IJC and GLFC Urge Governments to Take Action to Reduce and Prevent Threat to Great Lakes Ecosystem from Exotic Species

by Sally Cole-Misch

In a recently released joint report to the Governments of the United States and Canada, the International Joint Commission (IJC) and the Great Lakes Fishery Commission (GLFC) warned that additional "massive and calamitous invasions" of exotic species could occur if preventive actions are not taken immediately to stop the introduction of such species into the Great Lakes Basin Ecosystem.

The Commissions urged Governments that all oceangoing ships be required to exchange their ballast waters in mid-ocean — before entering the Great Lakes or connected fresh and brackish waters. In those instances when mid-ocean exchange proves inappropriate for safety or other reasons, ballast waters must not be discharged unless there has been previous environmentally safe exchange or treatment to remove or destroy all organisms capable of surviving in the waters of the Great Lakes ecosystem.

One-half of the 100 or more exotic species introduced into the system have entered through the discharge of ballast water from oceangoing ships. Hundreds of millions of gallons of ballast water, containing many species of plants and animals, are discharged annually into the Great Lakes and their connected waters.

Experience with exotic species such as the sea lamprey and zebra mussel shows, the report said, that "such organisms cannot be eradicated once they become established, and that reactionary actions are costly and largely ineffective." The zebra mussel, which is proliferating throughout the system, has impaired a variety of human uses of the lakes and threatens to disrupt the food web on which the fishery depends. Estimates run as high as several hundred million dollars in annual expenditures to control this species alone.

"Exotic species, once established, are as enduring as the most persistent synthetic chemical pollutant," the report said. "Thus, the principle of zero discharge should be applicable to exotic organisms in ballast water." The Commissions recommended that adequate resources be provided to the Coast Guards in both countries to develop, implement, monitor and enforce coordinated measures to prevent ballast-borne introductions of exotic species.

The special report, entitled Exotic Species and the Shipping Industry: The Great Lakes-St. Lawrence Ecosystem at Risk, is a unique joint endeavor by the IJC and the GLFC. It reflects the Commissions' mutual concerns and conveys joint recommendations for short-term and long-term actions, actions the Commissions believe would significantly reduce the immediate and continuing risks to the health and integrity of the Great Lakes Basin Ecosystem and its connected waters. This report marks the first time the two Commissions have submitted a joint report to Governments.

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Because mid-ocean exchange will not always be practical or possible, and because even this may not completely eliminate the risk of exotic organism introduction, the Commissions recommended that a research and development program be established to test measures for exchange and/or treatment of ballast waters. Long-term research is also needed to understand how exotic species become established in and spread through new ecosystems, and how they may compete with native species for food, spread disease, contaminate drinking water or contribute to the bioconcentration of pollutants.

Finally, the IJC and GLFC urged Governments to instruct their national delegations to the International Maritime Organization of the United Nations to augment and strengthen existing conventions and codes. In doing so, the significance of the global problem of shipborne introductions of non-native species can be established, standardized policies can be developed, and leadership and expertise can be directed to designing new vessels and retrofitting existing vessels to prevent the invasion of exotic species into new ecosystems.

For more information on the exotic species report, contact Andrew Hamilton, International Joint Commission, 100 Metcalfe, 18th floor, Ottawa, ON K1P 5M1, telephone (613)995-2984 or Bruce Bandurski, International Joint Commission, 2001 S Street NW, Second floor, Washington, DC 20440, telephone (202)673-6222. Copies of the report can be received from these offices or from the Great Lakes Regional Office of the IJC, 100 Ouellette Avenue, Eighth floor, Windsor, ON N9A 6T3, telephone (519)256-7821 or P.O. Box 32869, Detroit, MI 48232, telephone (313)226-2170.

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**COMMISSIONERS VISIT WESTERN PROJECTS**

*by Murray Clamen and Donald Parsons*

In late August a group of Commissioners, board members, advisors and staff gathered in Cranbrook, British Columbia for the start of a week-long, 1,450 km (900 mile) bus trip to visit the IJC’s existing and potential projects in western Canada and the United States. After discovering that the last such tour took place 17 years ago, Commissioners were eager to learn more about their responsibilities in this region of both countries.

The Commission has a long and significant involvement in the region. Participants visited five projects that have Commission Orders of Approval and are supervised by three international control boards. In addition, they visited two Columbia River Basin Treaty projects (Libby and Hugh Keenleyside Dams), a small abandoned project (Enloe Dam) on the Similkameen River that is under consideration for hydro-power redevelopment and may require Commission involvement, and several other hydroelectric plants and sites.

The tour’s fundamental purpose was to familiarize Commissioners and their advisors with the physical features and operations of existing and potential projects that require or may require Commission participation and decision. The week-long trip also provided an excellent opportunity for Commissioners to meet with Board members and discuss various projects in detail in an informal and relaxed atmosphere.

The tour began with a visit to the Libby Dam and Hydroelectric Plant in northern Montana, a project recommended by the Commission in its 1950 interim report to the Governments on the Columbia River basin. Because this project was authorized by the Columbia River Basin Treaty between Canada and the United States, Commission approval was not required. The Columbia Treaty...
Above, Commissioners and members of the International Kootenay Lake Board of Control at Corra Linn Dam. Below, area map of trip.

Improvement in flood conditions, recognizing local considerations and upstream adjacent properties. The Commission also established the International Kootenay Lake Board of Control to ensure compliance with the order. The company maintains and operates automatic water level gauges at Queens Bay, Nelson and above and below the Corra Linn Dam to continuously record lake levels and outflows as required by the order. The board verifies these records and computations and reports annually to the Commission. Commissioners were pleased to note that Kootenay Lake levels and storage have been in accordance with the order since it was issued in 1938.

Commissioners also inspected an innovative project on Duck Lake at the southern end of Kootenay Lake. The project required Commission approval in the late 1940s because it utilized a small portion of the Kootenay Lake storage area. An order was granted in 1950 to Creston Reclamation Company Limited to dike and regulate water levels in part of Duck Lake to benefit wildlife; the remainder was reclaimed for agricultural purposes. Kootenay Board members reported that the project has been extremely successful.

British Columbia Hydro representatives briefed the group on plans for the Lower Columbia River Development Project, which consists of seven potential hydroelectric facilities in the southeast part of the province. Other stops in that part of the region included a gauging station on the Kootenai River (U.S. spelling), several British Columbia Hydro and private hydropower plants, and the Waneta Dam hydroelectric project that had been approved in 1952 but never visited by the Commission.

Waneta Dam, on the Pend d'Oreille River near Trail, British Columbia, was completed in 1954. The Commission gave its approval to construct the dam in a 1952 order but did not follow tradition and create a board to supervise project operation. Instead, the owner — Consolidated Mining and Smelting Company of Canada Limited — made satisfactory arrangements with United States interests that might be affected by backwater in Cedar Creek (a Pend d'Oreille tributary), and the project essentially has no effect downstream on the Columbia River.

A full day was spent travelling to and visiting spectacular Grand Coulee Dam, the key structure in the multipurpose Columbia Basin Project in central Washington State. Because Franklin D. Roosevelt Lake — the reservoir behind the dam — extends northeast almost 250 km (156 miles) and can raise water levels at the international boundary, Commission approval of the dam was required. The Commission's 1941 order allows a limited increase in water elevation at the boundary and states that the owners of the then proposed Waneta
Dam could apply to the Commission for relief if output from that plant was curtailed by backwater from the Grand Coulee Dam. The Commission’s Columbia River Board of Control monitors compliance with this order, and no complaints have been received to date.

