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Prepared for:  
**Cleveland Lakefront Partners**

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**Climate and  
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Educational  
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Forum**

**Levin College  
Forum**

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**CLIMATE AND SHORELINE  
EDUCATIONAL ISSUES FORUM  
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Part of  
**NORTHEAST OHIO'S WATERWAYS  
LAKEFRONT PLANNING ISSUE FORUMS**

Prepared for:  
**CLEVELAND LAKEFRONT PARTNERS  
(CITY OF CLEVELAND, GREATER CLEVELAND GROWTH ASSOCIATION, CLEVELAND  
TOMORROW, AND CLEVELAND NEIGHBORHOOD DEVELOPMENT COALITION)**

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## **INTRODUCTION**

On November 7, 2002, the Levin College Forum Program and the Cleveland Lakefront Partners (the city of Cleveland, The Greater Cleveland Growth Association, Cleveland Tomorrow, and The Cleveland Neighborhood Development Coalition) sponsored a public forum on Climate and Shoreline. The forum was the final in a series of four, intended to deepen the community's understanding of some of the more complex issues related to the city's lakefront planning efforts. It was also part of the Levin College Forum Program's two-year Northeast Ohio's Waterways forum series, which is focusing public attention on development of a comprehensive vision for all of Northeast Ohio's waterways, including the lakefront.

The issue forums are an important part of an ongoing process by the Lakefront Partners to involve the public in lakefront planning. The issues addressed in these forums emerged from the first round of city-sponsored public meetings in spring 2002 and from the February 2002 kick-off event of the Levin College Waterways series. More than 1,500 people attended the events and hundreds of comments were submitted. Summaries of the comments and proceedings can be found on the following web sites:

<http://planning.city.cleveland.oh.us/lakefront/cpc.html>

<http://urban.csuohio.edu/waterways/proceedings/feb902.htm>

Although opinions differed over strategies, the overwhelming consensus of these public meetings and comments can be summed up in one word: access.

Citizens of Greater Cleveland want greater access to its most unique asset, its waterways. After years of use and abuse, Clevelanders want to reclaim their waterways and usher in the next economic revolution, one that capitalizes on the region's natural environment beyond its traditional industrial use. Citizens want to make Cleveland a better place for natives to live and work and for newcomers to settle; they understand that this may be accomplished by respecting and enjoying the region's unique lakes, rivers, and valleys. The Climate and Shoreline Forum is the fourth in a series that was designed to help Clevelanders better understand the factors that influence decisions affecting their waterways so that the citizenry may serve as educated participants in the planning process.

## **PANEL DISCUSSION**

### **Introduction: Wayne Dawson, co-anchor, FOX 8 News**

The two-hour Climate and Shoreline Forum was held from 7:00 to 9:00 p.m. on November 7, 2002, at the Maxine Goodman Levin College of Urban Affairs at Cleveland State University. Wayne Dawson, co-anchor of FOX 8 News, moderated the discussion. He noted that it was the last in a series of four forums in the Northeast Ohio Waterways Series, which included, "Burke Lakefront Airport," "Utilities and Railroads," and "Port Activities." The first three forums addressed man-made developments. This forum was intended to deepen the community's understanding of the natural forces that have shaped the lakeshore.

In 1849, Cleveland citizen John Stockley built a pier and private bathhouse at the foot of Water Street (now West 9<sup>th</sup>). If Stockley, the lakefront's first developer, were to come back today, he would not recognize the Lake Erie shore. It has been transformed by both human and natural forces. The first three forums looked at the legacy of infrastructure --the airport, utilities, railroads, roadways, and shipping-- left by the developers who followed Stockley.

This forum addressed issues related to Lake Erie's natural geology, how the shoreline might have looked when John Stockley built his pier, how it has been changed over time, and how it might affect future use of the lakefront. The forum's five speakers were Donald E. Guy, Jr., Senior Geologist, Ohio Department of Natural Resources, Lake Erie Geology Group; Susan Davies, Environmental Reporter, News Channel 5; Jay Onacila, Commander, Greater Cleveland Boating Association; Jeffrey L. Busch, Ph.D., Executive Director, Ohio Lake Erie Commission; and John Watkins, Coastal Engineer, Ohio Department of Natural Resources. Speakers covered the following topics:

- The potential impact of shoreline geology and climate on development and recreational use, including boating.
- The significant ecological changes and biological issues related to lakefront planning, including strategies of balanced growth and sustainable development throughout the watershed.
- State programs available to assist Cleveland's lakefront planning efforts through coastal management programs and policies.

**Donald E. Guy, Jr., Senior Geologist, Ohio Department of Natural Resources,  
Lake Erie Geology Group.**

*Geology*

Mr. Guy described the geologic forces that have shaped the Lake Erie shoreline and provided an overview of the geology of the region. The Cleveland waterfront extends eight miles along Lake Erie and is fronted by about five miles of federal breakwaters that create a harbor of nearly 1,300 acres (see Map 1).

He displayed a map of the Cleveland lakefront in 1835, which showed the lakefront in its natural state (See Map 2).

At that time, the only visible structures were jetties extending out into the lake at the mouth of the river. He also displayed an 1838 geologic drawing to illustrate the unprotected lake bluff composed of sands, silts, and clays along the shoreline to the east of the river. (The old lake bluff is still visible south of the Shoreway.) Erosion of the bluff supplied sand to the littoral system, nourishing beaches along Cleveland and the shore east of Cleveland (Map 3.)

In the mid-1800s Cleveland began the process of filling and armoring its shoreline. By 1876, about 43 percent of the waterfront had been armored, principally by pilings along the shore east of the river jetties, and filling had begun along the 2,000 feet of waterfront just east of the river. Beaches remained along only 36 percent of the waterfront and consisted of a 4,500-foot stretch west of the federal breakwater, a 2,500-foot stretch east of the jetties, and a 5,700-foot stretch west of Doan Brook.

