



# Ohio Department of Natural Resources

BOB RAFT, GOVERNOR

SAMUEL W. SPECK, DIRECTOR

June 2001

Mr. Robert Barnes  
Barnes Nursery, Inc.  
3511 Cleveland Road West  
Huron, OH 44839

Dear Mr. Barnes

ODNR has completed its formal consistency review of your proposed project (Corps public notice number 2000-02170(1)). Your proposed project area is located in the designated Coastal Area of Lake Erie. The Ohio Coastal Management Program (OCMP), approved by the U.S. Department of Commerce (National Oceanic and Atmospheric Administration), requires that any project that is situated in the Coastal Area be consistent with the policies of the OCMP. Pursuant to 16 U.S.C. 1456 (c) (3); 15 C.F.R. 930.64(b), Ohio objects to the consistency certification for this project based on enforceable policies.

As quoted from the Corps' Public Notice, "The stated project purpose is to: restore the former hydrologic circulation to a portion of East Sandusky Bay and provide irrigation water for the operation of Mr. Barnes' nursery; establish new avifauna habitat on a series of islands; provide deep water fish and aquatic vegetation habitat; and promote the conversion of about five acres of barren mudflats to coastal wetlands. The applicant states these measures are necessary as a result of sedimentation and degradation to the area caused by human activities over the past century." You propose to dredge approximately 14,000 cubic yards of material.

You are requesting an after-the-fact permit to maintain the project constructed during July 2000. This consists of a channel, about 1,500 feet long, 50 feet wide, and 5 feet deep, constructed using dredging techniques, and an earthen berm, about 1,500 feet long and 55 feet wide, constructed by sidecasting the dredge material, and runs parallel with the channel.

You additionally request authorization to construct the following modifications:

- Restore about 200 feet of the channel to former topography where wetland encroachment occurred.
2. Grade the earthen berm to a relatively uniform elevation of about 6 feet high.
3. Divide the earthen berm into five separate islands by cutting circulation channels about every 300 feet, which will result in seven water passages through the islands.
4. Grade the banks of the islands to a 4 to 1 slope (run to rise) to foster wetland plant zonation.
5. Excavate a narrow feeder channel, 500 feet long and 1.5 feet deep by dragging a steel plow connected by cable to a winch temporarily mounted on the western end of the earthen berm.

Modification No. 1 was completed on April 18, 2001 as an interim corrective measure aimed at restoring the functions and values of all wetlands impacted by the construction of this project. ODNR poses the following questions that you (or your consultant) should answer:

- The position of the canal shown on the location map differs from that visible in the applicant's figure 5 and on oblique aerial photographs taken by ODNR staff in 2000. Please see figures A, B, and C of the attached graphics.  
The application indicates that the elevation of the mudflat is approximately 570.8 (IGLD 85). If the feeder channel is 1.5 feet deep as stated in the application, then the bottom elevation will

be 569.3 feet (IGLD 85). However, the bottom elevation of the proposed feeder channel is described as 568.8 feet (IGLD 85). Which is correct?

The application implies that the term "avulsion" is used on page 3 in Carter (1973b). Carter does not use that term. Barrier beaches typically recede in response to washover events. At lower lake levels, higher intensity storms are necessary to generate the storm surges and storm waves necessary to overtop a barrier beach. At higher lake levels, like those between the early 1970s and the mid 1990s, even lower intensity storms generate storm surges and storm waves sufficient to overtop the barrier.

The application shows bathymetric profiles that extend "100 m" (300 feet) offshore, but calculates cross-sectional areas in square feet to "300 m" offshore. You then multiply the average change in cross-sectional area (290 sq ft) by length of the beach (800 ft) to calculate the volume of sand eroded during a storm. The volume of sediment lost from the nearshore is 232,000 cu ft, not 23,300 cu ft (290 sq ft X 800 ft = 232,000 cu ft).

According to the 1901 map included as figure 1 in the application, Sawmill Creek did flow into the eastern part of Sandusky Bay. However, the pool into which Sawmill Creek flowed is not shown connected to the rest of Sandusky Bay. The property where Barnes Nursery is now located lies to the west of this pool and may not have received water from Sawmill Creek at the 1901 lake level.

ODNR provides the following historical perspective based on our review of available data:

Recession line maps show the barrier at Sheldon Marsh has retreated approximately 850 feet since 1972. As a result, the old Black Channel probably is buried beneath or lays lakeward of the barrier beach.

Even if the Black Channel remained open, parts of Sheldon Marsh and adjacent areas will be sub aerially exposed whenever the lake's elevation is below ground elevation. Creating a deep-water channel will not flood areas that are above prevailing lake level.

A deep, abandoned channel running along the landward side of the barrier at Sheldon Marsh could have contributed to rapid recession of the barrier. If sand transported across the barrier by storm waves cascaded into a deep channel rather than onto a relatively flat bay bottom, sand needed to maintain the barrier's elevation above lake level would have been deposited down in the channel. Until the channel was filled with sand, the barrier would have been narrower and lower and would likely have receded more quickly.

