PENNSYLVANIA

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A plan for the implementation of the recommendations in the Presque Isle Bay Recreational Boating Study of 1992.

DEPARTMENT OF ENVIRONMENTAL RESOURCES

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A plan for the implementation of the recommendations in the Presque Isle Bay Recreational Boating Study of 1992.

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Prepared by
Commonwealth of Pennsylvania
Department of Environmental Resources
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Division of Coastal Programs

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INTRODUCTION

This study originated from a new voluntary Coastal Zone Enhancement Grants Program, under Section 309 of the Coastal Zone Management Act, as amended in 1990, that encouraged states to develop program changes in one or more of eight coastal zone enhancement areas. These areas are as follows:

- coastal wetlands.
- public hazards
- public access
- marine debris
- cumulative and secondary impacts
- special area management planning
- ocean resources
- energy and government facility siting and activities.

In order to develop program changes a strategy was developed by the Pennsylvania Department of Environmental Resources (PADER), Division of Coastal Programs (DCP) through an assessment of Pennsylvania's Coastal Zone Management Program. As a result of the assessment, four of the enhancement areas were identified as being priority issues for Pennsylvania. Those enhancement areas are:

- Coastal Wetlands.
- Coastal Hazards
- Public Access
- Cumulative and Secondary Impacts

A study of the impact of boating on Presque Isle Bay was included under Cumulative and Secondary Impacts. It was selected for several reasons. The first reason was because boating capacity on the Bay has been a concern of the Coastal Zone Management Program and the City of Erie since the early 1980's. The second reason was because it would provide useful information in the development of a Remedial Action Plan for the Bay, which was concurrently being prepared by the DER. The Remedial Action Plan was focusing on environmental pollution of the Bay from land generated sources. The Bay boating impact study would provide information, currently unknown, about pollution being generated by recreational boating.

The intention of the study was to address the ability of the Bay to accommodate recreational boating from environmental and social perspectives, how to minimize any adverse environmental or social impacts caused by boating, and determine what other means exist nearby for satisfying demand for boating. Specific environmental considerations include impacts to water quality (sewage and gasoline from boats), as well as impacts on wetlands, and shorelines from wave-induced erosion.

A general task schedule was developed, by federal grant year, to complete a Presque Isle Bay boating impact study and to effect any Coastal Zone Management changes needed to implement the recommendations of the study. The project was scheduled to begin in the 1992 federal grant year. During this year a bay boating impact study would be completed through the retention of a consultant through the contracting

process. During the 1993 federal grant year a review of the study recommendations would be undertaken and the appropriate means of implementing the recommendations would be determined. Arrangements would also be made with any agencies necessary to follow through with the implementation of the recommendations. During the 1994 grant year, the final year of the project, regulations and agreements required to implement the recommendations should be finalized.

MONITORING OF BOATING CONDITIONS AND BOAT SLIPS

Recommendation:

> When expansion of recreational facilities approaches 900 new boat slips, a detailed assessment should be conducted to address availability of additional capacity, water quality, and carrying capacity. Also, there does not appear to be a need to restrict or limit public access to Presque Isle Bay currently or in the near future. Monitoring of the boating conditions should be conducted over time if use levels increase.

Supporting Information:

The recommendation section of the Presque Isle Bay Recreational Boating Study stated that findings do not warrant restrictions or limitations of public access to Presque Isle Bay currently or in the near future. However, if usage of the Bay continues to increase in the future, a point may be reached where conditions may warrant such restrictions or limitations. The study recommended that the number of new boat slips, created at marinas within the Bay, should be used for determining the time at which the carrying capacity of the Bay should be reevaluated. The Study went on to recommend that the reevaluation should begin as soon as the expansion of recreational boating facilities approaches 900 new boat slips. A single organization which is involved with the day to day activities of the Bay should be selected as the lead agency for keeping track of the number of new boat slips created each year. A detailed water quality assessment should also be conducted, at the same time that the carrying capacity is being reevaluated, to determine whether additional recreational boating pressures would also be detrimental to the water quality of the Bay.

The Erie - Western Pennsylvania Port Authority was chosen as the most qualified agency for completing the task of tracking new boat slips and they have accepted the responsibility. Therefore the implementation phase of this recommendation will require the preparation of a letter of agreement between the Pennsylvania Department of Environmental Resources, Division of Coastal Programs and the Erie - Western Pennsylvania Port Authority. The agreement will stipulate the terms and conditions under which the Port Authority will track and report the number of new boat slips being created on Presque Isle Bay each year. The report will also provide a running total of the number of boat slips created since the beginning of the tracking system.

The Presque Isle Bay Recreational Boating Study also recommended that a future monitoring program should be considered for measuring boating density and use patterns on the Bay. The Presque Isle Bay Recreational Boating Study Task Force discussed the need for a future monitoring program and decided, for the present, to table this recommendation.

A BALANCED APPROACH TO MAXIMIZE THE USE AND YET PRESERVING THE ENVIRONMENTAL QUALITY OF THE BAY

Recommendation:

Resource managers should consider a balanced approach to maximizing the uses of the Bay and preserving environmental quality.