By 1938, the federal breakwater had been completed and about 75 percent of the waterfront was armored with bulkheads that contained fill. About 455 acres of Lake Erie were filled between 1876 and 1938, displacing the shoreline nearly 1,850 feet lakeward of the 1876 shoreline.

By 1973, no beaches of significant size remained along the waterfront, and most of the shore was bulkheaded. Filling between 1938 and 1973 created 437 acres of land, displacing the shoreline up to 2,200 feet lakeward of the 1876 shoreline. Since 1968, most of the material used as fill has been sediment dredged from navigation channels in Cleveland Harbor and the Cuyahoga River. Although most of the changes along the waterfront were due to filling, about four acres of land were eroded by waves.

Filling has continued since 1973. Most of the filling occurred in the large Confined Disposal Facilities built at Gordon Park (now known as Dike 14) and along Burke Lakefront

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Airport (Dike 10B) to contain sediment dredged from channels in Cleveland Harbor and the Cuyahoga River. (See Map 4.)

### ***Lake levels and erosion***

Mr. Guy then discussed lake levels, an important factor in lakefront development. Lake Erie is the shallowest of the Great Lakes. Its average depth is about 60 feet and its mean lake level is about 571 feet above sea level. The Lake Erie basin is divided into three parts, the western basin, the central basin, and the eastern basin. Cleveland is located on the central basin, about 50 miles across to the Canadian shore.

Over the long term, Lake Erie levels have fluctuated about five and half feet due to volumetric changes in the water from a low in the 1930s to the record high in 1986. From 1973 to 1998, lake levels were of significant interest because they were well above normal. However, in the last four or five years they have been alternating between below normal or approaching normal. This year (2002) again, the lake is running a few inches below normal levels.

The lake level fluctuates annually due to seasonal fluctuation in the volume of water in the lake as well as short-term fluctuations due to storm winds on the lake. Strong winds make the lake level rise, and during the peak of a storm with northeast winds the west basin can be as much as seven and a half feet higher than the east basin. When there is a reversal of the winds, strong southwest winds for example, the east basin will be higher than the west basin days later.

Cleveland is near the center of the long axis of the lake and in spite of all the storm activity, lake levels in Cleveland do not fluctuate very much from the strong northeast and southwest winds as they do in cities that are situated at either end of the lake, such as Toledo or Buffalo. Mr. Guy also stated that most of Cleveland's waterfront is five or more feet above lake level, and problems with flooding are rare although there are occasionally limited wave problems.

During times of strong northeast or southwest winds, large waves are generated on the lake, impinging along the shore and causing erosion of shoreline materials. Typically erosion occurs at the base of the bluff leaving the upper part supported; eventually it falls in a variety of different forms. This process, called undercutting, was more prevalent along the shoreline east of the city, but extensive armoring and the break wall have prevented further erosion. In the western part of the county, there is bedrock, which erodes very slowly. In this case, failure typically occurs in terms of rock falls where material undercut by the waves eventually collapses and provides some protection until it is eroded by waves.

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Cuyahoga County's geology is also a factor affecting shoreline erosion. As Mr. Guy indicated, the western portion of the county consists of shale bedrock, with glacial till in the eastern part of the county and a large deposit of sand and gravel that was carried down an ancestral Cuyahoga River and deposited along the eastern lakeshore. The various zones consist of sand, rock, and hard clay.

Mr. Guy noted that the Highway Division of Geological Survey has been tracking and mapping recession rates. Data goes back to 1876. Rates are measured every 100 feet along the lakeshore. In general, the recession in Cuyahoga County is less than three feet per year. The bulk of the rates fall in the six inch to one foot range.

### ***Beaches***

Mr. Guy addressed the issue of beaches along Cleveland's lakefront. The lack of beaches is partly the result of efforts to prevent erosion. In places where erosion still occurs, eroded material is transported along the shore until some structure impedes its movement. Most of the eroded sand eventually ends up at the harbors. He used a photograph of Fairport Harbor as an illustration. Sand is impounded on the west side of the harbor structures at rates somewhere between 88,000 and 124,000 cubic yards per year. (He stated that, if there were no shore protection, sand would be eroded from the Cleveland waterfront in excess of about 7,000 cubic yards per year, using an average rate of about one half foot per year.)

Cleveland's waterfront today is severely devoid of sand. Only a few beaches remain in Cuyahoga County where the sand continues to be trapped by structures. The Geological Survey staff has been studying the volume and movement of sand. By looking at how sand accumulates next to harbor structures, he continued, they can begin to put together maps of transport directions along the lakeshore. From Avon Point westward, sand generally moves toward the west; east of that point, sand generally moves toward the east. He noted that by measuring the volume of sand impounded at the harbors, geologists can derive rates of sand transport in the Cleveland region. For example, accumulation rates near White City Beach are about 160 cubic yards per year.

This information is important if Cleveland decides that it wants to create additional beaches along the lakefront. He concluded his remarks with the presentation of a graphic of what Cleveland might look like with further development of the lakeshore, perhaps re-engineering some of the embankments along the waterfront to provide a few recreational beaches.

**Susan Davies, Environmental Reporter and Meteorologist, News Channel Five**

*Climate*

Ms. Davies began her presentation by making the distinction between weather and climate. She defined weather as the normal fluctuations in outdoor conditions, the record highs, the record lows, the record-breaking precipitation, the droughts, the flooding, etc. Climate is the region's average weather conditions taken together.