In July 1986, the Ohio Geological Survey ran bathymetric profiles across the wetland at Sheldon Marsh SNP. Data were collected with a recording fathometer operated in small boat. Profiles were spaced at 1100- to 1400-foot intervals along the barrier and ran 800- to 2150-feet landward to where water depths less than three feet impaired navigation. Lake level at the time of the surveys was 574.3 feet (IGLD 85). Maximum water depth occurred just landward of the barrier and did not exceed 4.3 feet. Analysis of the fathograms found no bathymetric evidence and no sedimentologic evidence of a deep, abandoned channel running east west through Sheldon Marsh. The fathograms show the bay bottom rises very gently and uniformly landward along each profile, except along the profile that intersected shore a short distance east of the canal at Barnes Nursery. Along the latter profile, the bay bottom leveled out about 600 feet from the shoreward end of the profile, increased abruptly in elevation about 350 feet from the end of the profile, declined 0.5 feet in elevation from this point to about 200 feet from the end of the profile and then rose rapidly shoreward. Elevation at the bottom of the depression was about 570.7 feet (IGLD, 1985).

The 1901 topographic map was prepared at a time when annual lake level was 570.1 ft (IGLD 85) following an eight-year period during which annual lake level reached its lowest point (569.8 ft IGLD 85) in 30 years. The annual level in 1901 was about one foot lower than the annual level for 2000 (570.9 ft, IGLD 85) and to the summer level projected for 2001 (571.2 ft, IGLD 85). If the 1901 topographic map is accurate, then circulation in Sheldon Marsh has historically been restricted at lower lake levels.

- Aerial photographs provided by the applicant show a natural channel system extending eastward into Sheldon Marsh from the canal along Willow Drive. This channel system appears to be in the same general location as a channel system visible on 1937 aerial photographs (figure D). In 1937, water flowing in or out of the channel system must have passed through or under Willow Drive, restricting exchange of water. Breaching of the barrier beach at Sheldon Marsh SNP in 1972 has allowed more rapid exchange of water around the northwest end of the barrier, down along the east side of Willow Drive, and into the channel system.
- Aerial photographs taken in 1968 show hydrologic conditions when lake level was 571.4 ft (IGLD, 1985) or about  $\leq 0.5$  ft higher than present levels (see figure E). In 1968, a narrow drainage way extended northward from Barnes Nursery and connected with deeper water in Sheldon Marsh. The applicant has now dredged a portion of this drainage way. Note also that the mudflat area supported a variety of vegetation.

Projection of USGS topographic contours onto a 1997 aerial photograph (Figure A) shows that there are no east west channels in the area of the recently excavated channel. In addition, it does not appear that the barrier has receded far enough southward to completely obstruct flow to Barnes Nursery.

The mudflat area was covered with wetland vegetation during low water conditions in 1968 and in 1937. Given time, the mudflat may become colonized by wetland vegetation presently growing south of the canal.

In spite of the changes which have occurred in the area encompassing Sheldon Marsh State Nature Preserve, the fact remains that Sheldon Marsh represents one of the last and probably best example in Ohio of a naturally functioning Lake Erie wetland and barrier beach system. These natural wetlands have always been free to migrate with the rise and fall of the Lake Erie water levels. The majority of wetlands along Lake Erie today are artificially maintained through a system of dikes and pumping stations to control the water levels in them. ODNR, through its Division of Natural Areas and Preservers (DNAP), seeks to protect and maintain the Sheldon Marsh complex in as natural a state as possible without wetland manipulation or designs of "improvement" to compensate for what some might view as negative changes in the system. ODNR is opposed to any manipulation of the Sheldon Marsh ecosystem that significantly alters the structure and character of this important complex. Additionally, small feeder channel construction to connect Lake Erie with the newly (already constructed) dredged channel would cross a dedicated nature preserve. This action is prohibited by natural areas and preserves law (O.R.C. 1517) and therefore not a possible option.

**Pursuant to 16 U.S.C. 1456 (c) (3); 15 C.F.R. 930.64(b), Ohio objects to this project and finds that it is not consistent with the policies of the OCPM. This is based on the following enforceable policies:**

- Policy 2 – Shore Erosion Control

It is the policy of the State of Ohio to promote sound decisions regarding control of shore erosion by Issuing permits for construction of shoreline erosion control structures (O.R.C. 1507.04).

*Discussion:*

The application for department of army permit included in the public notice indicates the proposed project is within a bay of Lake Erie [ref: page 1, line 13, "East Sandusky Bay of Sandusky Basin"] and that a portion of the project is intended to control erosion [ref: page 12, line 20, "The islands will serve several purposes: (1) provide erosion control from waves generated in East Sandusky Bay and Lake Erie...]. Based on the information provided in this Public Notice, the applicant must obtain a Shore Structure Permit pursuant to Section 1521.22 of the Ohio Revised Code prior to construction. You have not applied for this permit.

- **Policy 6 – Water Quality**

It is the policy of the State of Ohio to maintain and improve the quality of the state's coastal waters for the purpose of protecting the public health and welfare and to enable the use of such waters for public water supply, industrial and agricultural needs, and propagation of fish, aquatic life, and wildlife by: Assuring attainment of state water quality standards and other water quality related requirements (O.A.C. 3745-1) through regulating discharge of dredge or fill material into surface waters including wetlands in accordance with Section 401 of the Clean Water Act (O.R.C. 6111.03).