Supporting Information:

The Presque Isle Bay Recreational Boating Study recommended a three step procedure for attaining a balanced approach for maximizing the use of the Bay and at the same time preserving its environmental quality. The first step is the identification of problem conditions or unacceptable impacts, the second step is the determination of potential causal factors influencing the occurrence and severity of the current impacts, and the third step involves the selection of potential management strategies for rectifying unacceptable impact conditions. The three step procedure recommended in the Presque Isle Bay Recreational Boating Study will be accomplished through a study known as the Presque Isle Bay Remedial Action Plan (RAP). This study was undertaken by the Pennsylvania Department of Environmental Resources as a result of the Great Lakes Water Quality Agreement of 1978. The agreement represents a binational, U.S./Canadian commitment to the restoration and maintenance of the aquatic resources of the Great Lakes.

Since so many diverse organizations are interested in the continued well being of the Bay, an advisory committee was formed to provide a vehicle for these groups to play an active role in the RAP process. This was also true of many groups who feared that the RAP would ultimately restrict their specific use of the Bay; so the advisory committee also served as an avenue for input by them. The final study, completed in December of 1992, was the result of the combined efforts of the Presque Isle Bay Public Advisory Committee, comprised of individuals from the public, industry, government, recreation, commerce, navigation and other interested groups and the Pennsylvania Department of Environmental Resources.

In order to focus on remedial actions, the RAP first identified any impaired uses in the Bay and the sources of those impairments. The identification of these impaired uses was based upon the guidelines for recommending the listing and delisting for the Great Lakes Areas of Concern (AOC), as established by the International Joint Commission (IJC). Presque Isle Bay was designated as an AOC by the U.S. Department of State on January 30, 1991. A listing of the impaired Beneficial Uses established by the IJC is as follows:

1)- Fish and Wildlife Consumption
2)- Tainting of Fish and Wildlife Flavor
3)- Degradation of Fish and Wildlife Populations
4)- Fish Tumors and Other Deformities
5)- Bird or Animal Deformities or Reproductive Problems
6)- Degradation of Benthos
7)- Restrictions on Dredging Activities

8)- Eutrophication or undesirable Algae
9)- Restrictions on Drinking Water Consumption, Taste or Color
10)- Beach Closings
11)- Degradation of Aesthetics
12)- Added Costs to Agriculture or Industry
13)- Degradation of Phytoplankton and Zooplankton Populations
14)- Loss of Fish and Wildlife Habitat

The RAP concluded that there are two Beneficial Uses in the Presque Isle Bay which are impaired, and one other that has limited impairment. Dredging activities and the presence of fish tumors are clearly impaired and the use of beaches is partially impaired. The criteria established for classifying these beneficial uses as being impaired and the data presented to establish their impairment within Presque Isle Bay are as follows:

1. The restriction on dredging activities is impaired when sediment contaminant levels exceed current standards. In order to make this determination sediment data from 1982, 1986, and 1990 were compared with the current applicable standards (the USEPA Region V"guidelines"). This comparison resulted in the conclusion that Presque Isle Bay sediments are moderately to heavily polluted for most parameters for which standards have been established. Specifically, the sediments were found to be contaminated for 10 metals (arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc), nutrients (phosphorus and total Kjeldahl nitrogen), Carbon Oxygen Demand, cyanide, oil & grease, and volatile solids. Sediment levels for polycyclic aromatic hydrocarbons (PAHs) may also be elevated but no current standards exist for these pollutants.
2. Fish tumors are considered to be impaired when 1) the incidence of fish tumors or other deformities exceed rates at impacted, control sites, or 2) when surveys have confirmed the presence of liver tumors in bullheads. Preliminary surveys have demonstrated the existence of liver tumors in Presque Isle Bay Bullheads.
3. Beach closings are considered to be impaired when water quality standards for the protection of full water contact recreational activities (e.g. swimming) are exceeded. Although the Pennsylvania Department of Environmental Resources has chosen not to establish public beaches on the Bay side of Presque Isle State Park, water contact recreation is a protected use in the Bay. A 1985 study determined that standards for the protection of this use are being met. More recent data (through 1990) indicate that these protective standards continue to be met, with the exception of the mouth of Millcreek and other storm water discharge points.

The Plan indicates these impairments are to be restored completely.

There is one remaining Beneficial Use, phytoplankton and zooplankton productivity, which will require the collection of additional data before any conclusions concerning their impairment can be drawn.

The RAP also concluded that the preservation of environmental quality and the restoration of impaired beneficial uses can be achieved through existing regulatory programs. Existing programs regulate almost all forms of pollutant releases to the environment and therefore have the capability of providing adequate controls by focusing the application of

these regulations.

Persons were selected to serve on the advisory committee to develop the RAP because of their desire to improve and maintain the environmental quality of the Bay. The plan they have developed provides a plan of action for preserving the environmental quality of the Bay and at the same time maximizing its use. The causes of the impairments to the beneficial uses of the Bay have been defined in the RAP but the sources of these impairments are still not known. The implementation of this recommendation is far from over; much scientific investigation to pinpoint the exact causes of these impairments must still be done. The Division of Coastal Programs should be instrumental in the decision making process of this recommendation since any course of action for its implementation will affect important coastal zone issues. The Division of Coastal Programs will expand its contract with the Erie County Department of Planning to include a provision for the County's attendance at the Presque Isle Bay Public Advisory Committee Meeting and the preparation of a report, to update DCP, on pertinent coastal zone issues discussed at the meeting.