Cleveland's climate is quite variable, with hot summers and cold winters. Some winters are warmer or colder than others. The 1970s are an example of a decade in which winters were particularly cold with several extreme blizzards, winters in the 1980s were a bit milder and the winters of the 1990s were the warmest on record all across the country.

Over the last few decades, meteorologists have found a relationship between ocean temperatures off South America, the jet stream, and Cleveland's winters. She noted that jet stream conditions affect Cleveland winters more than summers. The terms for the water temperature variations are El Nino and La Nina. Ms. Davies noted that this year (2002-03) is supposed to be a mild El Nino year.

Expanding on this, she explained that when the ocean temperatures rise, more evaporation and more condensation occurs. This changes the air currents of the world, which in turn eventually lead to a change in the North American jet stream. The process tends to give Cleveland milder and wetter winters, more rain, and less snow in an El Nino year. The winter of 1997-1998 was very mild as a result of a strong El Nino. That year, Cleveland had the mildest February on record since record keeping began in the 1870s. The opposite occurs during La Nina years when the ocean temperature is cooler than normal, which tends to cause cold winters. As climatologists learn more about these fluctuations, meteorologists will be better able to forecast weather.

While future weather is unpredictable, Ms. Davies expects that global warming is expected to cause air temperatures to rise, which in turn will cause lake temperatures to rise. A warmer lake could stimulate more algae growth, resulting in less oxygen in the lake, which has a host of possible outcomes. For example, it could lead to more precipitation, but with warmer air temperatures and more evaporation. The evaporation may lead to frequent, strong, and severe storms (a severe thunderstorm is defined as one with winds of at least 58 miles per hour

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or greater, dime-sized or larger hail, and heavy precipitation events). Severe storms will cause more run off and could potentially affect water quality.

Ms. Davies cautioned, however, that it is difficult to predict the effects of climate change factors on Northeast Ohio's weather over the next century. Most scientists studying the issue as it relates to the Great Lakes believe that there will be a five to 10 degree increase in air temperature in the next 100 years. In general, scientific models are predicting warmer and wetter winters with late or no ice covering. Less ice cover will lead to more evaporation and lower lake levels. Lake Erie could experience as much as a five-foot reduction in water levels.

Ms. Davies then turned to the micro-climate created by the lake. It is well known that Cleveland's temperatures vary widely. The average high on August 1<sup>st</sup> is 81° F and on February 1<sup>st</sup> it is 33° F. Cleveland's daily high and low temperatures are measured at Hopkins International Airport, but that does not necessarily reflect what's happening along the lakeshore because the lake creates its own micro-climate. The water temperature off the lake influences the air temperature along the lake. At certain times of year, temperatures two to three miles inland from the lake can be different from temperatures along the shoreline. For example, the average lake temperature is 33 degrees in February, 40 degrees in April, 51 degrees in May, and 64 degrees in June. In April and early May, inland communities like Akron and Medina can easily reach 80 degrees on any given day, but on that same day it might be only 50 degrees along the lakeshore.

Lake Erie is the shallowest and the most southerly of the Great Lakes. It warms faster than any of the other Great Lakes and stays warm longer, making air temperatures warmer along the lakeshore in the fall. The lake temperatures make spring colder along the lakeshore, which may make it a less appealing place for outdoor activities such as bicycling, jogging, and roller-blading. Ms. Davies noted that it is important to capitalize on the lake's strengths and minimize the challenges that it presents from a climactic standpoint when planning for the lakefront.

Ms. Davies noted that Toronto is similar to Cleveland in that it is also looking at ways to connect the city with the lake and is considering relocating a major highway, the Gardiner Expressway. She shared the observation that weather was a consideration in Toronto's lakefront planning efforts and that some designers involved in the lakefront planning in Toronto recommended against creating a large strip of green space, concerned that it might not be used during the winter. Instead, they proposed narrow pedestrian corridors along the edge of the

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lake buffered by trees, and mid-rise residential buildings that incorporate commercial and retail space.

Looking at other cities is instructive, but it is important to take into account that each city is different. Ms. Davies noted that Toronto sits on the northern shore of Lake Ontario, which is much deeper and much colder than Lake Erie. Toronto faces south while Cleveland faces north, which has important ramifications, especially in the wintertime when Toronto's air temperature tends to be five to 10 degrees colder than Cleveland's.

Ms. Davies stated if we are going to make Cleveland's lakefront more pedestrian friendly, we should also consider ways to make it climate friendly by careful placement of trees and other vegetation to act as buffers to strong northwest winds in the winter and as shade in the summer. Similarly, when planning for apartments and cafes along the waterfront, it is important to consider design features that can mitigate an inhospitable environment for six months of the year. She suggested that entranceways face east or south, not north or northwest due to the force and direction of winter winds.

### **Commander Jay Onacila, Greater Cleveland Boating Association**

#### ***Lake Erie Boating***

Mr. Onacila began his presentation by saying that he would address the types of recreational activities that occur along the shoreline, particularly recreational boating. The Greater Cleveland Boating Association represents recreational boaters. The position of Cleveland's shoreline limits recreational activities when storms are imminent, especially in spring and fall, and recreational boaters must obtain daily forecast information from the National Oceanic and Atmospheric Administration (NOAA) weather radio and local weather forecasters before they venture out into the lake.

Mr. Onacila indicated that recreational boating supports a wide array of recreational activities including lake cruising in large boats, day sailing in regattas, fishing, personal watercraft, water skiing, sea kayaking, and canoeing along the shoreline. Boaters support local establishments and restaurants in the Flats and other points of disembarkation.

The Lake Erie boating season includes the traditional summer months and continues into the fall because water temperatures are still warm. Normal lake temperatures for the last week of October range from 54 to 56 degrees, which are also temperatures that are usually normal for the end of May and the first part of June. He reported that the normal water

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temperature range for April is between 33 and 39 degrees Fahrenheit, and May averages are from 39 to 54 degrees.