- **Policy 12 – Wetlands**

It is the policy of the State of Ohio to project, preserve and manage wetlands with the overall goal to retain the state's remaining wetlands, and where feasible, restore and create wetlands to increase the state's wetland resource base by: Regulating activities in wetlands through the enforcement of Ohio water quality standards for any activity that may result in any discharge into wetlands and other waters of the state (O.R.C. 6111.03(o), O.R.C. 6111.03(p), O.A.C. 3745-1-05, 3745-1-5- to 543 and 3745-32). The Ohio Environmental Protection Agency has indicated that the project area is a category 3 wetland. Category wetlands are those that support superior wetland functions.

- **Policy 14 – Rare and endangered species**

It is the policy of the State of Ohio to preserve and protect rare, threatened and endangered plant and animal species to prevent their possible extinction by: Restricting the taking or possession of native animal species, or their eggs or offspring, that are threatened with statewide extinction (O.R.C. 1531.25 and O.R.C. 1531.99); Protecting the waters that provide a habitat for rare and endangered species (O.R.C. 6111.03(O), O.R.C. 6111.03(R), O.A.C. 3745-1-05(C)).

- **Policy 17 – Dredging and Dredged Material Disposal**

It is the policy of the State of Ohio to provide for the dredging of harbors, river channel and other waterways and to protect the water quality, public right to navigation, recreation and natural resources associated with these waters in the disposal of the dredged material by: Regulating, through the Ohio Environmental Protection Agency water quality certification, the discharge or disposal of dredged material (O.R.C. 6111.03(P) AND O.A.C. 3745-1)

- **Policy 27 – Fisheries Management**

It is the policy of the State of Ohio to assure the continual enjoyment of the benefits received from the fisheries of Lake Erie and to maintain and improve these fisheries by: Regulating the taking of fish (O.R.C. 1531.08 and O.A.C. 1501.31); Protecting fish habitat through Ohio EPA's Section 401 water quality certification authority (O.R.C. 6111.03(O) AND 6111.03(P) and O.A.C. 3745-1 AND 3745-32).

• Policy 29 – Wildlife Management

It is the policy of the State of Ohio to provide for the management of wildlife in the coastal area to assure the continued enjoyment of benefits received from wildlife by: Protecting all wildlife including nongame and endangered species (O.R.C. 1531.02, 1531.08 and 1531.25).

*Discussion:*

The project, proposed to be constructed in one of the few barrier beach/lagoon wetland complexes remaining in the State of Ohio, is immediately adjacent to the Sheldon Marsh State Nature Preserve. ODNR is concerned this project will adversely alter the hydrology of this important complex. Lake Erie water levels are this wetland's primary hydrological influence. The wetland is hydrologically unrestricted with no lakeward or upland border alterations and is categorized as a coastal marsh with unrestricted hydrology. This project has affected and will affect the hydrologic regime of this rare coastal wetland setting. Activities conducted by the applicant have already adversely affected Sheldon Marsh State Nature Preserve and adjacent wetlands. Until the site is restored, it is expected to continue to adversely affect the quality of highly important coastal wetlands, associated fish and wildlife resources, and beneficial functions of waters of the state important to the general public interest. This is due to the physical alteration of these category three wetlands, as defined in Ohio's wetland water quality standards, and the alteration of water flow and movement of aquatic organisms within these special habitat waters of Lake Erie (critical resource waters.) The plan will also result in hydrological alterations detrimental to Sheldon Marsh in terms of nutrient depletion, interference with water runoff feeding the marsh and negative effects upon plant community composition. This area also has an effect on our Lake Erie fish community. It is important to retain the few remaining natural coastal features that allow connectivity between the lake and the land.

As to the assertion that this channel would provide deep water habitat for fish, the Lake Erie wetlands would not have served this niche. These wetlands were important as spawning and nursery areas for many species, some of which are no longer present. As water levels dropped or during winter months those species that required deeper waters would have moved out into the lake or Sandusky Bay proper. The creation of deeper waters in the Sandusky wetlands without the presence of submersed aquatic vegetation (as was originally present) is of dubious value from a fisheries standpoint. The productivity of these wetlands from a fisheries standpoint is directly correlated to the diversity and abundance of aquatic vegetation found in them. The proposed water supply channel does not have a mechanism to maintain its channel. This channel will require regular maintenance, probably in the form of dredging, to maintain the desired depth and keep it from filling in. This will require some sort of access to the channel and a disposal site for dredge material.

High lake levels and wave action will erode the proposed islands during storm events (as have all the unarmored dikes that were built in the Lake Erie marshes in the 60's and 70's). To be stable, they would likely have to be armored with riprap as have all the other dikes on Lake Erie. This would certainly negate what little (if any value) they had as nesting habitat for birds. Their value as nesting habitat would be dubious at best. Using dredge spoil to create waterfowl nesting islands is of concern. Nesting waterfowl are dependent upon the presence of large expanses of high quality mixed emergent marsh vegetation that is not the type of ecosystem found at Sheldon Marsh for the most part. Assuming the islands could be kept free of Phragmites and purple loosestrife, which will be likely to quickly colonize, the Canada goose is the only species of waterfowl that would probably utilize these mounds. Autumnal lowering of the water levels around the bay creates mudflats that support a number of state-listed rare wetland plants that are annuals and low in stature. Grazing by geese is one of the definable

threats to these plants. DNAP staff has observed goose scat on the portion of the project already constructed.