The Grand Coulee Dam is a study in superlatives. It is a major contributor to the area’s resources and economy and a principal supplier of water to the Columbia Basin Project that irrigates approximately 445,500 ha (1.1 million acres). Its power production, at about 6.5 million kilowatts, makes it the largest hydroelectric plant in the United States and the second largest in the world. Lake Roosevelt has steadily gained in popularity as a summer tourist attraction and generally has high levels that provide visitors with a variety of recreational opportunities.

The dam contains nearly 24 million tons of concrete, towers 550 feet from bedrock to crest and tapers from a width of more than 500 feet at its base to 30 feet at the top. The spillway of the dam is controlled by 11 drum gates, each 135 feet long, and is capable of spilling one million cubic feet of water per second. At night a laser projection system illuminates water cascading over the spillway in coordination with recorded sound. This provided an imaginative and spectacular ending to a memorable visit for the Commissioners, the highlight of which may well have been walking inside one of the scroll cases (40 feet in diameter at its entrance) that surrounds the dam’s turbines.

The final day of the tour included a visit to the Osoyoos Lake area to see Zosel Dam. The group stopped at Enloe Dam enroute, an abandoned hydroelectric plant on the Similkameen River just south of the international boundary, and learned that the Okanagan County Public Utility District is pursuing a U.S. Federal Energy Regulatory Commission license in the United States to redevelop the project. The International Joint Commission may become involved in this proposal.

The Osoyoos Lake Control Works, named Zosel Dam, is located in the Okanagan River in the State of Washington, about 4 km (2.5 miles) downstream from the outlet of Osoyoos Lake. The original dam, constructed by the Zosel Lumber Company in 1927 to float logs, required Commission approval because it affected water levels upstream in Canada. A Commission order, issued retroactively in 1946, required some structural alterations and created the International Osoyoos Lake Board of Control to ensure that the provisions of the order would be carried out.

Despite several repairs and alterations over the years, the structural condition of the timber dam deteriorated. The Zosel Company no longer needed the dam and probably would have preferred to remove it. However, various upstream and downstream interests had grown to rely on the water level regime provided by the project and wanted the dam maintained or replaced. In 1980, after several years of negotiations and Commission public hearings, the Governor of the State of Washington applied to the Commission for an Order of Approval to construct a new dam. The Commission’s 1982 order, together with a supplementary order in 1985, paved the way for construction of a new structure. The Province of British Columbia and the State of Washington shared the costs of this project.

Construction of the new control works, which included dredging of the river channel upstream and downstream of the new dam, was completed in February 1988. The International Osyoos Lake Board of Control, initially established under the 1946 order, was reestablished to ensure compliance with the terms of the new orders. Commissioners were pleased to learn that the new Zosel Dam is fully operational and has been performing as designed; those amongst the group who remembered standing atop the old wooden structure that seemed ready to collapse at any moment were particularly relieved!

For more information on the IJC’s role in these projects, contact Murray Clamen in the IJC’s Ottawa office or Don Parsons in Washington. In Ottawa, the Commission office is located at 100 Metcalfe, 18th floor, Ottawa, ON K1P 5M1, telephone (613)995-2984. In Washington, contact the IJC at 2001 S Street NW, Second floor, Washington, DC 20440, telephone (202)673-6222.
ROBERT F. GOODWIN CONFIRMED AS IJC COMMISSIONER

Robert F. Goodwin, the newest member of the International Joint Commission, was nominated by President Bush and confirmed by the United States Senate on September 17, 1990. He succeeds Donald L. Totten.

Mr. Goodwin is Staff Vice President and Director of Governmental Affairs for Meredith Corporation, a Fortune 500 diversified media company with headquarters in Des Moines, Iowa. He joined Meredith in 1977 and is located in Washington, D.C. Previously, Mr. Goodwin served at the White House as a special assistant to President Ford. He also owned and operated KCFI, an AM radio station in Cedar Falls, Iowa, and served as Manager of Business Services for the Evening Star Broadcasting Company in Washington, D.C.

A native of Des Moines, Iowa, Mr. Goodwin majored in business administration at Northwestern University where he received a Bachelor of Science Degree in 1958. He resides in Bethesda, Maryland with his wife and three children.

USX Corporation and the U.S. Environmental Protection Agency agreed to settle a 1988 lawsuit brought by the federal government as a result of a five-year probe into pollution of the Grand Calumet River at Gary, Indiana. The nation's largest steelmaker will pay as much as $34 million in fines and cleanup costs for polluting the river. The fine is the seventh largest ever levied by EPA, and the cleanup bill amounts to one of the largest ever undertaken at the instigation of the government.

The Grand Calumet River and the adjoining Indiana Harbor Canal is an Area of Concern. The river and canal empty into Lake Michigan, and the two are considered a serious source of pollution to the lake. Indiana is developing a remedial action plan to restore the area, and funds from the settlement will contribute to cleanup under the plan. For more information see page 17 of this issue.

Chris Grundler has been appointed Director of the Great Lakes National Program Office in Chicago by U.S. EPA Administrator William K. Reilly. The Great Lakes program coordinates EPA's efforts to protect and restore the lakes, including prevention, monitoring and cleanup.

Mr. Grundler first joined EPA in 1980. He has been awarded the agency's highest honors, including the Gold Medal for Exceptional Service for federal facilities cleanups and the Silver Medal for Superior Service for work on EPA's dioxin cleanup strategies. He grew up near Lake Michigan in Kalamazoo, Michigan and is a graduate of the University of Michigan with a degree in Civil Engineering, where he studied water resources engineering and conducted research on the Great Lakes.

Grundler will take over the Great Lakes Office from Carol Finch, who returned to EPA headquarters in Washington, DC.

As part of a joint Canada-United States Children's Health Study, several hundred youngsters are participating in a $5 million international air pollution study, funded by the U.S. National Institute of Environmental Health Sciences and Health and Welfare Canada. Questionnaires sent to approximately 750 fourth and fifth graders from 24 communities in the United States and Canada ask how often the child coughs, the type of heating system in the home, the number of persons who smoke in the home, and other related questions. The study will identify the relationship between air pollution and the respiratory health of children.

For more information on the program contact Mark Raizenne, Health and Welfare Canada, Bureau of Chemical Hazards, Environmental Health Directorate, Ottawa, ON K1A 0L2. (613)957-1878.
Recent appointments by the International Joint Commission to the Great Lakes Water Quality Board include Walter Rittall of the U.S. Department of Agriculture’s Soil Conservation Service and Gerald A.V. Rees, Ontario Ministry of the Environment. Named to the Great Lakes Science Advisory Board is John J. Magnuson from the Center for Limnology, University of Wisconsin.

About 40 United States and Canadian agencies, led by the Coast Guards of both countries, dumped ten bushels of oranges into the St. Clair River in early September to conduct the largest ever oil spill simulation on the Great Lakes. The oranges, dumped into the river near Port Huron, Michigan and Sarnia, Ontario, were used because of their high visibility and environmental safety.

Private oil spill contractors and coast guard authorities from both countries worked together to contain and remove the oranges as part of the exercise. The two-day simulation included responses to reports of oiled birds along both shores, deployment of an oil skimming barrier in Lake St. Clair, and involvement by all responsible federal, state, provincial and municipal agencies. The spill was to have simulated the dumping of 600,000 litres of light oil into the river.