STRENGTHEN EDUCATIONAL EFFORTS FOR BOATING SAFETY AWARENESS

Recommendation:

One-fifth of the boaters sampled reported that other boats had come too close to them while boating. Such incidents were one of the greatest safety concerns among Presque Isle Bay boaters. All pertinent organizations should consider methods of strengthening their educational efforts to create more boating safety awareness on the Bay.

Supporting Information:

The Presque Isle Bay Recreational Boating Study determined, from a survey of boaters on the Bay, that near accidents was one of the greatest concerns among boaters on the Bay. The findings showed that one-fifth of the boaters sampled reported that other boats had come too close to them while boating. Therefore, it was recommended that organizations involved in boater safety should develop methods for increasing boater safety awareness. It should be noted, however, that the survey method used measures the perception of boaters, and not the actual experience in this regard. Actual accident statistics, as discussed with the PA Fish and Boat Commission may not bear out this perception. This is discussed further in the next chapter.

There are three primary organizations which are currently involved in promoting boater safety by organizing and conducting boater safety courses. These organizations are:

- The Coast Guard Auxiliary

  The Coast Guard Auxiliary, a non-profit organization, provides a free ten week boater safety course in the fall and spring of each year. The Auxiliary advertises these courses on both radio and television. They also advertise them by putting up posters at sport centers and shopping malls, by putting up banners in channels, by notifying boaters of courses while doing safety examinations of boats (also a free service provided by the Auxiliary), and at the Tri County Sport Show where they setup a booth each year. Although the course is free there is a $20.00 charge for books and materials.

- The Pennsylvania Fish and Boat Commission

  The Fish and Boat Commission, an agency of state government, provides a basic boating course geared at familiarizing boaters with safe boat handling practices. It is an eight hour course, consisting of two four hour sessions. It is not designed for the boater who wishes to learn the complexities of navigation on open waters. The Fish and Boat Commission strives to hold two courses per year; one course in the fall and the other in the spring. Notices, of up and coming courses, are placed in the local newspapers and on posters displayed in prominent public locations. There are no fees associated with this course.

- The Power Squadron

  The Power Squadron, a non-profit organization, provides a free eight week boater safety course in the spring and fall of each year. They advertise these courses through the newspapers, and through the radio and television media. They also post notices on bulletin boards at boat ramps, at bait shops, at stores carrying fishing tackle and fishing licenses and they also post a banner adjacent to the Coast Guard headquarters facing the channel leading to the bay. Their 1994 spring boating course had an excellent turnout (166 in attendance) and registration for the fall course is also going very well. This course also has no fees but requires a $20.00 charge for books and materials.

Each year these organizations provide a schedule, to the Boating Education Hotline, of the times and places that courses are offered. Individuals wishing to obtain information about a course can do so by dialing 1-800-336-BOAT. This hotline is provided by Boat U.S. which is a privately funded organization.

All three of these organizations provide a certificate which recognizes that a boater has successfully completed a course on boater safety. Pennsylvania has recently passed a law which requires individuals between the ages of 12 and 16 to possess a certificate in order to operate a powered boat with a motor rating of 10 horsepower or greater. A certificate from any of these organizations is acceptable to meet this requirement.

All three of the organizers agreed that the attendance at their courses is normally very small. One of the reasons suggested by the boater organizations, for the low turnout, is a lack of money to provide advertising for up coming boater safety courses. The Division of Coastal Programs explained, to these organizations, that these costs and other costs that they now are expending are eligible for funding through a Coastal Zone Management Grant. The organizations expressed an interest in applying for a grant so an application package was sent to each organization. It is anticipated that grant monies from the Coastal Zone Program will be used to implement this recommendation during the 1996 Grant Year.

MONITOR AREAS WHICH HAVE A POTENTIAL FOR CONGESTION

Recommendation:

While it appears that crowding is not an existing problem on Presque Isle Bay, areas that were identified as having the potential for congestion should be closely monitored by resource management personnel to identify safety concerns or environmental factors before they become problems in the future.

Supporting Information:

The Coast Guard is authorized to deal with all matters involving navigation on Lake Erie and Presque Isle Bay. Their primary responsibility is to undertake search and rescue missions but they also perform these other duties: responding to emergencies such as boat fires, collisions, or rescuing persons stranded in the water, maintaining navigation aids such as buoys used to guide vessels into docking areas and, responding to oil or chemical spills and insuring their containment. The Coast Guard's authorization also extends to the initiation of any enforcement actions necessary to insure the safety of vessels navigating on coastal waters and the people aboard those vessels. The Coast Guard presently patrols the Bay and is constantly on the lookout for hazardous situations, such as excessively congested areas, which would pose a threat to vessels. Should such a situation be detected, the Coast Guard would take the appropriate measures to insure the safety of the vessels and the lives of the people aboard them. The Coast Guard prepares a report for all incidents on the Bay to which they respond.

The Pennsylvania Fish and Boat Commission also has enforcement responsibilities in regard to boater safety on Presque Isle Bay. The Division of Coastal Programs contacted them and they reported that very few safety violations have been documented on the Bay. However due to the concerns expressed in the Presque Isle Bay Recreational Boating Study they have added two additional officers to patrol the waters of the Bay. This initiative, by the Fish and Boat Commission, will provide the man hours needed to more closely monitor the congested areas on the Bay and greatly enhance the implementation of this recommendation. Like the Coast Guard; the Fish and Boat Commission also prepare reports on any boating incidents to which they respond.