Other desirable waterfowl species that occur in the Lake Erie marshes, such as blue-winged teal, American wigeon and redhead, will not be found nesting in the area because suitable marsh plant associations are not present. If the islands were created, they may well turn out to be good nesting habitat for herring and ring-billed gulls. These are not species that should be encouraged to nest in this area. Gulls are voracious predators of the eggs of other bird species, including piping plover and common tern. The nearby barrier beach, which is part of Sheldon Marsh State Nature Preserve, has been identified by the U.S. Fish and Wildlife Service as potential nesting habitat for the Federally Endangered piping plover and is one of the best breeding habitats for this species that exists along Lake Erie. The beach also provides excellent potential nesting habitat for the state endangered common tern, a species whose colonies are notorious for being decimated by gull predation. The proposed islands would provide little, if any, benefit to wildlife. While they may lead to a small amount of potential nesting habitat for birds, when revegetated, it is unlikely that any nesting attempts would be successful because of predation due to the islands being too close to the shore. These island areas would better serve wildlife if subject to inundation by water under normal lake level regimes.

This area, particularly with the recent low water levels of Lake Erie, is one of the best migratory stopover sites for numerous species of migrating shorebirds, including the federally and state endangered piping plover. So important is the Sheldon Marsh area to the piping plover, that the U.S. Fish and Wildlife Service designated this unique area as critical habitat. Very little suitable piping plover habitat remains in the region, thus, the Sheldon marsh area is essential for the recovery of the species. To permit any activity that has the strong potential to cause ecological changes that could be harmful to one of the best migrant shorebird staging areas on Lake Erie would be irresponsible. With the loss of shorebird habitat in recent years along the Lake Erie shoreline, Sheldon Marsh and the surrounding area has taken on an increasingly important role for migrant waders. It is likely that groups of migratory waders displaced from other areas along the Lake Erie shoreline are increasingly dependent upon Sheldon Marsh.

One major problem with this project is that it involves a proposed ditch that traverses wetlands that are contiguous with the Sheldon Marsh State Nature Preserve. This creates a convenient avenue of migration for invasive plants to enter an area that is currently free of any significant concentrations of problem species, such as Phragmites. It also would undoubtedly create future disturbances that would adversely impact the shallow bay between the ditch and Lake Erie, which is part of the nature preserve. The excavated channel will encourage invasion of unwanted exotic species into Sheldon Marsh such as Phragmites plants and perhaps increase numbers of undesirable fish. In addition, the dike as it currently sits, provides a colonization site for invasive plant species, which have the ability to out-compete native and more desirable species. Invasive species easily establish on disturbed soils, such as a spoil bank, and can spread over the entire marsh. Monotypic stands of Phragmites provide little value to the aquatic community and are extremely difficult to control. It is necessary to avoid this threat to Sheldon Marsh Nature Preserve. Successful efforts in controlling Phragmites on the dike in its current form may lead to colonization and nesting by double-crested cormorants, which may also have negative impacts on this wetland complex and its beneficial functions important to the public interest. Wetland species migrate landward and lakeward across the gently sloping lake plain as lake levels fluctuate. This natural process has successfully maintained the vitality of wetland flora and fauna along the south shore of Lake Erie for thousands of years.

Furthermore, approval of an individual permit is not consistent with the following Ohio Coastal Nonpoint Pollution Control Program management measures:

(8.3.1) Protection of Wetlands and Riparian Areas

Protect from adverse effects wetlands and riparian areas that are serving a significant nonpoint source abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology or surface water and groundwater, geochemistry of the substrate, and species composition.

(8.3.2) Restoration of Wetlands and Riparian Areas

Promote the restoration of the preexisting functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant NPS pollution abatement function.

Policy 26 – Preservation of Cultural Resources

It is the policy of the state of Ohio to provide for the preservation of cultural resource to ensure that the knowledge of Ohio's history and pre-history is made available to the public and is not willfully or unnecessarily destroyed or long, by: Protection of cultural resources on or eligible for state and national registers of historic places (O.R.C. 149.51 through 149.55.)

*Discussion:*

Attached is a figure indicating known cultural resources from Erie County. It appears that the project will damage a known archaeological site (late Archaic period). No information in the form of photographs, graphics or phase I archaeological survey has been submitted to the Ohio Historic Preservation Office. This information is required for the Ohio Historic Preservation to adequately evaluate and offer mitigation advice on significant cultural resources on site.

Additionally, the proposed project falls within the 100-year floodplain of Sandusky Bay (Lake Erie) as designated on the Erie County Flood Insurance Rate Map 390153 0055C, Effective Date September 20, 1995. Erie County is a participant in the National Flood Insurance Program (NFIP) and has adopted locally enforced flood damage reduction standards. The local floodplain administrator should be contacted for the specific development standards and permits. Mr. Alex MacNicol, Director of County Planning Commission, serves as the appropriate contact. Mr. MacNicol can be reached at (419) 627-7792 or 2900 Columbus Ave., Sandusky, OH 44870. On January 22, 2001, the ODNR Division of Water sent a letter to you indicating that a water withdrawal facility registration was required since you use pumps capable of withdrawing more than 70 gallons of water per minute. According to the Division of Water, you have yet to register your facility.