The Great Lakes Circle Tour, a designated scenic road system following the Great Lakes - St. Lawrence River shoreline, was introduced by the Great Lakes Commission with the support of the eight Great Lakes states and two Canadian provinces. The circle tour initiative ties existing scenic roadways and individual lake tours into a single designated system.

A Great Lakes Circle Tour brochure is available, free of charge, by contacting the Great Lakes Commission, The Argus II Building, 400 South Fourth Street, Ann Arbor, Ml 48103-4816. (313) 665-9135.

The first products to qualify for the EcoLogo have been named by Environmental Choice, which brings to 33 the number of companies with products carrying the program’s symbol. That’s good news for the growing number of people who want to be sure what they’re buying is less harmful to the environment.

For more information on products certified with the EcoLogo contact Environmental Choice, 107 Sparks Street, Second floor, Ottawa, ON K1A 0H3. (613)952-9440.

### Products Ready for EcoLogo Applications from Manufacturers

- Re-refined lubricating oil
- Miscellaneous products from recycled paper
- Reuseable shopping bags
- Insulation from recycled wood-based cellulose fibre
- Newsprint from recycled paper
- Heat recovery ventilators
- Reuseable cloth diapers
- Products made from recycled plastic
- Solvent-based paint
- Zinc-air batteries
- Water-based paint
- Ethanol-blended gasoline
- Reuseable cloth diapers
- Composting systems

For Public Review Ending Oct. 10, 1990

- Compost
- Non-rechargeable batteries
- Energy-efficient lamps
- Water-conserving products
- Diaper services
- Sanitary paper from recycled paper
- Energy-efficient major appliances
The Ontario Ministry of the Environment has granted funding to the Viceroy-Trent Group of companies to build a recycling plant that will process up to nine million used tires a year into crumb rubber and rubber-plastic products. The processing plant is expected to be completed within two years. The rubber produced will be used to make traffic cones, roof flashings, dock bumpers, toys and hockey pucks. Each year Ontario motorists dispose of an estimated 11 million used tires.

For information contact Ed Gill, Ministry of Environment, Waste Management Branch, 25 St. Clair Avenue East, Toronto, ON M4T 1M2. (416)323-5026.

The Program for Leadership in Earth Systems Education (PLESE) identifies exemplary earth systems education materials for use in K-12 classrooms. By explaining how earth systems function naturally, the educational materials selected will help students understand the impact of human activity on earth systems.

Project PLESE leaders have identified a framework for earth systems education which include seven understandings to be incorporated into the K-12 science curriculum. A major thrust is communicating that the earth system is comprised of the interacting subsystems of water, land, ice, air and life, and that the earth's cycles and natural processes take place over time intervals ranging from fractions of seconds to billions of years. The PLESE program includes teams of national and regional leaders in earth science education that are committed to solving the problems of inadequate and outdated instruction about planet Earth.

To find out how to become involved in the project or for more information, write to Barbara Garrison, Communications Coordinator, Earth Systems Education, PLESE National Coordinating Center, 059 Ramseyer Hall, 29 W. Woodruff Avenue, Columbus, OH 43210. (614)292-5381.

A provincial grant under the Ontario Ministry of the Environment's Municipal Recycling Support Program has been committed to the Student Action for Recycling in the province. The recycling classroom projects are expected to collectively generate tonnes of recyclable materials in the next year, including fine paper, newspaper, glass, steel and aluminum cans. It is part of the ministry's program of waste management, which helps municipalities implement recycling as a component of their waste management systems.

For further information on the Student Action for Recycling program contact Brian Van Opstal, Waste Management Branch, (416)323-5243 or Myra Steward, Communications Branch at (416)323-4622.

Timothy P. McNulty has been appointed Executive Director for the Council of Great Lakes Governors replacing Bonnie L. Koenig. McNulty has worked for the Council since 1987. For information about the Council and its goals and priorities, contact Tim at the Council of Great Lakes Governors, Tenth floor, 310 South Michigan Avenue, Chicago, IL 60604. (312)427-0092.

The Ontario Ministry of the Environment and Environment Canada (through the Canadian Consulate General in Detroit) filed several "concerns and comments" with the Michigan Air Pollution Control Commission regarding a National Steel Corporation plan to rebuild coke oven battery #5 on Michigan's Zug Island, upwind from Windsor, Ontario. Ontario's submission asked for "stringent control of contaminants, which are known to be toxic and persistent in the environment and can build up in the food chain to the detriment of public health and safety." Additional comments to the pollution control commission were for consideration of a wider range of emissions from the facility and better monitoring to assure the effectiveness of controls. The commission responded to many of Canada's concerns at its meeting in late August by adding a number of new conditions to the final Permit to Install issued by the commission to National Steel Corporation's Great Lakes division.

For further information contact George Costaris, Consulate General of Canada, 600 Renaissance Center, Suite 1100, Detroit, MI 48243. (313)567-2340.

Robert L. Herbst, Executive Director of Trout Unlimited and Chairman of the Natural Resources Council of America, has joined Lake Superior Center as President. Mr. Herbst succeeds Robert J. Bruce, who continues with the Center as executive vice president. Lake Superior Center is a non-profit corporation formed to raise public understanding of global freshwater issues through the lens of Lake Superior and other great lakes of the world.

For further information, contact Nick Smith, Lake Superior Center, 353 Harbor Drive, Duluth, MN 55802. (218)722-0861.

The Ontario Lottery Corporation, through the Ontario Ministry of the Environment, has created a new Canadian lottery called CLEANSWEEP. This is the first lottery in which profits will be used to help fund the cleanup and enhancement of Ontario's environment and to fund activities by non-profit community groups, municipalities and schools.

For further information regarding the lottery contact Michael Burger, CLEAN-SWEEP, Research and Technology Branch, Ontario Ministry of the Environment, 2 Bloor Street West, 24th floor, Toronto, ON M4W 3H8. (416)323-4574.
PHASE II PLAN OF STUDY APPROVED

by Frank Bevacqua

Since our last issue of Focus, the International Joint Commission (IJC) approved the Plan of Study for Phase II of the investigations regarding fluctuating water levels in the Great Lakes and St. Lawrence River. Appointments were also completed for the Levels Reference Study Board, the Citizens Advisory Committee and the co-chairs of the working committees.

The Plan of Study was developed by the Study Board to outline the broad objectives, basic work elements and budget for the Phase II effort. Comments representing the perspectives of different interests affected by fluctuating water levels were provided by the Citizens Advisory Committee to the Study Board before the Plan of Study was completed. In addition, the Study Board is seeking broader public comment on the Plan of Study; these comments will assist in preparing detailed work plans for specific study areas.

To ensure that all of the study areas are coordinated, the IJC appointed Neil R. Fulton as a full-time study director. Fulton was previously chief of the Bureau of Resource Management for the Illinois Division of Water Resources.

Two remaining nonagency members were named to the Study Board by the Citizens Advisory Committee in July: Peter B. Yeomans, mayor of Dorval, Quebec and Frederick L. Brown, past president of Great Lakes United. Direct involvement by the public and various interests on the Study Board and in all components of the study is an attempt by the Commission to promote an open study process. “Whatever processes for involvement are put in place,” said Fulton, “policymakers within the study must interact with members of the public at the time that the studies are being conducted and while they are developing policy.”