Both of these regulatory agencies have indicated that they are willing to report to DCP, on an annual basis, all boating incidents which have occurred on Presque Isle Bay over the previous boating season. The report will include any recommendations for the institution of safety measures, which have resulted due to these incidents. In order to implement this recommendation the Division of Coastal Programs has make arrangements with the Erie County Department of Planning, under the coordination responsibilities of their CZM grant, to contact these agencies on a yearly basis, obtain their records on boating incidents, and prepare a brief report based on these records.

A "NO WAKE" ZONE

Recommendation:

> A "no wake" zone should be considered for the area depicted on exhibit 9-1 as the Head of the Bay Resource Management Area. The restricted area should fall within the area where water depth is 6' or less. Natural resource managers should conduct additional investigations of all ramifications associated with the establishment of such an area. Criteria should be developed from monitoring this and other environmentally sensitive areas in Presque Isle Bay.

Supporting Information:

The Presque Isle Bay Recreational Boating Study identified the head of the Bay as an area of the Bay which should be managed to protect the aquatic and terrestrial resources present. Aquatic and terrestrial areas of significance include: a variety of habitats which are imperiled, areas which contain rare, threatened or endangered species, and areas which provide important fish spawning habitat and fish nursery grounds. The study recommended that a no wake policy should be implemented for all areas, within the head of the bay, where water depths of six feet or less exist. Fishing and low-impact boating activities would be permissible, while water skiing and power cruising should be strictly prohibited.

The Pennsylvania Fish and Boat Commission has been assigned the responsibility to enforce laws and regulations involving the restriction of boater activities on any waters within the Commonwealth and were called upon to evaluate the implementation of this recommendation. As a result, staff from the Pennsylvania Fish and Boat Commission toured the headwaters of Presque Isle Bay during the weekend of June 18, 1994 to evaluate the need to establish a no wake zone at the head of the Bay. The conclusion of their evaluation was that there is no need to implement a no wake zone at this time. In addition to touring the area to observe any physical evidence of problems related to wakes generated by boating; the staff also took into consideration the most frequent types of water craft using the area during recent boating seasons. Perch anglers typically use the area in the spring and recreational boaters other than fisherman typically use the area in the summer when the weather warms. High speed watercraft activities, such as water skiing, can be a problem but the presence of weed beds discourages much of this activity. Rowing teams have also found this area to be suitable for training which further limits the operation of high speed motor boats. The Pennsylvania Fish and Boat Commission will continue to educate boaters about the sensitivity of the area and will continue to observe boater activity in the future and may consider the institution of a no wake zone if so dictated by boater activity.

It is important to note that the boating study raised the issue with the Fish and Boat Commission. The Commission made an initial investigation, and while deciding against immediate action, has agreed to keep an open mind to future restrictions.

EDUCATIONAL DISPLAYS TO EDUCATE USERS ABOUT THE SENSITIVITY OF THE BAY'S RESOURCESAND WAYS TO MINIMIZE POTENTIAL USE CONFLICTS

Recommendation:

> **Educational displays should be developed and placed at key locations to educate users about the sensitivity of the Bay's resources and ways to minimize potential use conflicts.**

Supporting Information:

The Presque Isle Bay Recreational Boating Study Task Force decided that the group of people being targeted for this recommendation was the same as that being targeted in the boater safety awareness recommendation. Therefore, the initiation of more public awareness of boater safety, through public notices and advertising, would also serve to implement this recommendation.

The Division of Coastal Programs is also planning a poster contest, for schools that are located near Presque Isle Bay, to supplement the implementation of this recommendation. Details of this contest are being developed at this time. The Division of Coastal Programs will also be featuring special articles on the sensitivity of the Bay's resources and ways to minimize potential use conflicts in its widely distributed publication, Coastal Tidings.

The Division of Coastal Programs will also be taking additional steps to solicit more coastal zone management funded educational efforts that encourage the preservation of coastal resources by the general public.

A CLEAN VESSEL'S SURVEY

Recommendation:

The inventory of existing recreational boating facilities indicates that four marina pump-out facilities are located within the study area. A Clean Vessels Act survey of Presque Isle Bay should be conducted to determine the adequacy of marina pump-out facilities. If found adequate, a petition should be forwarded to the Environmental Protection Agency (EPA) to prohibit the use of flow through type I and II Marine Sanitation Devices (MSDs) in Presque Isle Bay.

Supporting Information:

The Federal Clean Vessels Act of 1992 was enacted on November 4, 1992. The purpose of the Act was to provide funds to States for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities. The Clean Vessel Act of 1992 requires each coastal state to submit a Clean Vessel Act Survey to the Secretary of the Interior (Secretary) within three months after receiving the Secretary's notification of the final technical guidelines. Grants will be distributed through the U.S. Secretary of Transportation to pay 75% of the cost to a coastal state for : 1) conducting the survey, 2) developing and submitting a plan and list, 3) constructing and renovating marine sanitation devices and waste reception facilities, and 4) conducting a program for educating boaters about sewage discharges from boats.

Guidelines in the Act identify seven categories under which waters are most likely to be affected by the discharge of sewage from vessels. Presque Isle Bay qualifies under four of these designated categories. It is a sheltered water that is generally poorly flushed, it is a water identified as being of National Significance, it is a water of significant recreational value, and it is a nursery area of indigenous aquatic life.