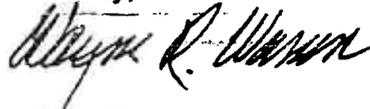
ODNR cannot stress enough the public concern that has been voiced regarding this project. This is a highly visible project, and ODNR personnel in the area have handled many questions from the public regarding this project. After reviewing these concerns and considering the impacts of the proposed activity on beneficial functions of the Sheldon Marsh complex important to the public interest, ODNR believes the negative impacts this project will have on unique resources of the state far outweigh the benefits the project will have to one individual business. Based on ODNR's consistency denial of the project, the Corps may not authorize an individual permit for this project. Additionally, ODNR is requesting that the Corps order full restoration of this unique area as soon as possible, particularly in light of the information shared in this letter and previous correspondence authored by ODNR submitted to the Corps.

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This letter also serves as formal notice to the applicant, as required under 15 C.F.R. 930.64(e), that Ohio's objection to its consistency determination may be appealed to the Secretary of the United States Department of Commerce within 30 days of receipt of this letter. Your appeal must be based on the grounds that the proposed activities is (1) consistent with the objectives or purposes of the Coastal Zone Management Act, or (2) is necessary in the interest of national Security, and thus, may be federally approved.

A copy of this letter will be transmitted to the U.S. Army Corps of Engineers and to the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration (U.S. Department of Commerce). If you have any questions or need additional information, please contact Kim Baker at 614-265-6411.