Mr. Onacila is a member of the Lakefront Advisory Committee, which is advising the city on its Lakefront Plan. The plan seeks to create more access points, not only from a land use perspective, but also a boating perspective. Many boaters are intrigued by the city's beautiful skyline and many attractions upon their arrival in the area. However, a major issue preventing more boaters from spending time (and money) visiting Cleveland is the shortage of transient dockage.

This shortage translates into economic losses for the city. He explained that transient dockage for boaters is the equivalent to hotels, motels, and camp sites for motor vehicle travelers. There is a major shortage of slips for short-term and overnight tie-ups for cruising boats, especially on Lake Erie, and in the Cleveland area specifically. Mr. Onacila noted that a statewide study conducted by the Ohio Department of Natural Resources, Division of Watercraft, indicated that Lake Erie boaters want more good quality transient facilities than what is currently available.

He further explained that the recreational boating community is growing, and the demographics indicate that an increasing number of boaters will have the time and disposable income to leisurely cruise the waterways. He mentioned that the U.S. Congress has recognized the national shortage in boating infrastructure and has established a boating infrastructure grant program which, in effect, is federal aid for cities and areas to establish transient boating facilities for boats larger than 26 feet.

Mr. Onacila discussed the statewide economic impact from transient boaters using Lake Erie. There are approximately 1,670 slips available at 47 public and private marinas, statewide. Fifteen of these marinas have 50-plus slips, and 12 of the 15 are in Erie and Ottawa counties. Only one large marina is in Cuyahoga County, at the Old River Yacht Club. He compared Ohio to Michigan, which began taking a very strong approach in 1947 with its Great Lakes Harbors Program. The goal of Michigan's program is boater safety, and the program provides an extensive system of public harbors. These are located so that boaters on Lake Michigan are never more than 15 minutes away from a harbor. He noted that along lower Michigan's east coast, there are approximately 1,800 public transient slips for recreational boaters. This does not include the additional private marinas along the coastline.

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According to Mr. Onacila, a typical transient boater would spend approximately \$134 for a one and a half day boating trip, including food, lodging, fuel, dockage fees, and miscellaneous expenses. A popular 100-slip marina could easily bring \$2,000,000 into the local economy during the boating season. The state of Ohio recognized this economic impact and, using the federal boating infrastructure grant money, added a transient facility to the newly renovated Middle Bass Island State Park.

The boaters represented by Mr. Onacila want to visit high quality transient facilities at locations well known for recreational options such as bicycle paths, parks, hiking trails, and other activities such as shopping opportunities and sports facilities. Successful transient marinas offer these options. In addition, he noted, they offer well-maintained and spotless facilities, practice excellent customer service, schedule various special events during the boating season, and partner with local shore-side businesses, restaurants, shopping malls, and areas of interest as well as provide transportation to these sites and advertising.

He concluded his presentation by asking the audience to think about the economic and recreational opportunities a transient marina could offer Cleveland that have been overlooked in the past.

### **Jeffrey Bush, Ph.D., Executive Director of the Ohio Lake Erie Commission (OLEC)**

#### *Lake Erie Ecology*

Dr. Bush began his presentation by comparing Lake Erie's present ecology with its past. He pointed to an image on the screen of the burning Cuyahoga River and recounted that it became seriously polluted for a number of different reasons, including the common practice of using the lake and rivers as sewers. It was thought that rivers were so vast that human activity could never exceed their capacity to contain waste, which turned out to be wrong.

As a result of these practices, 30 years ago, Lake Erie was considered dead. Nothing survived in the lower Cuyahoga River, and Lake Erie became overloaded with nutrients, particularly phosphorus, and toxins from miles of industrial river dumping. The contamination became so severe that lake fish were no longer suitable for eating. Dr. Bush stressed that there was unsatisfactory sanitary disposal as well, which caused large-scale outbreaks of disease in the river areas.

Other activities that compromised the health of Lake Erie included:

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- Clearing watershed woodland areas for farming, which added sediment loading of the rivers and the lake;
- Over-fishing, which depleted native river and lake aquatic species;
- The introduction of several exotic species from opening up the Great Lakes to international trade through various canal passages, which disrupted the species balance in the lake.

Dr. Bush reported that the present condition and increased clarity of the lake water is the result of federal, state, and local investments in improved sewage treatment and the reduction in point sources of pollution, primarily phosphorus, mercury, and other toxic chemicals that once entered the lake directly. Today, lake fish are for the most part much cleaner, and some are suitable for eating, at least on a limited basis. Many aquatic and land species that had once disappeared (e.g., walleye and bald eagles) are returning, as are insects such as mayflies. These species indicate that the health of the land and water ecology is improving. Water clarity has improved four-fold.

Since the Cuyahoga River and Lake Erie are considered to be prime recreational areas for the state of Ohio, bringing in substantial revenue, the Ohio Lake Erie Commission (OLEC), is focusing its attention on three major recreational elements: 1) fishing on Lake Erie, 2) boating on Lake Erie and 3) the bathing beaches, all of which have experienced a renaissance in usage and enjoyment.

OLEC did a survey of Lake Erie shoreline recreational users to determine the quality of their experiences. The consensus across a wide range of activities was that the experiences are very good. The resulting economic effect was over \$1.5 billion in direct tourism sales (in 1996) for coastal counties along Lake Erie.

The number one challenge to the improving health of Lake Erie today is non-point pollution, primarily the run-off and erosion of soils and the loading of sediment coming off the farmland in Ohio, going down the rivers and entering the lakes. OLEC studies indicate that to bring back prime conditions of water clarity, sediment load must be reduced by two-thirds in order to increase healthy eco-communities in the rivers. Atmospheric sources of pollution also need to be addressed.