A Clean Vessels Act Survey was conducted by the Pennsylvania Fish and Boat Commission during the spring of 1994 and it was determined that additional pumpout facilities are needed at Presque Isle Bay. Most Pennsylvania boats that use Lake Erie or Presque Isle Bay are moored or launched from the sheltered waters of the Bay. The 1992 Presque Isle Bay Recreational Boating Study determined that there are more than 2,500 public and private boat slips in the Bay. There are currently three pumpout stations at Presque Isle Bay. One is at the marina at the state park, one at the Commodore Perry Yacht Club and the other at the Perry's Landing Marina. The latter two are both private marinas located on the western end of the Bay. On April 26, 1994 the Fish and Boat Commission, Bureau of Boating, submitted a proposal to the U.S. Fish and Wildlife Service for Federal Aid, under the Clean Vessel Act, to make renovations to the existing pumpout facilities at Presque Isle State Park and also to construct two new pumpout facilities at Presque Isle Bay. One such new facility is planned to be located at the Cherry Street Marina and the other at the Presque Isle Yacht Club. The Cherry Street marina is

located on the eastern end of the Bay at the foot of Cherry Street. The Presque Isle Yacht Club is located on the West Canal Basin which is also on the eastern end of Presque Isle Bay. The objective is to provide boater's a convenient alternative to dumping the contents of their waste holding tanks overboard. It is felt that if boaters can have their holding tanks pumped out for a minimal fee or in connection with routine maintenance services, they are more likely to use the pumpout facilities as opposed to pumping into the waters of the Bay.

This recommendation will be fully implemented when Presque Isle Bay has been designated as a no discharge area by the EPA. Presque Isle Bay will be designated as a no discharge area when:

1. An adequate number of pumpout stations are in place on the Bay.

2. The Bureau of Boating petitions EPA to declare Presque Isle Bay as a no discharge area.

3. The EPA approves the Bureau of Boating's petition and declares Presque Isle Bay as a no discharge area.

There is no way of determining when this recommendation can be implemented.

THE ENVIRONMENTAL PROTECTION AGENCY SHOULD REDUCE TOTAL PETROLEUM HYDROCARBONS FROM TWO STROKE ENGINES

Recommendation:

The EPA, with the support of and in coordination with the boating industry, should promote the development of technologies to reduce total petroleum hydrocarbons (TPH) from two-stroke outboard marine engines. The development of an efficient four-stroke outboard marine engine would significantly reduce both TPH and polycyclic aromatic hydrocarbons (PAH) from entering aquatic systems.

supporting Information:

A recommendation was put forth by the Presque Isle Bay Recreational Boating Study that the Environmental Protection Agency (EPA), with the support of and in coordination with the boating industry, promote the development of technologies to reduce total petroleum hydrocarbons (TPH) from two-stroke outboard marine engines. The study stated that, the development of an efficient four stroke outboard marine engine would significantly reduce both TPH and polycyclic aromatic hydrocarbons (PAH) entering aquatic systems. PAH's tend to persist in the environment and have been associated with chronic toxic impacts on aquatic organisms. Petroleum discharges from boat engines will either collect at the water surface, dissolve into the water column, or settle to the bottom.

The marine engine manufacturers indicate that they have been working with the Environmental Protection Agency (EPA) since 1989 to inventory marine engine emissions and establish time schedules for reducing pollutants. This effort was being made primarily in response to pending air quality legislation, which when passed, will require manufacturers of outboard engines and other off road engines to reduce their gaseous emissions by 60 to 80%.
The Association of Marine Engine Manufacturers (AMEM) have projected that they can drastically reduce pollutants from outboard engines by the year 1998 and will reach the 60 to 80% reduction in total hydrocarbons by the year 2006. Engine manufacturers are certain that they can meet the EPA standards but are not so certain that consumers will readily accept the resultant cost increases. Most of the big outboard manufacturers have admitted that they will be using either an orbital engine or a four cycle engine design. Regardless of which of these technologies is eventually selected, the manufacturers have projected that the average cost of outboard engines will increase by at least 30%.

The National Marine Manufacturers Association (NMMA) has stated that gasoline, the primary source of fuel for boaters, contains almost no polycyclic aromatic hydrocarbons. PAH's are known to cause mutations, physical deformities, cancerous growths and fetal malformations. Actual measurements of emissions from a two stroke engine indicated that PAH's accounted for .001 percent of the total hydrocarbons emitted. The NMMA also stated that crude oil is a heavy molecule that coats any objects in the water and it will also sink into the mud. On the other hand, refined oil, like that used in two cycle engines floats on the surface and is biodegradable. For these reasons

the NMMA does not consider PAH's to be a major problem.

Many pleasure boats today utilize a two-stroke outboard marine engine because of its weight and size advantages over other available engines. The disadvantage of the two stroke engine is that because it lacks valves it must accomplish both the exhaust and fuel intake functions in a single piston stroke. This results in the passage of as much as 25% of the unburned fuel/oil mixture out the exhaust. Some studies claim that as much as one-third of these hydrocarbon emissions stay in the water.