Sincerely,

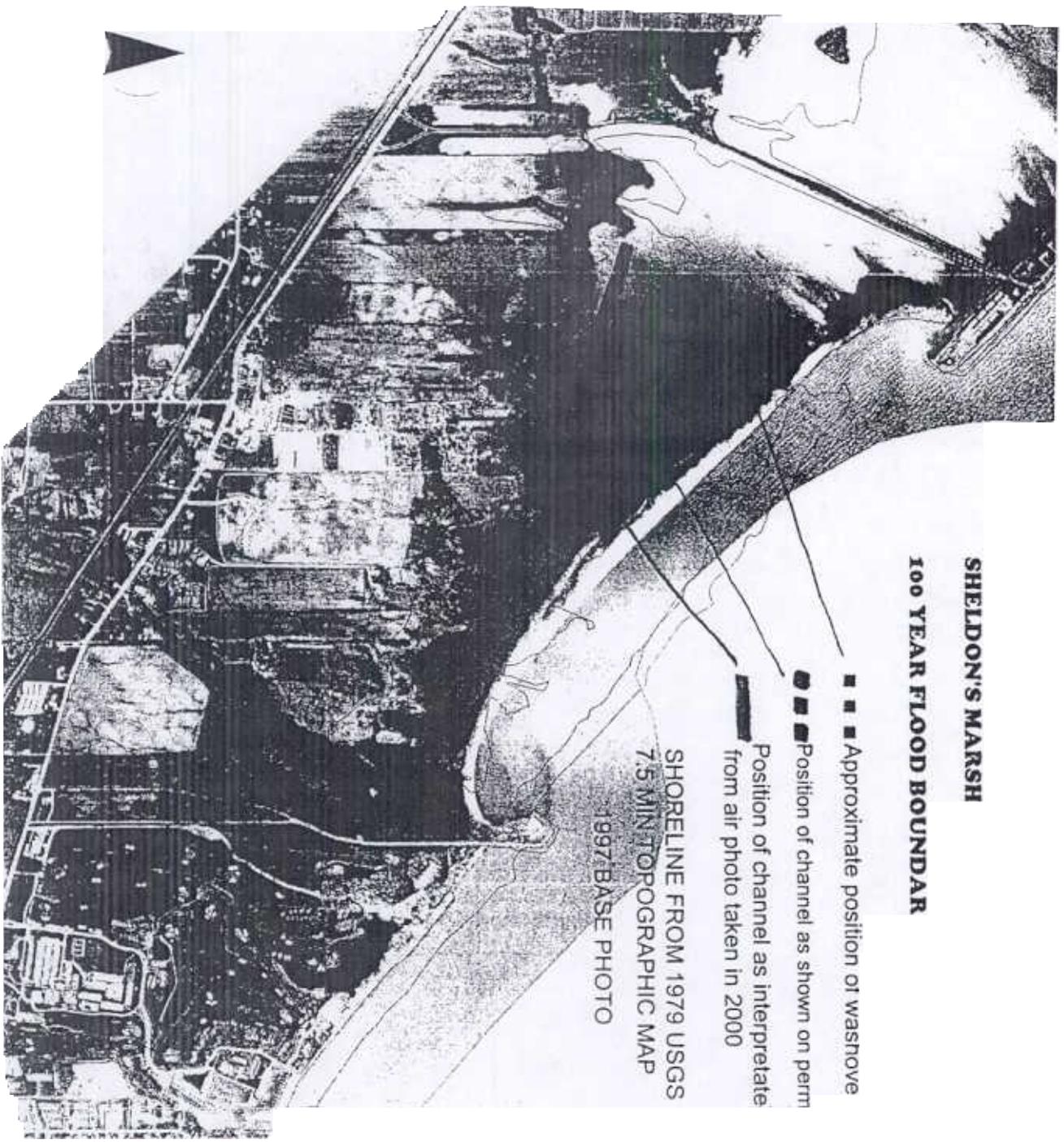


Wayne R. Warren, Chief  
Division of Real Estate and Land Management

WRW/kab

**Attachments**

cc: Scott Zody, Administration  
Mike Colvin, REALM  
Don Guy, GeoSurvey  
John Watkins, Water  
Becky Jenkins, Wildlife  
Stu Lewis, DNAP  
Dick Bartz, Water  
Pat Fagan, Engineering  
Laura Fay, Ohio EPA  
Dave Snyder, Ohio Historic Preservation Office  
Megan Sullivan, US Fish and Wildlife Service  
Tom Glatzel, US EPA  
David Kaiser, NOAA  
U.S. Army Corps of Engineers, Buffalo District



**SHELDON'S MARSH**

**100 YEAR FLOOD BOUNDAR**

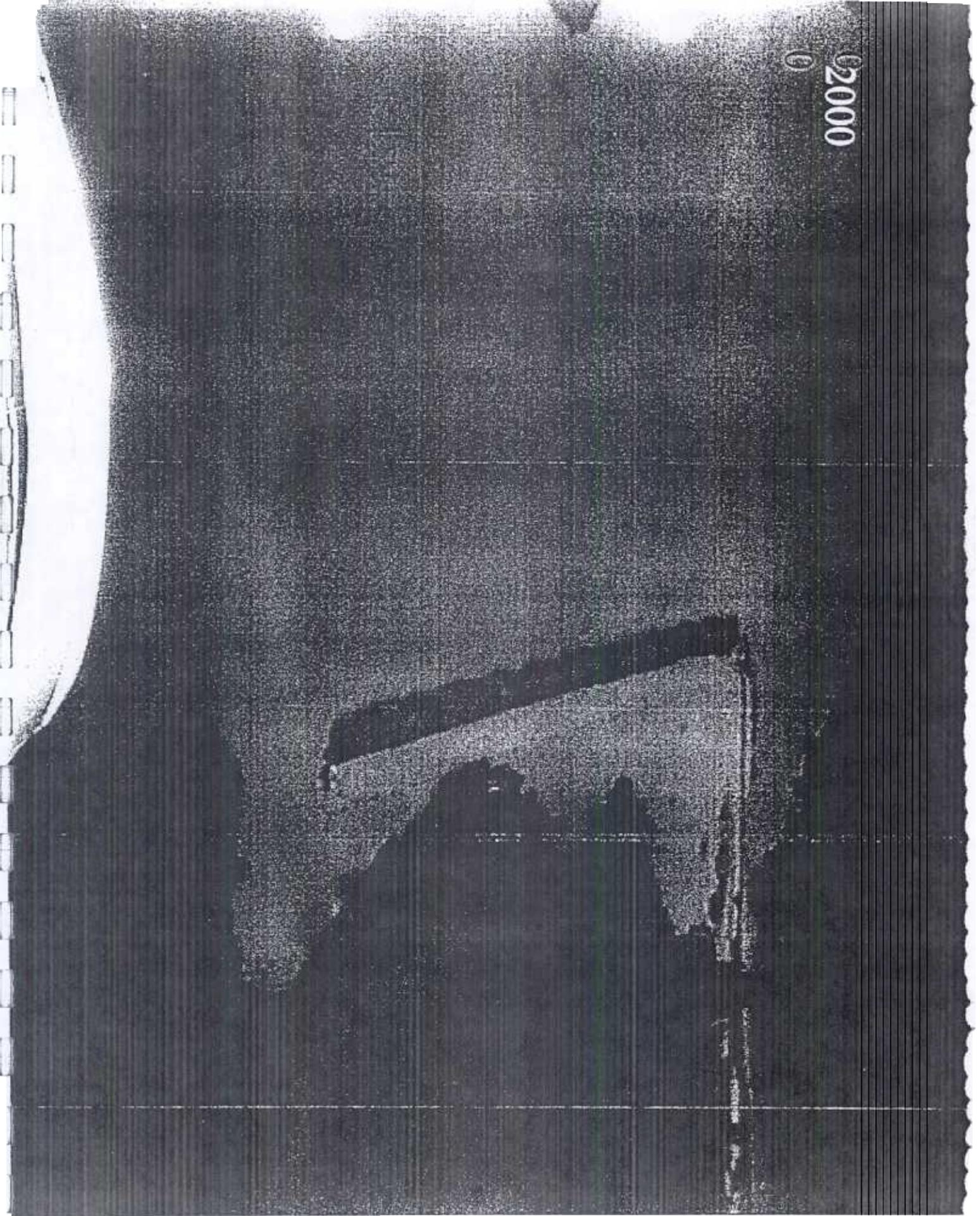
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- ■ ■ Position of channel as shown on perm
- ■ ■ Position of channel as interpretate from air photo taken in 2000