Dr. Bush reported that of the 20 Lake Erie commercial port areas located on the mouths of rivers, eight have extremely contaminated sediments resulting from the legacy of the past.

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This continues to be the major source of contamination that enters the food chain and is projected to be a multi-billion dollar clean-up task.

Beach warnings also continue to be a problem. Dr. Bush reported that about 20 percent of the time in the summer, Ohio beaches are under a beach advisory due to bacterial contamination from leaking septic systems, municipal treatment systems, and other sources, particularly during storm events.

Dr. Bush noted that although many species have made dramatic improvement, Lake Erie still cannot accommodate healthy communities of aquatic life, and exotic species are still a problem. He stated that, in order to restore the health of Lake Erie, the entire watershed needs to be considered. The rapid rate at which we are developing land has as much of an impact as what is occurring along the shoreline and what is being dumped into the rivers and streams. He recommended that we get a perspective on the entire watershed and acknowledge that unplanned growth is detrimental.

### **John Watkins, Coastal Engineer, Ohio Department of Natural Resources (ODNR), Sandusky, Ohio**

#### *Ohio Coastal Zone Management Program*

Ohio has 262 miles of coastline with varied geologic formations and aquatic habitats. The Ohio Coastal Zone Management Program coordinates the management of these coastal areas, addressing issues that involve the east and west basins and the Lake Erie watershed.

The Coastal Zone Management Act was developed as part of the Clean Water Act of 1972 to encourage states that border an ocean or Great Lake to develop and implement programs to manage their coastlines. Ohio's coastal management law designates the Department of Natural Resources as the lead agency in developing and implementing Ohio's coastal management program. There are 41 different policies grouped into nine specific areas that relate to the Ohio coastal management area. Information about the management policies can be found on the ODNR web site.

Mr. Watkins discussed the ODNR presence along the lakeshore in Cuyahoga County and its role in relationship to recreation and lake access. ODNR encourages agencies and local governments to provide greater Lake Erie access. The agency develops and maintains lakefront state parks. ODNR also encourages private developers to incorporate public access and recreation opportunities into development plans and helps local governments develop

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lakeshore and urban waterfront recreational areas by providing financial and technical assistance.

The Cleveland Lakefront State Park is comprised of six areas: Edgewater Park, East 55th Street Marina, Gordon Park, Euclid Beach, Villa Angela, and Wildwood (see Map 1). Cleveland owns the lakefront parks and leases them to the state of Ohio, which is an unusual arrangement. The Department of Natural Resources manages the park on behalf of the city. All six park areas are administered through a single park office located at Gordon Park.

ODNR has two programs that are used in planning and policy implementation along the lakefront. The first is the Statewide Comprehensive Outdoor Recreation Plan (SCORP). This is the first step and provides a comprehensive assessment of recreational needs, resources, and planning for facilities. It serves as a guide for allocations from the land and water conservation fund and local nature works funding. The second program is the Lake Erie Access Program (LEAP). It provides up to 75 percent matching funds to local government agencies along Lake Erie for boating and fishing improvements.

Other assistance opportunities through the ODNR include Coastal Management Assistance Grants (CMAGs), which are annual competitive matching grants to local communities. In general, ODNR requires a 50 percent local match. At least \$250,000 is available annually. Local governments, areawide planning agencies, county agencies, state agencies, colleges, universities, and other institutions of higher learning are eligible. Additionally, school districts, park conservancy districts, port authorities, and nonprofit agencies who have been nominated by one of these other agencies are included in the eligible funding categories.

Mr. Watkins stated that, since 1998, nearly \$1.5 million has been granted to local communities through ODNR programs. He distributed a sheet with contact information for these various grant opportunities. A copy is attached to this report.

## **QUESTIONS AND DISCUSSION**

Dr. Bush was asked if there are any programs for sediment clean up activities. He responded that although the Lake Erie Commission is not directly involved in sediment cleanup, the Commission is made up of six agencies with Ohio EPA involvement. There is currently a bill in the U.S. Senate under Senator Voinovich's Committee to supply \$50 million for removing sediments in some hot spots. Great Lakes states are devising a long term Great Lakes restoration plan. A major portion of the plan deals with contaminant sediment removal and disposal. Currently only small projects are underway, such as the clean-up of the Ashtabula River.

Mr. Watkins was asked if there are any programs to deal with the run-off issues. He responded that as part of the coastal management program, Ohio is now receiving funding opportunities through the National Oceanic and Atmospheric Administration to address non-point pollution. Funds are provided for watershed coordinators for local soil and water management districts to work directly with property owners, farmers, and contractors to better manage run-off from their site. The program is new and hopefully will have an impact on sediment loading, but it may take five to 10 years to see the full results. Mr. Bush added that the conservation reserve enhancement program, which is being administered by ODNR, is in its third year and has been a remarkable success. Through this program, the state pays a rental fee to farmers to keep vulnerable tracts of land uncultivated, particularly buffer strips near streams and wetlands. Thousands of acres of wetlands and buffers have been constructed through this program in the last three years. The proposed new Ohio farm bill will most likely increase funds for this program due to its past success.

The next question was about the role of the Ohio Management Program in protecting our coastline, keeping public access to Whiskey Island, and insuring public input for the submerged land leases, which call for public access to Whiskey Island. Mr. Watkins noted that, with regard to Whiskey Island, the department is aware of the ongoing process, however, most of the discussion with the city of Cleveland and the Port Authority is through ODNR. He did not know personally exactly how much of Whiskey Island is under a submerged land lease, a term that refers to the areas of fill that occupy the bottom lands of Lake Erie, along with the water, the fish, and their habitats that belong to the citizens. The lease is an agreement between the person or entity that has placed the fill into the lake and the citizens of the state of Ohio. The issue is whether the person or entity that is placing the fill is now the owner of the fill structure. There is no hearing if a transfer of that lease occurs, but if there is a change in configuration of

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the area being leased, or if the usage of that area changes, then there is an opportunity, if requested, for a public hearing to be held. It is not automatic and needs to be requested.