While the auto industry has been struggling with air quality emissions for the past two decades the boating industry has been free of any such regulatory constraints. With the passage of the Clean Air Act of 1990, attention has focused on the emissions from non-road engines. The Office of Mobile Sources and the Office of Air and Radiation , branch offices of the EPA, have been put in charge of developing rules and regulations for establishing standards for the control of emissions from outboard engines and other non-road engines. The offices dealing specifically with outboard engine regulations are headquartered in Ann Arbor, Michigan. The coordinator in the Ann Arbor office has indicated that proposed rules are scheduled to be established by the end of September of 1994. Final rules are scheduled to be in place by November of 1995, and the final rules must be implemented within two years after they are put in place.

The implementation of this recommendation will begin in 1997 when the final rules of the Clean Air Act of 1990 are scheduled to be implemented.

THE ENVIRONMENTAL PROTECTION AGENCY SHOULD SUPPORT RESEARCH OF AN ALTERNATIVE TO COPPER-BASED ANTIFOULING PAINT AND RESOURCE MANAGERS SHOULD CLOSELY MONITOR THE RELEASE OF COPPER IN THE BAY.

Recommendation:

EPA should support increased research funding to determine a viable alternative to the use of copper-based antifouling paint. State resource managers should closely monitor the fate of copper released into Presque Isle Bay from wood and steel boats painted with copper-based paints.

Supporting Information:

Fouling occurs when an unwanted growth occurs on a boat or ship's hull. As a hull is immersed in water its surface quickly absorbs organic material, which then promotes the growth of microorganisms, such as bacteria and diatoms. This growth of microorganisms results in a slime covering on the surface of the hull. This process happens very rapidly after immersion. Macrofouling develops soon after. Macrofouling consists of soft fouling, (algae and invertebrates) and hard fouling, (invertebrates such as mussels). The types of organisms which develop in a fouling succession depend upon the geographic location and time of the year of immersion. Attachment, however, can only take place when spores or larvae of a particular organism are present in the water. Antifouling paints are commonly used to avoid these unwanted growths.

The major types of antifouling paints used today are:

1. Soluble matrix or conventional paints,
2. Contact leaching paints, and
3. Self-polishing copolymer (SPC) or ablative paints.

In soluble matrix paints cuprous oxide or other biocides are incorporated into a resin binder. This resin slowly dissolves in seawater or freshwater exposing particles of cuprous oxide. The life of these paints is usually 12 months but improvements, allowing them to erode more readily, have extended their life to 24 months.

Contact leaching paints are similar to the soluble matrix variety but extend the active life up to 15 months by having a higher content of copper.

Self-polishing copolymer (SPC) paints are composed of a copolymer into which biocides/pigments (primary copper salts) have been incorporated. The copolymer hydrolyzes in seawater or freshwater releasing tributyltin and becoming smoother. The active life of the SPC is dependent upon the thickness at which the paint is applied (up to 5 years is possible).

The Presque Isle Bay Recreational Boating Study recommended that the EPA support an increase in research funding to determine a viable alternative to the use of copper-based anti-fouling paint. It also recommended that state resource managers should closely monitor the

result of copper being released into Presque Isle Bay from boats painted with copper-based paints. The reason for making this recommendation was because both copper and tributyltin (TBT) have been found, in some marina waters in Presque Isle Bay, at levels that are toxic to aquatic organisms other than fouling species. Tributyltin has been found to be highly toxic and is now regulated by the EPA under the Organotin Antifouling Paint Control Act of 1988. This Act prohibits the use of paints containing TBT on non-aluminum boats under 25 meters in length. In addition, all TBT paints must be certified by the U.S. EPA as releasing no more than 4 ug/cm2/day into water. Therefore the study assumed that no recreational boats on Presque Isle Bay are currently using TBT.

The Pennsylvania Fish and Boat Commission, Bureau of Boating informed us that teflon based paints were also introduced several years ago and are slowly gaining acceptance. Although they may cost as much as 25% to 50% more than copper based paints, this additional cost is minimal considering the rather small amount of surface area to be painted on the bottom of a recreational boat. Most of the approaches to non-biocidal antifouling coatings, such as teflon based paints, have utilized the concept of low surface energy to prevent the attachment of organisms. Surface energy refers to the bonding strength or adhesive properties that an organism exhibits when attached to a specific material. Organisms attached to a material with a low surface energy can be easily washed away or brushed off.

Current research on biocidal antifoulings centers on the search for new biocides, but the costly procedures for satisfying health, safety and environmental requirements may prohibit the development of all but a few compounds. The EPA has supported research for finding an alternative to copper-based antifouling paints and will continue to do so.

Chemical sampling completed during the preparation of the Presque Isle Bay Recreational Boating Study detected levels of copper which are harmful to some aquatic organisms, but the study could not identify antifouling paints as being the sole source of these elevated copper levels. Resource managers are currently working toward the correction of combined sewer overflows, which they believe to be the major contributor to the level of copper in the Bay. As part of the combined sewer correction program, periodic monitoring of chemical parameters in the Bay have been scheduled. As the combined sewer overflows are corrected, chemical sampling will indicate whether or not they were the major contributors to the elevation of copper in the Bay. If elevated copper levels continue to persist then it will be necessary to evaluate the release of copper into the Bay by antifouling paints.

MILLCREEK TOWNSHIP SHOULD CONSIDER A LAKE BLUFF AND SHORELINE PRESERVATION PROGRAM.

