flexibility, for Great Lakes specific programs with an emphasis on pollution prevention initiatives, technical assistance and demonstration grants to States for **RAPs**, **LAMPs** development and implementation.
10. **Seek** federal funding for state and local disaster programs under Title 11 of the Disaster Relief and Emergency Assistance Act.

Coordination and Planning of **New** York State Programs

Short-Term Actions

11. For the Great Lakes coastal area, adopt and implement the Governor's **Coastal** Task Force's recommendations to improve, expand and streamline the "consistency" and regulatory review process as they concern federal/state/local government actions.
12. Review and **assess** the **25-Year** Plan every five years to make use of more recent and improved progress, status and trends.
13. **On** an annual basis, consistent with the development of the Governor's State-of-the-State, the state budget and legislative agenda, have appropriate state agencies use the **25-Year** Plan as a basis to propose initiatives for the Great **Lakes**.
14. The Great **Lakes** Basin Advisory Council should annually report on the progress in implementing the **25-Year** Plan its annual report to the Governor and Legislature.

Delivery of State Great **Lakes** Programs

Short-Term Actions

15. Implement agreed upon relief **measures** identified in the **State's Local** Government Mandate Relief Program to address the state regulatory and programmatic requirements that are burdensome to Great **Lakes** basin local governments.
16. Promote more effective information transfer between state agencies, and other entities.
17. Hold an annual "Great **Lakes** Day" for key DEC regional and central office program **staff** to **discuss** policy and management **needs** to strengthen state programs, focusing on multi-media and interprogram relationships.

18. Evaluate program management, administration and operations in DEC regional offices covering the Great Lakes to **assess** consistency in implementing policies and programs that effect the Great Lakes.
19. Devote special attention and coordination within DEC to more effectively **seek** and utilize federal grants that support Great Lakes related programs.
20. Use environmental groups and citizens **as** volunteers to undertake many important projects and **tasks**, including such projects **as**:
 - resource inventories;
 - reporting of injured fish and wildlife species from oil and **hazardous** substance spills in the Great Lakes;
 - monitoring and sampling, expanding upon the existing **DEC** Lakes water monitoring programs; and
 - for education lectures to school classes.
21. Provide special educational and training programs to state agency **staff** concerned with the Great Lakes to improve their capabilities and understanding of Great Lakes related programs.
22. Establish an intergovernmental personnel exchange program, similar to the federal governments, that will enable state and local government agency **staff** in the Great Lakes basin to transfer position for an interim period of time. This **lend/lease** program will improve state and local governments understanding of each others missions, policies and programs.

Local Government Participation in Environmental Protection

Short-Term Actions

23. Encourage local governments to utilize comprehensive planning and land use regulation to protect natural and cultural resources within their jurisdictions.
24. Encourage local governments to incorporate ecosystem concepts and long-term goals into their comprehensive planning and land use regulations.
25. Delegate state environmental protection programs to local governments demonstrating the capability to administer them.
26. Encourage municipalities to utilize SEQRA and other mechanisms to protect environmental resources and long-term values.

Technical Assistance and Funding

27. Maintain existing, or where feasible, strengthen technical assistance programs for **local** governments focusing on promoting effective planning, development, and implementation of environmental and resource management programs and projects.