Jay Onacila added that House Bill 583, dealing with submerged land leases, was in committee but will probably not be acted on in the near future. With regard to the Whiskey Island Marina, the Greater Cleveland Boating Association would take the position that it does not want to see any public marina, private marina, or dockage facility (whether it is a yachting club or boating club) disappear, especially a 475-slip marina. The Lakefront Advisory Committee is evaluating all of the possibilities including a new marina, possibly a transient facility.

The panelists were asked for a few examples of waterfront best practices, considering Cleveland's variable climate. They were also asked to comment on how significant the differences are between the Cleveland lakefront and the Chicago lakefront. Mr. Bush responded that the Chicago waterfront has several urban beaches that can be accessed by walking; there is access across their shoreway as well. The other key difference is that the Chicago waterfront is not enclosed behind a federal breakwater, so there is better circulation of lake waters. There are 1,300 acres along the Cleveland waterfront that are restricted by the federal breakwaters, which creates a difference in basic water quality and water circulation between the two cities. There is a basic difference in the way the Chicago shoreway was developed to provide urban recreational beaches. It is very difficult for Clevelanders to take a bus or walk to the waterfront. Ms. Davies added that it is important to keep in mind that in Chicago, although the prevailing winds are out of the west or southwest, they are not coming off the lake. It is not as cold a wind as Cleveland's winter winds. The Cleveland lakefront is very unpleasant in January or February.

Ms. Davies was asked if, in regard to the global warming theories, she knew what impact a rise of two to three degrees in our average temperature would have on Lake Erie and the Great Lakes. She responded that there are a variety of models that consider different scenarios over the next several decades, but none that are definitive. We need to continue to create these models and add to the body of information and continue to examine the scenarios and what action should be taken. Mr. Watkins added that the National Oceanic and Atmospheric Administration has a division called the national ocean service. NOAA's web site, ([www.noaa.gov](http://www.noaa.gov)) contains information about studies related to weather issues.

Mr. Watkins was asked what ODNR, with the state of Ohio's support, is prepared to do to carry out the public hopes, plans and wishes for the development or non-development of Dike 14. He replied that Dike 14 is a former confined disposal facility located off the extension of Gordon Park. A confined disposal facility is used to collect the sediment that is dredged from

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local harbors. Dike 14 is currently under the control of the Cleveland-Cuyahoga County Port Authority. ODNR has a strong interest in what happens to Dike 14. It may be added to the state park system. In response to a lot of comments from the community, ODNR deputy director Scott Zody initiated a process with a consultant in Cleveland to hold information sessions and gather comments from people in the community and in the surrounding area. That process has been ongoing for about the last six months and provided opportunities to make comments and tour the site. In addition, a working group was developed to assess over 90 different proposals that were significant enough to differentiate. The working group developed categories, and the results of that process will be available in the very near future. ODNR is very interested in input from the community and will review the final public input report and opinions before taking any action on the fate of Dike 14. This is a Port Authority facility, and action by ODNR would be in conjunction with that entity.

Mr. Bush was asked to specify which of Ohio's ports contain polluted sediments. He replied that this included different sections of the Maumee River, Swan Creek, Sandusky, Lorain, Cleveland, Ashtabula, plus one or two more.

Mr. Bush was also asked about the impact on local beaches when ships entering the Cleveland Bulk Terminal churn up contaminated sediment. He responded that contaminated sediments are a huge problem in Cleveland due to propeller wash turning up the sediment. The main concern is that the contaminants are not only in the navigation channel and port area, but in those areas that also serve as a reservoir for toxins that move. The contaminated sediment is recycled back into the biota and works its way up the food chain to all species of sport fish and eventually, if consumed, to the human population. For that reason, contaminated sediments remain an issue. The main stem of the Cuyahoga is a confirmed reservoir for pockets of contaminants. The lakefront has not been as well mapped and the location of other pockets needs to be investigated.

The next question related to submerged land leases. If erosion takes away 10 or 20 feet of private land and the owner wants to restore that area with some kind of breaker, are they required to get a submerged land lease and pay the state a lease payment in perpetuity to reclaim their land? Mr. Watkins responded that, regarding the portions in public areas, the assumption is correct depending on several different factors. The deed will indicate that the land extends out to a certain location, low water mark, or a certain distance measured from a roadway. The type of measurement varies along the shoreline. Some sections along the lakeshore have entire sub-divisions that have eroded away with lots 70 to 80 feet out into the

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lake. The issue of whether that land comes under the public domain is a question of how that erosion occurred. If there was what is referred to as an “erosive event,” for example, a storm that washed out the land in one large event and if action was taken within a reasonable period of time, a year or two, to restore that land, then it may not become part of the public domain.

If the erosion occurred as a gradual process and recedes in a normal erosive process that occurs over a long period of time, then there is a possibility that the owner would lose title or deed. As the shore moves inland, it becomes a public overlay, and a public interest into that particular area because it is a shore area. The deed is not invalid. It is still retained at the county courthouse. However, issues arise if the owner decides to fill in that area, which is now in the public interest to keep as a coastal environment with a beach and near-shore aquatic habitat. The landowner is now leasing what has been created by water moving in and creating a public interest area.