Recommendation:

Millcreek Township should consider a lake bluff and shoreline land preservation program utilizing zoning amendments together with land preservation techniques such as donation, acquisition of easements, and voluntary conservation agreements, to preserve the unique natural resources present along the shoreline. Marinas, which are currently permitted in the zoning district fronting the head of the Bay, should be prohibited due to the environmental sensitivity of the area.

Supporting Information:

Millcreek Township is contiguous to the neck of Presque Isle and occupies the area adjacent to the head of the Bay. This land area consists mostly of a relatively undisturbed woodland which contains the only naturally vegetated bay shoreline lake bluff in Pennsylvania. It occupies approximately 1900 feet of bay shoreline and includes a 14 acre mature forest on the bluff slope, dominated mostly by beech and sugar maple, and is bordered on the bluff crest by a younger relatively undisturbed woodland. The Erie County Natural Heritage Inventory has recommended that the 64 acre forest, bluff, and shoreline be preserved because it represents a natural community considered to be imperiled.

The aquatic resources within the head of the bay contain several large stands of emergent vegetation including cattail and bur-reed. Five special plant species occur within this community including one species classified as being critically imperiled in the State, two as imperiled in the State, one as a rare or uncommon species, and one as a plant species of special concern. The shallow water depths existing at the head of the Bay also foster submerged vegetation which provides fish spawning habitat and fish nursery grounds. These are indispensable to the continued production of the wide variety of fish that attract anglers from distant locations. This in turn has important economic implications as well.

The Presque Isle Bay Recreational Boating Study recommends that Millcreek Township consider a lake bluff and shoreline land preservation program. Such a program should utilize zoning amendments together with techniques such as donation, acquisition of easements, and voluntary conservation agreements, to preserve the unique natural resources present along the shoreline. Marinas are currently permitted in the zoning district fronting the head of the Bay. The study recommends that consideration be given to prohibiting further marina development due to the environmental sensitivity of the area.

Millcreek Township has made application for a CZM grant during the 1995 grant year to prepare a comprehensive plan. The Division of Coastal Programs used this opportunity to request Millcreek Township to include a section on Lake bluff and shoreline preservation in the preparation of their comprehensive plan. Millcreek Township has responded by amending their Coastal Zone Management grant application and including a new section on Lake Bluff and Shoreline Land Preservation.

THE DEPARTMENT OF ENVIRONMENTAL RESOURCES THROUGH CONSISTENCY REVIEWS, SHOULD CAREFULLY REVIEW JOINT PERMIT APPLICATIONS.

Recommendation:

The Pennsylvania Department of Environmental Resources, especially through the consistency review process, together with other state reviewing agencies and the U.S. Army Corps of Engineers, should carefully review joint permit applications for waterfront development in areas outside the proposed and potential marina sites identified in this study.

Supporting Information:

A joint permit review process, involving the Pennsylvania Department of Environmental Resources (DER), the U.S. Army Corps of Engineers (COE), and other state reviewing agencies, designed specifically for addressing environmental concerns associated with new land development in the Coastal Zone has been in place for a number of years and the applications are currently being carefully reviewed by these agencies. The application review process, however, still needs improvement in the timeliness of review.

The recent decentralization of the Department of Environmental Resources and the implementation of a new one stop permitting process in the DER regional offices presented an opportunity for the Division of Coastal Programs to significantly shorten the environmental review process. The Division of Coastal Programs (DCP) accomplished this by arranging to receive notice, from the permitting coordinators in the two DER regions having coastal zones, of any permit applications received for projects within the coastal zone. DCP then can request a complete permit application, including all environmental and engineering studies, directly from the coastal municipality. By receiving permitting information directly from the municipality DCP can review projects concurrently with the other reviewing agencies. Previously many valuable weeks of review time, of new coastal zone projects, was lost due to the lengthy process involved in the discovery and receipt of applications for the projects. This improved procedure will do much to help the implementation of this recommendation, and the Department will continue to be on the lookout for other means of streamlining the review process.

The Coastal Zone Management Program will also continue to ensure, through its state and federal consistency reviews, that its policies (especially its public access, wetlands, and water quality policies) are addressed during the joint permit application process. The DER regional offices have also agreed to reserve any permitting actions within a coastal zone until written notification has been received from the Division of Coastal Programs that all coastal zone concerns have been addressed.

THE CITY OF ERIE AND THE ERIE-WESTERN PENNSYLVANIA PORT AUTHORITY SHOULD CONTINUE TO BE PROACTIVE IN THE REDEVELOPMENT OF THE WATERFRONT.

Recommendation:

Almost eight years have passed since the Erie Waterfront Comprehensive plan was prepared. Some of the proposed projects have changed, such as the marina development planned near the Erie International Marine Terminal, east of the Turning Basin. The Comprehensive Plan assumed wrongly that the drydock facility was not a viable option and the success of Erie Marine Enterprise is welcomed. However, many of the recommendations prepared at that time are still valid today. The City of Erie and Erie-Western Pennsylvania Port Authority should continue to be proactive in encouraging public/private sector initiatives to take advantage of the waterfront opportunities for redevelopment.