SHORELINE FROM 1979 USGS  
7.5 MIN TOPOGRAPHIC MAP  
1997 BASE PHOTO

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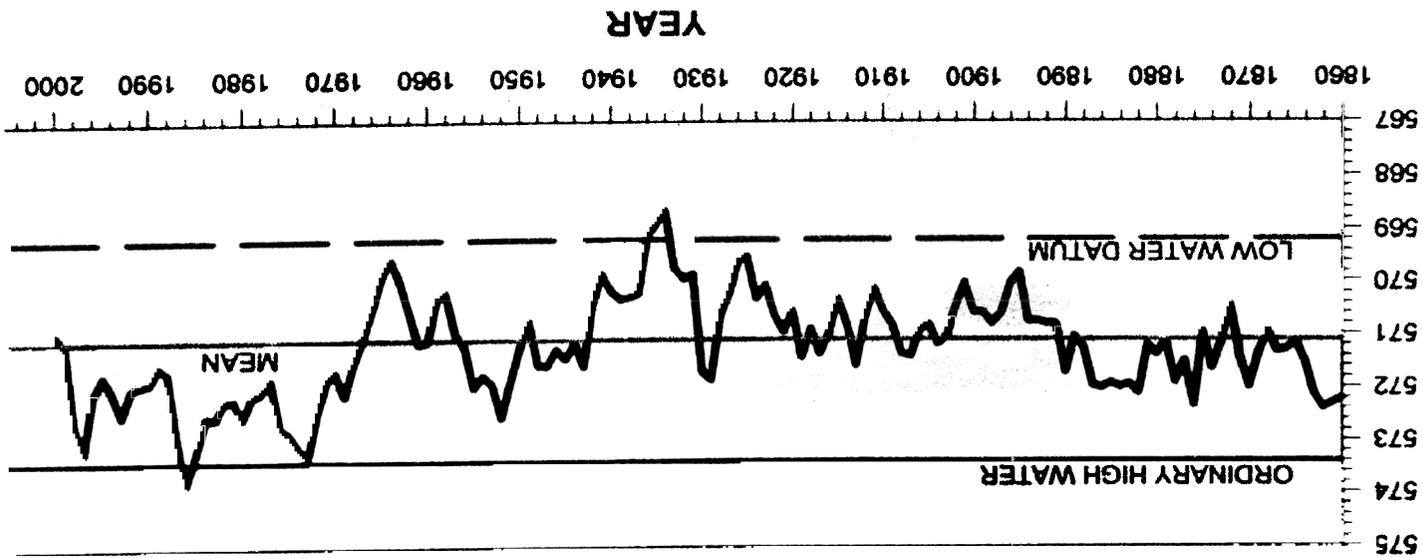


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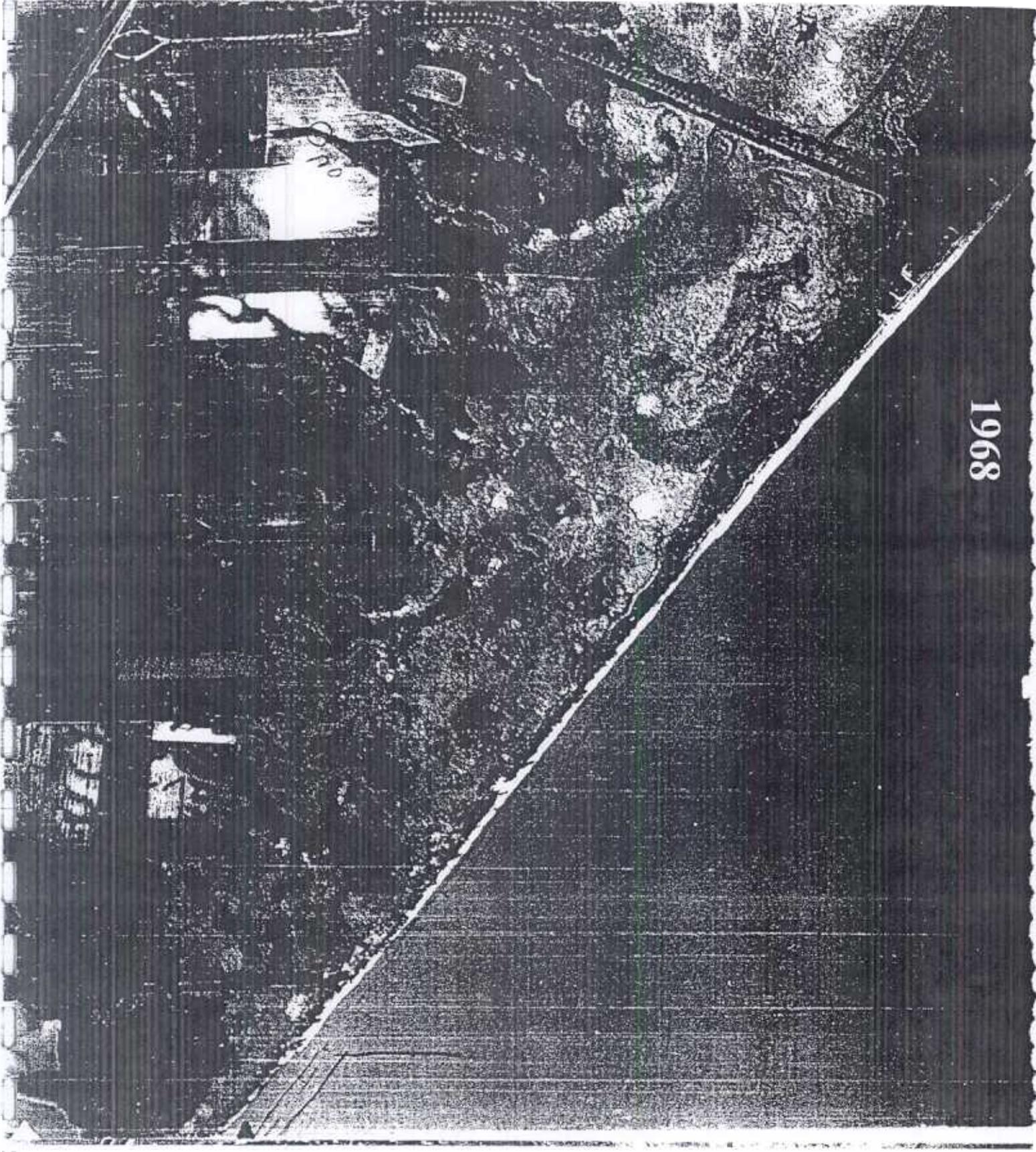
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Lakelevel01