Mr. Watkins was asked if there are any plans to extend the break wall or creatively begin to protect the shoreline. He responded that ODNR is mandated to develop a Lake Erie erosion management plan. In the 1940s and 1950s, there were studies and plans to address the erosion issues, many of which were not successful. Currently, ODNR is offering grant opportunities and collaborating with community associations and other entities to work collectively on erosion prevention projects. There are no plans to extend the federal breakwater. Long break walls create water quality issues due to lack of circulation in that area. If a storm sewer outfalls, some of the biological contaminants can accumulate in the stagnant water.

As a follow-up question, Mr. Watkins was asked if it is feasible to have a long-range program to protect the shoreline against erosion, collapse, and the eating away of the sand. Mr. Guy answered that technically it is possible to armor the lakeshore. Ohio, compared to other Great Lake states, is already heavily armored. Some structures are better than others. The question about the concept of armoring the lakeshore is the impact it has on beaches and on near-shore aquatic habitats. Data from the 1860s indicates that there were beaches along most of the Ohio lakeshore. The change that has occurred since then is due to building harbors that impound sands. When shore protection structures are in place, there is less erosion of the bluffs, which contain about 20 percent of the sand that helps to nourish beaches. When the bluff erodes, sand is introduced into what is called the littoral system. That sand moves along the shore helping to maintain beaches, near-shore bars, and near-shore aquatic habitats. In Ohio there has been a steady decrease in the size of beaches and the length of beach-fronted shore and an increase of armoring of the shore to replace what was there to begin with, a beach.

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Armoring results in restricted recreational access due to riff-raff revetments that cannot be crossed. When there is an erosion event, the whole near-shore profile from the top of the bluff down to the shoreline and out into the water readjusts. A built structure that extends out into the water stabilizes the top of the bluff, but it does not recreate the near-shore profile and a beach will not reform in front of that structure. In order to recreate a beach in front of a structure, far more sand than what was along the shoreline initially will be needed. The challenge for Ohio is how to protect the shoreline and nourish the beaches.

In response to a question about the actual differences in climate between Chicago and Cleveland, Ms. Davies responded that there are a lot of similarities, but there is not a strong east wind off Lake Michigan except during storm events. The prevailing wind in Chicago, like Cleveland, is generally out of the southwest or west, except when pressure systems bring the wind out of the north or northwest. The point is that with 30 mile-per-hour winds out of the north/northwest across the Lake Erie, Cleveland can experience a wind chill factor of 15 degrees along the lakefront.

Another question was whether we should use Chicago as a model when the Chicago shoreline is north and south and our shoreline is east by northeast. Mr. Guy responded that not all beach models apply to Lake Erie beaches. Increasingly, activities that are more in tune with the cooler weather that prevails throughout the Great Lakes are becoming popular. If there were urban beaches along the Cleveland waterfront, there would be a substantial increase in use of the waterfront. It does not matter what the climate is if you have no place to go. If green space is available, even in the form of urban beaches along the Cleveland waterfront, there will be increased use of the waterfront.

The questions then shifted to marinas; where could they be built and who would use the retail facilities on the lakefront in the winter months when boaters do not come. Mr. Onacila replied that there is no established location yet and no source of funds identified. The planning is an ongoing process that will be implemented in small pieces over the next five to 15 years. The objective is to take the best ideas from other cities and incorporate them into the Cleveland plan, with considerations for the climate. The inner harbor is a good site for a transient facility. It may be underutilized for a portion of the year, but it can still be an economic development tool that could bring one to two million dollars a year back into the city.

The final question was whether it is feasible to diversify what is done at the lakefront, and if it would be feasible to put up a sustainable type of energy capturing device like windmills. Mr. Watkins responded that the city of Cleveland is going through this process of holding public

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forums to look at the issues and draw out different types of ideas for diversified use of the Cleveland lakefront. The potential for renewable energy was raised during discussions for the Dike 14 project, but the final results of the committee's evaluation on that topic are not available as yet. Wind energy is now a recognized option throughout the United States, but it has to be economically viable and not disrupt scenic views. Kingston, Ontario has a large windmill but it dominates the view of the shoreline and the community needs to determine what is an acceptable view structure along the shoreline.

## **PANELIST BIOGRAPHIES**

**Wayne Dawson (Moderator)**  
**Co-Anchor**  
**Fox 8 News**

Wayne Dawson is co-anchor of FOX 8 News in the Morning, seen weekdays from 5:30-9 a.m. on WJW. Wayne is also the host of "Neighborhood," a quarterly public affairs program. Before teaming up with Stefani Schaefer on the morning show, Wayne served as co-anchor of the weekend editions of FOX 8 NEWS from 1994-99.

Prior to joining WJW in 1979, Mr. Dawson was an anchor/reporter at WNIR-Radio in Kent, Ohio, from 1977-79. He is a 1979 graduate of Kent State University and holds a Bachelor of Arts degree in journalism. A six-time Emmy Award winner, Wayne is a member of the NAACP, the National Association of Black Journalists and the Phi Beta Sigma Fraternity. He has been chosen as the "Outstanding TV News Reporter" by the Professional Women's Business Association. Mr. Dawson was twice named one of the Jaycees "Outstanding Young Men of America." He has also been named "Man of the Year" by Delta Sigma Theta. He is also a member of the Broadcasters Hall of Fame.