Four working committees were established by the Study Board to perform the major areas of work identified in the Plan of Study: (1) Public Participation and Information; (2) Land Use and Management; (3) Existing Regulation, Systemwide Regulation and Crises Conditions; and (4) Principles, Measures Evaluation, Integration and Implementation. Once members are appointed, each working committee will prepare a detailed work plan that will include time and resource estimates.

With the management structure for Phase II in place, the Study Board can now devote its full attention to the investigation process. The board will ensure that the plans of the working committees are adequate to fulfill the Plan of Study and that resources are allocated appropriately. The Study Board is also responsible for selecting the methods which will be used to evaluate and compare the possible courses of action and thus reach final conclusions.

Comments or requests for copies of the Plan of Study should be directed to Neil R. Fulton, Study Director, Levels Reference Study Board, International Joint Commission, c/o 72 Lyme Road, Hanover, NH 03755-1290.

For Who’s Who in Phase II, see page 10-11.

COMMITTEE TO UPDATE INTERNATIONAL GREAT LAKES DATUM

by Ruth Edgett

It’s not nearly as dramatic as an earthquake — you can’t even see it happening — but the earth’s crust in the Great Lakes basin is shifting. These changes, which have been occurring since the lakes were formed after the last ice age, make it necessary to update the reference system by which Great Lakes water levels are measured. The work is being conducted by the U.S. National Ocean Service and the Canadian Hydrographic Service.

“When International Great Lakes Datum (IGLD) was first established using measurements and information that centered on 1955, it was recognized that the datum would need updating every 25 to 30 years,” explained Harry Lippincott of the U.S. National Ocean Service. The international datum was established to provide a standard reference for measuring lake levels.
"It was suspected that isostatic rebound — which is, in effect, the earth's crust bouncing back from the weight of the glaciers that once covered the Great Lakes basin — would affect the accuracy of measurements referred to as IGLD 1955," added Peter Yee of Environment Canada's Great Lakes-St. Lawrence Study Office. This rebound is occurring at varying rates around the basin, and the changes it causes mean that any benchmark — or reference point — assigned a height above the IGLD 1955 zero point has gradually shifted, not only with respect to the zero but with respect to other benchmark marks.

In addition, other land elevation changes caused by subsidence due to mining, or settling due to the weight of structures, may have affected a small number of benchmarks. A change of less than two cm (one inch) in the mean water level — or zero point — as measured for the new datum will also cause small changes in the newly-assigned lake elevations.

The mean water level at a gauging station in Pointe-au-Père, Québec at the mouth of the St. Lawrence River was used to define the zero point for IGLD 1955. This station was replaced in 1984 by a new gauge at Rimouski, approximately five km (three miles) upstream. The updated zero point for IGLD 1985 will be the mean water level calculated from data collected at these two stations between 1970 and 1988.

The Canadian Hydrographic Service and the U.S. National Ocean Service have been working for several years, with participation from the Geodetic Survey of Canada and the U.S. National Geodetic Survey Division, to collect information for the new datum, using updated and more detailed measurement techniques. A Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data, which includes representatives from these agencies and other divisions of the U.S. National Oceanic and Atmospheric Administration, the U.S. Army Corps of Engineers and divisions of Environment Canada, coordinates the completion of these measurements. The updated datum, to be called IGLD 1985 after the year around which the data gathering

Continued on page 12

Measured historic vertical movement, contoured as uplift in feet per century, on the basis of lake-level gauge records. Line of profile is normal to isobases along the east shore of Lake Michigan (adapted from Clark and Persoage, 1970; Larsen, 1985b).
## WHO'S WHO IN PHASE II

### The International Joint Commission (IJC)

The International Joint Commission is responsible for the final report to the Governments of the United States and Canada in response to the terms of reference for the study. The IJC appoints the Study Board (except for the two members named by the Citizens Advisory Committee), provides directives and has the final word regarding the Plan of Study or revisions to the Plan of Study. Lead Commissioners and advisors are designated by the six-member body to provide for more effective project oversight.

Claude Lanthier - Canada  
Lead Commissioner  
(613)995-2984

Robert F. Goodwin - U.S.  
Lead Commissioner  
(202)673-6222

Murray Clamen - Canada  
Lead Advisor  
(613)995-2984

Donald F. Parsons - U.S.  
Lead Advisor  
(202)673-6222

### The Levels Reference Study Board

The Study Board is responsible for providing the technical information and analysis the Commission needs to report to Governments. Included in the Study Board's responsibilities are developing the Plan of Study, undertaking the technical investigations, involving the public in the study, appointing the Citizens Advisory Committee, and integrating the information into a final report to the Commission. The Study Board includes two members from federal agencies, four from the state and provincial agencies, four from the public and the study director. It may appoint working committees or groups as necessary.

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
</table>
| Brig. General Jude W.P. Patin | Co-Chairman                        | U.S. Army Corps of Engineers  
North Central Division  
536 South Clark Street  
Chicago, Illinois 60605-1592  
(312)353-6310 |                                   |
| Joseph Hoffman           | Pennsylvania Dept. of  
Environmental Resources  
(717)541-7800 |                                |                     |
| J.D. Snyder              | Dept. of Natural Resources  
State of Michigan  
(517)373-3588 |                                |                     |
| Clifford Sasfy           | International Great Lakes  
Coalition  
(419)891-4212 |                                |                     |
| Frederick L. Brown       | Midland, Michigan  
(517)835-9625 |                                |                     |
| Tony Wagner              | Co-Chairman                        | Environment Canada  
Ontario Region  
Canada Centre for Inland Waters  
P.O. Box 5050  
Burlington, Ontario L7R 4A6  
(416)336-4531 |                                   |
| André Harvey             | Ministre de l'Environnement  
Gouvernement du Québec  
(418)644-6626 |                                |                     |
| Maurice Lewis            | Ministry of Natural Resources  
Province of Ontario  
(416)966-6287 |                                |                     |
| Philip Weller            | Great Lakes United  
(716)886-0142 |                                |                     |
| Peter B. Yeomans         | Maire de Dorval  
(514)633-4041 |                                |                     |
| Neil R. Fulton           | Study Director  
(603)646-4683 |                                |                     |
## LAKE LEVELS UPDATE

### The Working Committees

Four working committees have been established by the Study Board to develop and implement detailed work plans for each of the major areas of study. Co-chairs of the Working Groups are listed.

<table>
<thead>
<tr>
<th>Committee</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Participation and Information</td>
<td>Jerome Delli Priscoli, U.S. Army Corps of Engineers (703)355-2372; Doug Cuthbert, Environment Canada (416)336-4713</td>
</tr>
<tr>
<td>Land Use and Management</td>
<td>George Stafford, New York State Dept. of State (518)474-3643; Pearl McKeen, Ontario Min. of Natural Resources (416)965-6285</td>
</tr>
<tr>
<td>Existing Regulation, Systemwide Regulation and Crises Conditions</td>
<td>Ben DeCooke, Farmington Hills, Michigan (313)626-5826; Doug Brown, Environment Canada (416)336-4714</td>
</tr>
<tr>
<td>Principles, Measures Evaluation, Integration and Implementation</td>
<td>Michael Donahue, Great Lakes Commission (313)665-9135; Michel Slivitsky, Université du Québec (418)654-2626</td>
</tr>
</tbody>
</table>

### The Citizens Advisory Committee

The Citizens Advisory Committee is appointed by the Study Board to provide advice on the Plan of Study and its implementation, and to assist the Study Board in communicating with the public. Eighteen members are appointed representing the public and the interests affected by fluctuating water levels. The Citizens Advisory Committee elects two of its members to serve on the Study Board, and two additional members are also appointed to the Study Board by the Commission.