LAKE ERIE WATER LEVELS, 1860-2001  
(from NOAA data)

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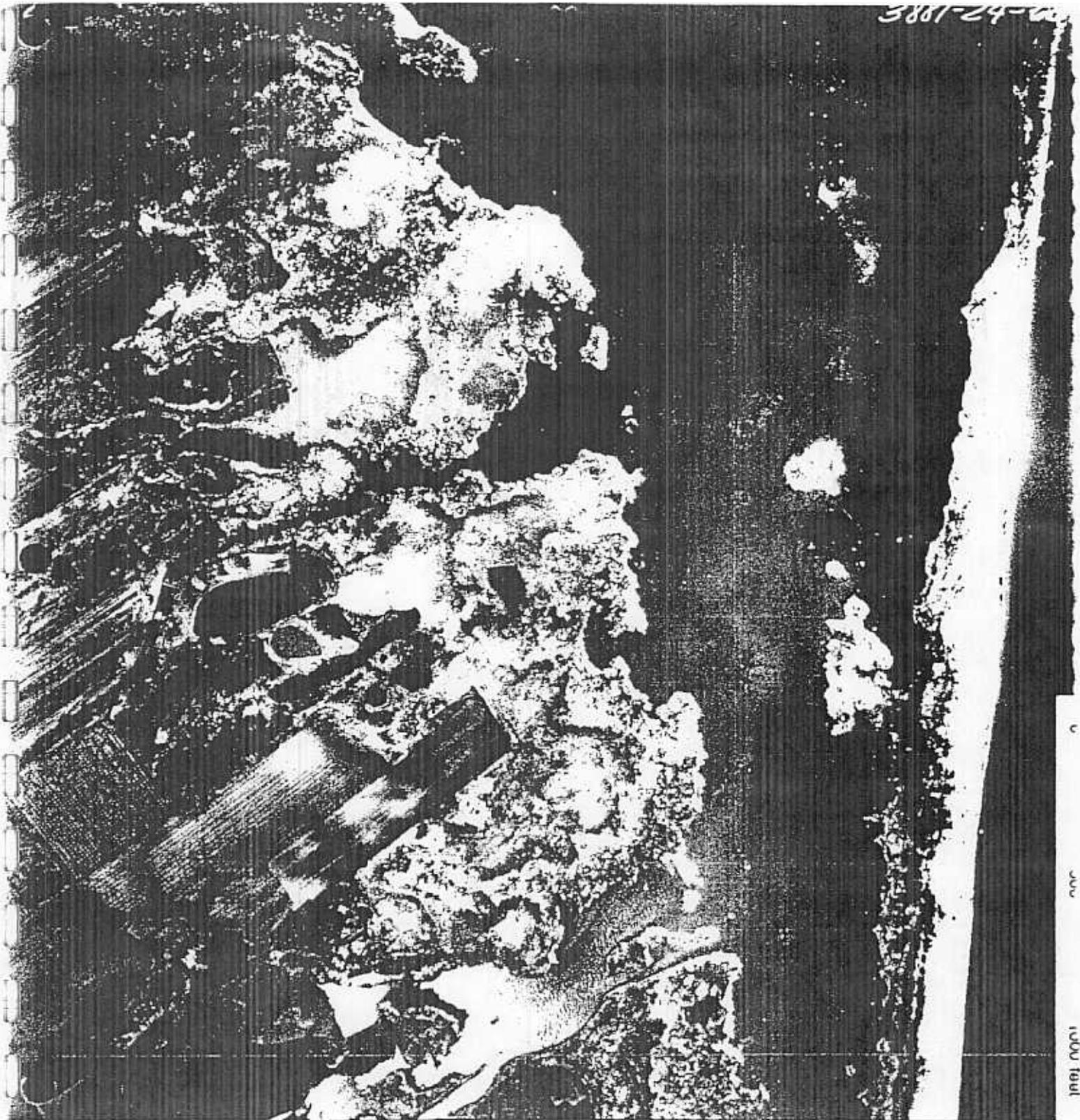
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# Known Cultural Resources - Erie County