**Donald E. Guy, Jr.**  
**Senior Geologist**  
**Ohio Department of Natural Resources**  
**Lake Erie Geology Group**

Donald Guy is a senior geologist with the Ohio Department of Natural Resources, Division of Geological Survey, Lake Erie Geology Group. He has a Bachelor of Arts from Earlham College and a Master of Science from Bowling Green State University. Since 1973 he has been involved with research related to the geologic setting and processes of the Ohio shore of Lake Erie. This research includes mapping shore recession, designating coastal erosion areas along the Ohio lakeshore for the Ohio Coastal Management Program, collecting cross-profiles to study long-term changes in bluff topography and near-shore bathymetry, and studying sediment distribution in marina channels to assess its potential for near-shore disposal. In addition to research, he reviews applications for dredging and erosion control structures to assess potential impacts on coastal processes, advocates near-shore disposal of sand, selects near-shore disposal sites, provides technical assistance to owners/managers of lakefront property, and makes presentations to organizations.

**Susan Davies**  
**Environmental Reporter**  
**News Channel 5**

Susan Davies has been part of the News Channel Five Forecast Team for the past 7 years. On days when she's not tracking lake-effect snow or severe weather, she covers the environment and science beat and has produced several award winning environmental reports for WEWS

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TV. Two years ago, she completed a master's degree in Environmental Science and Management from Duquesne University in Pittsburgh. As the mother of a two-year-old, Susan does not have a great deal of free time, but whenever her schedule allows, she is racing on a sailboat on Lake Erie or bicycling with her husband and daughter in one of Cleveland's Metroparks.

### **Jay Onacila Commander Greater Cleveland Boating Association**

Jay Onacila is the Commander of the Greater Cleveland Boating Association (GCBA) as of November 2002. He has been serving the GCBA on their Executive Board for the past four years. Mr. Onacila has been involved with recreational boating for over 14 years. He volunteers his time to teach safe boating classes for Vermilion Power Squadron.

Mr. Onacila was appointed to serve on the Lakefront Planning Advisory Committee in July of 2002. He has been a resident of the city of Cleveland for 23 years. He is a graduate of St. Edward High School and Ohio Technical Institute. Currently, he works as a Foreman Electrician for Doan/Pyramid Electric.

### **Jeffrey L. Busch, Ph.D. Executive Director Ohio Lake Erie Commission**

Dr. Busch is the executive director for the Ohio Lake Erie Commission Office. The Ohio Lake Erie Commission Office was formed in January of 1992 to serve as staff for the Ohio Lake Erie Commission, which is comprised of the directors of six State of Ohio agencies having Lake Erie management programs. This office is responsible for administrating several programs concerning Lake Erie including the administration of the Lake Erie Protection Fund.

Dr. Busch previously served as project manager for the Port of Toledo and director of the U.S. Senate Great Lakes Task Force in Washington, D.C. With the Task Force, Jeff was actively involved in Great Lakes environmental and economic issues, drafting legislation, and statement papers for the Great Lakes Senators.

His experience includes teaching and research positions at the high school and college level. A Commander in the U.S. Coast Guard Reserves, he also served as executive officer for Port Security Unit 309 and served in Operation Uphold Democracy in Haiti and Operation Noble Eagle following September 11th.

Dr. Busch also serves as a Board Member of the Great Lakes Protection Fund and Lake Erie Coastal Ohio, Inc., as Alternate Commissioner of the Great Lakes Commission and as Commander in the U.S. Coast Guard Reserves.

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**John Watkins**  
**Coastal Engineer**  
**Ohio Department of Natural Resources**

John Watkins is a coastal engineer with the Ohio Department of Natural Resources, Office of Coastal Management in Sandusky, Ohio. He has a bachelor's degree in Civil Engineering from the University of Akron, and has received training in Coastal Engineering from various institutions, including the US Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi. He has been the program manager for the ODNR Coastal Engineering Group for the past four years, and is a registered Professional Engineer in the State of Ohio. Mr. Watkins previously worked for eight years as the environmental supervisor in the Northeast District Office of the Ohio Environmental Protection Agency.

**APPENDIX**

**Ohio Department of Natural Resources Contact List**

**Cleveland Lakefront Map**

**Map Key**

**ODNR Map 2**

**ODNR Map 3**

**ODNR Map 4**

# Ohio Department of Natural Resources

BOB TAFT, GOVERNOR

SAMUEL W. SPECK, DIRECTOR



## Office of Coastal Management

GRANTS Coastal Management Assistance Grants

Contact: Yetty Alley  
[yetty.alley@dnr.state.oh.us](mailto:yetty.alley@dnr.state.oh.us)  
1630 Sycamore Line  
Sandusky, OH 444870  
419.626.7980

Web site: [www.dnr.state.oh.us/coastal/cmag/cmag7.htm](http://www.dnr.state.oh.us/coastal/cmag/cmag7.htm)

## Division of Watercraft

GRANTS Boating Infrastructure Grant Program (BigP)  
Boating Safety Education Grant  
Clean Vessel Act Grant  
Cooperative Boating Facility Grant  
Marine Patrol Grants

Contact: Headquarters: 4435 Fountain Square Drive  
Columbus, OH 43224-1362  
614.265.6480  
1.877.4BOATER (Ohio only)  
[watercraft@dnr.state.oh.us](mailto:watercraft@dnr.state.oh.us)

Cleveland: 8701 Lakeshore Blvd. NE  
Cleveland, Oh 44108  
216.361.1212  
[dnrwatercraftd5@ameritech.net](mailto:dnrwatercraftd5@ameritech.net)

Sandusky: 1630 Sycamore Line  
Sandusky, OH 44870  
419.621.1402  
[Sandusky.watercraft@dnr.state.oh.us](mailto:Sandusky.watercraft@dnr.state.oh.us)

Web Site: [www.dnr.state.oh.us/watercraft/grant](http://www.dnr.state.oh.us/watercraft/grant)

## Division of Parks and Recreation

Contact: 1952 Belcher Drive, Building C-3  
Columbus, OH 43224-1386  
614.265.6561

Web Site: [www.ohiodnr.com/parks](http://www.ohiodnr.com/parks)