<table>
<thead>
<tr>
<th>Committee</th>
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<tbody>
<tr>
<td>Clifford Sassy</td>
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<td>Harry Chandler</td>
<td>Lake Michigan Federation Lake Forest, Illinois (708)234-1747</td>
</tr>
<tr>
<td>Patrick Curley</td>
<td>International Great Lakes and St. Lawrence Association of Mayors Milwaukee, Wisconsin (414)278-3747</td>
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<tr>
<td>Joseph Milaukas</td>
<td>International Great Lakes Coalition Saugatuck, Michigan (616)857-4656</td>
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<tr>
<td>David Rebbman</td>
<td>South Shore Coalition Blasdell, New York (716)826-8087</td>
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<tr>
<td>Howard Reynolds</td>
<td>Keweenaw Bay Indian Community Baraga, Michigan (906)353-6623</td>
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<tr>
<td>Dick True</td>
<td>Empire State Marine Trade Assoc. Northville, New York (518)863-8487</td>
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<tr>
<td>Philip Weller</td>
<td>Great Lakes United Buffalo, New York (716)886-0142</td>
</tr>
<tr>
<td>Joan Eaton</td>
<td>Ontario Hydro North York, Ontario (416)590-2837</td>
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<tr>
<td>Edith Fuller</td>
<td>Mayor of Haldimand Cayuga, Ontario (416)722-3324</td>
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<tr>
<td>Alexander C. Harry</td>
<td>Sault Ste. Marie, Ontario (705)942-7900</td>
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<tr>
<td>Sharon Hazen</td>
<td>International Great Lakes Coalition Port Rowan, Ontario (519)586-7371</td>
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<tr>
<td>Christian Simard</td>
<td>Union québécoise pour la conservation de la nature Charlesbourg, Québec (418)628-9600</td>
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<tr>
<td>Leroy Hamilton</td>
<td>Iroquois, Ontario (613)652-2666</td>
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<tr>
<td>Peter B. Yeomans</td>
<td>Maire de Dorval Dorval, Quebec (514)633-4041</td>
</tr>
<tr>
<td>Michael C. Williams</td>
<td>Walpole Island Heritage Centre Wallaceburg, Ontario (519)627-1475</td>
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(Continued from page 9)

process has centered, is expected to be in effect in early 1991.

Estimated changes in benchmark elevations range from approximately 12 to 50 cm (five to 20 inches). Thus, lake levels referred to IGLD 1985 will be assigned elevations with higher numbers than those referred to IGLD 1955 and International Joint Commission orders approving regulation plans and other works in the Great Lakes and connecting channels will require updating in keeping with these revised elevations.

"These changes in the assigning of elevations do not cause the amount of water in the lakes to change," emphasized Murray Clamen, engineering advisor to the Commission. "They are strictly technical changes to maintain the accuracy of the reference system we use to measure lake levels."

Further information on IGLD 1985 may be obtained from either Peter Yee, Environment Canada Great Lakes-St. Lawrence Study Office, 111 Water Street East, Suite 232, Cornwall, ON K6H 6S2, telephone (613)938-5725 or Harry Lippincott, National Ocean Service, Great Lakes Acquisition Unit, 6001 Executive Boulevard, Rockville, MD 20852, telephone (301)443-8047.

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<th>1990 GREAT LAKES LEVELS (in feet)</th>
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INITIATIVES BROADEN COMMISSION DIALOGUE ON GREAT LAKES ISSUES

by Sally Cole-Misch and David LaRoche

"...it is clear to the Commission that with the signing of the Protocol by the Governments two years ago, we were assigned new responsibilities ... the Commission sees the need for an examination of its priorities and its activities pursuant to the Agreement.

The Commission has been considering for some time now how to integrate the view and knowledge of the broader Great Lakes community ... and we have agreed to the establishment of a series of roundtable discussions between now and the next Biennial Meeting."

Commissioner E. Davie Fulton
1989 Biennial Meeting on Great Lakes Water Quality Hamilton, Ontario

When Commissioner E. Davie Fulton provided these remarks on behalf of the Commission at the 1989 Biennial Meeting, the Commission publicly announced its intentions to expand its community of advisors on Great Lakes water quality issues. Over the past year, several initiatives point to a commitment to fulfill these intentions.

As a result of the Protocol’s revisions to the Agreement and the testimony received at the Biennial Meeting from its boards and the public, the Commission began an extensive review of its own role, priorities and structure under the revised 1978 Agreement. A task force on priorities was established to complete this review and to consider how priorities should be revised and/or strengthened. Another task force on data and information needs is considering the Commission’s data requirements and determining how best to obtain and analyze this data. While these reviews are still being completed, several conclusions were reached almost immediately and have been acted upon.

For example, Commissioners have increased the level of direct contact with their Great Lakes water quality advisory boards and the Council of Great Lakes Research Managers, which has led to improved working relationships and communications between board and council members and the Commission. The boards also were encouraged to meet with each other to better coordinate activities, and the co-chairs of the Water Quality Board, Science Advisory Board, Council of Great Lakes Research Managers and the International Air Quality Advisory Board met in late August to discuss issues and opportunities to coordinate various projects. The co-chairs of these various boards have agreed to continue these meetings twice each year.

One such coordinated project addresses an issue about which citizens expressed the most frustration at the 1989 Biennial Meeting — the lack of progress to accomplish the Agreement’s goal of virtual elimination of inputs of persistent toxic substances. The Commission has created a Virtual Elimination Task Force, which will define virtual elimination, identify contaminant sources and pathways, assess the efficacy of regulations and technol-
ogy to control and prevent contamination, and develop the components of a remedial and preventive strategy required to reach the Agreement’s goal. In addition to members from the Water Quality and Science Advisory Boards, representatives from the Council of Great Lakes Research Managers, the Commission’s International Air Quality Advisory Board, scientific, technological research and environmental organizations, industry and government serve on the task force. The group will release a draft report in early March for public review and comment, and present a revised report at the Commission’s 1991 Biennial Meeting on Great Lakes Water Quality in Traverse City, Michigan on September 27 - October 3, 1991. For further information about the draft report, please see page 16.

The substantive work and membership of the Great Lakes boards’ task forces and committees have been revised as well. Representatives from all areas of the Great Lakes community — including environmental groups, industry, science and all levels of government — are being added to committees and special task forces to broaden the expertise available to the boards and to the Commission. Representatives of industry, law and other disciplines have also been appointed to the Science Advisory Board, and the geographic scope of these appointments has expanded. For example, experts facing similar water quality issues from the Puget Sound area have been added to the board.

The Commission’s determined efforts to improve and expand public involvement in its work has not stopped with Agreement issues. The Great Lakes levels study includes participation from public members, who are serving on the study board and at each level of the board’s substructure. For more information on membership on the levels study committees, see page 9-10 of this issue.