Supporting Information:

The Port of Erie has one of the finest natural harbors on the Great Lakes. For this reason Erie evolved as an industrial and manufacturing center and historically supported an extensive commercial fishery. As time passed various factors caused Erie's importance as a shipping port to decline. With the demise of Erie as a major port for industrial and commercial activities, new demands for recreational boating and fishing uses developed. Recreational boating and fishing present many opportunities for the redevelopment of the waterfront, which include demands for residential uses, commercial uses, and public open space, as well as increased recreational boating facilities. As industrial facilities down size and consolidate their operations vacant areas along the waterfront are created. As these facilities vacate areas on the waterfront it is important that the responsible organizations seize the opportunity for the creative redevelopment of the waterfront to meet such changing needs.

In recent years the City of Erie and the Erie Western Pennsylvania Port Authority have been proactive in the redevelopment of the waterfront along Presque Isle Bay. The We love Erie Days Festival, focusing on Dobbin's Landing, has been a mainstay event, over a continuous span of 19 years. Through the efforts of the City and the Port Authority the first segment of the Bayfront Parkway, was completed in 1990. This segment of the Parkway provides easy access to the waterfront and its historical areas from routes and arteries leading into the City of Erie from the south and west. Before construction of the Parkway such access was a major impediment to Bayfront development of all types. Work is now underway on the East Side Access Road which will complete a loop around the Erie metropolitan area and make the waterfront accessible from all directions. A Bikeway has been constructed along the waterfront to encourage recreational access to the waterfront and its many new amenities. New attractions such as a boat race and the Tall Ships Festival have helped to stir interest in the waterfront. Other new attractions, such as the Niagara Maritime Museum and the Erie County Library currently under construction, promise to increase the focus on

the waterfront to an even greater extent.

Because of the improvements already made along the waterfront and due to the commitment by the City and the Port Authority to continue such improvements, others have been encouraged to also invest in the waterfront. A conceptual design to reconfigure the West Canal Basin in order to improve its appeal to prospective tenants has already been completed by the Port Authority. The Pennsylvania Electric Company has been actively seeking a developer to build a hotel on waterfront property they own. These improvements have not come easily but have required great effort by the City of Erie, the Erie Western Pennsylvania Port Authority, and the County of Erie. These agencies have aggressively pursued grants through such agencies as the Pennsylvania Department of Transportation, the Pennsylvania Department of Community Affairs, the Pennsylvania Department of Environmental Resources, and the National Oceanic and Atmospheric Administration to provide the funding necessary to design and build such projects. Without the assistance of these outside funds, projects of this magnitude would not be possible.

A Waterfront Comprehensive Plan was developed for the City of Erie in 1986 . As part of the implementation of this recommendation it is crucial that this plan be evaluated to determine if it is still applicable to current waterfront redevelopment needs. If it is found to be outdated, CZM grant monies can be made available for its update. Since funding is vital to the redevelopment of the waterfront, a section in the Comprehensive Plan update should be devoted to the researching of available funding sources. This task is expected to be included in the CZM grant application for the 1996 grant year. The City of Erie and the Erie-Western Pennsylvania Port Authority have indicated that they will continue their efforts in the redevelopment of the waterfront by actively pursuing existing funding sources for projects and searching for new funding sources to help bolster the possibility of receiving grant monies.

THE CITY OF ERIE AND THE ERIE-WESTERN PENNSYLVANIA PORT AUTHORITY SHOULD CONTINUE TO BE PROACTIVE IN THE REDEVELOPMENT OF THE WATERFRONT.

Recommendation:

The City of Erie, or the Erie-Western Pennsylvania Port Authority, should consider providing slips for transient boats along the Presque Isle Bay waterfront. There is a known demand for such facilities and the City could benefit economically by encouraging, more visitation from recreational boaters cruising Lake Erie. The area near Dobbins Landing appears to be a viable location.

Supporting Information:

The Presque Isle Bay Recreational Boating Study indicated that there is a demand for transient boat slips along the waterfront of Presque Isle Bay. Furthermore, the City of Erie would benefit economically by encouraging more visitation from recreational boaters cruising Lake Erie. The Presque Isle Bay Recreational Boating Study recommended the area near Dobbins Landing as a viable location for these slips.

An update of the City's Waterfront Comprehensive Plan was discussed in an earlier section of this report and the issue of transient boat slips can best be addressed when this study is updated. The City of Erie currently operates two boat launch ramps along Presque Isle Bay but is unable to consider the installation of transient boat slips at either location at the present. One of the boat launch sites does not have an adequate area for transient boat slips and the City is currently negotiating a new lease at the other site.

The Erie - Western Pennsylvania Port Authority realizes that there is a need to locate transient boat slips along Presque Isle Bay's waterfront, but they also are unable to consider them at the present. They have, however, completed a conceptual design to reconfigure the west canal basin and this design includes a provision for 40 transient boat slips. The Division of Coastal programs can help to implement this recommendation by encouraging the Port Authority to actively work on the development of the west canal basin. Staff from DCP have already contacted the Port Authority and have discussed future grant applications.

CZM POLICY CHANGE

The Presque Isle Bay Recreational Boating Study concluded that recreational boating does not seriously impact the Bay's ecosystem at this time. The Division of Coastal Programs was pleased with these findings and considers this to be an opportunity to be proactive to any future problems which may arise. For this reason, the Division of Coastal Programs will amend its CZM Policies to make provisions for the protection of the Bay from any future impacts which may result from recreational boating.

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