As Commissioner Fulton outlined at the Biennial Meeting, roundtable discussions are also being held on specific issues. An initial planning meeting was held in late January 1990 with representatives of citizen organizations, industry, government agencies and Native peoples to establish a framework for these discussions and develop ideas for roundtable topics (see Focus, Volume 15, Issue 1, page 5). The first roundtable in Hanover, New Hampshire in July 1990 brought 45 participants together to discuss definitions and options for achieving zero discharge of persistent toxic substances into the Great Lakes ecosystem. A second roundtable to consider steps to achieve zero discharge in the Lake Superior basin will be held in late spring 1991. In the meantime, two smaller discussion sessions are planned for the winter months to consider the legal, regulatory and alternative technology questions with respect to reaching zero discharge goals. A roundtable on environmental education has also been proposed.

The 1989 Biennial Meeting also began the drafting process for the Commission’s Fifth Biennial Report on Great Lakes Water Quality. The report included a number of observations and recommendations that have led to additional Commission initiatives. For example, the report highlighted the potential consequences of introductions of exotic species into the Great Lakes Basin Ecosystem. As highlighted on page one of this issue, the Commission recently published a joint report with the Great Lakes Fishery Commission concerning this
issue, which includes specific recommendations for the Governments of Canada and the United States.

The Fifth Biennial Report also stated that educational opportunities are essential "to instill in children a sustained awareness and respect for the interdependence of all elements of the ecosystem, as well as a desire to act on this knowledge." To encourage the use of Great Lakes issues in all subject areas in the education setting, the Commission sponsored Teachers Making a Difference: A Live-by-Satellite Television Conference on Great Lakes and Environmental Education on November 17, 1990. The satellite television conference was seen throughout North America and linked more than 35 local sites where educators, parents, students and school administrators actively participated in the program. Additional information on this initiative will be provided in the next issue of Focus.

Finally, the report created several opportunities for Commissioners to interact more effectively with government officials. Commissioners have testified before Congress on the findings in the biennial report (see Focus, Volume 15, Issue 2, page 5, 8 and 9), and are meeting regularly with high-level officials from both countries' governments. The report's content has also been used to establish priorities for the Commission's Great Lakes water quality advisory boards to pursue during the sixth biennial cycle. These priorities, which include the state of the lakes, persistent toxic substances and remedial action plans for Areas of Concern, are consistent with the content of the report and with much of the testimony received from the public at the 1989 Biennial Meeting.

BOOKSHELF

The following reports are available for distribution from the International Joint Commission offices in Washington, DC and in Windsor and Ottawa, Ontario. For further information contact the IJC's Great Lakes Regional Office, 100 Ouellette Avenue, Eighth floor, Windsor, Ontario N9A 6T3 or P.O. Box 32869, Detroit, Michigan 48232 or call (519)256-7821 in Canada or (313)226-2170 in the United States.

- Exotic Species and the Shipping Industry: The Great Lakes-St. Lawrence Ecosystem at Risk
- Integrated Pest Management in the Great Lakes Ecosystem: A Review and Evaluation of Agrcultural Programs
- Biological Surrogates of Mesotrophic Ecosystem Health in the Laurentian Great Lakes
- Technology for Reducing Organochlorines in Pulp Mill Effluents


To obtain a free copy of the publication contact the Great Lakes Fishery Commission, 1451 Green Road, Ann Arbor, MI 48105. (313)662-3209.

Great Minds? Great Lakes! has been developed by the United States Environmental Protection Agency's Great Lakes National Program Office to introduce environmental curriculum in a variety of elementary grade subjects. Inspired by U.S. EPA's environmental research vessel named Lake Guardian by elementary schools in the Great Lakes basin, the publication is dedicated to helping students learn more about the environment and the Great Lakes.

For a free copy of the curriculum, contact United States Environmental Protection Agency, Great Lakes National Program Office, 230 South Dearborn Street, Chicago, IL 60604 or call 1-800-572-2515 (from IL); 1-800-621-8431 (IN, MI, MN, OH, WI); 1-312-353-2072 (from NY and PA).

Recognizing the need for a greater understanding of the Great Lakes ecosystem and the role education can play to enhance this, Michigan Governor James J. Blanchard of Michigan designated September 24-26, 1990 as Great Lakes Education Week.

A Great Lakes Education Program Booklet designed to assist educators in bringing the Great Lakes basin into the classroom setting is available by contacting Sharon Goble, Office of the Great Lakes, Michigan Department of Natural Resources, 530 West Allegan, Lansing, MI 48933, (517)373-3588. Due to the limited supply, the booklet can be photocopied for educational purposes.

Climatic Change: Implications for Water and Ecological Resources, Department of Geography Publication Series, Occasional Paper No. 11, is the proceedings of an international symposium/workshop held at the University of Waterloo in March 1990. The 340-page publication can be obtained at a cost of $20 (Cdn) from the Department of Geography Publication Series, Department of Geography, University of Waterloo, Waterloo, ON N2L 3G1. (519)885-1211.

The Great Lakes JASON Curriculum is designed to familiarize students with underwater adventure dealing with scientific concepts, social and historical issues, and technical information surrounding the exploration of the wrecks of two ships resting in Canadian waters. Included in each curriculum package is a Jason poster, a line drawing of the Hamilton, a gameboard, a navigational chart of Lake Ontario and a student certificate of completion.

Published by Scholarship at UWindsor, 1990
For a copy of the 1990 Great Lakes Curriculum #PB-26 forward payment in the amount of $12.95 (US) plus shipping and handling to Member Services Office, National Science Teachers' Association, 1742 Connecticut Avenue, NW, Washington, DC 20009-1171. (202)328-5800. Bulk orders are available on request.

The Citizens Environmental Coalition has released *A Citizens' Guide to Understanding Measurements of Toxic and Radioactive Concentrations*. The guide is the first publication in the State of New York designed to help concerned citizens understand the measurement units used to describe toxic and radioactive waste pollution. It includes chapters on powers of ten, the metric system, concentrations in parts per units, radioactivity, acidity, sources of information on toxicity, and concentrations in air, solids, water and from air emission permits. The guide can be purchased for $3 (US) from Citizens Environmental Coalition, 33 Central Avenue, Albany, NY 12210. (518)462-5527.

*The Underlying Threat*, a film produced by the National Film Board of Canada, Atlantic Centre, outlines the devastating effects of groundwater pollution and what we can do to prevent it. This 48-minute film in 16 mm, broadcast quality 3/4" and VHS is available by contacting the National Film Board of Canada, P.O. Box 6100, Montréal, PQ H3C 3H5, 1-800)363-0328 or your nearest NFBC office.

Toxic pollution poses the greatest threat to the ecological systems of the Great Lakes, according to *A Plan of Geologic Research on Coastal Erosion, Coastal Wetlands, Polluted Sediments, and Coastal Hard-Mineral Resources*—released recently by the U.S. Geological Survey. The report outlines findings that the principal problem in the Great Lakes region is toxic wastes: PCBs, polynuclear aromatic hydrocarbon residues, petroleum and metals, such as lead and copper. The report was the result of a nationwide survey ranking what states and territories perceive to be the most pressing coastal problems. Erosion and loss of wetlands were ranked as the most critical coastal problems.

For more information on the report or on geologic studies of coastal areas being conducted by the USGS, contact Dr. Asbury H. Sallenger, Jr., U.S. Geological Survey, 600 Fourth Street South, St. Petersburg, FL 33701. (813)893-9810.

*Wet and Wild Water*, a thematic teaching module produced by the Indiana Department of Education, shows teachers and students how to integrate subjects and skills to provide a better understanding of water. To obtain a free copy of the module contact the Indiana Department of Education, Center for School Improvement and Performance, Office of School Assistance, Room 229 State House, Indianapolis, IN 46204-2798 or call (317)232-9141.

The U.S. National Oceanic and Atmospheric Administration report, *50 Years of Population Change along the Nation's Coasts: 1960-2010*, identifies the eight Great Lakes states as the nation's third most populated coastal region in the United States of America. Great Lakes coastal counties are populated by more than 19 million people and are expected to increase by eight percent in the next 20 years.

For more information on NOAA’s coastal trends report series, contact Thomas J. Culiton, Strategic Assessment Branch, Ocean Assessments Division, NOAA, 6001 Executive Boulevard, Rockville, MD 20852.

The United States Department of the Interior's Fish and Wildlife Service has developed a booklet entitled *The Challenge* to display the importance of the Great Lakes, their problems, and remedies for restoration. This booklet will be followed by a document, *The Vision*, that will outline what the Service can do to address these resource issues and identify the fiscal resources needed to carry out those activities.


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**WE'RE LOOKING FOR YOUR COMMENTS!**

The International Joint Commission's Virtual Elimination Task Force is investigating how to accomplish the Great Lakes Water Quality Agreement's goal to virtually eliminate the input of persistent toxic substances into the Great Lakes ecosystem. The task force will present its report at the 1991 Biennial Meeting in late September in Traverse City, Michigan.

Prior to completing its report, the task force wants your comments, questions and ideas. Therefore, the task force will release a discussion paper about March 1, 1991. All received comments will be reviewed and two public meetings will be held in April to discuss comments in greater detail.

All comments must be received by April 15, 1991.

To obtain a copy of the discussion paper, cut out and return the address form below to Marty Bratzel, International Joint Commission, 100 Ouellette Avenue, Eighth floor, Windsor, ON N9A 6T3 or P.O. Box 32869, Detroit, MI 48232.

In Canada call (519)256-7821 and in the U.S. (313)226-2170.

Yes! I'd like to receive a copy of the discussion paper from the Virtual Elimination Task Force. Please send to:

Name

Address ___________________________ City ___________________________

State/Province ______________________ Zip/Postal Code ______________________
GRAND CALUMET RAP UNDERWAY

by Robert (Skip) Bunner

The State of Indiana is serious about cleaning up the Indiana Harbor Canal, Grand Calumet River and nearshore of Lake Michigan. All are located in the northwest part of the state near Chicago, an area commonly called “the region.”

The International Joint Commission’s Water Quality Board identified this area as one of 42 polluted Areas of Concern around the lakes. The Indiana Department of Environmental Management is about to complete Stage 1 of its remedial action plan (RAP) for the region, which will be submitted to the IJC for review and comment by January 1, 1991.

Environmental problems in the region are both historical and extensive. The area produces more steel than any other region of comparable size in the U.S. and also has four oil refineries, six crude oil pipelines and 18 refined petroleum companies. Five U.S. Superfund sites, more than 400 other cleanup sites and 462 registered underground storage tanks, of which 150 reportedly leak, are also located in the region.

Major groundwater contamination exists in the harbor area. When large amounts of precipitation elevate the water table, groundwater becomes surface water and causes large oil slicks in the river and harbor. A 1960s television documentary, “Too Thick to Navigate, Too Thin to Cultivate,” described how a river can catch fire with a thick layer of petroleum on the surface.

Although surface water quality has improved, it is believed that 11 billion gallons of untreated wastewater enter the Grand Calumet River and harbor through combined sewer overflows each year. A 1990 Fish Advisory suggests that no fish from the river or Indiana Harbor Canal should be eaten.

An important environmental concern is the significant accumulation of contaminated sediments in the river and harbor. A three-mile footprint of contaminated sediment stretches into Lake Michigan from the Indiana Harbor. Infrared photos show water intake pipes for the cities of Hammond, Whiting and East Chicago within one-half mile of these sediments, a potential threat to the drinking water of about 291,000 residents.

To make the RAP work, the state’s new Environmental Commissioner Kathy Prosser appointed 14 area community leaders to a Citizen’s Advisory for the Remediation of the Environment (CARE) committee. These leaders, representing industry, local government, labor, environmental groups and education, are helping to identify the key environmental problems and realistic steps to correct them as part of the RAP. In October, the CARE Committee unanimously agreed that all beneficial uses of the Indiana Harbor and Canal and the Grand Calumet River, as defined in the 1978 revised Great Lakes Water Quality Agreement, are impaired.

While the magnitude of environmental problems in the region is staggering, the RAP will focus on each one. A significant part of the plan is the adoption of new water quality standards, recently signed into law by Governor Evan Bayh. The new standards upgrade the use of the river and harbor to “whole body contact recreation” waters. Although it will be years before the harbor and river are safe for recrea-
tion, the new standards set a legal framework for repair of the 100 years of pollution damage.

Major advancements are being made in the enforcement of criminal and civil environmental laws. A few months ago, the former superintendent of the Hammond Sanitary District pleaded guilty to four felony counts for submitting falsified discharge monitoring reports to the state. In those reports, the former superintendent failed to note that a total of 1.8 billion gallons of sewage was dumped directly into the river — enough to fill the entire city of Hammond if it were walled.

Area companies involved in civil litigation cases for water pollution issues include U.S. Steel Corporation and LTV Steel Company, Inc. While the $30 million LTV case awaits hearing, U.S. Steel agreed to pay as much as $34 million in fines and cleanup costs for polluting the waterways.

Indiana’s Department of Environmental Management will open a regional office in the area soon, something considered crucial to the implementation of the RAP once it’s completed. The new office will have a staff of 27 environmental engineers and scientists. Commissioner Prosser has pledged to the public that Stage 1 of the RAP will be completed and submitted to the IJC by January 1991.

“It is time to roll up our sleeves and get the job done,” Commissioner Prosser said. That’s exactly what Indiana is doing.

For more information on the Grand Calumet River and Indiana Harbor and Canal RAP, contact Skip Bunner, Indiana Department of Environmental Management, 105 S. Meridian, Indianapolis, IN 46225. (317)232-8602.

Buffalo River Stage One RAP Review Completed; Green Bay RAP Progress Report Released

In addition to the in-depth articles on specific Areas of Concern provided in each issue of Focus, we are expanding our coverage of RAP activities by adding this RAP UPDATES column. If you have news about an innovative approach your community is using to restore and protect an Area of Concern, let us know about it and we’ll spread the word!

At its September Executive Session, the International Joint Commission endorsed the findings of the review of the Buffalo River RAP, as coordinated by the Great Lakes Water Quality Board. The review found that the RAP meets Stage 1 requirements for some uses; however, additional information on several uses of the river and on source loadings is needed to design appropriate remedial programs in Stage 2 of the plan.

In the review and in the Commission’s letter to Governments concerning the RAP, New York state and local governments and area citizens were commended for their extensive involvement in the plan’s development. The Buffalo River Citizens Committee, made up of 21 members from local government, environmental and recreational organizations, business, academia and the community at large, ensured that the interests of the public were represented. The establishment of a nonprofit organization — Friends of the Buffalo River — and an environmental education center on the river will help to continue the citizen involvement process.

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The Center for Public Affairs at the University of Wisconsin-Green Bay has produced a 1990 progress report on the remedial action plan for Green Bay and the Fox River. The report highlights the pollution and its effects on the ecosystem in the Area of Concern — including nonpoint sources, toxic contaminants and phosphorus and their effects on fish and wildlife, shoreline use and recreation. All studies, remedial actions and public participation initiatives undertaken as a result of the RAP are also briefly outlined.

To begin implementation of the RAP, the Green Bay community formed an interim implementation committee. The committee and its steering committee are discussing the development of a coordinating council to review annually the work completed by agencies and citizens involved in the RAP, to continue public awareness programs, and to generate funds for RAP projects. Various RAP-related committees also have formed several “contact teams” to focus on specific tasks in implementing the plan.

For further information on the Green Bay RAP and the 1990 progress report, contact Vicky Harris, Wisconsin Department of Natural Resources, P.O. Box 10448, 1125 N. Military Avenue, Green Bay, WI 54307. (414)497-6154.
EVENTS

International Joint Commission
Schedule of Meetings

The following includes meetings scheduled by the Commission and its various boards. Please contact an IJC office for further information.

November
7-8  Water Levels Reference Study Board
     Chicago, IL
9   Science Advisory Board
     Executive Committee
     Windsor, ON
10-11 Citizens Advisory Committee
     to the Water Levels Study Board
     Buffalo, NY
13-14 Surveillance Subcommittee
     Windsor, ON
17  Teachers Making a Difference:
     A Great Lakes and Environmental
     Education Live-by-Satellite
     Television Conference

December
4-6  Ecosystem Model Workshop
     Milwaukee, WI
10-11 Great Lakes Water Quality Board
     Windsor, ON
12-13 IJC Executive Session
     Washington, DC

January
21-22 Technological Committee
     (Canadian location to be determined)
23  Sediment Subcommittee
     Toronto, ON

February
6-7   IJC Executive Session
     Ottawa, ON
13-14 Great Lakes Water Quality Board
     Chicago, IL
20-22 Great Lakes Science Advisory Board
     Ottawa, ON

March
13   Educator's Advisory Council
     Romulus, MI (tentative location)
13-14 IJC Executive Session
     Windsor, ON

General Conferences

A series of adult lectures entitled, The Great Lakes: An Ecosystem in Peril, will take place November 6, 13, 20, 27 at the Chicago Academy of Sciences. Cosponsored by the lake Michigan Federation, Sierra Club, Great Lakes Protection Fund, Illinois-Indiana Sea Grant Program and the Nature of Illinois Foundation, the lectures are being presented as part of a new Great Lakes exhibit at the Academy that will become a travelling exhibit in early 1991.

For further information about the lectures and the exhibit, contact Martha Gaffney, Education Department, The Chicago Academy of Sciences, 2001 North Clark Street, Chicago, IL 60614. (312)549-0607.

"Building a Movement for Labor and Environmental Justice" is the theme of the Second Statewide Labor and Environment Conference in Syracuse, New York from November 16-18, 1990. For more information contact Citizens' Environmental Coalition, 33 Central Avenue, Albany, NY 12210. (518)462-5527.

The 52nd Midwest Fish and Wildlife Conference will be held December 2-5, 1990 at the Hyatt Regency Hotel in Minneapolis, Minnesota. Sessions will include presentations on the growing emphasis on holistic natural resource management for state and federal agencies in the 1990s.

For more information contact Blair Joselyn, Section of Wildlife, Minnesota Department of Natural Resources, 500 Lafayette Road, St. Paul, MN 55146. (612)292-3344.

A one-day workshop on Sludge Digestion cosponsored by the Ontario Ministry of the Environment, the Professional Wastewater Operations Division and the Pollution Control Association of Ontario will be held December 3, 1990 at the Novotel Hotel in Mississauga, Ontario.

For further information, contact Brian Evans, Proctor and Redford, Ltd., 45 Green Belt Drive, Don Mills, ON M3C 3K3. (416)445-3600.

An International Zebra Mussel Research Conference will be held by the Ohio Sea Grant College Program on December 5-7, 1990 in Columbus, Ohio.

New results from current research on the biology and impacts of zebra mussels in North American lakes will be presented, and the conference will provide a forum to foster international cooperation in zebra mussel research.

Inquiries may be forwarded to Fred L. Snyder, Ohio Sea Grant Extension, Camp Perry, Building 3, Room 12, Port Clinton, OH 43452. (419)635-4117.


The objective of the meeting is to identify the scientific, technical and policy guidance EPA should develop to assist states in strengthening the role of water quality standards in the management of the nation's aquatic resources.


The National Association for Science, Technology and Society is holding their Sixth Annual Technological Literacy Conference on February 1-3, 1991 at the Sheraton Washington Hotel in Washington, DC.

Published by Scholarship at UWindsor, 1990
Hands-on workshops, interactive exhibits, multidisciplinary panels, a teacher’s festival and “show-and-tell” presentations are part of this year’s conference. For more information on the program contact Robert Merideth, Conference Manager, NASTS, 122B Willard Building, University Park, PA 16802. (814)865-9951.

The Colorado Water Engineering and Management Conference will be held in Denver, Colorado, February 27-28, 1991. Organization is by the Colorado Water Resources Research Institute located at Colorado State University and the Office of the State Engineer.

Conference topics include problem solving in water resources management, interstate water transfers, flood and stormwater management, water quality issues, groundwater management and water conservation.

For further conference information contact Janet Lee Monter, Department of Civil Engineering, Colorado State University, Fort Collins, CO 80523. (303)491-7425, FAX 303-491-7727.

On February 28 to March 3, 1991, the University of Houston will hold the American Society for Environmental History Conference on The Environment and the Mechanized World, which will cover topics such as agriculture, commerce, industrialization and urbanization.

For more information contact Martin V. Melosi, Program Chair, American Society for Environmental History Conference, Department of History, University of Houston, Houston, TX 77204-3785. (713)749-2967.

The University of Calgary and Western Michigan University will cosponsor Facing North/Facing South - A Multidisciplinary Conference on Contemporary United States-Canadian-Mexican Relations. This conference, to be held May 2-5, 1991 at the University of Calgary, is aimed at broadening the understanding of current social, economic, political and intellectual issues which affect the relations among the three nations of North America.

For conference information contact Madeleine Aldridge, The University of Calgary, Conference Office, Faculty of Continuing Education, 2500 University Drive NW, Calgary, AB T2N 1N4. (403)220-7319.


The Great Lakes program of the State University of New York at Buffalo will host the 1991 Annual Conference of the International Association for Great Lakes Research (IAGLR) from June 2-7, 1991.

To submit a proposal for a symposium or to obtain further details on the conference contact the Great Lakes Program Office, SUNY Buffalo, 207 Jarvis Hall, Buffalo, NY 14260. (716)636-2088.

A call for papers relating to research, technological improvements and management issues is invited for the Fifth International Conference on Artificial Habitats for Fisheries. The conference, to be held November 3-6, 1991 in Long Beach, California, seeks to promote an international exchange of information on the enhancement of fishery resources, habitat and fishing through the use of artificial habitats in the world’s marine, estuarine and freshwater ecosystems.

For further information on the conference contact Robert S. Grove, Conference Chair, c/o Section of Fishes, Natural History Museum, 900 Exposition Boulevard, Los Angeles, CA 90007. (213)744-3373.